



# 2015-2023

## Western Power Distribution

### RIIO-ED1 Business Plan Commitments Report

#### Year Four - 2018/19

31 October 2019

## WPD's Business Plan Commitment Report

In June 2013, WPD published a Business Plan for the eight year period from April 2015 to the end of March 2023. The Business Plan detailed the network investment we intended to deliver, how much it would cost and the benefits that would be provided to customers and stakeholders.

The eight year period aligns with the Ofgem regulatory price control review period, known as RIIO-ED1; the first for electricity distribution to be determined using the Revenue = Incentives, Innovation and Outputs framework. The RIIO model is designed to offer Distribution Network Operators (DNOs) strong incentives to meet the challenges of delivering a low carbon, sustainable energy sector at value for money for existing and future customers.

The WPD Business Plan contains 76 outputs (or commitments) established for the RIIO-ED1 period. This document is the Business Plan Commitments Report as required by Standard Licence Condition (SLC) 50. It describes the progress made towards delivering the commitments made within the WPD Business Plan. The report also provides details of further initiatives and new developments since the publication of the Business Plan.

### Structure of WPD's Business Plan Commitments reporting

In order to meet the requirements of different stakeholders we have produced reports in different formats. These enable the reader to select the report type that best meets their requirement for either a high level summary or detailed understanding of our actions. The options available are shown below.

- A single page high level performance snapshot (as required by Ofgem Business Plan Reporting Guidance) providing a set of data which will be common across each of the DNOs, allowing a high level performance comparison.

<https://yourpowerfuture.westernpower.co.uk/Performance-Snapshot-BP-Commitments-Report-2018-19>

- A summary report for interested stakeholders which provides an overview of our performance in key areas.

<https://yourpowerfuture.westernpower.co.uk/Summary-Business-Plan-Commitments-Report-2018-19>

- This comprehensive report for expert stakeholders which provides detailed information on our progress against the full range of commitments made within the Business Plan, including expenditure.

## Electronic Document Navigation

There are two ways to navigate to individual sections of the document, we have included:

- a hyperlinked list of sections below; and
- 'buttons' on the right hand side of every page.

Both will navigate to the contents page for the relevant section and from there it will be possible to navigate within each section.

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2015-2023

Western Power Distribution  
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Foreword  
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## Foreword

Our business is to keep the lights on - providing a safe and reliable electricity service to 7.9 million customers who rely on us every day. We look after a network of wires, poles, pylons, cables and substations; distributing electricity to homes and businesses across the Midlands, South Wales and the South West.

As a business that distributes electricity we face exciting challenges as the UK works towards a net zero carbon future. We deliver an essential public service and our focus on customer service has ensured that we have continued to drive great results for customers whilst adapting to the changing environment within which we operate.



I want WPD to be the best and I am delighted to report that during 2018/19 we outperformed against the majority of our 76 RIIO-ED1 commitments whilst taking great strides towards achieving our transition from Distribution Network Operator to Distribution System Operator, focussed on delivering a smarter, more flexible energy system. We are working with stakeholders to define new and innovative opportunities for them to participate in, and benefit from our future services. We have a proven track record and we are rising to the challenge of delivering a smarter energy system.

In January 2019 we held stakeholder workshops and attendees reiterated that network reliability must remain our highest priority. Our teams work tirelessly to deliver our commitments in this area and as a result we have beaten all our targets for customer minutes lost and customer interruptions. We have achieved this with safety at the forefront of our minds and as a result staff accident rates have again reduced this year to 0.86 accidents per 100 staff. We have also achieved reductions in our Business Carbon Footprint (BCF).

Our hard work is reflected in the fact that customers have again rated us as number one for customer satisfaction in the industry. This marks the eighth year in a row where we have been rated as the top performing DNO group, with an overall satisfaction score of 9.07 out of 10. We have continued to ensure customer satisfaction with our connections service, using customer feedback to develop our workplan for improving connections services. We have again outperformed against Ofgem targets for time to connect and time to quote.

During the year we have engaged with over 35,000 stakeholders via a range of mechanisms and delivered 290 improvement actions based on feedback. These outputs cover a variety of stakeholder groups including the important areas of smart networks and vulnerable customers. We have supported 17,764 fuel poor customers to make £6.4m annual savings and proactively contacted 1.1 million customers during power cuts.

We continue to evolve to deal with new challenges and during 2018/19 we have published a DSO forward plan and launched a new brand, 'Flexible Power', to seek market-provided sources of flexibility which will allow us to accommodate increasing demand for electricity without having to build a larger network. We have also published an Electric Vehicle (EV) strategy and organised EV conferences to assist local authorities to develop plans for projected volumes of EVs.

We recognise our obligation to look after the existing network and provide an efficient and reliable service for our customers. We therefore continue to deliver against our RIIO-ED1 investment plans. At the start of RIIO-ED1 our expenditure was higher than allowances, but we now see these costs levelling out. At the close of 2018/19 we are 1% below allowances for RIIO-ED1 to date.

Looking forward, we used our January 2019 stakeholder workshops to start the conversation about our RIIO-ED2 business plan and established a new Customer Engagement Group to deliver customer focussed challenge on our plans - we have recruited a strong group and I look forward to seeing the results that emerge as we work together to develop the WPD business plan for RIIO-ED2.

**Phil Swift, WPD Chief Executive**



## Performance Snapshot for 2018/19

1.1 This performance snapshot is based upon the requirements specified by Ofgem in the Business Plan Commitments Report guidance document, replicating the data submitted in table SI1 of the annual regulatory reporting pack. An explanation of terms can be found in the Glossary.

	West Midlands	East Midlands	South Wales	South West
<b>Number of Customers</b>				
No. of Customers on DNOs network	2,491,212	2,658,397	1,137,812	1,624,131
<b>Network length</b>				
Overhead lines (km)	23,320.6	20,961.8	17,951.6	27,688.5
Underground lines (km)	41,832.5	53,149.5	17,798.2	23,026.8
Other (Subsea cables) (km)	0.4	-	8.9	83.7
Total DNO Network Length (km)	65,153.4	74,111.3	35,758.7	50,799.0
<b>Total expenditure (TOTEX)</b>				
Total Expenditure (£m)*	226.3	229.8	127.7	191.8
RIIO-ED1 allowance (£m)*	257.6	252.3	149.0	214.4
% of Allowed Totex	99%	103%	88%	99%
<b>Quality of service (unweighted)</b>				
Customers Interrupted per 100 customers (including exceptional events)	54.4	38.9	39.7	49.1
Customer Minutes Lost (including exceptional events)	27.4	21.3	20.9	33.3
Customers Interrupted per 100 customers (excluding exceptional events)**	54.4	38.9	38.0	48.0
Customer Minutes Lost (excluding exceptional events)**	27.4	21.3	19.4	32.4
<b>Unrestricted domestic tariff (adjusted for typical consumption)</b>				
Tariff Charge (£)*	70.7	62.6	87.5	88.5
<b>Connections</b>				
Time to Quote (LVSSA) (Days)	4.9	3.6	3.6	5.4
Time to Connect (LVSSA) (Days)	29.9	30.4	27.1	27.4
<b>Customer satisfaction</b>				
Overall Broad Measure of Customer Satisfaction score (out of 10)	9.03	8.99	9.13	8.98
<b>Social obligations - Individual Stakeholder Engagement and Consumer Vulnerability score (out of 10)</b>				
8.35				
<b>Incentive on connections engagement (ICE) – penalties incurred under the ICE scheme (£)</b>				
No penalties incurred.				
<b>Safety - qualitative summary</b>				
In 2018/19 the accident rate for WPD as a whole was 0.86 accidents per 100 staff, this is better than our overall target for RIIO-ED1. In 2018/19 there were no improvement notices, prohibition notices or prosecutions from the HSE.				
<b>Environmental impact - qualitative summary</b>				
WPD's business carbon footprint has decreased by 17% in comparison to our benchmark year of 2012/13, we have beaten our in year target for RIIO-ED1.				
<b>Innovation - qualitative summary</b>				
WPD had 31 innovation projects receiving innovation stimulus funding during 2018/19. We have undertaken a range of actions to implement our DSO transition strategy, we are well on the way to moving to an active system to manage the 9GW of generation and energy storage connected to WPD's distribution network and a further 7.5GW of capacity offered. We have published a DSO forward plan, together with an Electric Vehicle strategy.				

\*Values are quoted in 2012/13 prices, as this is the price base used for setting allowances, within licence conditions and within Ofgem financial models. Costs incurred in 2018/19 have been deflated to be comparable to the allowances.

\*\*The values shown are based upon data submitted to Ofgem in table SI1 as part of annual reporting on 31 July 2019. The values in SI1 vary to those stated in other sections of this report. SI1 states the total unweighted impact, whereas in this report we compare performance to targets (which includes application of weighting factors defined by Ofgem). Other differences may arise due to the values used for exceptional event exclusions which are not finalised by Ofgem until after 31 July 2019.

## Summary of output performance

1.2 The tables below provide a high-level indication of progress against the 76 commitments included in the WPD RIIO-ED1 Business Plan. Each output is hyperlinked to the related detailed part of the report.

Safety		
1	HSE Intervention	✓
2	ESQCR clearances	✓
3	Inspection and maintenance	✓
4	Accident frequency	✓
5	Powering Improvement	✓
6	Working with trade unions	✓
7	Investigating accidents	✓
8	Substation security	✓
9	Educational sessions	✓
10	Safety Literature	✓
Reliability		
11	Network performance	✓
12	Speed of restoration	✓
13	12 hour outages	✓
14	Guaranteed standards	✓
15	Worst served customers	✓
16	Flood defences	✓
17	Tree clearance (resilience)	✓
18	Black start resilience	✓
Environment		
19	LCT response time	✓
20	Identifying LCT hotspots	✓
21	Uprating assets – LCT hotspot areas	✓
22	Developing smart solutions	✓
23	Using smart solutions	✓
24	Oversizing transformers for losses	✓
25	Uprating cables for losses	✓
26	Lowering vehicle emissions	✓
27	Energy efficiency – buildings	✓
28	Reducing waste to landfill	✓
29	Reducing BCF	✓
30	Reducing oil leaks from cables	✗
31	Reducing SF <sub>6</sub> leaks	✓
32	Installing bunds	✓
33	Undergrounding lines in AONBs	✓

Key	
✓	Achieved an annual output
✓	Output on track, some aspects require further progress
-	Output under review
✗	Not met an annual output

Connections		
34	Time to connect (all market segments)	✓
35	Customer service	✓
36	Customer surveys – distributed generation	✓
37	Online project tracking	✓
38	Online information	✓
39	Connection surgeries	✓
40	Improving processes	✓
41	Guaranteed standards	✓
42	Raising awareness of competition	✓
43	Extending scope of contestable work	✓
Customer satisfaction		
44	BMCS	✓
45	CSE certification	✓
46	Telephone response times	✓
47	Abandoned calls	✓
48	Call taker availability	✓
49	Providing restoration times	✓
50	Customer call backs – faults	✓
51	Customer call backs – non faults	✓
52	On demand services	✓
53	Self service options	✓
54	Customer Collaboration panel	✓
55	Stakeholder workshops	✓
56	Stakeholder report	✓
57	One day complaint resolution	✓
58	Ombudsman complaints	✓
59	Power for life	✓
Social obligations		
60	Understanding of vulnerable customers	✓
61	Training staff to recognise vulnerability	✓
62	Contacting PSR customers	✓
63	Improving PSR data	✓
64	Working with suppliers on PSR issues	✓
65	Publicising the PSR	✓
66	Providing crisis packs	✓
67	Contacting medically dependent customers during faults	✓
68	Practical support during power cuts	✓
69	Feedback from customers	✓
70	Working with local resilience forums	✓
71	Database of referral agencies	✓
72	Fuel poverty website links	✓
73	Awareness campaigns of fuel poverty assistance	✓
74	Fuel poverty training for staff	✓
75	Identification of vulnerable households	✓
76	Outreach services	✓



## Executive Summary

### Who we are and what we do

**1.3** WPD is a Distribution Network Operator (DNO) and distributes electricity to 7.9 million customers across the West Midlands, East Midlands, South Wales and the South West. Our role is to:

- operate our network assets effectively to 'keep the lights on' for our customers;
- maintain our assets so that they are in a condition to remain reliable;
- fix our assets if they get damaged or if they are faulty; and to
- upgrade the existing networks or build new ones to provide additional electricity supplies or capacity to our customers.

**1.4** We are undergoing a transition to the role of Distribution System Operator (DSO). As part of this we are developing the processes and systems that allow us to adopt lower cost flexible solutions to manage power flows on the network. This will help us to provide the network capacity for growth in locally connected generation, electric vehicle charging and the storage of energy.

**1.5** Our costs make up around 17% of a domestic customer's electricity bill.

### Our track record

**1.6** We keep the business simple and operate an efficient business model, with a flat operational structure. We have planning and delivery teams based locally, allowing local knowledge and fast response.

**1.7** Our staff put customers first, treating customers the way they would like to be treated themselves.

**1.8** Our track record is second to none:

- we deliver excellent network performance, restoring customers' supplies quickly after power cuts;
- we provide the best customer service in the UK, consistently appearing at the top of Ofgem's customer satisfaction surveys;
- we deliver our work programmes, adjusting them as circumstances change, but never losing sight of getting them completed; and
- we operate local teams made up of our own staff who deliver work in a low cost and efficient way.

### Our stakeholders

**1.9** Our stakeholders' views are important and we engage directly with stakeholders across our business, using a range of engagement techniques.

**1.10** We used stakeholder input to shape our RIIO-ED1 Business Plan and we continue to consult stakeholders to refine the services we provide.

**1.11** We promote our business plan commitment reporting via social media to increase awareness and stakeholder input.

## Our RIIO-ED1 outputs

1.12 During RIIO-ED1 we have committed to delivering 76 outputs in the following categories.

Category	Commitment overview
Safety	To minimise the safety risks associated with operating the network
Reliability	To maintain a reliable supply of electricity and make the network more resilient to external events
Environment	To reduce WPD's impact on the environment and facilitate the use of low carbon technologies (LCTs)
Connections	To provide an excellent service for customers connecting to the network
Customer Satisfaction	To provide excellent customer service
Social Obligations	To meet the needs of vulnerable customers

### Safety

1.13 Safety is at the heart of everything we do. During RIIO-ED1 our target is to improve on our DPCR5 accident frequency rate by 10%. We have already achieved this target, but will strive to reduce the accident rate further.

1.14 Our accident frequency rate for WPD as a whole during 2018/19 was 0.86 accidents per 100 staff.

1.15 Behavioural safety is a key theme in the delivery of the company Safety Action Plan. Behavioural safety goes beyond setting rules and enforcing compliance; it aims to change attitudes so that staff assume responsibility for their own safety and the safety of others. In 2018/19 we delivered new behavioural safety sessions which are a natural progression from introductory sessions that staff attended in 2015/16. The sessions are designed to challenge individuals to consider their own behaviours and the common scenarios that lead to accidents.

1.16 We also focus on ensuring the safety of the public. To date in RIIO-ED1 we have delivered a total of 12,727 educational sessions to 305,911 schoolchildren and delivered safety literature to over 2.5 million customers, targeting those individuals who could be exposed to higher risks as a result of their work or social activities.

1.17 We have worked cooperatively with the Health and Safety Executive to ensure that our practices and policies continue to be compliant with health and safety legislation, but also to seek out and apply best practice in the management of safety.

### Reliability

1.18 We continue to invest in the network, maintaining equipment, replacing poor condition assets, providing additional network capacity and undertaking tree clearance to help prevent power cuts. We have also installed remotely controlled equipment that allows us to speed up the restoration of supplies.

1.19 Over the eight year RIIO-ED1 period, we committed to ensuring that on average customers would have 16% fewer power cuts and have their electricity supplies restored 23% quicker. We have already achieved these targets, with a 35% reduction in the number of power cuts and a 47% reduction in the average duration of power cuts. We will continue to work to ensure that this performance is sustained over the remainder of RIIO-ED1.

1.20 WPD recognises the inconvenience of long duration power cuts. Originally we proposed to reduce the number of customers off supply for more than 12 hours by 20% over the course of RIIO-ED1 but we have decided to go beyond this original target. As a result, we have reduced the number of customers off supply for more than 12 hours from 10,748 in 2012/13 to only 26 in 2018/19.

- 1.21 Ofgem defines worst served customers as those that have had more than 12 higher voltage interruptions over a three year period. During RIIO-ED1, we are carrying out projects to reduce the number of customers who are classified as 'worst served' by 20%. Based on 2014/15 performance this requires a reduction of 6,812 customers over the eight year period. To date during RIIO-ED1 we have undertaken projects impacting 11,660 customers.
- 1.22 As well as routine tree clearance to maintain safety clearance distances, we have a resilience programme to clear trees that could fall into overhead lines during storms. For RIIO-ED1 we increased the volume of resilience tree cutting and we are on track to deliver the higher volumes of activity.
- 1.23 Substations that become flooded can lead to a loss of power to many of our customers for extended periods. We protected the highest risk substations during the previous price control period and have committed to protecting an additional 75 substations against flooding over the course of RIIO-ED1. We have already completed 92% of the eight year work programme.
- 1.24 Whilst the likelihood of widespread power loss is low, we are working to ensure that, should such an event occur, we can continue to operate the network during a 'Black Start'. This work involves increasing the resilience of battery systems used for controlling equipment and communications. We are on track with our work programmes.
- 1.25 Cyber security is becoming increasingly important to ensure that services are not disrupted by malicious cyber-attacks. WPD is therefore strengthening its cyber defences to minimise the risks.

## Environment

- 1.26 The WPD RIIO-ED1 Business Plan separated environmental outputs into those that support the increase of low carbon technology and those that reduce WPD's impact on the environment.
- 1.27 Since proposing our Business Plan in 2013 the energy sector has seen significant change, including the rapid growth of intermittent renewable generation, new technologies connecting to the distribution network and changes in the energy demands of consumers.
- 1.28 To accommodate these changes in a cost effective manner our network needs to become smarter and more flexible. In 2017 we published our strategy for transition from the passive role of Distribution Network Operator (DNO) to an active role as Distribution System Operator (DSO) – using innovative solutions to defer higher cost network reinforcement.
- 1.29 We continue to implement this strategy and have taken a range of actions, including publishing a DSO forward plan, publishing Distribution Future Energy Scenario information, expanding our network coverage for Active Network Management, used our new Flexible Power brand to seek market-provided flexibility and continued to work with National Grid to undertake collaborative Regional Development Programmes for each licence area. We have also published an Electric Vehicle (EV) strategy and worked with local authorities to develop plans for projected volumes of EVs.
- 1.30 Our extensive innovation programme is providing solutions to adapt the network to changing customer requirements. During 2018/19 we had 31 active innovation projects funded through Ofgem's innovation stimulus. These projects support our aim to provide flexible network solutions that are effective, economic and quicker than the current way of doing things.
- 1.31 The innovation programme has led to the introduction of alternative connections, which are being utilised to accommodate more generation onto the network and provide lower cost options for connection customers.
- 1.32 The impact of WPD's activities on the environment is monitored by measuring our business carbon footprint. We have committed to reducing our carbon footprint by 5% over the course of RIIO-ED1. After establishing this target in 2012/13, our business carbon footprint increased

during the remainder of the previous price control (DPCR5). Since the start of RIIO-ED1 we have worked to improve performance and have now achieved a 17% reduction in our business carbon footprint in comparison to 2012/13.

- 1.33** We are also focused on reducing ‘technical network losses’ (the losses associated with power flowing through the network). Losses reduction activities include the proactive replacement of assets with poor losses performance and discontinuing the use of smaller assets which result in higher losses. We review our Losses Strategy on an annual basis to ensure that we take into account changes in technology, government approach and the views of industry experts and our stakeholders.
- 1.34** Power lines can impact on views and the landscape, especially where they pass through iconic areas. We have committed to improving visual amenity in National Parks and Areas of Outstanding Natural Beauty (AONBs) by replacing 55km of overhead lines with underground cables over the course of RIIO-ED1. To date we have completed schemes totalling 17.5km across the licence areas. Steering groups established with representatives from AONBs and National Parks are responsible for identifying and prioritising work and the delivery and timing of projects is therefore dependent on the actions of the steering group.

## Connections

- 1.35** As of 1 April 2015 Ofgem introduced a new incentive to drive DNOs to provide a faster connection service for single connections (LVSSA) and small scale connection projects (LVSSB). This incentive considers the time to provide a quote and once the quote is accepted the time taken to deliver the connection(s). WPD has beaten the targets in all four categories in all licence areas.
- 1.36** WPD engages extensively with connection stakeholders to ensure that the services we deliver meet their needs. Our connection engagement activities are explained within our submission for Ofgem’s Incentive for Connections Engagement (ICE).
- 1.37** As a result of our engagement with over 18,000 connection stakeholders during 2018/19, we have delivered 48 initiatives on our ICE workplan. We have focussed on a range of new priorities, including acting swiftly to deliver DSO services, strengthening links with local development representatives and publishing a strategy detailing how we will ensure that drivers are able to conveniently charge their electric vehicles.
- 1.38** We try hard to meet the needs of connection customers and as a result we score highly in customer satisfaction surveys. In 2018/19 we achieved improved performance for each licence area in the section of Ofgem’s Broad Measure of Customer Satisfaction (BMCS) that focusses on Connections.
- 1.39** The Guaranteed Standards of Performance (GSOPs) for connections set out the minimum service standards that DNOs must meet under the statutory framework. We have set ourselves the challenging target of achieving zero failures under these standards. In 2018/19 we had only two failures.
- 1.40** Third party connection providers continue to expand their capabilities and we work with them to develop processes that facilitate competition within the connections market. We have continued with trial processes for contestable work covering self-determined points of connection, self-approved designs and HV connections completed by the ICP.

## Customer satisfaction

- 1.41** During 2018/19 we continued to be recognised for our excellent levels of customer service. As a DNO group WPD has achieved the highest overall score for customer satisfaction, derived from combining the three elements of Ofgem’s Broad Measure of Customer Satisfaction (supply interruptions, connections and general enquiries).
- 1.42** We engaged with a range of stakeholders through a variety of events including Customer Collaboration Panels and six annual stakeholder workshops. Engagement assisted us to understand and refine our service delivery in line with customer need.
- 1.43** Our telephone response times are fast, on average calls were answered in 1.56 seconds during 2018/19, beating our ambitious RIIO-ED1 target of two seconds.
- 1.44** We provide an estimated time of restoration for all calls related to power cuts. Call centre staff regularly refresh the estimates with updates from field staff. This information is also published on the WPD website.
- 1.45** When customers call us in relation to a fault we call them back to update them on the progress of the fault and to check if they need any assistance. In 2018/19, we were able to contact 98.85% of customers who had been in contact about a fault and proactively texted over 647,000 customers during HV power cuts. We also provide a range of options for customers to access information on our website.
- 1.46** We try to get things right, but sometimes things go wrong. When we get complaints we try to resolve them quickly. Our approach has led to us resolving 86% of complaints within one day, beating our RIIO-ED1 target of 70%.

## Social obligations

- 1.47** We recognise that we have to provide enhanced services for customers in vulnerable situations, especially those who would be impacted as a result of being without power.
- 1.48** The details of customers in vulnerable situations are held on our Priority Services Register (PSR), which has historically been populated by data from suppliers. Over time this data becomes out of date and we have a team of people contacting vulnerable customers to improve this data and update the records. During 2018/19, we proactively contacted 946,127 PSR customers and successfully updated 30% of records as a result.
- 1.49** We have continued to work with a range of expert partners during 2018/19 in order to improve our understanding of the needs of vulnerable customers. This helps to shape the services that we provide. We have set up 24 new PSR referral networks during 2018/19, taking the total to 87.
- 1.50** To help customers during power cuts we undertake a range of activities. During 2018/19, we distributed 1,268 crisis packs (as part of our target of issuing 10,000 packs during RIIO-ED1), made 166,783 calls to PSR customers during power cuts and provided British Red Cross support during 9 prolonged power cuts.
- 1.51** We consider the factors that can impact vulnerability, including cold homes and energy affordability. WPD works with a range of fuel poverty partners and during 2018/19 supported 17,764 fuel poor customers to save £6.4 million.

## Expenditure

- 1.52** Our RIIO-ED1 business plan specified expenditure of £9.2bn over the eight year period, of which £7.1bn was related to costs under our control, referred to as Totex.
- 1.53** To date during RIIO-ED1, WPD expenditure is 1% lower than Totex allowances for costs within the price control.
- 1.54** Spend on load related capex (expenditure incurred in providing additional capacity on the network) was lower than forecast. All DNOs have seen lower than forecast secondary reinforcement due to lower than forecast impact from low carbon technology. However expenditure associated with the amount of network reinforcement required for new connections was £22m against an allowance of £7.2m. The forecast (made in 2012/13) assumed a lower level of higher voltage demand and generation connections than have actually arisen.
- 1.55** Spend on non-load related capex (of which two thirds is on the replacement and refurbishment of poor condition assets), was lower than forecast, partly as a result of a decrease in the number of poles found in poor condition and lower volumes of overhead line replacement.
- 1.56** Spend on network operating costs (including inspections, repair and maintenance, faults and tree cutting) was higher than forecast. Variations are related to increased spend on repair and maintenance (removing defects from the network) and the costs of tree clearance contractors, which have been higher than forecast.
- 1.57** Non-operational capex includes the purchase of new IT systems, property, vehicles, and small tools and equipment. Expenditure was lower than forecast during 2018/19. Changes to planned IT refreshes have driven timing variances in IT expenditure. There is an ongoing evaluation of IT requirements as a result of our transition to the role of DSO and work to ensure the security of our systems in the light of cyber security threats.
- 1.58** Spend on closely associated indirect costs (related to the costs of staff and systems that enable the work on the network to be carried out – such as network design and planning) was 10% higher than forecast. Higher costs were mainly related to expenditure on core labour. There were also increases in expenditure on operational training, which reflects the recruitment of additional engineering trainees.
- 1.59** Business support (including Human Resources, Finance and Regulation) costs have been 18% lower than forecast.
- 1.60** We review the projected expenditure outturn each year and we forecast that we will end up with costs that are within our overall allowance for the eight-year RIIO-ED1 period as a whole.



