

Worst Served Customer Methodology

RIIO-ED2 (April 2023 – March 2028)

October 2026 update

Electricity Distribution

nationalgrid

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Purpose of document

This document sets out National Grid Electricity Distribution's (NGED's) methodology to identify Worst Served Customers and reduce the number of interruptions experienced by those customers.

'Worst Served Customers' has a specific definition[1] under the electricity distribution licence and is defined as:

> Worst Served Customer 'means a Customer of the licensee 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.'

In the RIIO-ED2 price control period (April 2023 to March 2028), the Office of Gas and Energy Markets (Ofgem) requires each Distribution Network Operator (DNO) to publish their methodology for identifying and reducing the interruptions experienced by Worst Served Customers.

This is intended to give stakeholders confidence that the DNO is applying a structured and cost-efficient approach to designing solutions for their Worst Served Customers.

This methodology sets out the overall NGED process for assessing whether customers are 'worst served' and the process of selecting and designing capital schemes to address the cause of interruptions and/or reduce the effect of interruptions experienced by these 'worst served' customers.

This methodology will be annually reviewed and updated where necessary.

[1] As per OFGEM's definitions in RIIO-ED2 Special Licence Conditions and referenced in Ofgem's Worst Served Customers Governance Document version 1 dated 17 February 2023.

Introduction

While NGED's network performance is strong, with overall network availability of 99.988% in 2025/26, there are a small number of customers who experience high numbers of supply interruptions. These customers are generally located on remote parts of the network, with limited interconnection available to restore supplies when network faults occur.

Stakeholders value network reliability as a top priority, especially as electricity supplies have become more important for people working from home and as more customers switch to electric vehicles and use electricity for heating.

To enable comparison of performance across the electricity distribution sector, Ofgem has created a specific definition for Worst Served Customers which for RIIO-ED2 (April 2023 to March 2028) means customers who experience 12 or more, higher voltage interruptions[2] over a three-year period, with a minimum of two interruptions in each year. This effectively identifies circuits that are persistently poorly performing.

Worst Served Customers experience higher volumes of faults which occur each year over a number of consecutive years. Investment programmes are therefore targeted at the network that distributes electricity to these customers to improve reliability and reduce the impact of faults.

Worst Served Customers suffer higher numbers of faults for a variety of reasons, which can be due to wildlife, vegetation, weather, location and deterioration of network components. By addressing the causes, the number of incidents can be reduced. Where it may not be possible to address the cause (e.g. circuits in areas exposed to high winds) investment can be carried out to limit the impact of faults.

Typical investment that may be carried out includes the reconfiguration of the network, replacement of poor condition overhead lines, undergrounding of overhead lines, refurbishment of circuit components or the installation of additional switching points and protection zones.

Making improvements for Worst Served Customers received strong stakeholder support in the formulation of our business plan for RIIO-ED2 and we included making improvements for Worst Served Customers as one of our core commitments.

Core commitment No	Worst Served Customers Core commitment	Positive impact for customers
34	Improve the service for at least 8,260 Worst Served Customers by undertaking 70 schemes.	Significantly improved supply reliability for customers that have experienced a significantly poorer service (higher volumes of power cuts) than the average. Improvements will result in less inconvenience and disruption for customers.

[2] 'Interruptions' are power cuts lasting three minutes or longer. Incidents that last less than three minutes are referred to as 'short interruptions'. Short interruptions can occur when network protection devices automatically restore supplies for transient faults. Short interruptions are not included in the count of incidents for Worst Served Customers. Higher voltage interruptions relate to interruptions that occur on networks that operate at above 1kV; this means that incidents that occur on the low voltage network are not included in the worst served mechanism.

Identifying Worst Served Customers

Annual identification of Worst Served Customers

NGED's high voltage electricity distribution network is constantly monitored and when faults occur details are recorded about the substations that are impacted. A high voltage fault will in most cases affect all the customers on a distribution substation. Therefore, the number of Worst Served Customers can be identified by counting the number of times substations have been impacted by faults.

At the end of each regulatory year, data is extracted from our network control IT systems, which identifies the number of times each substation has been impacted by a fault. This data is combined with data for the preceding two years to identify those substations that meet the definition of Worst Served Customers. This analysis produces a list of substations.

Customer records for each substation allow the identification of the number of Worst Served Customers and data about customers on our Priority Services Register identifies how many of those Worst Served Customers are classified as vulnerable customers.

The data for substations is collated against the relevant high voltage circuit to give the total number of Worst Served Customers on a feeder.

The circuits are then ranked in order of the number of Worst Served Customers. The ranking generates a priority list, based upon the highest number of Worst Served Customers. Secondary consideration is given to the overall number of interruptions on a circuit, meaning a feeder with less customers, but notably more interruptions may also be given high priority.

Annual 'churn' in Worst Served Customers

There is an amount of 'churn' relating to the customers that are classified as worst served: new customers become worst served each year and others that are no longer worst served drop off the list. It is therefore not possible to identify all the specific projects that will be carried out in advance of a price control period, as these tend to be carried out in response to the latest data available during a price control.

New customers become worst served as parts of the network deteriorate and start to have a number of faults. Customers can stop being worst served where the activities on the network address the cause of faults; this could be once faults are repaired the problems go away, routine tree clearance addresses the issues, deteriorated assets are replaced as part of the wider asset replacement programme, or a specific worst served customer project resolves the issues.

Each year the data for Worst Served Customers is refreshed and forms the basis of further works to make improvements.