## Performance summary of all 76 outputs

### Safety

Meeting health and safety law		
<a href="#">1</a>	No improvement notices, prohibition notices and prosecutions from the Health and Safety Executive.*	No improvement notices or HSE prohibition notices were issued during 2018/19.
<a href="#">2</a>	Complete work programmes to meet the Electricity, Safety, Quality and Continuity Regulations (ESQCR) 2002. ESQCR requires that overhead lines are a safe distance from either structures or the ground.	We have completed the programme for clearance distances to structures for all regions. We have completed 100% of the work scheduled in 2018/19 relating to the required ground clearance distances.
<a href="#">3</a>	Complete inspection and maintenance programmes every year.	We completed the majority of work scheduled for completion during the year. A very small number of tasks could not be carried out due to access issues and we put in place appropriate plans to manage these safely until the work was completed.
Reducing accidents		
<a href="#">4</a>	Reduce our overall rate for the frequency of accidents by 10%.*	Our accident rate in 2018/19 is better than the 10% improvement target set for the whole of RIIO-ED1.
<a href="#">5</a>	Continue to play an active part in the ENA's 'Powering Improvement' initiative, which aims to lead to improved safety performance.	We took part in events designed around the ENA 'Powering Improvement' themes, including a review of the relationship and interaction between two key operational roles.
<a href="#">6</a>	Work with our trade unions to improve safety performance, including the use of more 'behavioural safety' initiatives.	We carried out further behavioural safety training for staff, after the sessions were initially trialled with trade union representatives.
<a href="#">7</a>	Investigate all accidents involving members of the public, contractors or our own staff to make sure that learning points are quickly understood and communicated.**	We investigated all 97 incidents that happened during the year (57 staff accidents, 35 contractor accidents and five significant incidents involving the public).
Substation security		
<a href="#">8</a>	Improve security measures at 50 substation sites to reduce the number of repeat break-ins.*	To date in RIIO-ED1, the number of repeat break-ins has been lower than expected. We have upgraded security measures at 18 sites that have had repeat break-ins.
Educating the public		
<a href="#">9</a>	Organise and run over 1,000 educational sessions to provide safety information to over 400,000 schoolchildren.*	So far in RIIO-ED1, we have delivered a total of 12,727 educational sessions to 305,911 schoolchildren.
<a href="#">10</a>	Continue to publish literature on maintaining safety around electrical apparatus and send more than 500,000 copies of this literature to targeted landowners, businesses or leisure operators.*	To date in RIIO-ED1, we have issued over 2.5 million safety leaflets, or made these available through social media, to targeted groups.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

## Reliability

Network performance		
<a href="#">11</a>	Improve network performance by the end of RIIO-ED1 so that, on average, customers will have 16% fewer power cuts and have their electricity supplies restored 23% quicker. *	Customer interruptions have reduced by 35% and customer minutes lost have reduced by 47% from the underlying performance benchmark calculated for 2011/12.
<a href="#">12</a>	Make sure that at least 85% of customers have their power restored within an hour of a high voltage fault happening.**	88% of customers had their power restored within one hour of a high voltage fault.

Guaranteed Standards of Performance (GSOPs)		
<a href="#">13</a>	Reduce by 20% the number of customers experiencing a power cut which lasts for 12 hours or more.*	The number of customers without electricity for more than 12 hours (where the GSOP applied) was 26, an improvement of over 99% on our 2012/13 benchmark performance. Customers received a set payment where we failed to achieve the GSOP.
<a href="#">14</a>	Achieve no failures on all other GSOPs.**	We had no failures against most GSOP categories. However, we failed to notify nine customers of planned interruptions to their electricity supply and failed to meet the standard for restoring supply following a main fuse failure for two customers.

Worst served customers		
<a href="#">15</a>	Reduce by 20% the number of customers classified as worst served.*	To date, projects to reduce the number of worst served customers have been put in place for 11,660 customers. Our target for the whole of RIIO-ED1 was 6,812 customers.

Making our network more resilient		
<a href="#">16</a>	Apply flood defences to 75 substations, reducing the risk of both damage to equipment and power cuts due to flooding.*	To date, we have installed flood defences at 69 substations. We are on track to achieve our RIIO-ED1 targets.
<a href="#">17</a>	Speed up the programme of tree clearance (specifically related to storm resilience) by 40%, with the aim of clearing 700km of overhead lines per year (delivering the programme five years earlier than suggested by Government guidelines).*	The programme is ahead of plan. We have completed 52% of the programme of tree clearance that we committed to for the whole of RIIO-ED1.
<a href="#">18</a>	Improve substation battery life to last for 72 hours if there is a major, network-wide power loss.*	All programmes are ahead of plan.  Protection batteries – 71% of eight-year programme complete.  SCADA batteries – 68% of eight-year programme complete.  Telecommunications sites – 92% of eight-year programme complete.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

Make it possible for more people to use low carbon technologies (LCTs)		
<a href="#">19</a>	Improve by 20% the time taken to provide a response to customers who want to use LCTs.*	We have seen an improvement in LCT response times and were close to achieving our annual target of 2.81 working days. The average response time was 2.83 days.
<a href="#">20</a>	Identify LCT hotspots using information from smart meters, expert organisations and local authorities, and use this information when making decisions.	Information on the location of LCT hotspots has been added to our systems.
<a href="#">21</a>	Selectively replace assets using larger assets in areas where more LCTs may be connected to our network.	We carried out 23 asset replacement projects, using larger assets, as a result of using information about LCT hotspots.
<a href="#">22</a>	Reduce costs for future customers by developing smart solutions to provide alternative and innovative techniques for managing our network.	We had a range of innovation projects in progress during the year.
<a href="#">23</a>	Provide additional network capacity by using traditional or 'smart' methods.	We launched our new Flexible Power brand, so we can now provide an extra 28 MW of energy when needed to respond to demand.

Reduce technical network losses		
<a href="#">24</a>	Install oversized transformers when replacing assets in areas where demand for power may become higher than equipment can cope with.	We installed 21 oversized transformers.
<a href="#">25</a>	Use larger cables when installing new network in LCT hotspots.	We installed 1.15km of larger cable in LCT hotspots.

Reduce the carbon footprint of the business		
<a href="#">26</a>	Make sure all replacement vehicles have lower CO <sub>2</sub> emissions than those they are replacing.	Changes to emissions tests have led to some increases in the emissions reported for some of our most commonly used vehicles. However, we have beaten our in-year targets.
<a href="#">27</a>	Make sure all new or substantially refurbished buildings meet, as a minimum, the 'excellent' standard under the Building Research Establishment Environmental Assessment Method (BREEAM).**	One new depot achieved the 'excellent' standard under BREEAM. One refurbished depot achieved the 'very good' standard, the maximum rating for a refurbished building.
<a href="#">28</a>	Reduce the amount of waste sent to landfill by 20% over the first two years of RIIO-ED1 and 5% per year after this.	We have seen a reduction in the amount of waste sent to landfill, and we have achieved our target for the whole of RIIO-ED1.
<a href="#">29</a>	Reduce our carbon footprint by 5%.*	Our business carbon footprint has reduced by 17% compared with 2012/13. We have beaten our in-year target.

Reduce the environmental risk of leaks from equipment		
<a href="#">30</a>	Reduce by 75% the amount of oil lost through leaks from oil-filled cables.*	We have seen increases in the amount of oil lost from oil-filled cables. We missed our in year targets.
<a href="#">31</a>	Reduce by 17% the amount of SF <sub>6</sub> gas that is lost from switchgear.*	The amount of SF <sub>6</sub> gas lost as a percentage of the total amount of SF <sub>6</sub> used on our network has reduced from 0.47% in 2015/16 to 0.30% in 2018/19 for the whole of our area. However, we missed our in-year targets in the South West and South Wales.
<a href="#">32</a>	Install effective oil containment 'bunds' around plant containing high volumes of oil.*	We have completed work on 134 new and refurbished bunds so far in RIIO-ED1, going further than our forecast of 104 bunds.

Improve the appearance in National Parks and Areas of Outstanding Natural Beauty (AONBs)		
<a href="#">33</a>	Replace 55km of overhead lines in National Parks and AONBs with underground cables.*	To date during RIIO-ED1, we have replaced 17.5 km of overhead lines with underground cables.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

## Connections

Provide a faster and more efficient connections service		
<a href="#">34</a>	Meet Ofgem's targets for the overall 'time to quote' and 'time to connect' for single domestic connections and small commercial connections. Improve the overall time taken to provide a quote for all other customer groups by 20%.*	We achieved Ofgem's targets for 'time to quote' and 'time to connect' for single domestic connections and small commercial connections. We have beaten targets for two of the other customer groups.
<a href="#">35</a>	Provide excellent customer service so that customers continue to rank us as the top-performing DNO group in customer satisfaction surveys.**	We are the top-performing DNO for the Connections Customer Survey in Ofgem's Broad Measure of Customer Satisfaction, scoring an average of 8.88 out of 10 for our DNO group.
<a href="#">36</a>	Carry out surveys with distributed generation customers to find out if they are satisfied with our service and identify where we could improve.	We achieved a score of 8.71 out of 10 for distributed generation customer satisfaction surveys. We have specified a range of improvements within our work plan for the Incentive on Connections Engagement (ICE).
Improve communication with customers		
<a href="#">37</a>	Develop and improve the way we process online connection applications and make it easier for customers to track the progress of their application online.	We have made amendments to our online connections information in line with stakeholder requirements. These have been published in our ICE work plan.
<a href="#">38</a>	Make sure that the information we provide in documents and online is effective.	We have improved the information we provide in documents and online in line with stakeholder feedback.
Enhance engagement with major customers		
<a href="#">39</a>	Host 'surgeries' every three months to help connection customers to understand our processes.	11 connection surgeries took place across our four licence areas.
<a href="#">40</a>	Work with major customers to identify where our processes can be improved and quickly put in place any changes.	We engaged with over 18,000 stakeholders through events and over 2,000 through customer satisfaction surveys. The actions in our ICE work plan are based on suggestions we received from these events and surveys.
Guaranteed Standards of Performance		
<a href="#">41</a>	Aim to achieve no failures of the connection GSOPs.**	There were only two failures against the connection Guaranteed Standards of Performance during 2018/2019. We had a further three failures against Competition in Connection standards, which relate to services we provide that cannot be carried out by competitors.
Further developing a competitive market		
<a href="#">42</a>	Improve customer awareness of other connection providers and regularly check that customers understand the options available to them.	We provide clear information for customers explaining that they can use other connection providers. We carry out a yearly survey to measure customer awareness. The 2018/19 survey showed that 82% of customers who had a new connection were aware of other providers.
<a href="#">43</a>	Work with other connection providers to extend the type of work they can carry out, including high voltage and reinforcement work.	We host a group to focus on the specific needs of other connection providers. Three sessions took place during 2018/19 and we used feedback to improve our processes.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

## Customer Satisfaction

Customer service		
<a href="#">44</a>	Continue to be the top-performing DNO group across all elements of the Broad Measure of Customer Satisfaction.**	We were the top-performing DNO group for overall customer satisfaction. The rating combines results of the three surveys for supply interruptions, connections and general enquiries.
<a href="#">45</a>	Maintain certification to show that we meet the Customer Service Excellence standard.**	We were awarded 'Compliance Plus' status for 44 of the 57 standards. We were the highest-scoring organisation out of all those accredited.
Telephone response		
<a href="#">46</a>	Respond to phone calls quickly, answering them within two seconds.**	Our average response time for customer calls was 1.56 seconds.
<a href="#">47</a>	Limit the number of calls that are abandoned before we can answer them to less than 1%.**	Only 0.08% of calls were abandoned.
<a href="#">48</a>	Always provide customers with the option to talk to a member of staff when they call our contact centre.	Our systems allow us to make sure that customers are always provided with the option to talk to a member of staff.
Communication with customers		
<a href="#">49</a>	Provide a restoration time for every power cut.**	All power cuts have an estimated restoration time which is updated as further information is provided by field teams.
<a href="#">50</a>	Contact all customers who have been in contact about a fault.**	We contacted 98.8% of customers who contacted us about a fault.
<a href="#">51</a>	Contact customers within two days of receiving an enquiry which was not about a fault.**	We contacted 99.6% of customers who contacted us with an enquiry which was not about a fault within two days.
<a href="#">52</a>	Provide 'on-demand' messaging through text and social media for customers who want to be kept informed in other ways, rather than a phone call.	We provided on-demand messaging through text and social media. We sent 647,063 text messages during high voltage power cuts.
<a href="#">53</a>	Develop 'self-service' options for customers to find information online.	We hosted 21,556 webchat conversations, our app for reporting power cuts was downloaded 5,203 times and we had 1.6 million hits on our online map showing power cuts.
Involving stakeholders		
<a href="#">54</a>	Continue to host a customer collaboration panel where our CEO will meet with our expert stakeholders four times a year.	The Customer Collaboration Panel met four times during the year. We set up a new Customer Engagement Group to challenge our plans for the next price control period.
<a href="#">55</a>	Continue to host at least six stakeholder workshops each year.	We hosted six general sessions, attended by over 330 stakeholders across our licence areas.
<a href="#">56</a>	Continue to produce a stakeholder report every year providing an update on the actions we have taken as a result of stakeholder involvement.	This yearly Business Plan Commitments summary report and the separate detailed report replace the stakeholder report.
Complaints		
<a href="#">57</a>	Resolve at least 70% of complaints within one day.**	We resolved 86% of complaints within one day.
<a href="#">58</a>	Continue to have a target of no complaints where the Ombudsman has to get involved.**	There were no complaints referred to the Ombudsman.
Guaranteed Standards of Performance awareness		
<a href="#">59</a>	Continue to send the 'Power for Life' publication to all 7.9 million customers and make sure it promotes the GSOPs.**	We issued 'Power for Life' to all 7.9 million customers in September 2018. We took a new approach and promoted GSOPs through social media and our website.

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\*\* Target to be achieved each year of RIIO-ED1



## Social Obligations

Improving understanding of vulnerability		
<a href="#">60</a>	Work with expert partners to improve our understanding of the needs of customers in vulnerable situations	We worked with a wide range of expert partners and were accredited with the British Standards Institute (Standard BS18477), which specifies requirements for responding to customers in vulnerable situations.
<a href="#">61</a>	Train staff to recognise the signs of vulnerability.	We provided specialist training to the Priority Services Register (PSR) teams and contact centre staff. Field staff are trained on registering customers to the PSR.

Improving the data held on the Priority Services Register		
<a href="#">62</a>	Contact vulnerable customers at least once every two years to check the details we hold on the Priority Services Register.	We contacted 1.1 million PSR customers during 2018/19 and updated 30% of the records we hold.
<a href="#">63</a>	Improve the quality of Priority Services Register data by working with other agencies and sharing information.	We increased the number of referral partners that we work with. We added 24 new partners, with the aim of achieving a better balance in the types of agencies that we work with.
<a href="#">64</a>	Co-ordinate meetings with suppliers to agree criteria for vulnerability.	27 new 'common needs codes' are now in use across the industry.

Improving the services provided for customers in vulnerable situations		
<a href="#">65</a>	Raise awareness of the Priority Services Register.	We worked with a range of organisations, including a mental health organisation and fire and rescue services, to raise awareness of the PSR.
<a href="#">66</a>	Make 10,000 crisis packs available.*	To date we have issued 6,762 crisis packs over the RIIO-ED1 period.
<a href="#">67</a>	Contact all customers who depend on a power supply for medical reasons every three hours during power cuts.**	During power cuts we prioritise contacting customers who depend on a power supply for medical reasons. We called 71% of these customers within one hour of a fault and 96% in under two hours.
<a href="#">68</a>	Continue to provide practical support through the British Red Cross and other organisations as appropriate.	We provided British Red Cross support during nine prolonged power cuts, supporting 71 customers in total.
<a href="#">69</a>	Ask for feedback from customers in vulnerable situations about our service.	We achieved customer satisfaction ratings of 9.51 out of 10 from customers on the PSR who had received a routine call to check their personal details.
<a href="#">70</a>	Develop ways of sharing information with local resilience forums.	We worked with 19 forums across our four licence areas. For 2018/19 this included offering the support of our helicopter unit during severe weather.

Reducing fuel poverty by supporting customers to access help		
<a href="#">71</a>	Build a database of regional agencies we can refer customers to for help.	There are fuel poverty projects in all our areas, working with a network of support agencies.
<a href="#">72</a>	Work with partners to develop links to and from our website.	Details on our fuel poverty projects and links to partner organisations are available on our website.
<a href="#">73</a>	Develop joint information and awareness campaigns, and co-ordinate with partners to provide customers with help.	We have four 'Power Up' fuel poverty schemes to support customers who are facing fuel poverty. We supported 8,693 customers to save over £1.8 million a year.
<a href="#">74</a>	Provide fuel poverty training to our staff who have contact with members of the public.	We provide staff in our contact centre with customised training on fuel poverty and customers in vulnerable situations.
<a href="#">75</a>	Use data analysis to help identify areas with a high concentration of vulnerable households.	We use data analysis to identify areas with a high concentration of vulnerable households. During 2018/19 we improved the methods we use to share this data with our partner organisations so that they are better able to identify vulnerable customers.
<a href="#">76</a>	Develop local outreach services.	'Affordable Warmth' and other outreach services helped 6,478 customers to save over £3.9 million a year.

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\*\* Target to be achieved each year of RIIO-ED1



2015-2023

Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
Year Four – 2018/19

31 October 2019

Introduction

# Introduction Contents

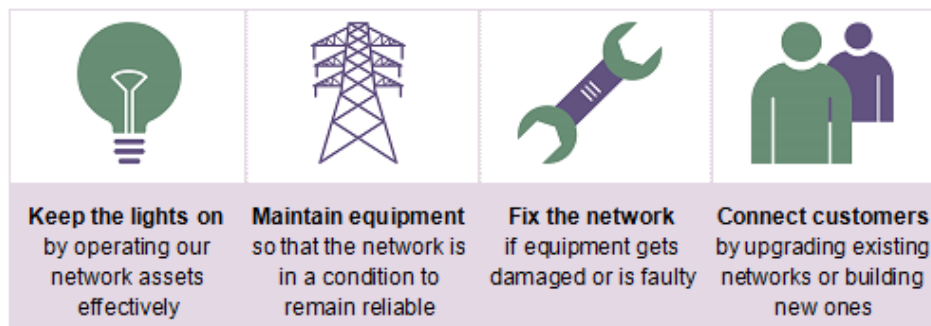
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# 2 Introduction

## Who we are and what we do

2.1 WPD is a Distribution Network Operator (DNO) and distributes electricity to 7.9 million customers across the Midlands, South Wales and the South West. Our role is to:

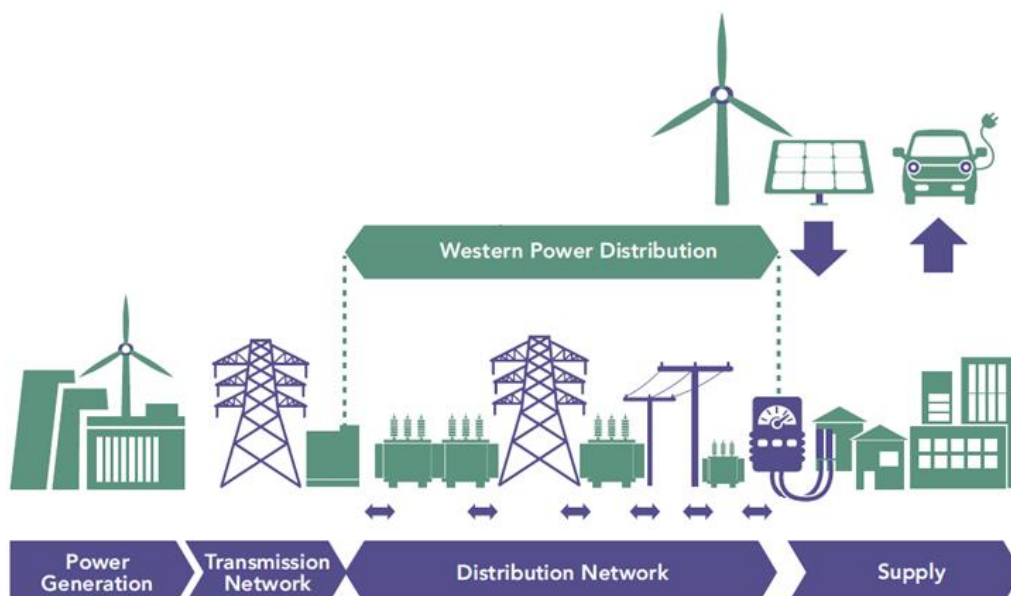
- operate our network assets to ‘keep the lights on’;
- maintain our assets so that they are in a condition to remain reliable;
- fix our assets if they get damaged or if they are faulty; and
- upgrade the existing networks or build new ones to provide additional electricity supplies or capacity to existing and new customers.



2.2 All of these tasks are carried out with the highest regard for the safety of members of the public, contractors and our own staff.

2.3 Our distribution network consists of transformers (which convert electricity from one voltage to another), underground cables and overhead lines (which carry electricity across long distances), switches (to turn on, off or to alter the routing of electricity) and service connections (which take the electricity into customers’ premises or provide the connection of generation).

2.4 This network sits between what was traditionally known as the National Grid transmission network and customers. More recently the drive towards a low carbon economy has led to increasing levels of generation directly connected to the distribution network and rapid adaptation of new forms of electricity demand such as electric vehicles and battery storage.



2.5 These changes mean that we will need to change the way that we operate our network. We will have a greater need to forecast energy production and use, and actively manage energy flows across the network. This will require a transition from the relatively passive role of DNO to a more active role as a Distribution System Operator (DSO) with greater responsibility for balancing sources of energy and demand.

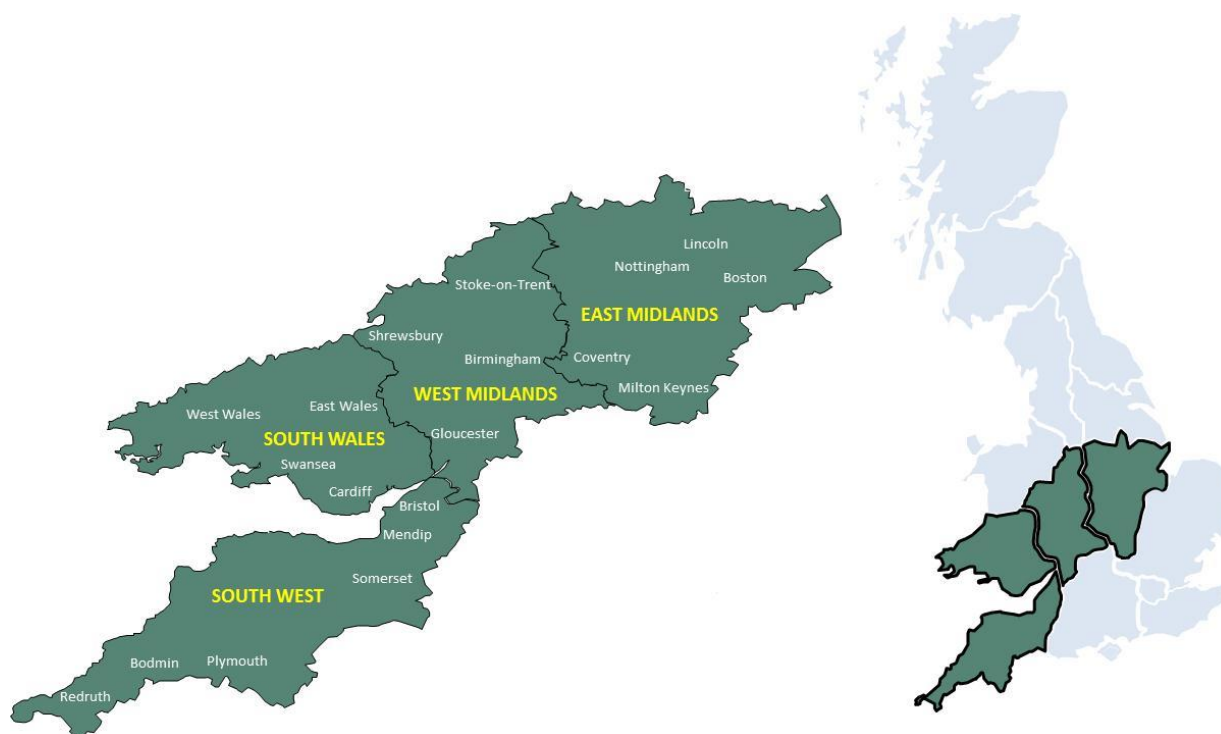
2.6 The WPD network comprises:

Network Assets						
Asset Type	Units	West Midlands	East Midlands	South Wales	South West	WPD Total
Overhead Lines	km	23,000	21,000	18,000	28,000	90,000
Underground Cable	km	41,000	53,000	18,000	23,000	135,000
Transformers	each	51,000	44,000	41,000	53,000	188,000
Switchgear	each	85,000	99,000	36,000	79,000	299,000
Poles	each	365,000	283,000	286,000	439,000	1,374,000
Towers (Pylons)	each	4,000	5,000	2,000	4,000	15,000
Customer Numbers	each	2,482,000	2,647,000	1,133,000	1,613,000	7,875,000
Licenced Area	km <sup>2</sup>	13,300	16,000	11,800	14,400	55,500

\*WPD total does not reconcile due to rounding.

2.7 Our network is the largest in the UK, covering every kind of geography and demography from densely populated residential areas to widely dispersed rural communities.

2.8 We provide power to large cities such as Birmingham, Bristol, Cardiff and Nottingham, farming communities in counties across the Midlands, South Wales and South West and remote areas such as the Isles of Scilly.



2.9 Our teams are based in local offices where they take responsibility for local issues, deliver local work programmes and respond quickly to local power cuts.

2.10 At WPD we try to get whatever we are delivering right first time. To encourage this we stress that all employees should:

- take personal responsibility;
- follow the problem through until the end;

- work with others to find a solution;
- keep the customer informed; and
- follow our Golden Rule – treat customers the way you would like to be treated.

**2.11** We continue to look for and make use of innovative techniques and encourage creativity so that we carry out all of our work in an effective and efficient manner. This helps to ensure value for money for our customers and stakeholders and a fair return for our shareholders.

**2.12** Even though we are actively facilitating competition in some of the services we provide (such as new connections) we are a natural monopoly within the geographic area we serve. We are, therefore, regulated by the Office of Gas and Electricity Markets (Ofgem).

**2.13** Ofgem issues licences to DNOs that set out the obligations and responsibilities of the companies and also determines the revenues they are allowed to earn each year. WPD has four licences covering the four geographic areas of the West Midlands, East Midlands, South Wales and the South West.

**2.14** Periodically, Ofgem scrutinises the Business Plans of DNOs through a price control regime. This determines how much DNOs are allowed to charge in total per year for network investment, operating costs and allowed returns.

**2.15** This charge, known as the Distribution Use of System charge (DUoS), is payable by the electricity suppliers who, in turn, incorporate it into electricity charges to customers.

**2.16** Our costs account for around 17% of the make-up of an average domestic customer's electricity bill.

## WPD's RIIO-ED1 Business Plan

**2.17** The WPD RIIO-ED1 Business Plan was developed during 2012/13, looking forward ten years to March 2023. It sought to balance the needs of current customers (network performance, customer service and social obligations) with the needs of future customers (long term reliability and environmental issues), leading to an investment programme based upon efficient costs and refined through thorough stakeholder engagement.

**2.18** Ofgem assessed all the licensees' business plans during the autumn of 2013, carrying out extensive benchmarking analysis. As part of the assessment process Ofgem had the facility to award fast track status to Business Plans that were well-justified.

**2.19** WPD is very proud of being the only DNO to be awarded fast track status. The business plan was fast-tracked by Ofgem in February 2014, being accepted in full. The plan can be found on our website:

[www.westernpower.co.uk/our-riioed1-business-plan](http://www.westernpower.co.uk/our-riioed1-business-plan)

**2.20** The Business Plan specifies the investment proposals, the expenditure and how this will benefit customers and stakeholders.

### Forecast expenditure

**2.21** In the RIIO-ED1 Business Plan, WPD proposed an overall 8-year expenditure of £9.2bn of which £7.1bn was covered by Totex. The remaining £2.1bn covers costs that are outside the control of WPD and 'passed through' to the charges we make to electricity suppliers.

**2.22** Progress against this forecast is shown in the expenditure section of this report.

### Outputs (commitments)

**2.23** The business plan specified outputs in six main categories.

- Safety
- Reliability
- Environment
- Connections
- Customer Satisfaction
- Social Obligations

**2.24** For some outputs there are specific regulatory targets. For others, the business plan stated a voluntary improvement target or described the service that was to be provided.

**2.25** The performance against these targets and the progress made in developing enhanced or new services is described within this document.



## Developing our approach to reporting

### Ofgem guidance

- 2.26** The requirement for the Business Plan Commitment Reporting is defined within Standard Licence Condition 50. The guidance requires an annual report to be published each year on or before the 31 October which provides information on performance against business plan commitments.
- 2.27** The guidance does not specify the format, structure or contents of the report, but instead requires DNOs to shape the report to the requirements of stakeholders.

### Stakeholder engagement

- 2.28** As part of our Stakeholder Engagement Strategy we hold an annual round of general stakeholder workshops which provides the opportunity to introduce key topics to a range of stakeholders and gain feedback on our approach.
- 2.29** As a result of the feedback gained from our 2015/16 workshops we adopted a three tier approach to Business Plan commitments reporting, producing:
- a one page performance summary;
  - a summary report of around 20 pages providing an overview of performance in key areas for interested stakeholders; and
  - a comprehensive report for expert stakeholders providing detailed performance information.
- 2.30** Following our 2017 workshops we listened to stakeholders and enhanced the existing expenditure information that we provided, simplified the technical explanations included within our detailed reporting and submitted our summary report to the Plain English Campaign in order to achieve the 'Crystal Mark' for use of plain English.
- 2.31** We used our 2018 workshops to update stakeholders on our ongoing performance and to identify areas that have evolved since putting together the business plan in 2012/13. In response to this update stakeholders asked us to include additional reporting within this document for the following areas:
- Our transition to the role of Distribution System Operator;
  - Alternative Connection offers;
  - Electric vehicles; and
  - Cyber security.
- 2.32** We have therefore included a section on each of these areas in this report, providing an introduction to the subject matter, and an explanation of our activities and future plans.

## Useful links

- WPD's 2018/19 submissions for the Incentive on Connections Engagement.

<https://yourpowerfuture.westernpower.co.uk/our-engagement-groups/connection-customer-engagement/incentive-for-connections-engagement>

- Competition in Connections Code of Practice.

[www.westernpower.co.uk/connections-landing/competition-in-connections/competition-in-connections-code-of-practice](http://www.westernpower.co.uk/connections-landing/competition-in-connections/competition-in-connections-code-of-practice)

- WPD's Competition in Connections webpage.

[www.westernpower.co.uk/connections-landing/competition-in-connections](http://www.westernpower.co.uk/connections-landing/competition-in-connections)

- WPD's 2018/19 submissions for the Stakeholder Engagement and Customer Vulnerability Incentive.

<https://yourpowerfuture.westernpower.co.uk/ofgems-secv-incentive>

- WPD's Environment Report.

[www.westernpower.co.uk/About-us/Our-Business/Environment.aspx](http://www.westernpower.co.uk/About-us/Our-Business/Environment.aspx)

- WPD's Losses Strategy.

[www.westernpower.co.uk/our-network/losses/electrical-losses](http://www.westernpower.co.uk/our-network/losses/electrical-losses)

- WPD's Innovation Strategy.

[www.westernpower.co.uk/innovation/innovation-strategy](http://www.westernpower.co.uk/innovation/innovation-strategy)

- WPD's RIIO-ED1 Business Plan.

<https://yourpowerfuture.westernpower.co.uk/our-future-business-plan/our-riioed1-business-plan>

- Link to WPD's webpage for Guaranteed Standards of Performance.

[www.westernpower.co.uk/customers-and-community/guaranteed-standards](http://www.westernpower.co.uk/customers-and-community/guaranteed-standards)

- Link to our video guides for Community Energy Schemes.

[www.westernpower.co.uk/Connections/Generation/Community-Energy/Community-Energy-Video-Library.aspx](http://www.westernpower.co.uk/Connections/Generation/Community-Energy/Community-Energy-Video-Library.aspx)

- Link to our Regional Strategic Investment Options reports

[www.westernpower.co.uk/our-network/network-strategy/strategic-investment-options-shaping-subtransmission](http://www.westernpower.co.uk/our-network/network-strategy/strategic-investment-options-shaping-subtransmission)

- Link to information on our DSO strategy

[www.westernpower.co.uk/our-network/network-strategy/dso-strategy](http://www.westernpower.co.uk/our-network/network-strategy/dso-strategy)

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Safety

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## 3 Safety

- 3.1 Safety is fundamental to everything we do.
- 3.2 WPD has committed to a range of outputs to improve overall safety performance. These aim to minimise the safety risks to staff, contractors and members of the public.
- 3.3 The safety outputs are in four themes.
- Compliance with health and safety law.
  - Reducing accidents.
  - Substation security and theft of equipment.
  - Educating the public.

### Regulatory framework:

- 3.4 There are no Ofgem incentives for safety because the primary requirement from Ofgem is compliance with the requirements set out in legislation and enforced by the Health and Safety Executive (HSE).

## Overview of safety outputs

Meeting health and safety law		
<a href="#">1</a>	No improvement notices, prohibition notices and prosecutions from the Health and Safety Executive.*	No improvement notices or HSE prohibition notices were issued during 2018/19.
<a href="#">2</a>	Complete work programmes to meet the Electricity, Safety, Quality and Continuity Regulations (ESQCR) 2002. ESQCR requires that overhead lines are a safe distance from either structures or the ground.	We have completed the programme for clearance distances to structures for all regions. We have completed 100% of the work scheduled in 2018/19 relating to the required ground clearance distances.
<a href="#">3</a>	Complete inspection and maintenance programmes every year.	We completed the majority of work scheduled for completion during the year. A very small number of tasks could not be carried out due to access issues and we put in place appropriate plans to manage these safely until the work was completed.
Reducing accidents		
<a href="#">4</a>	Reduce our overall rate for the frequency of accidents by 10%.*	Our accident rate in 2018/19 is better than the 10% improvement target set for the whole of RIIO-ED1.
<a href="#">5</a>	Continue to play an active part in the ENA's 'Powering Improvement' initiative, which aims to lead to improved safety performance.	We took part in events designed around the ENA 'Powering Improvement' themes, including a review of the relationship and interaction between two key operational roles.
<a href="#">6</a>	Work with our trade unions to improve safety performance, including the use of more 'behavioural safety' initiatives.	We carried out further behavioural safety training for staff, after the sessions were initially trialled with trade union representatives.
<a href="#">7</a>	Investigate all accidents involving members of the public, contractors or our own staff to make sure that learning points are quickly understood and communicated.**	We investigated all 97 incidents that happened during the year (57 staff accidents, 35 contractor accidents and five significant incidents involving the public).
Substation security		
<a href="#">8</a>	Improve security measures at 50 substation sites to reduce the number of repeat break-ins.*	To date in RIIO-ED1, the number of repeat break-ins has been lower than expected. We have upgraded security measures at 18 sites that have had repeat break-ins.
Educating the public		
<a href="#">9</a>	Organise and run over 1,000 educational sessions to provide safety information to over 400,000 schoolchildren.*	So far in RIIO-ED1, we have delivered a total of 12,727 educational sessions to 305,911 schoolchildren.
<a href="#">10</a>	Continue to publish literature on maintaining safety around electrical apparatus and send more than 500,000 copies of this literature to targeted landowners, businesses or leisure operators.*	To date in RIIO-ED1, we have issued over 2.5 million safety leaflets, or made these available through social media, to targeted groups.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1



## Meeting health and safety law

Output (1) No improvement notices, prohibition notices and prosecutions from the Health and Safety Executive.



- 3.5 WPD works cooperatively with the HSE to ensure that practices and policies continue to be compliant with legislation and to identify and apply best practice.
- 3.6 The HSE can impose the following sanctions where compliance is breached.
- Where there is a significant breach of law the HSE has the power to issue a formal Improvement Notice.
  - If the HSE believes that there is a serious risk of harm it has the option to stop activities immediately using a Prohibition Notice.
  - Where HSE inspectors observe a 'material breach' of health and safety legislation during an inspection, they may levy a 'fee for intervention' to cover the cost of inspection visits. Whilst these fees are not fines the HSE do expect that remedial actions will be carried out.
- 3.7 During 2018/19 there have been no improvement notices, prohibition notices or prosecutions from the HSE.
- 3.8 We are awaiting the outcome of our appeal against a prohibition notice that was issued by the HSE during 2016/17. We anticipate that the outcome of this appeal will be issued in 2019/20.

Output (2) Complete work programmes to meet the Electricity, Safety, Quality and Continuity Regulations (ESQCR) 2002. ESQCR requires that overhead lines are a safe distance from either structures or the ground.



**3.9** The Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR) specify requirements for clearance to objects and ground as detailed below.

- Regulation 17 deals with the height of overhead lines and specifies the clearances to ground for roads and other situations. This allows safe operation of activities under the lines.
- Regulation 18 requires that overhead lines are positioned away from buildings and structures to reduce the risk of inadvertent contact. This was a new obligation introduced in 2002 that required DNOs to identify locations where overhead lines were close to structures and remove the hazard by modifying, diverting or undergrounding the lines.

**3.10** Work programmes for regulation 18 are complete.

**3.11** For Regulation 17 (clearance to ground), WPD has established a risk based assessment process that measures the existing clearance height and assesses locational risk. The results determine the timescales for rectification of low clearance defects and therefore provide ongoing deadlines for the forward workplan (between 3 and 10 years). Initial assessments were completed in 2016, leading to a programme of defect rectification. The required timeframes for resolving defects can extend up to ten years and as a result there will be some activity that continues into RIIO-ED2.


**3.12** The achievement of resolving defects within the required timeframes is monitored through key performance indicators. At the close of 2018/19 there were no regulation 17 defects that had not been rectified within the timeframes indicated by the risk assessment process.

## Output (3) Complete inspection and maintenance programmes every year.



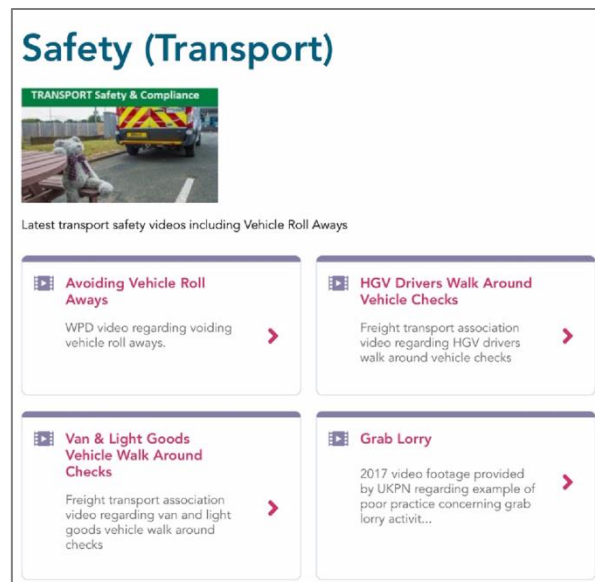
- 3.13** One method of ensuring that the network remains safe is through regular and thorough inspection, defect rectification and maintenance.
- 3.14** Cycles of inspection and maintenance are built into our asset management systems so that maintenance and inspection ‘tasks’ are generated for assets in line with the frequency specified in policy. Local teams use the tasks to manage inspection and maintenance work and the completion of tasks is monitored through weekly key performance indicators sent to managers. WPD targets the completion of all inspection and maintenance tasks within the required period, so that no arrears exist.
- 3.15** The programme for inspection and maintenance work is managed over a calendar year and all tasks are expected to be completed within the year. Occasionally arrears may arise due to access issues. Where maintenance arrears arise, each instance is managed either through enhanced inspections or application of operational limitations. All arrears and associated mitigation plans are reviewed by the Operations Director.
- 3.16** Condition assessments are carried out during inspection and maintenance work. The results are recorded as either condition statuses or as defects. WPD policy requires defects to be fixed with the clear instruction throughout policy documents of ‘DON’T IGNORE DEFECTS – FIX THEM’. Risk assessment approaches have been developed that lead to deadlines for defect rectification and the clearance of defects within the deadlines is monitored in key performance indicators.
- 3.17** Managers use an online ‘dashboard’ system for monitoring progress in carrying out operational tasks. This provides a high level view of progress and the ability to extract reports, allowing managers to easily drill down into the underlying data, which is updated automatically on a daily basis.
- 3.18** All field teams are issued with iPads for recording of information in the field. We continue to introduce new bespoke applications and develop existing ones to allow better checking of existing records and automatic updates of information from site. In 2018/19 this included:
- the introduction automatic data validation processes; instantly checking the accuracy of data entered on site;
  - the use of QR codes to support the tracking of plant from stores and depots to operational sites; and
  - the expansion of inspection and maintenance apps to include EHV and 132kV substations.
- 3.19** Enhancements such as these ensure that our mechanisms for capturing information about the current status of the network are efficient and effective.

## Reducing accidents

Output (4) Reduce our overall accident frequency rate by 10%. 

- 3.20** Safety is a high priority for WPD and during RIIO-ED1 WPD has committed to reducing the overall accident rate involving our own staff by 10%, in comparison to the average accident rate for the previous regulatory period, DPRC5.
- 3.21** A number of methods are used to minimise the risk of accidents. This includes the provision of clear processes and procedures, effective training, encouraging staff to take personal responsibility for safety, a range of audit processes, investigating incidents and sharing the learning from investigations.
- 3.22** Each year, a safety action plan is produced based on recent accident reports, near misses, industry incidents and any legal, regulatory or industry wide initiatives.
- 3.23** In 2018/19 a range of initiatives were used to promote safety and employee wellbeing as follows.

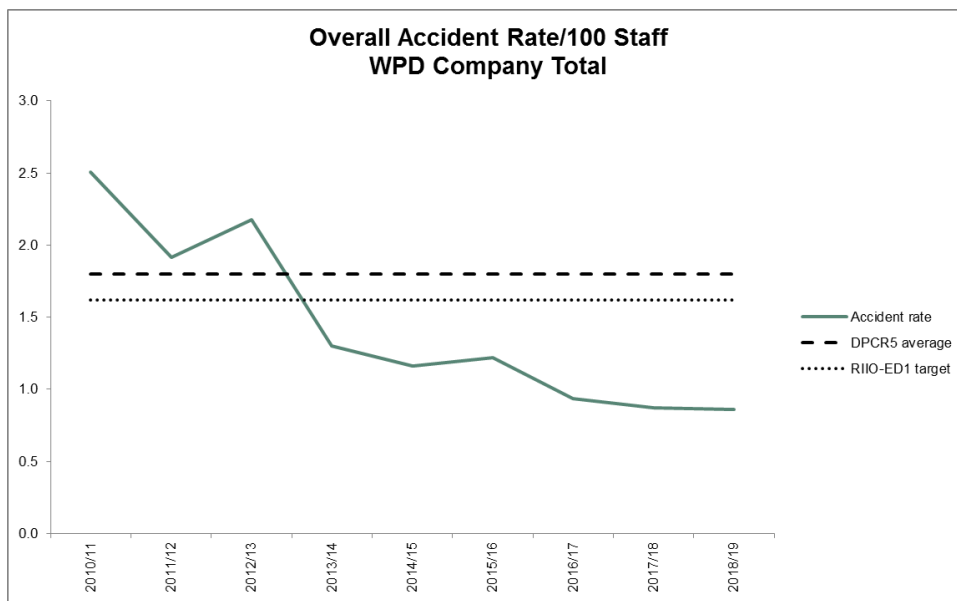
- Launch of a new safety and training media intranet site – allowing the sharing of safety and training films, documents and other media. This has been developed with staff input and is available on all internet enabled company devices. Staff are able to volunteer ideas and the site also includes media from other organisations such as the ENA and other DNOs.
- Changes to processes for Site Safety Visits undertaken by managers and safety representatives, including the introduction of revised questions focusing on ‘how and why’.
- PPE and equipment checks are now carried out separately from Site Safety Visits to avoid distracting from the importance of the Site Safety Visits and discussions. The iPad app used for recording visits has been redesigned to ensure that the process is as straightforward as possible.
- Continuation of a review of jointing and overhead line tools, including policy and equipment updates.
- Actions to reduce vehicle accidents: including investigation of all damage incidents; briefings and poster campaigns to prevent vehicle roll away incidents; the fitting of speed limiters to all new commercial vehicles; the installation of reversing cameras for large commercial vehicles where appropriate; and continuation of a trial of dashboard cameras.
- Trial of a new lone working process, using a live online dashboard to enable teams to monitor individuals who are lone working and who may consequently require additional support.
- Introduction of new iPad apps to support operational working, including electronic authorisation certificates, electronic validation for live line working techniques and electronic project risk registers to ensure the communication of information on risks is carried forward from planning and design to project delivery.
- Launch of a ‘Switched on to Health’ intranet site for staff featuring advice on employee wellbeing.



- Organisation of an annual safety week covering emergency practice, vehicle and PPE checks and corporate memory - using examples of previous significant incidents to highlight safety good practice.

**3.24** Accident frequency rate is derived from the number of annual accidents and the number of staff, and is expressed as 'accidents per 100 members of staff'. This allows performance to be compared across differently sized teams and organisations. The accident rate includes both accidents which have resulted in lost time absence and those where the individual has been able to continue to work despite the accident.

**3.25** In 2018/19 the accident rate for WPD as a whole was 0.86 accidents per 100 staff. This was a slight improvement on the 2017/18 accident rate of 0.87 and better than the RIIO-ED1 target. The improving trend in safety performance is shown in the following chart.



Output (5) Continue to play an active part in the ENA's 'Powering Improvement' initiative, which aims to lead to improved safety performance.



**3.26** WPD continues to actively participate in the industry strategy 'Powering Improvement'. Powering Improvement is a cross-sector strategy to bring about continuous improvement in safety and occupational health in the energy generation and networks sectors. The Powering Improvement initiative started in 2010 and each year had a specific theme as shown below.

- 2010 Leadership
- 2011 Occupational health/wellbeing
- 2012 Asset management/maintenance
- 2013 Behavioural safety/personal responsibility
- 2014 Beyond 2015 – next steps
- 2015 Working with contractors
- 2016 Managing occupational ill health risks
- 2017 Asset management
- 2018 Human and organisational factors
- 2019 Review of progress and developing the next phase of 'Powering Improvement'

**3.27** Powering Improvement is supported by member companies of the Energy Networks Association (ENA) (the industry body for UK transmission and distribution network operators for gas and electricity), member companies of the Association of Electricity Producers (the trade association for the UK generators), trade unions and the HSE.

**3.28** The Powering Improvement theme for 2018 was 'Human and organizational factors'. Analysis has focussed on examining two key operational roles – senior Authorised Persons (SAPs) and Competent Persons (CPs), how they interact to ensure safe outcomes. We have participated with a review undertaken by the Health and Safety Laboratory and we will adopt recommendations once a report is published.

**3.29** During 2018/19 we also initiated a Safety Climate Assessment, conducted by an external consultant. 1,800 surveys were sent out to a random selection of employees. This was supplemented with 15 workshops allowing for more in-depth discussion with employees who were happy to discuss their views.

**3.30** The survey and workshops focused on six safety themes – training and competency, communication, team, individual, organisation and management. Based on the feedback from both the surveys and the workshops, recommendations were made in the following areas:

- Policies and Standards
- Safety interaction
- Trade union communication and engagement
- Manager development
- Risk Assessment
- Safety engagement

We used our annual staff safety conferences to discuss some of the issues that were raised through the survey, inviting groups to have input on potential solutions.

**Output (6) Work with our trade unions to improve safety performance, including the use of more 'Behavioural Safety' initiatives.**



- 3.31** WPD works with trade union representatives to improve the health and safety of staff and to build on behavioural safety principles. The company facilitates quarterly safety forums with trade unions, with four meetings per annum in each of the four WPD licence areas and four meetings per annum at a company level.
- 3.32** Company level meetings are timed to occur after local forums are complete so that issues can be escalated and learning from any local discussions can be implemented company wide.
- 3.33** Standard topics for discussion at local forums include:
- a review of policy changes and any safety bulletins that have been issued;
  - a summary of performance; and
  - the discussion of specific accidents and operational incidents in order to share learning.
- 3.34** Additional topics covered in local forums for 2018/19 included the following:
- planning for and subsequent feedback on staff safety conferences;
  - reviews of specific accidents and their causes;
  - safety week planning and subsequent feedback;
  - lone working;
  - a review of operational incidents; and
  - discussions around specific tools, equipment and PPE.
- 3.35** In addition, annual safety conferences are held across the licence areas, attended by trade union appointed safety representatives. The conferences provide an opportunity for additional representatives to discuss safety performance beyond those who attend the regular forum meetings.
- 3.36** In 2018/19, the four safety conferences took place in January 2019. A standard agenda was agreed for the company as a whole and additional agenda items were added dependent on the local requirements of each licence area. Sessions included:
- a review of safety performance;
  - an update on the outcome of the Safety Climate Survey and the opportunity for attendees to have their say on the themes highlighted by the survey; and
  - a hazards and consequences session introduced by an external key note speaker, followed by scenario based discussions of risk management.
- 3.37** We also hold a Trainee Safety Conference, where all new trainees attend and cover a range of safety topics including an introduction to the theme of behavioural safety and learning from past incidents. The event includes a session with our Chief Executive, underlining the importance of safety and following training and standard techniques. Our CEO also provides his mobile phone number to encourage individuals to report any concerns they have.
- 3.38** Trade union representatives are informed of all accidents and have the remit to independently investigate accidents if they wish to do so. Trade union representatives have access to the same training provided for supervisors carrying out Site Safety Visits, enabling them to independently audit operational sites.



## Behavioural safety

- 3.39** Behavioural safety is a key theme in the delivery of the company Safety Action Plan. Behavioural safety goes beyond setting rules and enforcing compliance; it focusses on changing attitudes so that staff assume responsibility for their own safety and the safety of others by acting on training, following instructions and challenging others when they see safety rules about to be broken.
- 3.40** During 2018/19 new behavioural safety training has been delivered, building on previous initiatives which were designed to introduce staff to the concept of behavioural safety.
- 3.41** In 2018/19 staff attended the 'Five Traps' workshop, led by a Clinical Psychologist. The workshop was designed to challenge individuals to consider their own behaviours and the common scenarios that lead to accidents. The sessions were initially introduced at our trade union safety conferences in 2017/18 and delivered to staff in their local areas during 2018/19.

Output (7) Investigate all accidents involving members of the public, contractors or our own staff to make sure that learning points are quickly understood and communicated.



**3.42** Whilst every effort is made to prevent incidents or accidents, they may still occur. When they do occur, WPD has committed to ensure that they are quickly investigated so that the causes can be understood and that appropriate action is taken without delay. This relates to any accident or incident – whether it involves staff, contractors or members of the public.

**3.43** During 2018/19 there were 57 staff accidents, 35 contractor accidents and five significant incidents involving the public. All 97 were investigated.

**3.44** The information gathered from investigations is used to promote improvements in safety performance. Learning from such events, together with general information on good practice and new company initiatives is proactively shared with staff through a range of mechanisms.

- Safety articles are regularly featured within the company’s staff magazine (Powerlines).
- When an incident occurs the local Team Manager produces an investigation report identifying learning points, a summary of these reports is emailed on a monthly basis to line managers for cascade and discussion in team brief meetings.
- Where incidents could have more significant consequences a Safety Bulletin is issued and cascaded. Within 2018/19 eight Safety Bulletins were issued – each bulletin provides an explanation of the issue, relevant learning points and the actions required by individuals for the future.

**3.45** Staff are encouraged to reflect on opportunities to improve safety performance and have the facility to submit details of ‘near misses’ (incidents that could have resulted in an accident) either manually or using the company iPads. A ‘Safety Flash’ system allows individuals to submit information anonymously should they wish to do so.

**3.46** In 2018/19, 88 near misses were reported and 29 suggestions were submitted. All reports were collated centrally by the Safety Team and then submitted to local management teams to review and action as appropriate; no actions were outstanding for the regulatory year. ‘Near miss’ incidents were discussed as part of trade union and contractor safety conferences in order to ensure that learning is shared.



## Substation security

Output (8) Improve security measures at 50 substation sites to reduce the number of repeat break-ins.



- 3.47** Historical increases in the value of metals have in the past led to high levels of theft from the network. Such theft can lead to electricity supplies being interrupted and sites being left in a hazardous state, exposing WPD employees and members of the public to increased risks.
- 3.48** At the time of developing the RIIO-ED1 Business Plan metal prices were high, leading to theft from the network. WPD committed to enhancing substation security measures at locations where thieves regularly attempt to break in.
- 3.49** In the first two years of RIIO-ED1 metal prices fell and we saw reductions in levels of theft. As a result the cost benefit of security related interventions varied, together with the level of priority placed on metal theft by external agencies such as police forces. During 2017/18 metal prices increased but have fallen over the last 12 months, despite these fluctuations we have seen relatively low instances of theft.

### Monitoring break-ins to substations

- 3.50** WPD has committed to enhancing substation security measures at locations where thieves regularly attempt to break in. Analysis of repeat break-ins commenced in 2015/16; in 2018/19 there were only six occasions where a specific substation was targeted more than once during the year.
- 3.51** Of the six substations where a repeat break-in occurred, enhanced substation security works have been undertaken at five sites during 2018/19. This included the upgrading or replacement of site fences, fitting new locks and using techniques such as anti-vandal paint and anti-climb fittings applied to fencing.
- 3.52** Since the start of RIIO-ED1 we have undertaken permanent upgrading works at 18 sites that were the subject of repeat break-ins.