Producing a single list at the start of the RIIO-ED2 price control period was not appropriate for continually delivering improvements in service to our Worst Served Customers. We believe the best way to manage our Worst Served Customers programme is to regularly review our data, The programme is therefore dynamic, responding to the latest data available.

Worst Served Customers 'longer term issues'

While investment is carried out to make improvements, some circuits continue to be classified as worst served for a number of years. The customers on these circuits experience multiple years of poor performance.

In order to identify these 'longer term issues', further analysis is carried out to identify those circuits that regularly appear on the worst served customer list. This allows further investigation of what is causing ongoing issues, enabling improvement actions to be identified.

Analysis prioritisation

The lists of circuits are prioritised by the number of Worst Served Customers. Data for the number of vulnerable customers is also included, so that this is considered alongside the absolute number of Worst Served Customers.

Prioritising analysis by the number of Worst Served Customers seeks to address the greatest number of Worst Served Customers. Further consideration is given to feeders that experience the highest number of interruptions.

However, the solution for improvement also needs to be considered. Circuits with fewer Worst Served Customers may be addressed first, because the types of faults and the solutions to improve performance may be quicker to implement and lower cost than a solution for the circuit with the most Worst Served Customers.

The analysis is carried out by local operational teams, who have knowledge of the local circumstances for each circuit. The practicality of delivery and cost of solution therefore factor in which circuits are prioritised. This leads to projects being carried out that give the greatest cost-benefit for carrying out the work.

Scheme selection

Considerations

The primary driver for this investment is to reduce the number of Worst Served Customers.

This objective has to be considered alongside the financial allowances that have been allowed for carrying out the work. In RIIO-ED2, Ofgem has specified the following allowances:

RIIO-ED2 Worst Served Customer Allowances (£m in 2020/21 prices)						
Licence area	2023/24	2024/25	2025/26	2026/27	2027/28	RIIO-ED2 total
WMID	0.29	0.29	0.28	0.28	0.27	**1.42**
EMID	0.02	0.02	0.02	0.02	0.02	**0.12**
SWALES	0.31	0.30	0.30	0.29	0.29	**1.49**
SWEST	0.19	0.19	0.18	0.18	0.18	**0.92**
NGED	**0.81**	**0.80**	**0.78**	**0.78**	**0.77**	**3.94**

This means that there is a balance between costs and benefits; and those circuits that require less work to generate a benefit are likely to be carried out first.

These allowances are funded as Use-It-Or-Lose-It, where any underspend on these allowances are returned to consumers at the end of the price control period, with no sharing factor applied.

Analysis of options

When analysing a circuit, the local planner considers a number of factors such as where the faults have occurred, what has caused them, what can be done to reduce the number of faults and whether there is scope to minimise the impact.

Assessment of the fault history allows the identification of whether there is a common issue or whether the faults are for a variety of reasons. Some of the faults may no longer be relevant because at the time of when the original fault occurred the local teams will have rectified the issue that has caused the interruption.

The type and location of faults identifies what network interventions are needed (e.g. clusters of faults in a wooded area may suggest that enhanced tree cutting is required or clusters of faults due to poor condition of overhead line components may suggest that more extensive refurbishment is required).

There is no typical issue or typical solution and therefore the circumstances on each circuit are analysed to determine the most appropriate action.

Annually refreshing the analysis

NGED's approach is to review the Worst Served Customers data each year, meaning that the programme of work will be reviewed considering the latest network performance information.

This approach provides more flexibility and responsiveness compared to specifying a static programme at the start of the price control based solely upon data available at the time of the Business Plan submission.

This should mean that there is more opportunity to address more Worst Served Customers by focussing on the circuits with greatest need on a more frequent basis.

Proposed volumes

NGED proposed to carry out 70 schemes during RIIO-ED2 to address Worst Served Customers. The initial volumes are specified in the table below.

Volumes of projects proposed in NGED's RIIO-ED2 business plan						
	2023/24	2024/25	2025/26	2026/27	2027/28	RIIO-ED2 Total
WMID	5	5	5	5	5	**25**
EMID	0	0	1	0	1	**2**
SWALES	5	5	5	5	6	**26**
SWEST	3	3	3	3	5	**17**
NGED	**13**	**13**	**14**	**13**	**17**	**70**

The actual volumes that will be delivered are dependent upon the numbers of circuits with high numbers of Worst Served Customers. This means that the overall mix of when the projects are carried out and in which licence area is different to the original forecast.

After a slower start to ED2 delivery, driven by competing investment needs and challenges in design, consent and delivery of the identified areas, we conducted a thorough review of our plans for delivery in early 2025/26. This resulted in a more detailed delivery plan for specific projects and a significant increase in activities. We currently expect to have delivered 47 projects by the end of 2027/28.

Expected projects delivery – RiiO-ED2						
	2023/24	2024/25	2025/26	2026/27	2027/28	RIIO-ED2 Total
WMID	7	0	1	0	4	**12**
EMID	0	0	1	0	0	**1**
SWALES	2	1	4	3	3	**13**
SWEST	2	1	3	14	1	**21**
NGED	**11**	**2**	**9**	**17**	**8**	**47**

Our approach to focus on projects benefitting the highest number of customers means that we expect to exceed our business plan commitment to help 8,260 customers in ED2.

Progress is reported in the annual Worst Served Customer report that is published on our website every October.

Registered Office: Avonbank, Feeder Road, Bristol BS2 0TB
nationalgrid.co.uk

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