### Increasing substation security in the West Midlands and East Midlands

- 3.53** Following the acquisition of the Midlands licence areas in 2011, WPD committed to upgrading security measures at all sites in the West Midlands and East Midlands to bring them up to the level of protection provided in the South West and South Wales. Enhancements would ensure that all grid and primary sites would be provided with an intruder system as a minimum, with higher risk sites also being fitted with CCTV and/or electric fences.
- 3.54** Substations are categorised according to risk – including an assessment of the strategic importance of the substation to the network and whether there is a history of intrusion/theft.
- 3.55** In order to determine the works required at each site, local site surveys have been conducted. These surveys have identified that works have already been completed at some sites, consequently we have revised the number of sites requiring enhancements.
- 3.56** The targets and progress are detailed below; West Midlands have completed 82% of their ED1 programme to date, East Midlands have completed 85%.

Substation security enhancements – Midlands		
	West Midlands	East Midlands
Initial forecast of sites requiring upgraded security during RIIO-ED1	372	553
Sites requiring upgraded security – post site survey and risk assessment	182	330
Security enhancements completed during RIIO-ED1	150	279

**3.57** The target number of sites requiring the installation of security enhancements may vary over the course of RIIO-ED1 as old sites are decommissioned and new requirements are identified.

## Educating the public

Output (9) Organise and run over 1,000 educational sessions to provide safety information to over 400,000 schoolchildren.



**3.58** Children and other members of the public may not always be aware of the potential dangers from the electricity distribution network. This lack of awareness can lead to them becoming exposed to more risk during certain play, leisure or work activities.

**3.59** During RIIO-ED1 WPD committed to providing over 1,000 educational sessions to 400,000 schoolchildren about the potential dangers of electricity.

**3.60** Since the start of RIIO-ED1 we have delivered a total of 12,727 sessions to 305,911 schoolchildren across our four licence areas making excellent progress towards our RIIO-ED1 target.

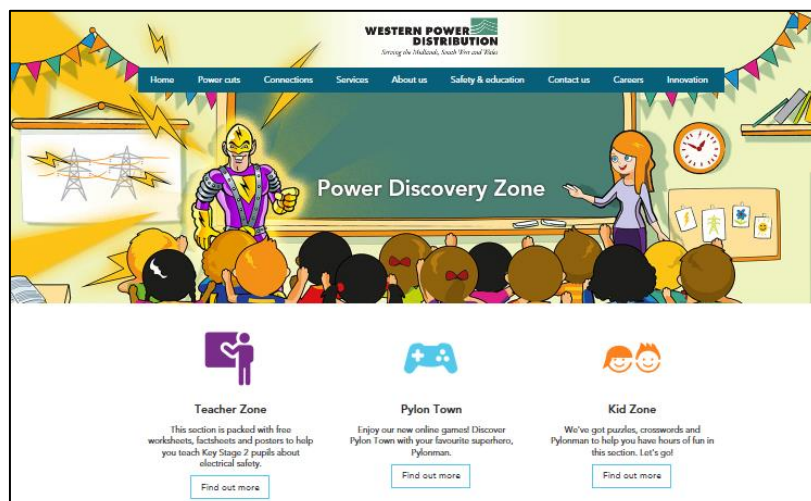
**3.61** The breakdown of sessions delivered during 2018/19 is as follows:

Education sessions delivered 2018/19		
	Number of sessions	Number of children
West Midlands	803	22,368
East Midlands	797	24,491
South Wales	1,209	19,238
South West	874	18,610
<b>WPD Total</b>	<b>3,683</b>	<b>84,707</b>

**3.62** Sessions are delivered in a variety of ways, including the following.

- Individual school safety talks aligned to the national curriculum.
- Crucial Crew and Life Skills sessions, co-facilitated with emergency services (and other agencies) and delivered in schools to teach young people about safety, including electrical safety.
- Permanent education safety centres at Milton Keynes, Bristol, Gloucester, Leicester and Birmingham where daily sessions are held throughout the school term to teach children about safety, including electrical safety. During 2018/19 resources at all five centres have been updated.

**3.63** In addition to the provision of formal sessions, WPD makes resources available to schools via the Power Discovery Zone – an interactive, curriculum-linked website for schools that relates to electricity and safety.



**Output (10) Continue to publish literature on maintaining safety around electrical apparatus and send more than 500,000 copies of this literature to targeted landowners, businesses or leisure operators.**



**3.64** WPD recognises that those engaged in work or recreational activities near network assets may be unaware of the potential hazards around them. WPD produces a range of information leaflets describing the dangers of overhead lines, electricity substations and underground cables and distributes these to individuals or groups potentially at risk due to their work or leisure activities. WPD holds a database of customer groups likely to fall into this category so that literature can be distributed to individuals who have the potential to be exposed to electrical safety risks.

**3.65** During RIIO-ED1, WPD committed to distributing 500,000 copies of safety literature to specific landowners, business or leisure activity providers whose activities could be higher risk if undertaken near our equipment.

**3.66** Safety literature continues to be distributed in traditional paper based formats, but increasingly social media is used to promote safety information and direct individuals to electronic copies of our literature on the WPD website. This process can be monitored so that the number of individuals who click on online safety literature as a result of a social media post can be logged.

**3.67** Safety literature entitled 'Think Safe, Stay Safe' highlights the dangers of electricity and provides examples of the type of activities that could be a risk to health.

**3.68** In 2018/19 a total of 977,367 safety 'leaflets' were issued or made visible to customers. Our cumulative total for the RIIO-ED1 period is 2,596,791 leaflets issued.

**3.69** During 2018/19 information was distributed in a variety of ways as detailed below.

- Facebook campaigns promoting electrical safety which appeared in the newsfeed of 437,200 Facebook users. Posts were actively promoted to those in the agricultural industry and participants in leisure activities such as angling, sailing and camping.
- 352,949 individuals were targeted through promotional articles placed in a variety of publications and programmes for events such as the Royal Welsh Show
- 178,024 landowners with WPD equipment on their land were sent literature as part of the wayleaves process associated with these assets.
- 9,194 individuals received information through a direct mailing campaign, aimed at farmers, builders merchants, construction companies, farm machinery retailers and commercial vehicle retailers.

**3.70** Using a varied range of media helps to get the public safety message to a diverse range of individuals.

**3.71** During 2018/19 WPD participated with the development and promotion of a new national farm safety campaign which included a video using the theme of 'Look out, look up'. This can be found at [www.westernpower.co.uk/customers-and-community/health-safety/farming-safety](http://www.westernpower.co.uk/customers-and-community/health-safety/farming-safety) and formed part of our annual farm safety campaign that reached 127,000 people on social media.





2015-2023  
Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
Year Four – 2018/19

31 October 2019

Reliability



# Reliability Contents

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## 4 Network reliability

4.1 Network reliability is a high priority for WPD and we have committed to achieving a range of improvements during RIIO-ED1 so that our customers have fewer and shorter power cuts.

4.2 Network Reliability outputs are in four themes.

- Network performance
- Guaranteed Standards of Performance (GSOPs)
- Worst served customers
- Enhancing network resilience

Regulatory framework:

4.3 Ofgem recognises that network reliability is important to customers and therefore has introduced a number of incentive mechanisms.

- The Interruption Incentive Scheme – which provides targets for reducing the average number of power cuts (Customer Interruptions) and the average duration of those power cuts (Customer Minutes Lost). DNOs can earn financial rewards or suffer financial penalties dependent on performance.
- Guaranteed Standards of Performance, implemented under The Electricity (Standards of Performance) Regulations 2015, require licensees to make direct payments to customers where specified performance standards are not achieved.
- Worst served customers – DNOs can recover costs associated with investment for customers who experience high volumes of power cuts.
- Network asset risk indices are used to track the delivery of asset replacement and refurbishment work. Unjustified under-delivery against targets will be penalised but justified over-delivery can lead to additional funding.
- Funding has been provided for enhancing the resilience of the network. Resilience is the ability of electricity distribution networks to continue to supply electricity to customers during disruptive events, such as severe storms, floods or black start events.

4.4 Some of the outputs committed to by WPD go beyond this framework with the aim of delivering excellent service for current customers and a reliable network in the longer term.

## Overview of network performance outputs

Network performance		
<a href="#">11</a>	Improve network performance by the end of RIIO-ED1 so that, on average, customers will have 16% fewer power cuts and have their electricity supplies restored 23% quicker. *	Customer interruptions have reduced by 35% and customer minutes lost have reduced by 47% from the underlying performance benchmark calculated for 2011/12.
<a href="#">12</a>	Make sure that at least 85% of customers have their power restored within an hour of a high voltage fault happening.**	88% of customers had their power restored within one hour of a high voltage fault.

Guaranteed Standards of Performance (GSOPs)		
<a href="#">13</a>	Reduce by 20% the number of customers experiencing a power cut which lasts for 12 hours or more.*	The number of customers without electricity for more than 12 hours (where the GSOP applied) was 26, an improvement of over 99% on our 2012/13 benchmark performance. Customers received a set payment where we failed to achieve the GSOP.
<a href="#">14</a>	Achieve no failures on all other GSOPs.**	We had no failures against most GSOP categories. However, we failed to notify nine customers of planned interruptions to their electricity supply and failed to meet the standard for restoring supply following a main fuse failure for two customers.

Worst served customers		
<a href="#">15</a>	Reduce by 20% the number of customers classified as worst served.*	To date, projects to reduce the number of worst served customers have been put in place for 11,660 customers. Our target for the whole of RIIO-ED1 was 6,812 customers.

Making our network more resilient		
<a href="#">16</a>	Apply flood defences to 75 substations, reducing the risk of both damage to equipment and power cuts due to flooding.*	To date, we have installed flood defences at 69 substations. We are on track to achieve our RIIO-ED1 targets.
<a href="#">17</a>	Speed up the programme of tree clearance (specifically related to storm resilience) by 40%, with the aim of clearing 700km of overhead lines per year (delivering the programme five years earlier than suggested by Government guidelines).*	The programme is ahead of plan. We have completed 52% of the programme of tree clearance that we committed to for the whole of RIIO-ED1.
<a href="#">18</a>	Improve substation battery life to last for 72 hours if there is a major, network-wide power loss.*	All programmes are ahead of plan.  Protection batteries – 71% of eight-year programme complete.  SCADA batteries – 68% of eight-year programme complete.  Telecommunications sites – 92% of eight-year programme complete.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

## Network performance

Output (11) Improve network performance by the end of RIIO-ED1 so that, on average, customers will have 16% fewer power cuts and have their electricity supplies restored 23% quicker.



- 4.5 WPD committed to improving network performance by the end of RIIO-ED1 so that on average customers would have 16% fewer power cuts (Customer Interruptions) and have their electricity supplies restored 23% quicker when a power cut occurs (Customer Minutes Lost).
- 4.6 The degree of improvement which we are aiming for was supported by stakeholders and in some cases was more challenging than targets proposed by Ofgem. These more stretching targets were incorporated into the Ofgem incentive mechanism called the Interruptions Incentive Scheme (IIS) – which provides financial rewards or penalties depending on performance against these targets.
- 4.7 Since establishing the targets we have achieved improvements in network performance. In comparison to 2012/13 performance the number of power cuts has reduced by 35%. The average duration of power cuts has reduced by 47%. This performance already exceeds the targets for the end of RIIO-ED1 and the challenge for the future will be maintaining these improvements for the remainder of RIIO-ED1.

## Performance for Customer Interruptions

4.8 Customer Interruptions are expressed as the average number of interruptions per 100 customers. The following tables and charts compare performance against targets.

Unplanned Customer Interruptions targets												
	Baseline reference	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Percentage improvement
West Midlands	93.7	89.9	88.5	86.7	85.0	83.3	81.7	80.0	78.3	76.7	75.1	20%
East Midlands	58.8	56.0	55.7	51.9	51.1	50.4	50.1	49.9	49.6	49.4	49.1	16%
South Wales	55.5	52.6	52.5	50.1	49.9	49.6	49.4	49.1	48.9	48.6	48.4	13%
South West	57.4	57.1	56.8	55.7	55.4	55.1	54.8	54.6	54.3	54.0	53.7	6%
WPD Total	69.1	66.5	65.9	63.5	62.6	61.7	61.0	60.3	59.6	58.9	58.2	16%

Unplanned Customer Interruptions actual (excluding exceptional events)												
	Baseline reference	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Percentage improvement to-date
West Midlands	93.7	73.6	67.6	63.1	56.1	53.2	52.8	-	-	-	-	44%
East Midlands	58.8	48.7	45.0	41.7	43.2	46.0	38.9	-	-	-	-	34%
South Wales	55.5	45.8	52.6	45.0	38.0	44.9	37.9	-	-	-	-	32%
South West	57.4	49.3	47.9	48.5	48.3	58.2	48.0	-	-	-	-	16%
WPD Total	69.1	56.3	53.9	50.4	47.6	50.6	45.0	-	-	-	-	35%



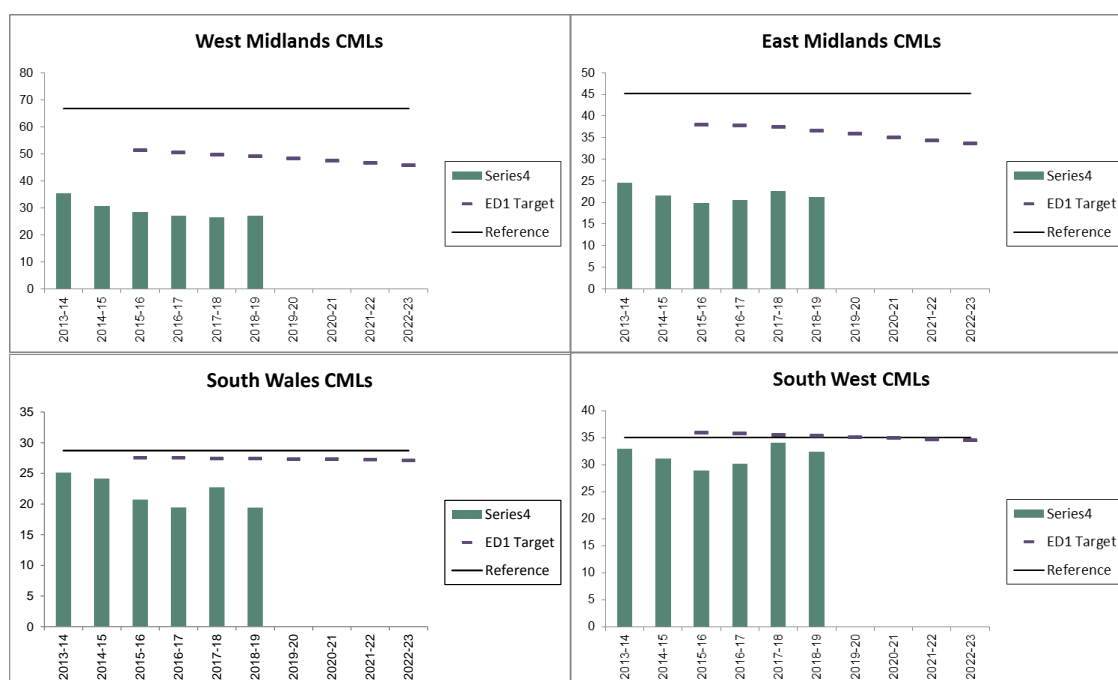
4.9 For 2018/19 performance for Customer Interruptions is better than the overall RIIO-ED1 improvement target for all licence areas.

## Performance for Customer Minutes Lost:

**4.10** Customer Minutes Lost are expressed as the average length of time in minutes that customers are without power (excluding power cuts that are under three minutes). The following tables and charts compare performance against targets.

Unplanned Customer Minutes Lost targets												
	Baseline reference	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Percentage improvement
West Midlands	66.7	52.5	51.9	51.1	50.3	49.5	48.7	47.9	47.1	46.4	45.6	32%
East Midlands	45.2	38.2	38.0	37.8	37.6	37.3	36.5	35.7	34.9	34.2	33.5	26%
South Wales	28.7	27.6	27.6	27.5	27.5	27.4	27.4	27.3	27.3	27.2	27.1	6%
South West	35.1	36.1	35.9	35.8	35.6	35.4	35.2	35.0	34.8	34.6	34.4	2%
WPD Total	47.7	40.8	40.5	40.2	39.8	39.4	38.8	38.2	37.7	37.2	36.6	23%

Unplanned Customer Minutes Lost actual (excluding exceptional events)												
	Baseline reference	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Percentage improvement
West Midlands	66.7	35.3	30.7	28.4	27.1	26.6	27.0	-	-	-	-	59%
East Midlands	45.2	24.4	21.5	19.9	20.4	22.7	21.3	-	-	-	-	53%
South Wales	28.7	25.1	24.2	20.7	19.5	22.7	19.4	-	-	-	-	32%
South West	35.1	32.9	31.1	29.0	30.1	34.1	32.4	-	-	-	-	8%
WPD Total	47.7	29.7	26.7	24.5	24.4	26.2	25.1	-	-	-	-	47%



**4.11** For 2018/19 performance for Customer Minutes Lost is better than the overall RIIO-ED1 improvement target and beats the in-year regulatory target in every licence area.

## Our approach to improving network performance

### 4.12 WPD aims to improve network performance by:

- reducing the number of faults that occur;
- reducing the number of customers affected by a fault; and
- reducing the time it takes to restore supplies when a fault occurs.

4.13 The following sections detail a range of supporting activities that we monitor to ensure that we continue to achieve improved network performance.

## Reducing the number of faults

### *Completing inspection and maintenance programmes*

4.14 WPD regularly inspects and maintains the network to identify poor condition assets, repair defects and replace worn components that could otherwise lead to faults.

4.15 Ensuring the completion of inspection and maintenance work programmes assists in limiting faults by addressing conditions that could lead to asset failure.

4.16 Local teams manage inspection and maintenance work. Company policy dictates the completion of set tasks within specific time periods and the completion of tasks is monitored by managers through weekly key performance indicators, so that no arrears exist.

### *Removing defective poles*

4.17 WPD places a high priority on the replacement of poor condition wooden poles. Overhead lines are regularly inspected and poles found in poor condition are flagged on our asset management system with a target for them to be removed from the network within a year.

4.18 This activity provides safety, reliability and resilience benefits. It removes weak points from overhead line networks; reducing the likelihood of failure, especially during severe weather conditions.

4.19 We use key performance indicators to ensure that defective poles are removed within 12 months of being identified. During 2018/19 each WPD licence area achieved 100 per cent completion against these indicators.

### *Using technology to locate faults before they occur*

4.20 During 2016/17, WPD purchased new fault location equipment that allows the location of faults to be identified before they become an issue. The equipment can monitor transient faults (recurrent, non-permanent faults), collecting data that provides a location of where the problem could be. This allows a proactive approach to be adopted so that a transient issue is removed before it becomes a permanent fault.

4.21 During 2018/19 we have continued to invest in this equipment and smart devices are installed on intermittent faults where fuses operate. The benefit of installing the devices is measured by considering the number of customer interruptions that have been avoided as a result of installation. We continue to explore the possibilities of these devices and potential future development.



## Replacing assets

- 4.22** The condition of network assets degrades over time and as a result WPD has an ongoing programme of asset replacement and refurbishment. The work is primarily carried out to maintain the reliability and safety of the network.
- 4.23** We assess the impact of asset replacement and refurbishment by using network asset indices based upon risk. The risk assessment considers the likelihood of an asset failing (asset health) and the consequences of the failure (criticality). Assets in good condition have a lower risk than assets in poor condition, so the act of replacing a poor condition asset with a new asset reduces risk levels.
- 4.24** For RIIO-ED1, Ofgem placed an obligation upon all DNOs to work together to produce a common methodology for the way in which asset health, criticality and risk are assessed. This is referred to as the Common Network Asset Indices Methodology (CNAIM). This work was completed in 2016 and the targets for risk reduction during RIIO-ED1 were restated using CNAIM in December 2016.
- 4.25** Targets have been established by considering the risk reduction that will be delivered by specific RIIO-ED1 asset replacement and refurbishment programmes. The targets are derived from the difference between two forecast positions:
- risk at the end of 2022/23 without any intervention; and
  - risk at the end of 2022/23 with planned asset replacement and refurbishment interventions.
- 4.26** The targets are specified as overall RIIO-ED1 targets. The table below shows both risk points delivered during 2018/19 and our performance towards the overall targets for RIIO-ED1. All four licence areas are delivering ahead of plan at the end of the fourth year of the price control.

Network asset indices performance					
	West Midlands	East Midlands	South Wales	South West	WPD Total
RIIO-ED1 total target	-17,228,200	-12,530,218	-9,816,502	-16,310,684	-55,885,603
Risk points reduction delivered to date during RIIO-ED1	-12,715,738	-9,175,476	-6,783,917	-10,119,493	-38,794,624
2018-19 delivered risk points reduction*	-3,841,305	-1,960,643	-1,650,680	-2,386,005	-9,838,634
Percentage of RIIO-ED1 target delivered to date	74%	73%	69%	62%	69%

\* The delivered risk point values are based upon the values that would be seen in 2022/23 to enable direct comparison to the targets

## Reinforcing the network to provide enough network capacity

**4.27** The amount of power that the network can carry (referred to as the capacity of the network) is limited by the rating/capability of equipment and the way in which these assets are configured. As more connections are made to the network, or customers use more electricity, spare capacity is used up and intervention is required to prevent assets overloading and failing.

**4.28** This intervention can be through:

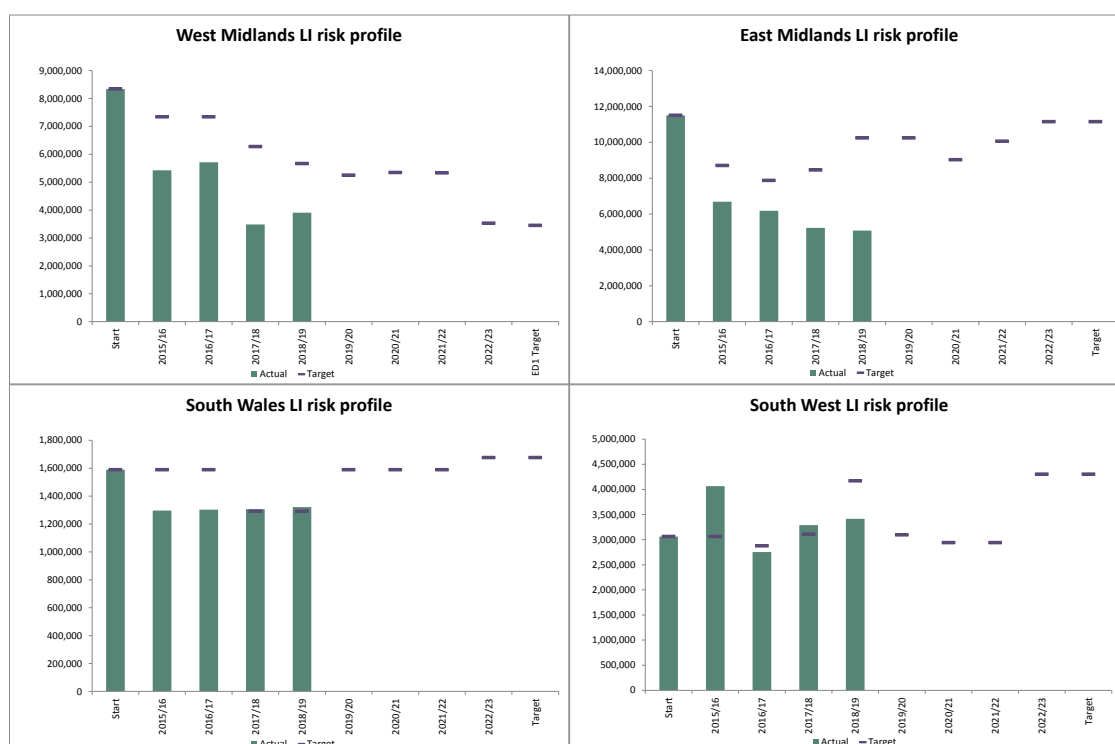
- reinforcing the network to provide more capacity - either by adding more assets or replacing existing assets with higher rated equipment which can carry greater load, or
- managing the load to reduce the maximum demand on the network.

**4.29** The network is regularly assessed to determine whether intervention work is required to reflect changing circumstances. For 33kV, 66kV and 132kV substations Ofgem has specified the use of a Load Index (LI) which compares maximum demand to capacity. The result is converted to an LI rank, with LI1 representing a substation with significant spare capacity and LI5 representing a fully utilised substation.

**4.30** The LI ranking is converted to risk points by using a weighting factor for each LI rank. As demand increases more capacity is used up leading to a higher LI band and higher LI risk points. When interventions take place more capacity is provided which lowers the LI band and LI risk points.

**4.31** In developing the RIIO-ED1 Business Plan we forecasted how load would grow and specified when we expected to carry out interventions. This resulted in a forecast risk profile over the RIIO-ED1 period.

**4.32** Progress against the forecast risk profile is shown below. For 2018/19 LI risk is lower than forecast in West Midlands, East Midlands and South West and broadly in line for South Wales.



## P2 compliance

- 4.33** DNOs have a licence obligation to manage networks to meet the requirements of Electricity Networks Association Engineering Recommendation for Security of Supply P2. This specifies the expected capability of the network to meet demands under defined outage conditions.
- 4.34** In order to prevent situations where the standard cannot be met, network reinforcement work is carried out in advance of networks becoming 'non-compliant'. However, there may be situations where demand increases occur more rapidly than forecast or where there are delays to reinforcement work.
- 4.35** Where networks become overloaded to the extent that the requirements of P2 cannot be met, the requirement for temporary relief from the licence obligation is identified. These temporary exemptions are referred to as derogations.
- 4.36** Where the amount of demand that could be interrupted is greater than 60MW, derogations must be submitted to Ofgem and an action plan developed to achieve compliance. At lower demands, Ofgem has introduced a self-derogation process (which does not require application to Ofgem, but still requires the development and implementation of an action plan).
- 4.37** At the close of 2018/19 there are no Ofgem derogations to standard P2 and two self-derogations. Each of these self-derogations has an action plan and a target completion date in place.

P2/6 derogations					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Ofgem derogations	0	0	0	0	0
Self-derogations	0	2	0	0	2

## Completing routine tree clearance programmes

- 4.39** Trees can cause interruptions by falling into overhead lines or by branches coming into contact with equipment.
- 4.40** Routine tree cutting is carried out on a cyclical basis to provide clearance from equipment as detailed within Industry Standard ENA TS 43-8. This prevents tree related faults and keeps the public safe.
- 4.41** This routine clearance is supplemented by a separate resilience clearance programme which focusses on the potential damage that can be caused by trees in strong winds.
- 4.42** For routine clearance, spans of overhead lines are inspected and will either be declared clear of tree proximity or cutting will be undertaken to achieve the required clearance distances. The volume of clearance will vary across licence areas depending on the size of the network, the nature of the network i.e. whether it is largely urban or rural, and tree population density.
- 4.43** During 2018/19 the following volumes of spans were cut.

Routine tree cutting (number of spans cut) in 2018/19					
	West Midlands	East Midlands	South Wales	South West	WPD Total
LV (spans)	7,762	9,538	14,911	27,890	<b>60,101</b>
HV (spans)	30,020	15,283	13,045	15,633	<b>73,981</b>
EHV (spans)	1,042	815	846	1,176	<b>3,879</b>
132kV (spans)	339	215	1,136	206	<b>1,896</b>

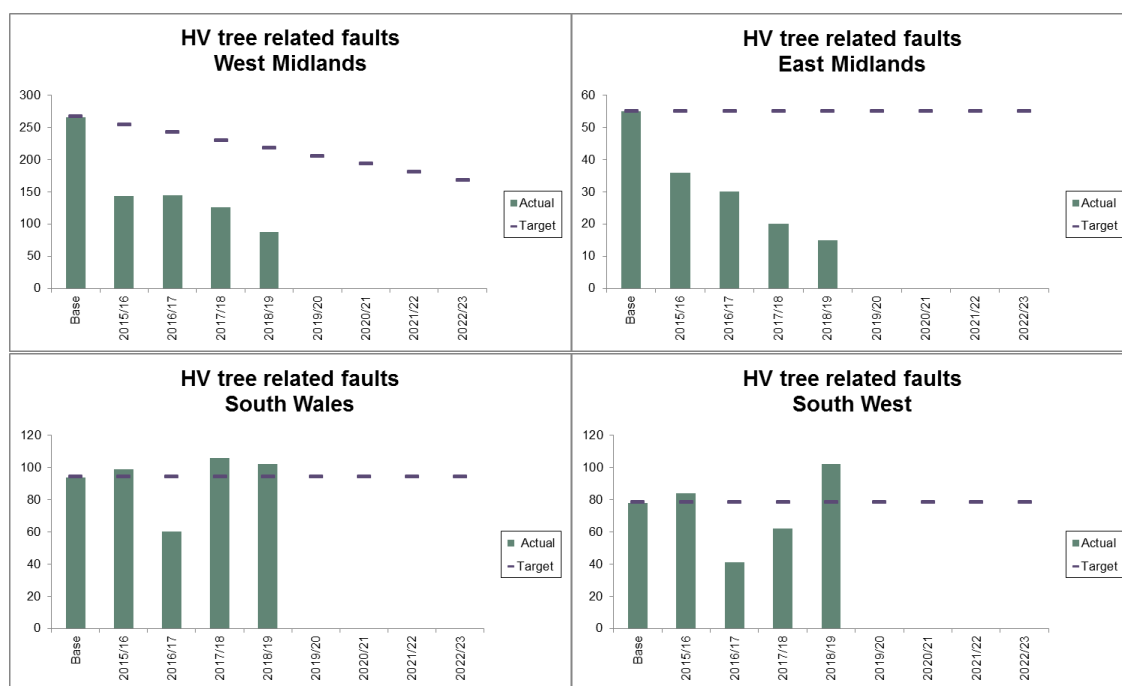
- 4.44** Effective tree clearance assists in the reduction of tree related faults and within RIIO-ED1 WPD targeted an overall 20% reduction in both high voltage (HV) and low voltage (LV) tree related faults. A 20% improvement in LV tree related faults was targeted in each licence area. At HV a 37% improvement in tree related faults was targeted in West Midlands which would lead to an overall WPD improvement of 20%.

## HV tree related faults

4.45 Performance in 2018/19 shows a 38% improvement in the number of HV tree related faults for WPD as a whole compared to our baseline performance; the performance for each licence area against target can be seen below.

HV tree related fault targets					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	266	55	94	78	493
Target - end RIIO-ED1	168	55	94	78	395
Percentage improvement - target	37%	0%	0%	0%	20%

HV tree related fault actual					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	266	55	94	78	493
2018/19 performance	88	15	102	102	307
Percentage improvement - actual	67%	73%	-9%	-31%	38%



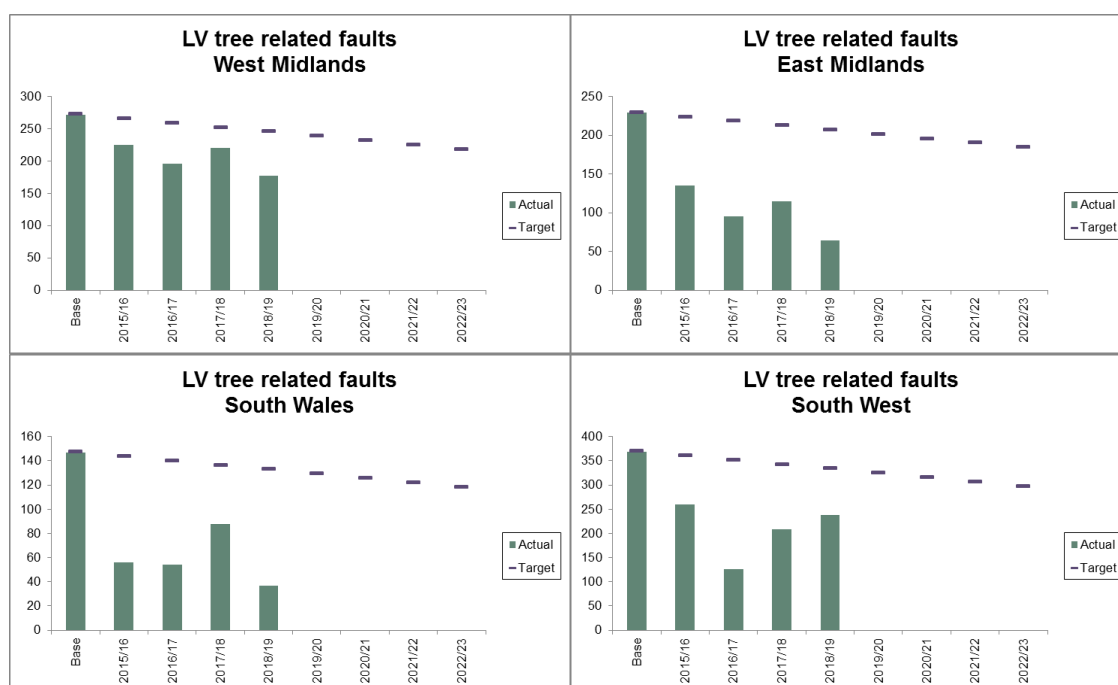
4.46 Performance in the West Midlands and East Midlands licence areas shows a continued improvement during RIIO-ED1; however we have seen increases in the number of faults in the South West during 2018/19.

## LV tree related faults

4.47 Performance during 2018/19 shows a 49% improvement in the number of LV tree related faults for WPD as a whole; the performance for each licence area against target can be seen below.

LV tree related fault targets					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	272	229	147	369	1,017
Target - end RIIO-ED1	218	184	118	297	817
Percentage improvement target	20%	20%	20%	20%	20%

LV tree related fault actual					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	272	229	147	369	1,017
2018/19 performance	177	64	37	238	516
Percentage improvement - actual	35%	72%	75%	36%	49%



4.48 All licence areas are already beating the target to reduce LV tree related faults by 20% by the end of RIIO-ED1; however we have seen an increase in the number of faults in the South West licence area during 2018/19, compared to the previous year.

## Reducing the number of customers affected by power cuts

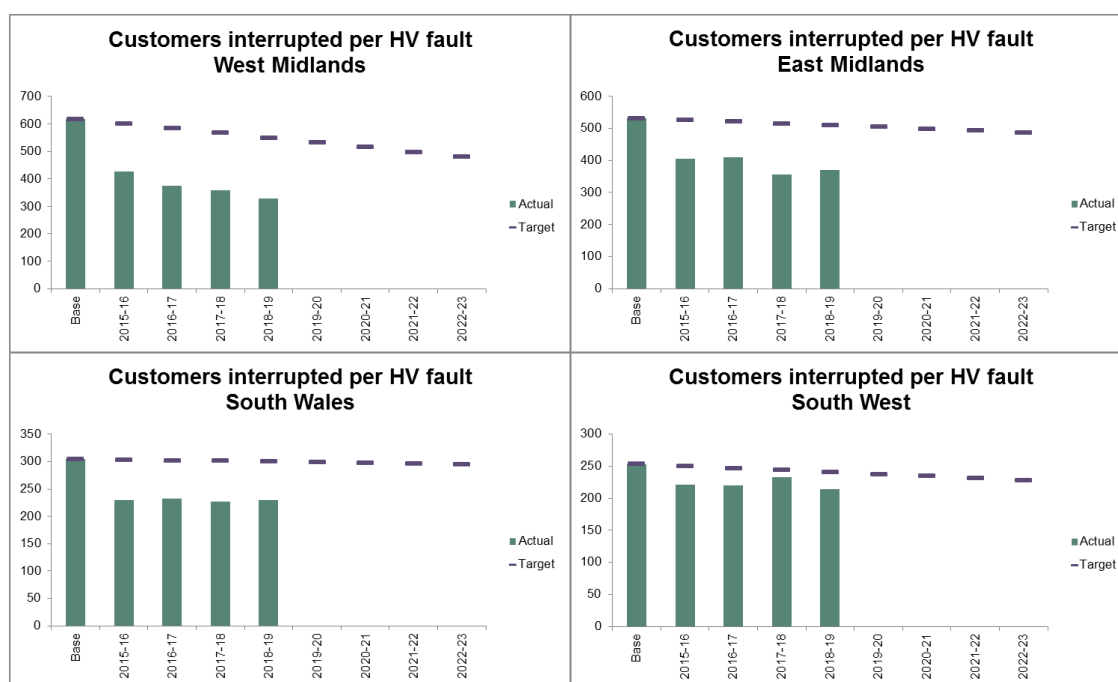
**4.49** As well as taking preventative steps to limit the number of faults, WPD is installing technology that aims to reduce the number of customers affected when a fault occurs.

### Network automation

- 4.50** Reductions in the number of customers affected by HV faults are achieved by increasing the amount of network automation which can be utilised on the network when a fault occurs.
- 4.51** The installation of additional remotely control devices allows electricity supplies to be quickly rerouted or 'switched' without the need to send a person to site. These switching operations can be initiated by staff in our control centre or automatically by computer algorithms.
- 4.52** Additional equipment which protects the network, such as circuit breakers and intelligent fuses, enable circuits to be subdivided into smaller zones reducing the number of customers that are affected by a fault.
- 4.53** The development of automatic switching algorithms allows switching actions to take place without the intervention of a Control Engineer. The algorithms use information from fault passage sensors to indicate which section of the network contains the fault and then communicate with remotely controlled devices to restore supplies to the maximum number of customers possible.
- 4.54** The application of this technology results in an improvement in the average number of customers affected by faults. The table below shows performance in 2018/19.

Average number of customers interrupted per unplanned HV incident				
	West Midlands	East Midlands	South Wales	South West
Benchmark performance (five year average 2008/09 to 2012/13)	617	531	304	253
Target performance – end of RIIO-ED1	480	487	295	228
2018/19 performance	329	369	230	215

**4.55** All licence areas have achieved our overall target for the end of RIIO-ED1.





## Reducing the time it takes to restore supplies

**4.56** WPD has a clear focus on restoring supplies quickly.

### Managerial focus

**4.57** WPD promotes a culture which prioritises getting customers back on supply.

**4.58** Clear management focus on speedy restoration of electricity supplies in the event of a fault has led to significant improvements in performance over a number of years.

**4.59** This focus is applied to all faults, irrespective of whether the fault affects a single customer or thousands of customers.

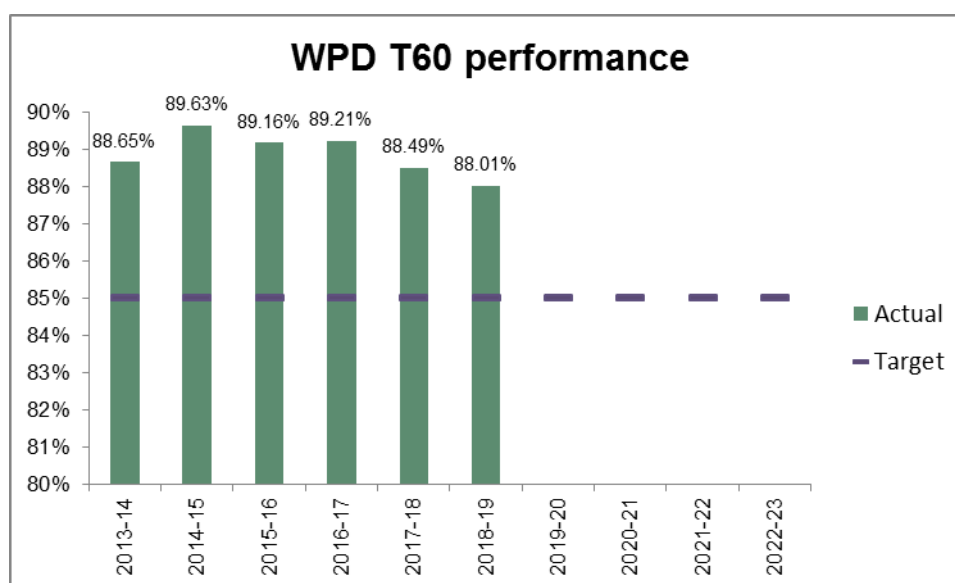
**Output (12)** Make sure that at least 85% of customers have their power restored within an hour of a high voltage fault happening.



**4.60** An internal initiative called 'Target 60' measures the percentage of customers who are restored within one hour of when a high voltage (HV) fault occurs. During RIIO-ED1 WPD committed to achieving a Target 60 performance that exceeds 85%. The following table shows WPD overall performance exceeded this target in 2018/19.

Target 60 - restoration within one hour of an HV fault (% of customers)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Performance 2018/19	89.28%	88.73%	87.87%	84.99%	88.01%

**4.61** This result continues to build our track record of outperformance against the target as shown below.



**4.62** Where Target 60 is not achieved for an individual incident, the local Team Manager investigates why and produces a report by the following morning to identify the factors that contributed to failure. This report is escalated to senior managers so that learning points can be considered. In this way we continuously identify opportunities to improve performance.

## Guaranteed Standards of Performance (GSOPs)

- 4.63** Statutory regulations set guaranteed standards of performance that DNOs must meet in relation to network reliability. Customers are entitled to payments where DNOs fail to meet the standards.

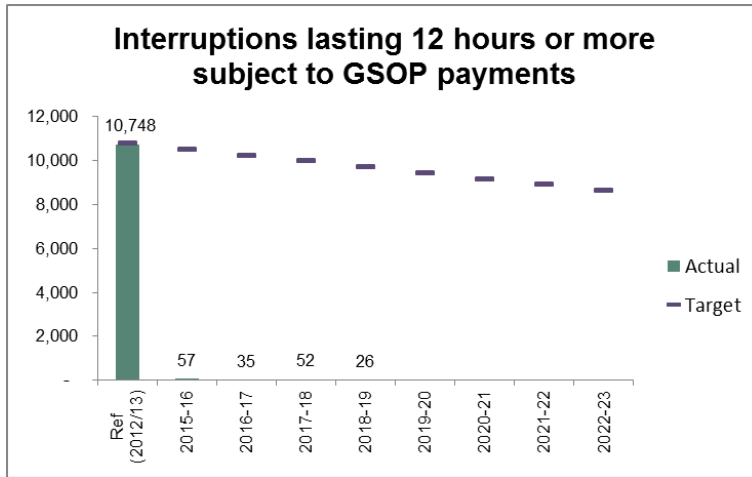
**Output (13) Reduce by 20% the number of customers experiencing a power cut which lasts for 12 hours or more.**



- 4.64** GSOP EGS2 requires DNOs to restore customer supplies within 12 hours of an outage in normal weather. This is an enhancement to the previous requirement of 18 hours, a change which was introduced from the start of RIIO-ED1.
- 4.65** WPD pre-empted the introduction of this more challenging target by putting internal key performance indicators in place before the change in regulatory requirements.
- 4.66** As part of the RIIO-ED1 Business Plan, WPD committed to reduce by 20% on average the number of customers experiencing interruptions lasting 12 hours or more.
- 4.67** Targets were based on performance in 2012/13. Subsequently we have placed a greater focus on this and actual performance has surpassed these targets. The number of customers experiencing interruptions lasting 12 hours or more has been significantly reduced.
- 4.68** The targets and actual performance for 2018/19 are shown in the table below. The process for calculating the length of an outage allows exemptions in certain circumstances – for example where there is no access to the customer property or where the customer themselves requests a delay in the works required to restore supplies. Where an exemption is applied and the clock is stopped the DNO is not required to make a GSOP payment to the customer if the 12 hour standard is not met. In the table below we have shown performance both with, and without, exemptions for 2018/19.

Customers affected by interruptions lasting 12 hours or more					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Reference performance in 2012/13 (after exemptions applied).	5,080	3,367	272	2,029	10,748
Target performance - end of RIIO-ED1 (after exemptions applied)	4,064	2,694	218	1,623	8,599
2018/19 performance (total after exemptions – GSOP payments made)	0	0	0	26	26
2018/19 performance (total before exemptions)	203	667	76	392	1,338

- 4.69** Our performance during RIIO-ED1 can be seen below and shows those circumstances where the customer has been eligible for and received a GSOP payment for an interruption lasting 12 hours or more.



**4.70** While targets proposed a 20% improvement, we have virtually eliminated failures against the standard. To achieve this improvement we took a number of actions including:

- expanding our fleet of mobile generators to further enhance WPD’s capability to provide temporary supplies;
- shortening the timescale triggers for escalation to senior managers if there is a potential that restoration will not be achieved within 12 hours; and
- amending contracts for excavation so that a digging team is on site within one hour (reduced from two hours).

## Output (14) Achieve no failures on all other GSOPs.



**4.71** In addition to the restoration of supplies in normal weather, The Electricity (Standards of Performance) Regulations 2015 also specify a range of other requirements. Detailed information on these guaranteed standards can be found on our website.

[www.westernpower.co.uk/About-us/Our-Business/customer-service/Guaranteed-Standards.aspx](http://www.westernpower.co.uk/About-us/Our-Business/customer-service/Guaranteed-Standards.aspx)

**4.72** WPD has set itself a tough target to have zero failures against all the other guaranteed standards.

**4.73** During 2018/19 there were only 11 occasions where we didn't meet these standards. We failed to notify nine customers of planned interruptions to their electricity supply and did not meet the standard for restoring supply following a main fuse failure for two customers. We aim to learn from each failure in order to achieve our RIIO-ED1 target of zero.

Guaranteed Standards of Performance failures in 2018/19 (excluding restoration of supply within 12 hours)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Main fuse failure	-	-	-	2	2
Multiple interruptions	-	-	-	-	-
Major incident	-	-	-	-	-
Rota disconnection	-	-	-	-	-
Planned interruptions	-	-	1	8	9
Voltage enquiries	-	-	-	-	-
Missed appointments	-	-	-	-	-
Missed payments	-	-	-	-	-
Storm supply restoration	-	-	-	-	-

**4.74** As promised in the RIIO-ED1 Business Plan, WPD has voluntarily doubled the value of payments for failures against guaranteed standards to provide additional recompense where service has failed to meet minimum expectations.

## Making improvements for worst served customers

Output (15) Reduce by 20% the number of customers classified as worst served.

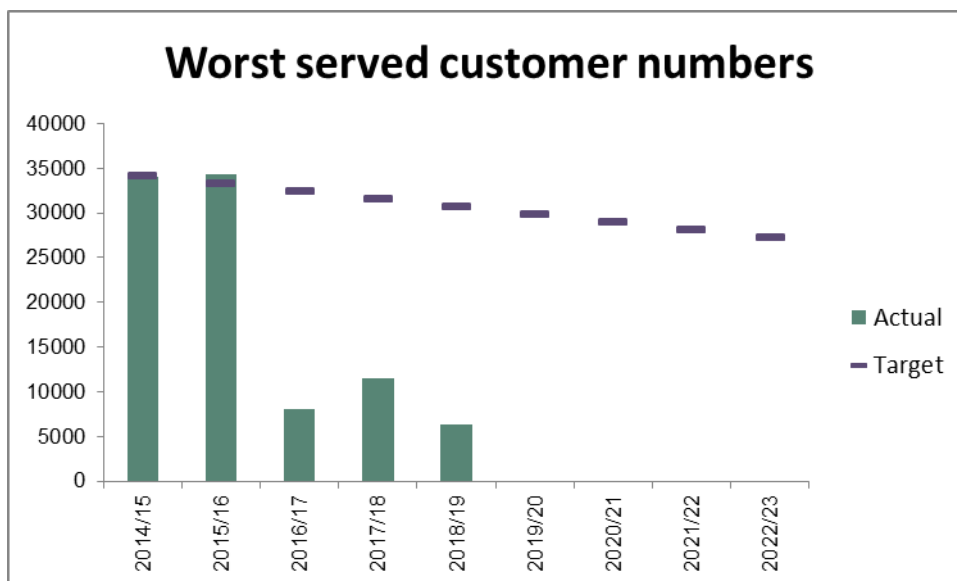


- 4.75** Within RIIO-ED1, Ofgem has defined worst served customers as those that experience 12 or more higher voltage interruptions over a three year period (with a minimum of three interruptions experienced in each year of the period).
- 4.76** Improvements for worst served customers aim to reduce the number of interruptions for customers who experience an unusually poor level of service. Often these customers are connected to remote parts of the network that are predominantly served by overhead lines.
- 4.77** DNOs have access to funding to improve the reliability of the network for these customers. Recovery of expenditure is dependent on defined improvements in service following the works.
- 4.78** WPD engaged with stakeholders to determine the level of improvement required, resulting in a decision to target a 20% improvement with a maximum average spend per customer of £800.
- 4.79** In 2012/13 WPD estimated that 20,000 customers would be classified as being worst served and committed to a 20% reduction, reducing the total number of worst served customers to 16,000. Forecast expenditure was based upon carrying out work to improve performance for 4,000 customers.
- 4.80** The targets have been revised using actual worst served customer numbers from 2014/15 as a reference. This leads to the following target volumes.

Worst served customer numbers – updated targets					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Reference performance in 2014/15	10,723	19	9,701	13,615	34,058
Target performance - end of RIIO-ED1	8,578	15	7,761	10,892	27,246
20% reduction	2,145	4	1,940	2,723	6,812

- 4.81** The type of work carried out to make improvements varies depending on fault history and the opportunities available to reduce the number of future faults, but includes solutions such as:
- the installation of additional automated switching so that fewer customers are affected when faults occur;
  - the installation of bird flight diverters where birds fly into overhead lines and cause faults; or
  - changing equipment which is prone to damage in exposed areas with high winds.

4.82 The number of worst served customers has reduced during 2018/19 and is significantly lower than the targets set for the end of RIIO-ED1. Performance since the reference year is illustrated below.



4.83 The following table shows both the number of worst served customers but also the number of customers targeted by the projects carried out during RIIO-ED1.

Worst served customer numbers					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Customers classified as worst served in 2018/19	4,496	12	1,108	769	6,385
Customers targeted for worst served customer work in ED1 to date	5,177	921	2,401	3,161	11,660

## Making our network more resilient

**4.84** Resilience refers to the ability of the network to continue to supply electricity during severe weather and to have the capacity to recover from widespread system shutdowns. In line with Ofgem requirements network resilience is monitored in three areas.

- Flooding
- Resilience tree cutting
- Black start

**4.85** At the request of stakeholders we have included new information on the actions that we take in relation to the security of our network control and information technology systems (also referred to as cyber security). The control and information systems that we use play a vital role in the operation of our network and the disruption of these systems could cause power failures. Systems could be a target for malicious cyber-attacks and our resilience to such actions is therefore important in our efforts to maintain network performance and security of supply.

**Output (16) Apply flood defences to 75 substations, reducing the risk of both damage to equipment and power cuts due to flooding.**



**4.86** Climate change predictions suggest that widespread flooding will become a more regular occurrence. Although flooding can often be limited to relatively small areas of ground, substations often supply customers across much wider areas. Inconvenience can therefore be caused for customers who may not be directly affected by flood water themselves.

**4.87** Flood risk is assessed based on the probability that flooding will affect electricity supplies and the number of customers likely to be impacted. Flooding is categorised as either fluvial or pluvial.

- Fluvial flooding – floods related to river or coastal sites.
- Pluvial flooding – floods related to excessive rainwater (flash flooding).

**4.88** Data provided by the Environment Agency has been used to identify substation sites that are at risk of fluvial flooding and during RIIO ED1 WPD committed to installing flood defences at 27 sites. Work undertaken for fluvial sites during RIIO-ED1 is shown below.

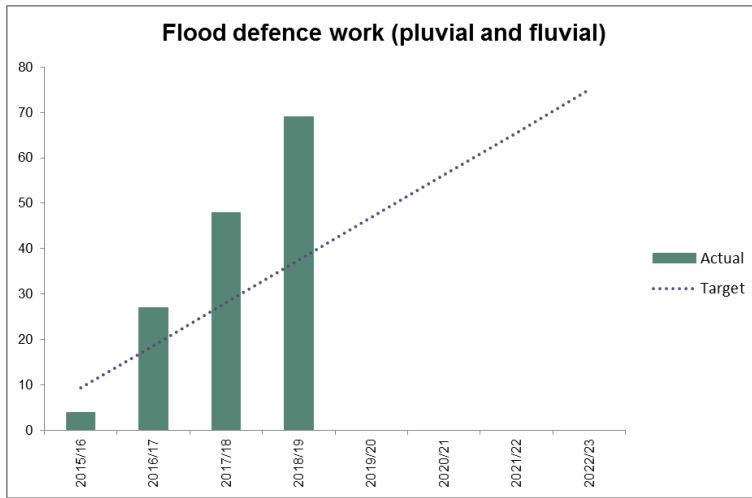
Fluvial flood defences installed (sites)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Total number of sites to be protected during RIIO ED1 – risk of fluvial flooding	0	14	12	1	27
Flood defences installed during RIIO-ED1	0	14	6	6	26

**4.89** At the time of developing the RIIO-ED1 Business Plan there was no data available on pluvial flooding so it was estimated that 48 sites would require flood defences. Subsequently, Environment Agency data has been used to identify an initial list of substations at potential risk and local teams have undertaken site surveys to assess risk levels, supplemented by independent, detailed, hydrological surveys. Work undertaken for pluvial sites during RIIO-ED1 is as follows.

Pluvial flood defences installed (sites)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Total number of sites to be protected during RIIO ED1 – risk of pluvial flooding	13	16	8	11	48
Flood defences installed during RIIO-ED1	11	6	15	11	43



**4.90** Our progress towards applying flood defences to 75 substations during RIIO-ED1 is illustrated below.



Output (17) Speed up the programme of tree clearance (specifically related to storm resilience) by 40%, with the aim of clearing 700km of overhead lines per year (delivering the programme five years earlier than suggested by Government guidelines).



4.91 The resilience of overhead lines to storms is determined by how well they can withstand severe weather.

4.92 Overhead line fault rates are influenced by the following:

- The condition of overhead lines.
- The design strength of overhead lines.
- Routine tree clearance.
- Resilience tree clearance.
- Weather conditions.

4.93 During RIIO-ED1, WPD has proposed to enhance the amount of resilience tree work carried out to improve overhead line resilience.

#### Resilience tree clearance

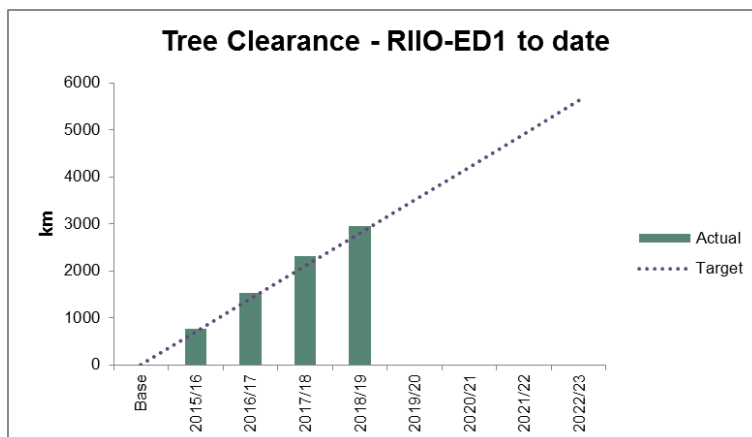
4.94 Severe storms can cause network faults and lead to interruptions in supply for large numbers of customers. In particular strong winds can lead to overhead lines being damaged by trees.

4.95 Following storms in October 2002, legislation was changed to require DNOs to clear trees from strategic overhead lines to a resilient standard to prevent damage should a tree be blown over. The resilience standard requires a greater distance between trees and overhead lines compared to clearance distances required for routine tree clearance. The government’s assessment aimed to make 20% of the network resilient within 25 years.

4.96 In preparation of the RIIO-ED1 Business Plan, stakeholder engagement showed strong support for additional clearance work and WPD has therefore committed to increasing the amount of resilience tree clearance by 40% to complete the programme five years earlier than originally planned. Progress during RIIO-ED1 to date is shown below.

Tree clearance – resilience cutting					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Target for RIIO-ED1 (km)	1,448	1,296	1,192	1,688	5,624
Actual – RIIO-ED1 to date(km)	742	745	601	860	2,947
Percentage of programme complete	51%	57%	50%	51%	52%

4.97 Progress against target for WPD as a whole is demonstrated below.



**Output (18) Improve substation battery life to last for 72 hours if there is a major, network-wide power loss.**



**4.98** Although they are extremely rare, a number of blackouts across the world (prior to the start of RIIO-ED1 in the USA, Europe and across India) highlighted that very widespread supply interruptions can occur. Events can be triggered by a coincidence of circumstances, which due to network running arrangements cause disconnection of customers to cascade as each alternative network reacts to the situation. Recovery from the blackout - a 'Black Start' - can take a number of days as generation stations return online and network loads are balanced with the output of generation.

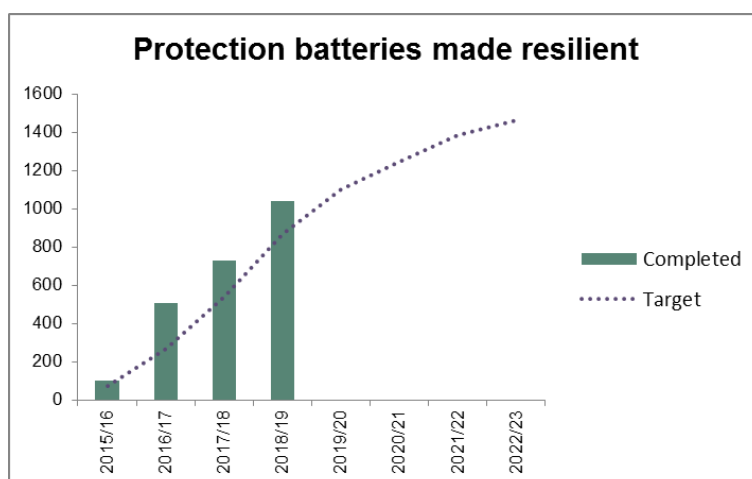
**4.99** The electricity industry has developed a standard which requires major substations to have the resilience to enable safe re-energisation following either a full or partial shutdown of the electricity network lasting up to 72 hours. The main consideration is the length of time that battery systems will last – this includes protection, SCADA and telecommunication system batteries.

**4.100** During RIIO-ED1 WPD has committed to making all substation battery systems at major substations and associated communications infrastructure resilient to the 72 hour standard; this will be achieved by:

- managing the capacity of protection batteries - by installing schemes which can automatically disconnect loads. This limits the drain on protection batteries which are used for tripping of switchgear and protection, whilst the substation is de-energised;
- increasing the capacity of SCADA telecommunications batteries by replacing existing batteries with higher capacity alternatives or placing additional batteries alongside the existing batteries to increase capacity; and
- enhancing the power supply capability at communication sites by either installing additional battery capacity or on-site generation.

**Protection batteries**

**4.101** To make protection batteries resilient to 72 hours we install load disconnection schemes – which in the event of a prolonged loss of power to the substation would disconnect the battery load to prevent battery drainage. So far during RIIO-ED1 we have delivered 71% of the required programme to make protection batteries resilient and we are ahead of the delivery profile specified in the RIIO-ED1 Business Plan.



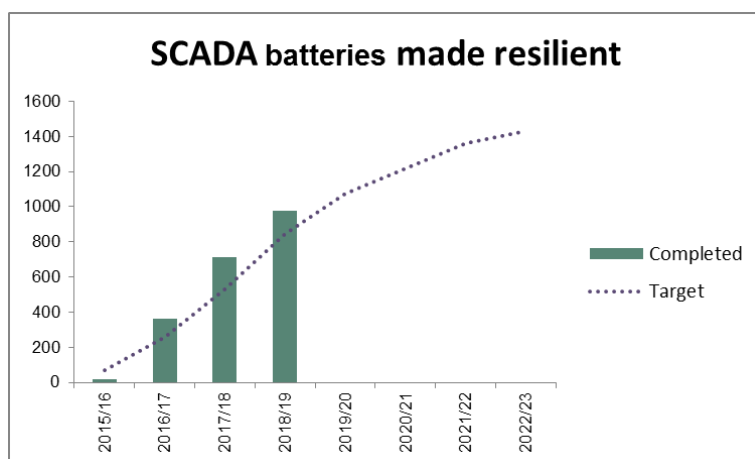
4.102 Performance in each licence area is shown below.

Resilience of protection batteries					
	West Midlands	East Midlands	South Wales	South West	WPD Total
RIIO-ED1 target (includes both EHV and 132kV protection batteries)	240	621	236	366	1,463
Protection batteries made resilient during RIIO-ED1	211	405	213	208	1,037

### SCADA batteries

4.103 SCADA battery arrangements have been reviewed on a site by site basis to determine the most efficient method to achieve resilience; this could be by replacing batteries or enhancing capacity depending on other work requirements at the sites.

4.104 During the first three years of RIIO-ED1 we have completed 68% of our overall programme and have declared 976 batteries resilient to the 72 hour standard. We are on target to achieve our commitment for RIIO-ED1.



4.105 Performance in each licence area is detailed below.

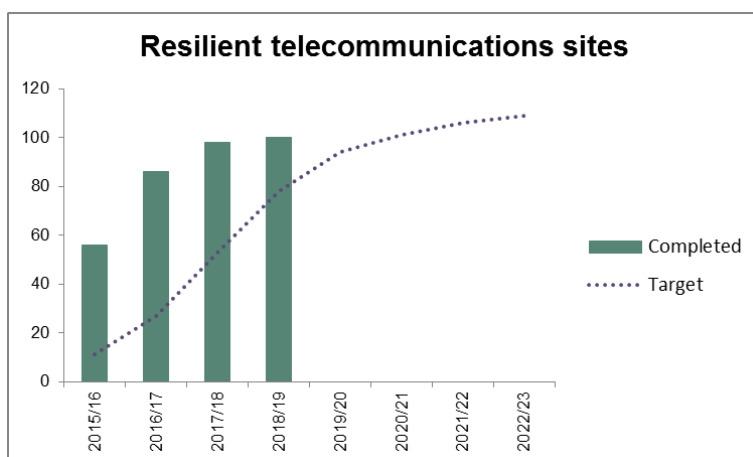
Resilience of SCADA batteries					
	West Midlands	East Midlands	South Wales	South West	WPD Total
RIIO-ED1 target (includes both EHV and 132kV protection batteries)	254	586	190	403	1,433
SCADA batteries made resilient during RIIO-ED1	197	362	93	324	976

## Telecommunication sites

**4.106** Alongside substation battery resilience the resilience of key telecommunications systems is required for successful recovery from a Black Start event. During RIIO-ED1 WPD targeted the upgrading of systems at 109 telecommunication sites in West Midlands and East Midlands.

**4.107** During the course of 2015/16 additional work was also identified at sites in South Wales and the South West.

**4.108** Progress against the RIIO-ED1 target has been positive with 92% of the original programme already complete – 100 out of 109 sites in the East Midlands and West Midlands. An additional 83 sites have been completed in South Wales and the South West.



Sites completed for South Wales and the South West have not been included in the above chart as they were not part of the original targets in our RIIO-ED1 business plan.

**4.109** Performance in each licence area is detailed below.

Resilience of telecommunication sites					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Sites identified as part of the RIIO ED1 business plan	43	66	0	0	109
Sites made resilient during RIIO-ED1	45	55	50	33	183

## Non-operational sites

**4.110** In advance of RIIO-ED1, resilience work was undertaken to upgrade generator capacity at 18 non-operational sites (e.g. offices that would be used to co-ordinate resources during a black start). No further requirements have been identified for non-operational sites.

## Cyber security – maintaining the resilience of our network and information systems

- 4.111** The magnitude, frequency and impact of digital ‘cyber’ attacks on computer networks and information systems is increasing. The UK’s National Cyber Security Centre (NCSC) was founded in 2016 and reports that in the first two years since the centre became operational there have been over 1,000 security threats.
- 4.112** The term cyber security describes the technology, processes and controls that can be put in place to protect systems against such attacks.
- 4.113** We take the protection of our assets and systems very seriously. This means that we design and protect our systems to defend against attacks and have robust policies and procedures in place to ensure that we do not put these systems at risk when carrying out our operations.
- 4.114** Cyber security risks are changing as the industry increasingly adopts digital technology and becomes more reliant on IT and telecommunications for data acquisition and monitoring and control of the network.
- 4.115** The government recognises the need to ensure the security of network and information systems across the UK and in May 2018 introduced the Network and Information Systems (NIS) Regulations. The NIS regulations are designed to achieve a high, common level of network and information systems security across the UK. The legislation requires WPD to demonstrate active cyber security risk management, report incidents that disrupt energy supply and take action to rectify those incidents.
- 4.116** WPD already works closely with government departments (including the NCSC) and other energy companies to share information that ensures the company is aware of and can react to the latest issues for threats.
- 4.117** Since the introduction of the NIS regulations we have:
- expanded our Cyber Security team, increasing specialist knowledge through external recruitment and formal training;
  - carried out a review of our systems to understand key risk areas;
  - developed a programme of work to further enhance our cyber security capability;
  - completed network enhancements to increase security and resilience; and
  - worked with industry and government on sector wide initiatives to raise the level of cyber security in the energy sector.
- 4.118** An example of the cyber security work that we are undertaking relates to our transition to DSO. We anticipate that customers will increasingly contribute to our ability to manage energy flows across the network, by controlling the amount of energy that they either take from the network or the amount that they supply to the network. To allow the safe interaction of our network information systems with those of third parties we are developing secure systems architecture and protocols that allow for interconnection and inter-operability.

2015-2023  
Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
Year Four – 2018/19

31 October 2019

Environment



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## 5 Environment

5.1 Business plan commitments for the environment cover two distinct areas: facilitation of a move to a low carbon economy and a reduction of the impact of WPD's activities on the environment.

5.2 Environment outputs are in five themes.

- Facilitating increased volumes of low carbon technologies (LCTs).
- Reducing technical network losses.
- Reducing the carbon footprint of the business.
- Reducing the environmental risk of leaks from equipment.
- Improving visual amenity in National Parks and Areas of Outstanding Natural Beauty (AONBs).

5.3 Changes to the way that electricity is generated and consumed requires electricity networks to adapt for the challenges of a low carbon future. As a result the scope of our activities in this area has expanded and we are reporting on additional areas of work that have become integral to our business and the delivery of our RIIO ED1 business plan. These are detailed in a section called 'Developments in the Energy System'.

### Regulatory framework

5.4 Environmental impacts caused by DNO activities are not financially incentivised; instead they are reliant on a reputational system of league tables to demonstrate the effectiveness of the management of environmental issues.

5.5 Ofgem has placed a licence obligation on DNOs to reduce losses where it is cost effective to do so. In addition, Ofgem has introduced a discretionary reward incentive mechanism that encourages DNOs to develop and adopt innovative ways of reducing losses.

5.6 During RIIO-ED1 Ofgem requires DNOs to produce and publish an annual Environment Report which details the activities carried out in relation to environmental matters and facilitating the low carbon transition. The WPD Environment Report compliments the content of this section and can be found on our website.

[www.westernpower.co.uk/About-us/Our-Business/Environment.aspx](http://www.westernpower.co.uk/About-us/Our-Business/Environment.aspx)

## Overview of environmental outputs

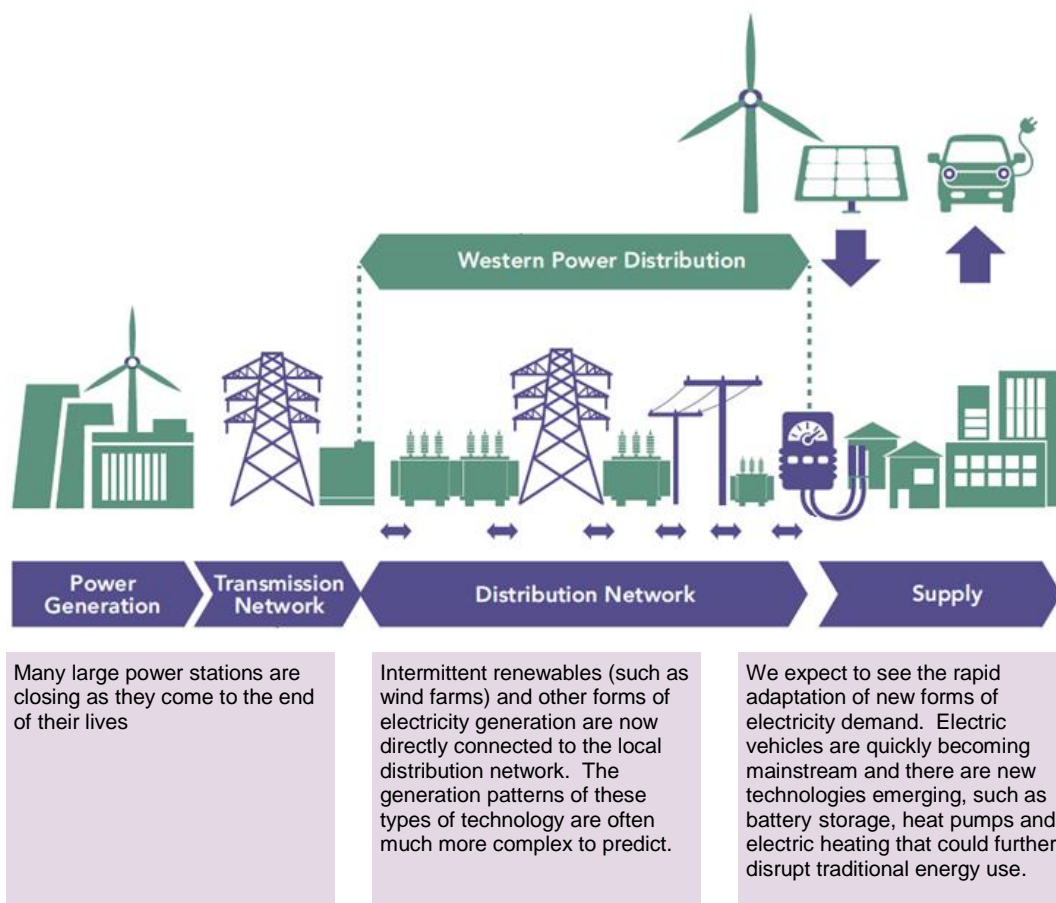
Make it possible for more people to use low carbon technologies (LCTs)		
<a href="#">19</a>	Improve by 20% the time taken to provide a response to customers who want to use LCTs.*	We have seen an improvement in LCT response times and were close to achieving our annual target of 2.81 working days. The average response time was 2.83 days.
<a href="#">20</a>	Identify LCT hotspots using information from smart meters, expert organisations and local authorities, and use this information when making decisions.	Information on the location of LCT hotspots has been added to our systems.
<a href="#">21</a>	Selectively replace assets using larger assets in areas where more LCTs may be connected to our network.	We carried out 23 asset replacement projects, using larger assets, as a result of using information about LCT hotspots.
<a href="#">22</a>	Reduce costs for future customers by developing smart solutions to provide alternative and innovative techniques for managing our network.	We had a range of innovation projects in progress during the year.
<a href="#">23</a>	Provide additional network capacity by using traditional or 'smart' methods.	We launched our new Flexible Power brand, so we can now provide an extra 28 MW of energy when needed to respond to demand.
Reduce technical network losses		
<a href="#">24</a>	Install oversized transformers when replacing assets in areas where demand for power may become higher than equipment can cope with.	We installed 21 oversized transformers.
<a href="#">25</a>	Use larger cables when installing new network in LCT hotspots.	We installed 1.15km of larger cable in LCT hotspots.
Reduce the carbon footprint of the business		
<a href="#">26</a>	Make sure all replacement vehicles have lower CO2 emissions than those they are replacing.	Changes to emissions tests have led to some increases in the emissions reported for some of our most commonly used vehicles. However, we have beaten our in-year targets.
<a href="#">27</a>	Make sure all new or substantially refurbished buildings meet, as a minimum, the 'excellent' standard under the Building Research Establishment Environmental Assessment Method (BREEAM).**	One new depot achieved the 'excellent' standard under BREEAM. One refurbished depot achieved the 'very good' standard, the maximum rating for a refurbished building.
<a href="#">28</a>	Reduce the amount of waste sent to landfill by 20% over the first two years of RIIO-ED1 and 5% per year after this.	We have seen a reduction in the amount of waste sent to landfill, and we have achieved our target for the whole of RIIO-ED1.
<a href="#">29</a>	Reduce our carbon footprint by 5%.*	Our business carbon footprint has reduced by 17% compared with 2012/13. We have beaten our in-year target.
Reduce the environmental risk of leaks from equipment		
<a href="#">30</a>	Reduce by 75% the amount of oil lost through leaks from oil-filled cables.*	We have seen increases in the amount of oil lost from oil-filled cables. We missed our in year targets.
<a href="#">31</a>	Reduce by 17% the amount of SF <sub>6</sub> gas that is lost from switchgear.*	The amount of SF <sub>6</sub> gas lost as a percentage of the total amount of SF <sub>6</sub> used on our network has reduced from 0.47% in 2015/16 to 0.30% in 2018/19 for the whole of our area. However, we missed our in-year targets in the South West and South Wales.
<a href="#">32</a>	Install effective oil containment 'bunds' around plant containing high volumes of oil.*	We have completed work on 134 new and refurbished bunds so far in RIIO-ED1, going further than our forecast of 104 bunds.
Improve the appearance in National Parks and Areas of Outstanding Natural Beauty (AONBs)		
<a href="#">33</a>	Replace 55km of overhead lines in National Parks and AONBs with underground cables.*	To date during RIIO-ED1, we have replaced 17.5 km of overhead lines with underground cables.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year  
\*\* Target to be achieved each year of RIIO-ED1

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## Developments in the energy system

- 5.7 The way in which electricity is generated has changed significantly over the last few years with more generators being connected to the distribution network. In addition the way electricity is consumed is changing with continued growth of electric vehicles and the use of heat pumps for domestic heating. There are also emerging technologies such as large scale battery storage which can store the excess energy being produced and release it back to the network at times of high demand. As a result DNOs have the challenge of managing different power flows across the distribution network. This requires the evolution of systems and processes for forecasting and managing the network.
- 5.8 The changes are summarised in the diagram below.



- 5.9 To meet the future energy needs of our customers, WPD have started the process to transition from the relatively passive role of Distribution Network Operator (DNO) to that of Distribution System Operator (DSO). As a DSO we will operate the network more flexibly, balancing sources of supply and demand in real time and avoiding, where possible, the need for costly reinforcement of the network by locally managing generation output, load and power flows. We are beginning to facilitate better, whole system, outcomes by ensuring customers can provide services up to the transmission system operator, which may avoid the need for transmission reinforcement.
- 5.10 In 2017/18, after extensive consultation with stakeholders, we published a costed strategy for transition to the role of DSO. The strategy and a range of further information can be found at the link below.

[www.westernpower.co.uk/About-us/Our-Business/Our-network/Strategic-network-investment/DSO-Strategy.aspx](http://www.westernpower.co.uk/About-us/Our-Business/Our-network/Strategic-network-investment/DSO-Strategy.aspx)

## The DSO transition programme

**5.11** The implementation of our DSO strategy will affect the entire network, utilising a mixture of hardware enables and process enhancements to deliver outputs as customer need dictates.

**5.12** Our strategy for transition focusses on enhancing and developing competences in three core business areas:

Assets	Customers	Network operations
Investment in technology to ensure the network operates at high performance levels.	Development of Demand Side Response (DSR) options – allowing customers to be rewarded for shifting the timing of their consumption to help manage constraints on the network.	Investing in technology to provide greater visibility and monitoring of the network. Using data analysis to forecast requirements.
Roll out of Active Network Management by 2021. Active Network Management zones are areas of the network equipped with control systems which allow us to automatically manage the power flows of generation and demand connected to the network.	Creating visibility of congestion or capacity on the network – allowing the development of new tariffs and a Local Energy Market.	Upgrading business areas to facilitate flexibility services such as DSR.
Telecommunications readiness and strategic investment in fibre networks, where appropriate, to deliver more visibility and control of assets.	Extending alternative connections to demand and storage connections (i.e. using active management of the network to allow connection in areas with limited capacity).	Continue developing regional energy scenarios – establishing future network needs and informing our investment on the network.

**5.13** Our existing innovation programme enables us to develop and test new solutions before deploying them as business as usual. We have developed significant competence in a number of key areas, assisting our transition to DSO. Further details of our innovation programme can be found in our Innovation Strategy. The priorities for DSO transition are also reflected within our connections activities as detailed within our workplan for the Incentive on Connections Engagement (ICE).

<https://yourpowerfuture.westernpower.co.uk/our-engagement-groups/connection-customer-engagement/incentive-for-connections-engagement>

## Our actions during 2018/19 towards DSO transition

**5.14** To address expanding DSO activity we have created a DSO and Future Networks function, which will operate independently from our existing operational teams and report to the Operations Director. The new team are responsible for developing future energy scenarios, identifying future network capacity needs, assessing whether third party flexibility is more economic than traditional asset solutions, contracting for flexibility along with development of flexibility products, developing and implementing operational and SCADA systems to support a smart flexible network and the associated data, strategies, policies and innovation activity.

**5.15** During 2018/19 we published a DSO forward plan detailing our activities in eight core areas.

Neutral Supply Market Facilitation 	Enhancing Security of Supply 	Electric Vehicle Readiness 	Whole System Planning 
Enabling Decarbonisation 	Flexibility Services 	Enabling Economic Growth 	Communities and Localism 

**5.16** The following sections demonstrate the actions that we have taken to date.



## Flexibility

- 5.17** Electricity networks require generation and consumption to be balanced in real time. When power is mainly produced by large power stations connected to the transmission system, this balancing is carried out by the Transmission System Operator. The flexibility products and programmes traditionally used by the System Operator include actions such as generators increasing or curtailing output.
- 5.18** As more generation connects to the distribution networks there is greater potential for smaller connected generation and demand customers to provide flexibility services. As a DSO, WPD will need to utilise these new sources of flexibility to manage its own network, as well as accommodating sources of flexibility which could be used by the transmission system operator. Facilitating new markets for customer provided flexibility is a key objective of WPD's DSO strategy.
- 5.19** During RIIO-ED1 we have committed to assessing 90% of our load related reinforcement investment for more economic delivery by flexibility services. The remaining 10% will be investigated through innovation projects, widening the application of flexibility to lower voltage levels.

## Signposting

- 5.20** In April 2018 we consulted with stakeholders on how we provide the market with information on the performance characteristics of our network ahead of requesting tenders for flexibility. We now publish 'signposting' information describing constraints that may trigger significant load related reinforcement. This signposting directs flexibility providers to the different distribution system needs that may develop.
- 5.21** We have launched a new Network Flexibility Map to display where WPD's network is currently seeking flexibility, or is likely to do so in the future.
- 5.22** Further information on signposting can be found at the following links.

[www.westernpower.co.uk/our-network/network-strategy/signposting](http://www.westernpower.co.uk/our-network/network-strategy/signposting)

[www.westernpower.co.uk/network-flexibility-map](http://www.westernpower.co.uk/network-flexibility-map)

## Flexible Power

- 5.23** WPD has committed to test the market to compare traditional reinforcement and market flexibility solutions. To this end we have launched 'Flexible Power' to deliver the procurement of demand response services – putting in place commercial agreements with customers who can reduce their load and have agreed to do so under the instruction of the DNO. This enables WPD to accommodate increasing demand for electricity whilst managing the requirement to reinforce the network.



- 5.24** To date, 149 primary substations have been assessed for flexibility. We have updated our flexibility map to signpost flexibility requirements, published pricing and dispatch information and



provided an online valuation tool for potential participants. The Flexible Power brand has been utilised to contract flexibility services totalling 56.8MW.

### An example of a smarter more flexible network - Alternative Connections

- 5.25** We anticipate that distribution flexibility will come from two sources – ‘Smart Grid’ flexibility and Distribution Energy Resources (DER). Smart grid flexibility relates to the way in which WPD operates the network in order to provide network capacity. DER covers the flexibility products provided by customers with controllable demand or generation.
- 5.26** One example of distribution flexibility is alternative connections.
- 5.27** Standard generation connections allow customers to export up to the full rated capacity in their connection agreement at all times of normal network operation. The customer is free to use the capacity assigned to their generator at any level they choose. These agreements require the network to have the capacity available, even if it is not being used.
- 5.28** There are parts of the network where high volumes of connected distributed generation lead to insufficient capacity available to provide further generators with standard generation connection agreements without undertaking costly and time consuming network reinforcement. Alternative connections were developed through our innovation programme and provide a lower cost alternative.
- 5.29** Alternative connection agreements contain some form of curtailment arrangement on the customer. The types of alternative connections offered are detailed in the following table.

Alternative connection offers			
<b>Active Network Management (ANM)</b> This solution is the most complex and is used mostly with larger new connections. Zones of the network have been enabled to allow control systems to automatically manage the output of generators, constraining output at times when the network capacity is limited.	<b>Intertrip Connections</b> Remote control or ‘intertrip’ technology is used to constrain generator output when certain network conditions are identified.	<b>Timed/Profiled Connections</b> Output is permitted during specific time periods when historical data analysis shows that the network would not be adversely affected.	<b>Export/Import Limited</b> Requires customers to cap their import from or export to the network; allows customers to connect renewable generation or storage whilst protecting the distribution network.

### Developments in alternative connections

- 5.30** The implementation of Active Network Management requires changes to be made to control systems. The rollout of ANM is therefore prioritising the higher voltage networks where benefits are most likely to be seen. We plan to deploy Active Network Management zones to all Grid Supply Points by 2021.
- 5.31** To date, the majority of alternative connections have been utilised for connection of generation, however the principles of alternative connections can also be used for demand connections and storage.

5.32 During 2018/19 we have had the following enquiries in relation to alternative connections for energy storage.

Alternative Connections – energy storage 2018/19		
Type	Quotes issued	Quotes accepted
Active Network Management	3	1
Intertrip	3	1
Time Profiled	0	0
Export/Import Limiting	14	6
<b>Total</b>	<b>20</b>	<b>8</b>

5.33 Over the course of RIIO-ED1 we have seen an increase in the proportion of total alternative connection offers accepted by customers in comparison to conventional quotes. This has increased from 2.5% in 2015/16 to 8.2% in 2018/19.

5.34 Following consultation with stakeholders in January 2019 we are trialling a new option for alternative connections. Instead of constraining the connecting customer, we utilise the flexibility services rolled out as part of Flexible Power to maintain the customer’s full capacity. The cost of providing this service is passed on to the customer. We estimate flexibility volumes, procure and contract them; allowing us to estimate the cost for operating the flexibility, which is passed back to the customer. As this presents a new, innovative approach to charging we are engaging with Ofgem and will provide further updates on the progress of this project in the future.

### Distribution Future Energy Scenarios

5.35 Understanding the impact of distributed generation and emerging technology growth on the network will be an ongoing requirement for both RIIO-ED1 and our transition to DSO. We have therefore worked with environmental consultants Regen to inform strategic network planning and investment. This work has considered future energy scenarios, which are aligned to those used by the national electricity system operator, to forecast volumes of demand, low carbon technologies and the energy resources that may be available on the network in the future.

5.36 The scenario projections are mapped geographically to our network to derive a regionally specific outlook for each of our licence areas. We have completed reports for all licence areas and a second round of studies for South West, South Wales and the East Midlands. A second West Midlands study is due to be completed in 2019.

5.37 We have shared these studies, and the underlying data, with Local Authorities and Local Enterprise partnerships to help inform their regional energy strategies.

### Regional Strategic Investment Options Reports

5.38 We use these studies to inform strategic network investment. In addition we use feedback from stakeholders to update our network modelling assumptions and to predict the behaviour of distribution connected energy storage.

5.39 Distribution Future Energy Scenarios and Regional Strategic Investment Options reports can be found on our website at the link below.

[www.westernpower.co.uk/our-network/network-strategy/distribution-future-energy-scenarios](http://www.westernpower.co.uk/our-network/network-strategy/distribution-future-energy-scenarios)

### Whole system outcomes

5.40 Customer feedback to our DSO transition consultation identified that stakeholders rank ‘efficient whole system outcomes’ as a high priority and whole systems is therefore one of the work streams of our DSO forward plan.

- 5.41 We participate actively with the Energy Network Association's (ENA) Open Networks project, which seeks to understand the requirements and effects of moving to a more active distribution system.
- 5.42 To understand the impact of such changes on the electricity network as a whole, in the WPD area, we are working with National Grid (the System Operator for the transmission network) to develop Regional Development Programmes (RDP) for each of our four licence areas. These strategic studies will take a whole system approach to ensuring that future capacity requirements across both transmission and distribution networks can be managed.
- 5.43 We have put in place an RDP for the South West region and are in the process of developing an RDP for the West Midlands. These programmes increase understanding of the interaction between transmission and distribution networks and will ultimately enable an increased number of connections at lower costs to customers and reduced risk to network reliability.
- 5.44 Further information can be found on our website at the following link.

[www.westernpower.co.uk/our-network/network-strategy/regional-development-programmes](http://www.westernpower.co.uk/our-network/network-strategy/regional-development-programmes)

- 5.45 The implementation of the South West RDP has resulted in the launch of a deep “connect and manage” approach with National Grid. This approach utilises WPD's Active Network Management System to assist with managing constraints on the transmission system. We have amended connection offers made by WPD to enable quicker, lower cost connections, fast tracking the connection process that could have been delayed by the time taken to resolve transmission constraints. Rather than carrying out reinforcement, National Grid includes the application of ANM in their contract with customers. Collaborative work between WPD and National Grid has resulted in an alternative solution that will reduce costs and timescales for connection.
- 5.46 Facilitation of wider discussion and collaboration is key to achieving whole systems progress and as a result we publish and disseminate information via stakeholder groups and our website. Our Distribution System Operability Framework (DSOF) raises awareness of technical issues and challenges facing network and system operators.
- 5.47 We will share our learning and discussions with other DNOs and Independent Distribution Network Operators (IDNOs), with a particular focus on collaboration through the ENA Open Networks programme.
- 5.48 In 2018 we refreshed the DSOF, reconfiguring the document into standalone articles for each key topic. Each article provides an introduction, background and supplementary information explaining the purpose and key themes of the DSOF, including a master glossary and diagram key. We host dissemination events facilitated by our Network Strategy team, which also provide an introduction to our Innovation Strategy and the process we follow for inviting third parties to participate with project development for Ofgem's Network Innovation Allowance (NIA) funding. Further information can be found on our website at the following link.

<https://www.westernpower.co.uk/our-network/network-strategy/dsof>

### The impact of changing demand - electric vehicles

- 5.49 One example of the changing nature of demand is the growth of electric vehicles (EVs). EVs are quickly becoming mainstream with many manufacturers developing new electric models or electric versions of existing models. A typical electric car uses a similar amount of electricity as an average domestic home across a whole year, and a growth in electric vehicles therefore has potential to significantly alter daily load profiles and increase the amount of power used.
- 5.50 In March 2019 WPD published an EV strategy, detailing our plans to support the development of EV charging infrastructure, ensuring that drivers of EVs are able to charge their vehicles in a manner convenient to them.

**5.51** The strategy includes detail on forecast and growth scenarios, planning, design, costs and capacity availability, provision of information for customers and detail of our progress towards a set of targets.

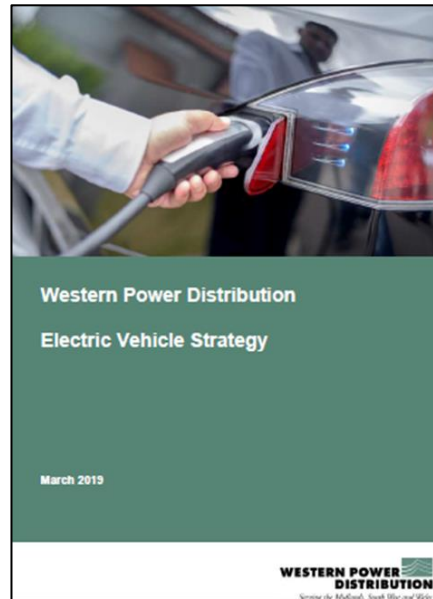
**5.52** The strategy is accompanied by targeted guidance documents for Local Authorities and in November 2018 we hosted two EV conferences providing local authorities with the opportunity to discuss the costs and implications of different charging types.

**5.53** Our strategy was developed using learning gained from recent innovation projects, including an innovation project registered under the NIA funding mechanism. Electric Nation was designed to enable DNOs to identify which parts of their networks are likely to be affected by Plug-in Vehicle (PIV) uptake and domestic charging. It is also being used to investigate whether smart chargers can be used to avoid or defer reinforcement on the network.

**5.54** The project has demonstrated that EV owners do not necessarily charge every day, that customers are able to accommodate managed charging (allowing remote control of charging by network operators to optimise when charging occurs to avoid the need for network reinforcement) and that customers often 'graze' charge little and often.

**5.55** Further information on the Electric Nation project and our EV Strategy can be found on our website at the following link.

[www.westernpower.co.uk/smarter-networks/electric-vehicles](http://www.westernpower.co.uk/smarter-networks/electric-vehicles)



## Making it possible for more people to use low carbon technologies

Output (19) Improve by 20% the time taken to provide a response to customers who want to use LCTs.



- 5.57** WPD is responsible for enabling the installation of distributed generation such as solar panels and providing sufficient capacity in the network to accommodate the increased loads from electric vehicle charging and domestic heat pump heating systems.
- 5.58** When a customer wishes to install LCTs they are required to provide technical details of the planned installation to their distribution network operator so that the impact on the network and other customers can be assessed.
- 5.59** As part of our RIIO-ED1 business plan we committed to improving by 20% the time taken to respond to these customer notifications.
- 5.60** In 2017/18 we introduced reporting to enable us to track response time for customers wishing to install small-scale embedded generation (domestic solar panels, small-scale wind and hydro projects), electric vehicle charging and domestic heat pump heating systems.
- 5.61** The table below shows the 20% improvement target to be achieved by the end of RIIO-ED1 and the intermediate annual targets. During 2018/19 we have seen an improvement in the time it takes to respond to customers and were close to achieving our annual target.

Time to respond to connect low carbon technologies						
	Benchmark performance	2018/19	2019/20	2020/21	2021/22	2022/23
Target for low carbon technology response time (working days)	2.93	2.81	2.69	2.58	2.46	2.34
Performance to date	-	2.83	-	-	-	-

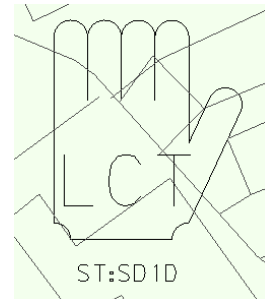
- 5.62** We undertake analysis of the time it takes to respond for each category of technology and use this information to continue to drive improvements. Typically high volume connection requests, such as domestic solar panels and electric vehicle charge points are resolved quickly and within the targets that we have set ourselves. More unusual connection projects such as Micro combined heat and power systems have taken longer. Such projects account for only a small proportion of the 8,950 enquiries that we dealt with during the year but we are focussed on improving timescales for all technology types.
- 5.63** Larger installations require a more detailed assessment of their potential impact on the network. These are dealt with as connection enquiries and our response time performance is embedded within the timeframes published for connection 'time-to-quote'.

**Output (20) Identify LCT hotspots using information from smart meters, expert organisations and local authorities, and use this information when making decisions.**



**5.64** LCT hotspots are parts of the network where there is a clustering of LCTs that can lead to a need to reinforce the network due to their combined impact.

**5.65** In 2012/13, WPD obtained information from the Centre for Sustainable Energy which used data on social demographics and housing stock types to determine the likelihood of LCTs being adopted. This was used to determine which distribution substations were considered likely to be LCT hotspots.



**5.66** Potential LCT hotspots are flagged within WPD's asset register database and the mapping system has an 'LCT hand symbol' adjacent to LCT hotspot substations. These flags and symbols make local planning teams aware of the LCT hotspots.

**5.67** When work is planned that affects these locations, planners are prompted to consider upgrading works (using larger sized transformers or cables rather than replacing like-for-like). This upgrading provides additional capacity to accommodate increased network demands.

**5.68** In 2018/19 we introduced a new innovation project (funded via the Network Innovation Allowance) which uses industry data, from the Data Transfer Service, and analytical tools to provide improved visibility of electric vehicles and photo-voltaics (solar panels) connected to the network. The data gathered from this project will be used to refresh the data held in our asset register database and mapping system during 2019/20.

**Output (21) Selectively replace assets using larger assets in areas where more LCTs may be connected to our network.**



**5.69** The WPD RIIO-ED1 Business Plan forecast that 7% of asset replacement activity would occur within LCT hotspot areas. Instead of replacing assets like-for-like, larger capacity assets can be installed to cater for future LCT growth.

**5.70** A new WPD policy for the use of LCT hotspot data was introduced in May 2015 and this data has progressively started to influence asset replacement project planning. In 2018/19, 26 asset replacement projects used larger capacity assets.



**Output (22) Reduce costs for future customers by developing smart solutions to provide alternative and innovative techniques for managing our network.**



**5.71** Smarter ways of operating the network and providing capacity are being researched, trialled and tested with the aim of implementing new techniques into business processes.

**5.72** WPD's Innovation Strategy provides details of our ongoing programme of innovation. The strategy is reviewed and re-issued on an annual basis and the 2019 Innovation Strategy can be found at the link below.

[www.westernpower.co.uk/innovation/innovation-strategy](http://www.westernpower.co.uk/innovation/innovation-strategy)

**5.73** In addition to the above strategy we also contribute to a joint electricity innovation strategy for network companies. This strategy is published by the Energy Networks Association and can be found at the link below.

[www.energynetworks.org/electricity/futures/network-innovation/electricity-networks-innovation-strategy.html](http://www.energynetworks.org/electricity/futures/network-innovation/electricity-networks-innovation-strategy.html)

**5.74** The WPD Innovation Strategy aims to develop knowledge and experience in new methods and technologies. Our innovation activity is grouped into three main categories as detailed below.

- Assets – projects in this category aim to improve asset management through novel data analysis, enhanced modelling and testing alternative investment strategies.
- Customers – these projects develop new solutions for customers enabling lower cost and quicker connections, testing of new customer tariffs or working with communities to provide local energy solutions.
- Operations – these projects explore the requirements for active network operations and the application of technology for enhanced network control.

**5.75** There are two regulatory sources of funding for innovation projects: the Network Innovation Allowance (NIA) provides funding for smaller projects and the Network Innovation Competition (NIC) is a competitive tendering process where projects are assessed by an expert panel and selected projects win funding. During 2018/19 we introduced a number of new NIA projects.

**5.76** The full range of NIA projects active during 2018/19 are detailed below.

Name	Project aim
Losses Investigation	Understanding technical losses on the LV & HV distribution network and determining the minimum information required to accurately predict network losses.
Solar Storage	To investigate the technical and commercial feasibility of battery storage embedded within distributed generation installations.
Car Connect	To enable DNOs to identify which parts of their network are likely to be affected by uptake of Plug in Vehicles (PIV) and whether demand control (optimising the timing of charging the PIV) is a cost effective solution to avoiding or deferring reinforcement on heavily loaded parts of the network.
Common Information Model	To trial aligning the network data we currently hold in a variety of different systems. We hold technical data about assets in our asset database, location details in our mapping systems and real time information about the operation of the network in our Network Management system. The project will test the benefits of holding data in a common format.
Project ENTIRE	To identify and address the key commercial challenges that a DNO/DSO will be presented with when developing mechanisms for demand side response. This might include developing new systems to provide visibility of capacity and establishing contracts with commercial customers.
Electric Vehicle Emissions Testing	To assess the potential disruption that the charging of electric vehicles can have on standard patterns of current. Repeated charge and discharge tests will be undertaken for a range of vehicles and charging levels on monitored electric vehicle charge points.
FREEDOM	To investigate the feasibility of the use of heat pumps alongside gas boilers. Western



	Power Distribution is working in partnership with Wales and West Utilities to investigate the technical capabilities and whether hybrid heating systems are affordable and attractive to customers as a way of heating homes.
Industrial and Commercial Storage	Battery energy storage will be trialled in multiple configurations to test the potential for improvements in cost efficiency, customer service and reliability of the network.
LV Connect and Manage	To demonstrate and prove that Active Network Management can be used on the low voltage network as a short term measure to allow new connections whilst network reinforcement takes place. Active Network Management requires the deployment of communication and control infrastructure to allow LCTs to be managed remotely.
LV Plus	To trial increasing the distribution network phase voltage to 400V and reducing it back to 226V at each connection point. Potential benefits include increased network capacity – increasing the potential for electric vehicle charging, distributed generation and energy storage.
Carbon Portal	This project will expand on the Carbon Tracing project detailed above and will explore the potential to facilitate external providers to produce additional apps, encouraging customers to understand the energy mix in their areas.
DEDUCE	To develop a low cost distribution substation monitor based on indirect loading measures such as temperature, noise and vibration.
Visibility Plugs and Sockets	WPD is participating in a much larger EU initiative led by Centrica. The project will develop a platform to enable suppliers, aggregators and communities to inform the network operator of planned changes to assumed electricity profiles.
Primary Networks Power Quality Analysis	To evaluate how harmonics and power quality can be monitored and analysed in a cost effective way across wide areas of the network.
Smart Energy Isles	WPD is part of a consortium awarded EU funding to build and operate a renewable energy micro grid on the Isles of Scilly.
SF <sub>6</sub> Alternatives	SF <sub>6</sub> gas is used throughout the industry as an insulating medium in switchgear, but is a potent greenhouse gas. This project will evaluate alternative insulating mediums in place of SF <sub>6</sub> .
CADET	To develop customer behaviour models for all types of demand, generation and storage. These will be used as an input to energy turn up/turn down estimation techniques that WPD is developing.
LCT Detection	Using industry data and analytics to provide improved visibility of EVs and Distributed Energy Resources (DER), to support forecasting of PV and EV across networks. This will support network planning including the options of active/flexible network management.
EDGE_FCLi	Investigate the integration of Fault Current Limiting interrupter (FCLi) technology into the WPD network. Connection of additional generation sources and connection requests by independent power producers can be rejected due to lack of fault current headroom in their networks, integrating FLCi technology could provide a way to connect new generation sources efficiently and rapidly.
Engineered Pole Products	Developing a new type of engineered pole and testing against new national design standards.
Hydrogen Heat and Fleet Viability Assessment	Testing the feasibility of using hydrogen for vehicles and as a fuel for combined heat and power.
Next Generation Wireless Telecoms Analysis	Establish a radio network design for the WPD licence areas of West Midlands and South West, providing enhanced operational communications capability to service initiatives such as Active Network Management whilst also enabling increasing embedded generation on the network.
Network Islanding Investigation	Investigate the technical and commercial options, challenges and potential benefits of operating parts of the LV, 11kV and 33kV distribution network in islanded mode under different conditions. Management of loads and generation in islands may provide a new flexibility solution for network operators.
OHL Power Pointer	Trial of a device capable of self-power operation to provide real-time voltage, current and power flow information. This information will be used to more accurately assess network operation.
Sensitive Earth Fault Protection	To develop and test methods of removing supply in the event of dangerous inadvertent contact with a live conductor when live work is being undertaken on the LV distribution system.
Visual Statcom	Studies to determine the potential to improve network voltages and release network capacity by controlling the power factor of generators already connected to the 11kV and 33kV networks.

5.77 The projects below are collaborative NIA projects.

Name	Project aim
Improved Statistical Ratings for Overhead Lines	To gather conductor and weather data to validate and update assumptions for overhead line ratings. Overhead line ratings determine the amount of power that can be distributed through overhead lines based on how hot conductors can be allowed to get. The project is led by WPD on behalf of other DNOs.
Assessment and Testing of Alternative Cut-outs	This collaborative project is led by UPKN and will aim to identify alternative, more reliable cut-out equipment used by non GB DNOs. The project will investigate whether such options are suitable to replace those currently in use by GB DNOs.

**5.78** In 2018/19 we had two active NIC projects:

Name	Project aim
OpenLV	To look at ways of encouraging communities to understand network load patterns and how consumers can impact demand to avoid reinforcement. This exploration of the potential for embedding demand side response within local communities builds on existing projects such as Falcon and SYNC and will complement Project Entire.
Electricity Flexibility and Forecasting System (EFFS)	To explore the additional functionality required as a DSO. To evaluate the potential options and implement systems that will provide the new functionality required to transition to DSO. Actions include evaluating the suitability of flexibility services to resolve constraints and communicating flexibility services to the market.

**5.79** Prior to the introduction of NIA and NIC, funding was provided through the DPCR5 Low Carbon Network Fund (LCNF) mechanism. The project below was instigated through LCNF and had ongoing expenditure during 2018/19.

Name	Project aim
Network Equilibrium	Understanding the balancing of voltages and power flows across the distribution system to help the integration of additional distributed generation across the network.

**5.80** We also contribute to projects independently of Ofgem's innovation stimulus. One example of this is for a project modelling a low-carbon, multi-vector energy system in South Wales. The project focusses on the commercial feasibility of such a system and includes a retrofit district heating network, utilisation of energy storage and the creation of a self-balancing virtual private network (VPN) to test a new regulatory market structure. The project will test the degree to which systems can be integrated and achieve efficiencies by working with a range of partners through Innovate UK.

**5.81** Further detail on the impact of our Innovation Strategy can be found in our annual Environment report and our Losses Strategy. These documents can be found at the following locations.

[www.westernpower.co.uk/About-us/Our-Business/Environment.aspx](http://www.westernpower.co.uk/About-us/Our-Business/Environment.aspx)

[www.westernpower.co.uk/our-network/losses/electrical-losses](http://www.westernpower.co.uk/our-network/losses/electrical-losses)

## Smart meters

**5.82** The government has mandated that by the end of 2020 every home in Great Britain will be offered a smart electricity and gas meter. Smart meters are capable of being read remotely and newer models, known as SMETS2 smart meters, will have additional functionality such as the ability to trigger a 'last gasp' message to provide notification of loss of supply.

**5.83** Data from SMETS2 meters will be periodically downloaded by a new regulated organisation called the Data and Communications Company (DCC).

**5.84** The rollout of smart meters is being carried out by the suppliers. It has been subject to delays and the majority of meters installed to date are SMETS1 smart meters which at present do not have an interface with the DCC.

**5.85** In preparation for utilising the data that will be available in the future, WPD has established the infrastructure required to receive data transfers from the DCC and gained Ofgem's approval for

a data privacy plan, which identifies how we will collect, maintain, secure and use customer consumption data.

**5.86** Smart meters will give WPD much greater visibility of the operational state of the low voltage network and as a result will enhance core business activities, including fault management, network planning and asset management.

**5.87** The benefits of smart meter data will not be realised until larger volumes of SMETS2 meters are installed. We will provide further information as the roll out progresses and processes are enhanced to utilise the data.

**Output (23) Provide additional network capacity by using traditional or 'smart' methods.**



**5.88** The UK's electricity system is undergoing a rapid period of change as distribution network customers invest in generation and alter their consumption behaviours to influence a lower carbon future. To enable a greater volume of demand, generation and storage to be connected, our networks are becoming smarter and more active.

**5.89** Traditional methods of providing additional capacity include installing additional assets or larger assets. At higher voltages, such reinforcement work can be costly and take time to deliver. Whilst traditional methods of reinforcement will continue to be used, increasing use is being made of smarter interventions.

**Flexible Power**

**5.90** Flexible Power was created by WPD to deliver the procurement of demand response services. The brand was used in February 2019 to announce a procurement cycle for demand response. Types of flexibility services could include the following.

- Secure – managing peak demand times such as weekday evenings
- Dynamic – supporting the network during planned maintenance
- Restore – supporting the network during unplanned faults i.e. as a result of equipment failure

**5.91** To date the Flexible Power brand has been utilised to contract flexibility services totalling 56.8MW.

**Alternative Connections**

**5.92** We offer connection customers alternative connection agreements which contain some form of curtailment arrangements that enable connections to be made where a standard connection might not be possible due to capacity constraints.

**5.93** The uptake of alternative connections is shown below.

Alternative connections – uptake during RIIO-ED1					
	2014/15	2015/16	2016/17	2017/18	2018/19
Quotations issued	212	232	126	174	157
Quotations accepted	44	42	5	27	64
Sites energised**	4	11	17	5	37

\*\*Sites energised may be from quotations accepted in previous regulatory years.

## Innovative techniques

**5.94** Innovation projects have provided additional options for the provision of network capacity as shown below.

Innovation projects which allow us to utilise capacity more effectively
<p><b>Voltage reduction</b> Learning from the LCNF tier 2 project Low Voltage Network Templates and the NIA Voltage Reduction Analysis project has led to a revision to our policies and the implementation of voltage reduction across our networks. Reducing network voltage in certain circumstances reduces the maximum demand.</p>
<p><b>Dynamic line ratings</b> Dynamic line ratings for EHV lines are available as an option to provide additional capacity without changing the conductor in overhead lines.</p> <p>Overhead line ratings are a measure of the amount of power that can be distributed through them based on how hot conductors can be allowed to get.</p> <p>Traditionally, standard day and night ratings are applied, but dynamic line ratings allow for a real time assessment based on ambient weather conditions (for example when the wind is blowing across the overhead lines, the cooling effect is increased and therefore the capacity of the overhead line can be increased beyond the standard ratings).</p> <p>Whilst dynamic line ratings are available to customers, uptake has been limited to trial projects as the required conditions for usage have not matched customer connection requirements.</p>
<p><b>The LV templates project</b> The LV templates project collected data from 800 distribution substations within South Wales allowed revisions to the planning assumptions. A key finding of the project was that domestic PV (solar panels) generate only 80% of their installed capacity. Planning assumptions have been revised to allow 20% more availability for installations without the need for reinforcement.</p>

## Reduce technical network losses

- 5.95** The amount of energy that enters an electricity network is more than the amount that is delivered to customers. The majority of losses result from the heating effect of energy passing through cables and wires, leading to around 5% of the electricity entering the network being lost as a result of ‘technical network losses’.
- 5.96** The environmental impact of this is that more electrical energy has to be produced to counteract the effect of the losses. In line with Ofgem’s licence obligations all DNOs are required to keep losses as low as reasonably practicable.
- 5.97** Our approach to reducing technical network losses is based on a combination of approaches including using larger lower loss assets and revisions to network planning principles to ensure that methods for reducing losses are engineered into the design of the network.
- 5.98** We use innovation projects to build our understanding of how and when losses occur and to ensure that we are at the forefront of technological advancements that have the potential to improve our losses performance.
- 5.99** Further detail on these innovation projects can be found in the Losses Strategy which is updated annually and published on the company’s website. The strategy can be found at the following link:

[www.westernpower.co.uk/our-network/losses/electrical-losses](http://www.westernpower.co.uk/our-network/losses/electrical-losses)

### Ofgem’s Losses Discretionary Reward

- 5.100** In RII0-ED1, Ofgem has introduced a discretionary reward for DNOs that undertake additional work to reduce losses. The mechanism operates in three tranches.
- Tranche 1 – Forward looking plans.
  - Tranche 2 – Actions undertaken by DNOs.
  - Tranche 3 – Backward review of losses management activities.

**5.101** In July 2016 WPD was awarded a total of £160,000 as part of tranche 1 (12% of the maximum reward available). During 2017/18 we provided our submission for the second tranche of the Losses Discretionary Reward, new developments included considering the impact of electric vehicle charging on losses and encouraging collaboration between DNOs. Ofgem confirmed in September 2018 that they would not make an award to any of the DNOs for tranche 2.

### Current strategy

**5.102** Our Losses Strategy has been based on achieving loss reduction through asset replacement. During 2018/19 we have extended the reach of the programme to prepare for the effect of electric vehicles and other low carbon technologies. WPD anticipates that the roll out of smart meters will provide additional data to contribute to an efficiently managed network, using network design and active network control measures to achieve loss reductions. One example of this is detailed within our Electric Vehicle strategy; we plan to install three-phase supply cables in all new build developments. This will enable quicker EV charging but should also provide losses benefits.

Output (24) Install oversized transformers when replacing assets in areas where demand for power may become higher than equipment can cope with.



**5.103** During RIIO-ED1 WPD has committed to installing oversized transformers when carrying out work in areas of predicted load growth. The volumes were forecast based upon work done with the Centre for Sustainable Energy in identifying potential LCT hotspots and these locations being coincident with work on the network.

**5.104** As well as providing additional capacity, oversizing transformers in anticipation of future load growth provides a losses benefit until the additional capacity of the transformers is used up.

**5.105** The volumes of oversized transformers installed during 2018/19 are shown in the table below.

Installing oversized transformers		
	Forecast (per annum)	Actual 2018/19
Distribution transformers	109	21

**5.106** Whilst the numbers of oversized transformers are lower than forecasted we continue to undertake a range of other activities to reduce technical network losses.

#### Discontinuation of small sized transformers

**5.107** Investigations with manufacturers have identified that smaller size transformers produced higher losses when compared to larger sized transformers carrying the same load. Consequently WPD has discontinued the use of small size ground mounted and pole mounted transformers to obtain loss reduction benefit.

**5.108** As well as providing a losses benefit, using larger sized transformers provides additional network capacity to allow for future demand growth.

**5.109** The following table shows the volume of smaller size transformers that would have been used during RIIO-ED1 to date had they not been discontinued. .

Volume of small size transformers no longer used	
Transformers	WPD total (units)
Discontinuation of 315kVA ground mounted transformers	1,072
Discontinuation of 16kVA single phase pole mounted transformers	2,114
Discontinuation of 25kVA three phase pole mounted transformers	41

#### Replacement of pre-1958 transformers

**5.110** Transformers that pre-date 1958 were built to a range of designs and specifications that preceded the BEBS-T1 standard which introduced a maximum level for losses.

**5.111** WPD has introduced a requirement to replace pre-1958 transformers and this requirement is incorporated into decision making when planning works on the network.



Output (25) Use larger cables when installing new network in LCT hotspots.



**5.112** In addition to installing oversize transformers, installing larger sized cables where demand is forecast to be higher also provides a losses benefit until the additional capacity is used up.

**5.113** The forecast volumes and actual volumes are shown in the table below.

Installing oversized cables		
	Forecast (per annum)	Actual 2018/19
LV cables	75km	1.15km

**5.114** The amount of oversized cable being installed in LCT hotspots remains low.

#### Discontinuation of small sized cables

**5.115** Losses are reduced in larger size cables (assuming the same amount of electrical energy flows through the larger cable). This means that adopting larger assets as a standard will progressively reduce losses as those larger assets are installed.

**5.116** The following table shows the length of smaller sized cable that would have been used during RIIO-ED1 had it not been discontinued. By using a larger size cable with lower losses there has been an overall loss reduction benefit.

Length of small size cable no longer used	
Cable type	WPD total (km)
Discontinuation of 95mm <sup>2</sup> 11kV cable	756
Discontinuation of 95mm <sup>2</sup> LV cable	1,217
Discontinuation of 16mm <sup>2</sup> service cable	1,526

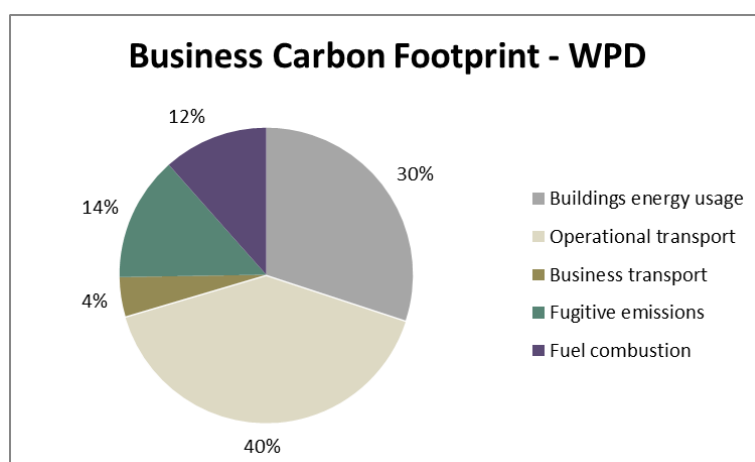
## Reduce the carbon footprint of the business

Output (29) Reduce our carbon footprint by 5%.



**5.117** Business Carbon Footprint (BCF) represents the impact on the environment from operational activities and is measured and reported using equivalent tonnes of carbon dioxide (tCO<sub>2</sub>e). It takes account of building energy usage (including substation electricity usage), emissions from vehicles, fuel combustion and release of greenhouse gases (fugitive emissions).

**5.118** As illustrated in the chart below, the main contributors to WPD's BCF are operational transport, buildings energy usage and fugitive emissions. Consequently WPD has initiatives in all these areas to reduce their contribution to the overall measure.

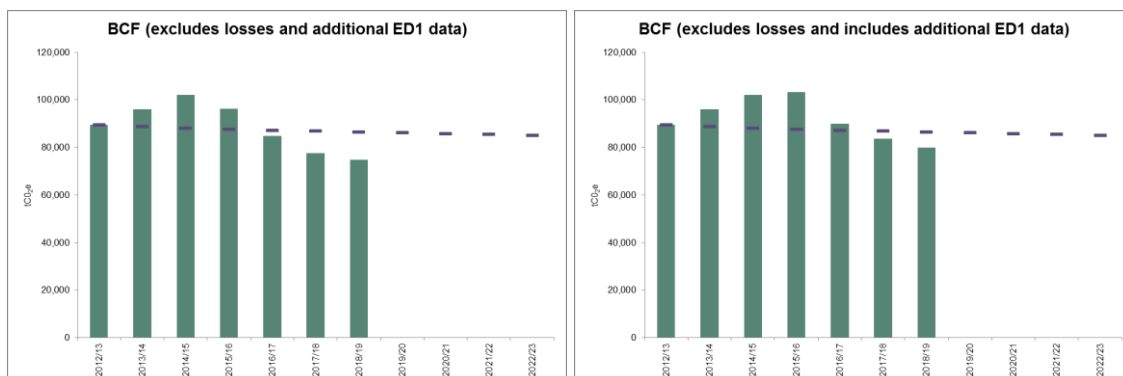


**5.119** During RIIO-ED1, WPD has committed to reducing BCF by 5% compared to a 2012/13 reference position.

**5.120** During 2017/18 we enhanced the data we collect for SF<sub>6</sub> by also including the volume of gas 'missing' from scrapped equipment. This data is only available for the ED1 period and was not included in the original baselines or targets so we have provided additional comparisons that show performance on a like-for-like basis.

**5.121** During 2018/19 we have used business systems to improve our recording of data in the field and a new iPad app for substation building energy usage has meant that we are now reporting electricity usage based upon installed devices (such as heaters and dehumidifiers). This provides a more accurate measure of electricity usage compared to previous estimates. To ensure that BCF performance is comparable to targets we have excluded the impact of these enhancements.

**5.122** The first chart below shows our overall BCF performance excluding the new data for SF<sub>6</sub> and substation electricity usage. We have seen a 17% improvement in comparison to our 2012/13 reference position. The second chart shows our overall BCF performance including the new data for SF<sub>6</sub> and substation electricity usage. With this additional data we are still below target for 2018/19, achieving an 11% improvement.



**Output (26) Make sure all replacement vehicles have lower CO<sub>2</sub> emissions than those they are replacing.** ✓

**5.123** Our network is spread over an area of 55,500 km<sup>2</sup> and consequently we need to operate a large fleet of vehicles to allow our staff to serve this territory effectively.

**5.124** When operational vehicles reach the end of their useful lives we are committed to replacing them with more efficient models; decisions have typically been influenced by emissions data from the vehicle registration certificate.

**5.125** During 2018/19 there have been changes to the process used for testing vehicle emissions. New emissions tests (known as the World Harmonised Light Vehicles Test Procedure) are based on real life driving data and are designed to eliminate the discrepancy between previous laboratory based testing and on road performance. The new emissions testing was introduced in September 2018 for passenger vehicles and will become mandatory for commercial vehicles in September 2019. We are already seeing changes to stated emissions from manufacturers due to more stringent testing procedures and the pressure this places on manufacturers.

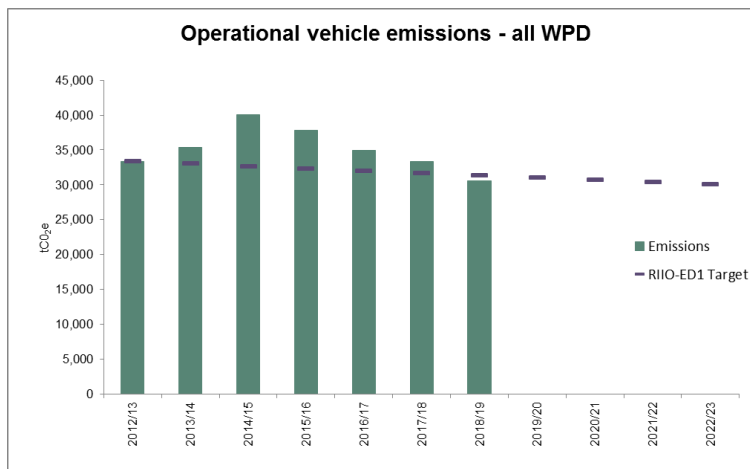
**5.126** Details of replacements for some of our most commonly used operational vehicles is shown below, the emissions for some equivalent vehicles have increased.

Emissions – operational vehicle replacements			
Previous vehicle	CO2 emissions (grams per km)*	Current vehicle	CO2 emissions (grams per km)
Vauxhall Corsa	94	Ford Fiesta Van 1.5 Euro 6	96
Transit Connect SWB	115	Transit Connect SWB Euro 6	123
Transit Connect LWB	115	Transit Connect LWB Euro 6	123
Isuzu DMAX	183	Isuzu DMAX Euro 6	183
		Ford Ranger Euro 6	179
Isuzu DMAX MEWP	183	Isuzu DMAX MEWP Euro 6	183
		Transit 350 MWB RWD Euro 6	185
Transit 350 MWB RWD	185	Transit 350 MWB FWD Euro 6	185
		Transit 320 Custom Euro 6	161

\*Emissions based upon previous testing arrangements.

**5.127** We expect that emissions values will continue to change as the new testing procedures are implemented, making direct comparisons more difficult.

**5.128** We submit emissions data to Ofgem based on mileage information, calculated in line with Defra guidance on conversion factors. Operational vehicle emissions account for 40% of our overall BCF performance. We have seen year on year improvements since the start of ED1 and we are positive that this will continue, in 2018/19 emissions were below the in-year target.



**5.129** To support our commitment to lower emissions, WPD is trialling vehicles that utilise alternative fuels.

**5.130** At present WPD is evaluating electric operational vehicles. Criteria such as range between charging, payload (the weight capacity of the vehicle) and usage will be reviewed to identify the appropriateness of these vehicles for future WPD needs.

**5.131** The trial of electric operational vehicles initially involved three vehicles, which are still operational. These vehicles had some reliability issues related to charging, cell failure and limits to range and payload in comparison to diesel equivalents. However in March 2019 we invested in two new electric vehicles in our East Midlands area which have the next generation of fuel cells and are expected to provide a range of approximately 120 miles, doubling the range of the three original vehicles. We will continue to review the progress of these vehicles and the feasibility of extending this trial.

**5.132** We have also had two vehicles converted to dual fuel hydrogen and diesel usage, these became operational in April 2018. Analysis of the project (in conjunction with the University of South Wales) is likely to continue for the operational life of the vehicles which is expected to be around six years. To date there have been some issues with sourcing the hydrogen fuel and the vehicles have therefore had to operate in diesel mode at times.

**5.133** During 2018/19 we participated in a study by an external contractor working with Nottingham City Council to help Nottingham become a global leader in low carbon mobility. As part of this study our fleet has been reviewed and advice offered on ways of reducing our emissions. From this we hope to develop new strategies for working in Clean Air Zones across our region.

**Output (27)** Make sure all new or substantially refurbished buildings meet, as a minimum, the 'excellent' standard under the Building Research Establishment Environmental Assessment Method (BREEAM).



**5.135** WPD has an extensive property portfolio of offices that vary in age and construction type. WPD has committed to ensuring that opportunities for improving energy efficiency are maximised when building refurbishment is undertaken.

**5.136** When refurbishment is carried out the work is assessed against the Building Research Establishment Environmental Assessment Method (BREEAM) standards. In line with the standards, the maximum rating that can be achieved for refurbishment works is 'Very Good', whilst new builds can achieve the maximum rating of 'Excellent'.

**5.137** During 2018/19 final post construction certificates were issued for depots in Birmingham and Leicester. As a refurbishment, Birmingham achieved the maximum 'Very Good' rating and Leicester, as a new build, achieved the maximum 'Excellent' rating.

### Case Study - Leicester Depot

WPD's new Leicester depot was designed using a fabric first methodology, maximising the performance of the components and materials that make up the building fabric, meaning the building requires less energy to heat and cool the space. The project has been installed with a photovoltaic system that is able to offset 40% of the buildings' energy demand. The site is also lit by LED fittings and has been supplied with electrical charging points for WPD vehicles.

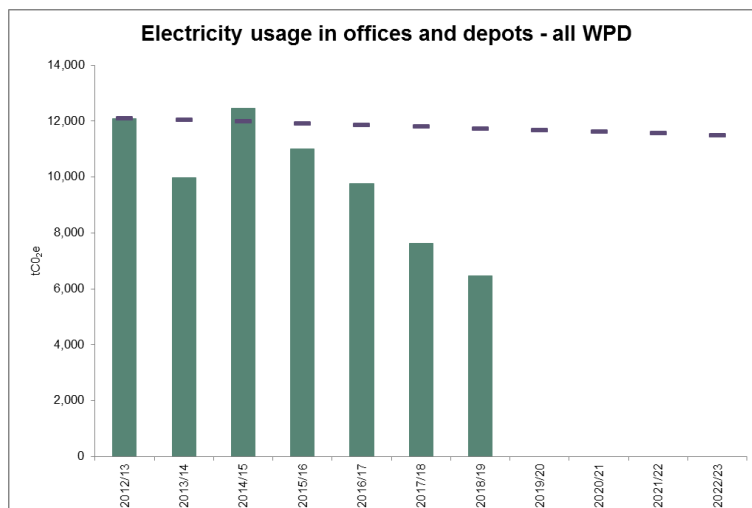


### Reducing electricity usage in offices

**5.138** During RIIO-ED1 WPD proposed to save 5% of electricity used in offices and depots.

**5.139** Local depots and offices are encouraged to consider initiatives to save energy. Site managers receive a monthly report of electricity usage to assist them in targeting improvements. Local initiatives, such as the replacement of standard lighting with energy saving LED lighting, are complemented by company-wide initiatives to encourage energy efficiency.

**5.140** Overall progress in relation to the RIIO-ED1 targets for a reduction in electricity usage is shown below. We have achieved a 46.7% reduction in comparison to our benchmark year of 2012/13.

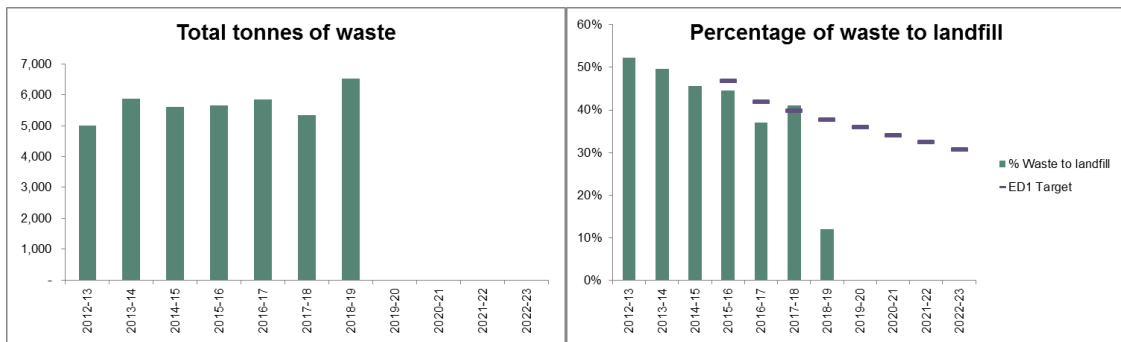


**Output (28) Reduce the amount of waste sent to landfill by 20% over the first two years of RIIO-ED1 and 5% per year after this.**



- 5.141** WPD’s business activities create waste. This includes metal from overhead lines, cables and redundant switchgear; wood from wooden poles; packaging from new components; paper from offices and various forms of plastic.
- 5.142** WPD has for a number of years, segregated and recycled waste, where possible, to limit the amount being sent to landfill.
- 5.143** During RIIO-ED1 WPD has committed to investigating the opportunities to reduce the waste being produced in the first place but also to reduce the amount of residual waste being sent to landfill by 20% over the first two years and 5% per annum thereafter. As the tonnage of waste produced annually will vary dependent upon the amount of work being carried out, our target is expressed as the percentage of overall waste which is sent to landfill.
- 5.144** We work closely with all of our waste contractors to ensure that, where possible, waste is diverted from landfill. Whilst the tonnage of waste produced has increased in 2018/19 the proportion of this waste sent to landfill has decreased significantly.

**5.145** Our performance can be seen below:



**Environment Standard ISO 14001 (2015)**

- 5.146** We are committed to demonstrating effective and responsible environmental management and since 2011 WPD has been certified to ISO14001 (2004) Environmental Management Systems standard. In May 2017 WPD successfully transitioned to the new standard version ISO14001 (2015).
- 5.147** Ongoing compliance has been successfully monitored by external audit and we will seek recertification in May 2020.
- 5.148** To ensure compliance with the standard, each depot has an Environmental Management Plan. These plans provide a mechanism for improvement, identifying site specific environmental objectives. Each plan identifies targets and associated monitoring requirements and reviews environmental facilities and processes.

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## Reduce the environmental risk of leaks from equipment

**5.150** Electrical equipment may contain oil or gas that is used to improve insulation properties or enhance cooling. Leaks can occur from time to time when equipment is damaged or seals deteriorate and steps are taken to minimise the environmental impact of such leaks.

**5.151** The main options available to reduce the environmental impact of any leaks are quick repairs when damage occurs and replacement of the equipment in poorest condition with the highest leakage rates.

**Output (30)** Reduce by 75% the amount of oil lost through leaks from oil-filled cables.

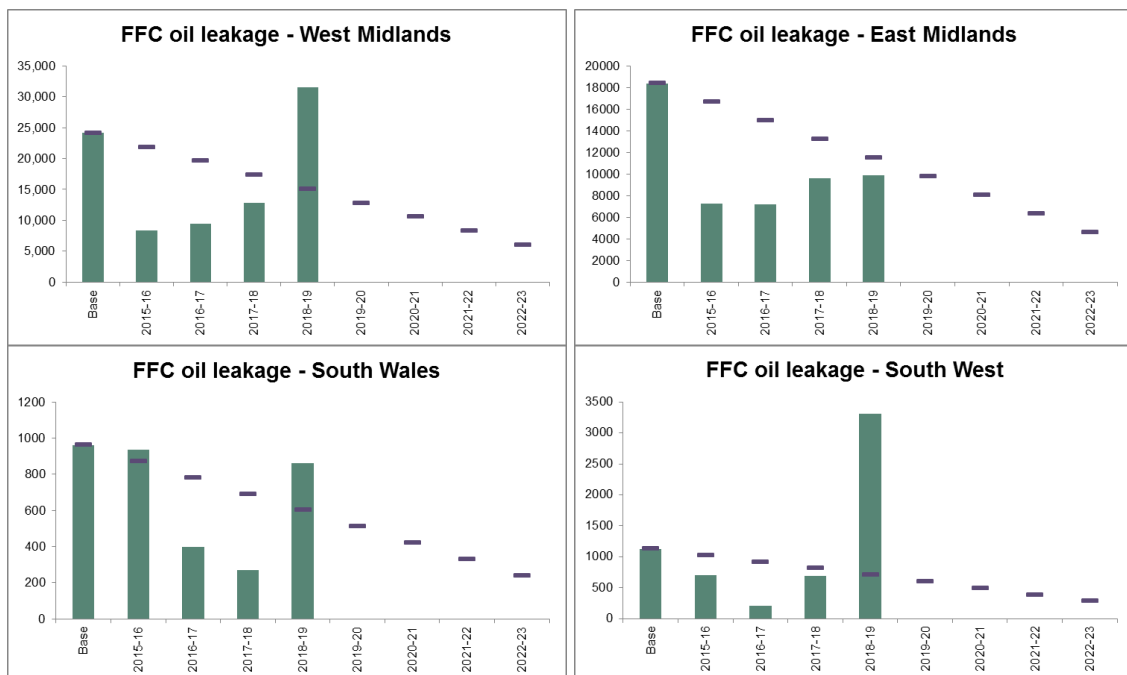


**5.152** Older types of higher voltage cables (33kV and above) contain oil based fluids to assist in the insulation of the cables. These cables sometimes leak, either as a result of third party damage, age related degradation or ground movements. New cable designs do not use this technology so the problems associated with these cables will reduce over time as the populations are reduced through replacement.

**5.153** WPD has committed to reduce the volume of oil escaping from fluid filled cables by 75% over the 8 year RIIO-ED1 period.

**5.154** During 2018/19 we have seen high volumes of oil leaked from fluid filled cables, although targets have been met in the East Midlands region. Records show that fluid filled cable leaks occur more frequently in the autumn and winter months, as a result of changes in ground conditions. During 2018/19 there was an increase of approximately 50% in the number of leaks that occurred, peaking in November 2019, potentially as a result of the lengthy dry summer that we experienced in 2018. Approximately 60% of the oil leaked across WPD was attributable to only five circuits.

**5.155** Progress against our targets by each licence area is shown below.



**5.156** In the West Midlands two circuits contributed to 67% of leakage. Perfluorocarbon tracer (PFT) was used to enable leak location and these cables have now been fully repaired.



**5.157** Two circuits in the South West accounted for 66% of the leakage in the South West. These cables have previously been tagged with PFT to enable leak location. The equipment causing the leak has now been refurbished and we anticipate that leakage rates for the South West should return to lower levels.

### Application of PFT tagging

**5.158** Fluid levels in all our cables are monitored remotely and loss of pressure triggers alarms within control centres. This allows us to react quickly to a leak event. However, traditional methods of leak location (using freezing techniques) can be a lengthy process.

**5.159** A tagging system has been introduced which uses a small amount of Perfluorocarbon tracer (PFT) chemical. This is incorporated into the fluid and if a leak occurs can be readily detected above ground to pinpoint leaks quickly and to speed up the repair process. This reduces costs, inconvenience to customers and the volume of oil lost to the environment.

**5.160** During RIIO-ED1 WPD committed to applying PFT to cables with a history of leakage and internal policy reflects this requirement.

### Replacing poor condition fluid filled cable

**5.161** WPD has committed to replacing 1% of the poorest condition cables which have the highest leak rates over RIIO-ED1.

**5.162** Decisions on the replacement of cables are based on a variety of factors including, but not limited to, leak rates. The leakage of oil can be based on degradation of the cable's outer sheath, which is hard to repair, but can also be caused by problems related to the cable joints or fluid pressurising systems.

**5.163** Joints, pressurising tanks and associated pipework can be refurbished in circumstances where the cable itself is still sound and there may be occasions where replacing the cable is unnecessary even though the leak rate is high. Conversely a section of cable could have a relatively low leak rate and yet be in an environmentally sensitive location where the leak of any oil could have a more significant impact – for example where a cable runs adjacent to a canal or other water course.

**5.164** Target disposal volumes have been calculated based on the length of fluid filled cables in service during 2014/15.

**5.165** During the course of RIIO-ED1 we have decommissioned a total of 39.1km of fluid filled cables, representing a total reduction of 5.1% of our overall population of this asset type. 23.6km relate specifically to condition related disposals. We have already achieved our RIIO-ED1 target of removing 1% of fluid filled cables as shown below.

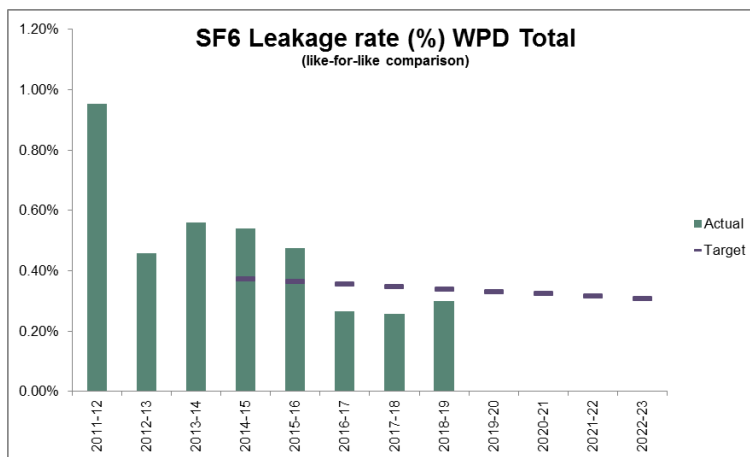
Fluid filled cable disposals (km)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Population 2014/15	315.6	277.4	60.8	115.8	769.5
Forecast 1% disposals (total RIIO-ED1)	3.2	2.8	0.6	1.2	7.7
Disposals during RIIO-ED1 – condition	20.2	3.2	0.2	0.0	23.6
Disposals during RIIO-ED1 – other	7.2	6.5	1.6	0.1	15.5
Disposals during RIIO-ED1 – total	27.3	9.8	1.8	0.1	39.1

\* WPD total does not reconcile due to rounding

**Output (31) Reduce by 17% the amount of SF<sub>6</sub> gas that is lost from switchgear.**

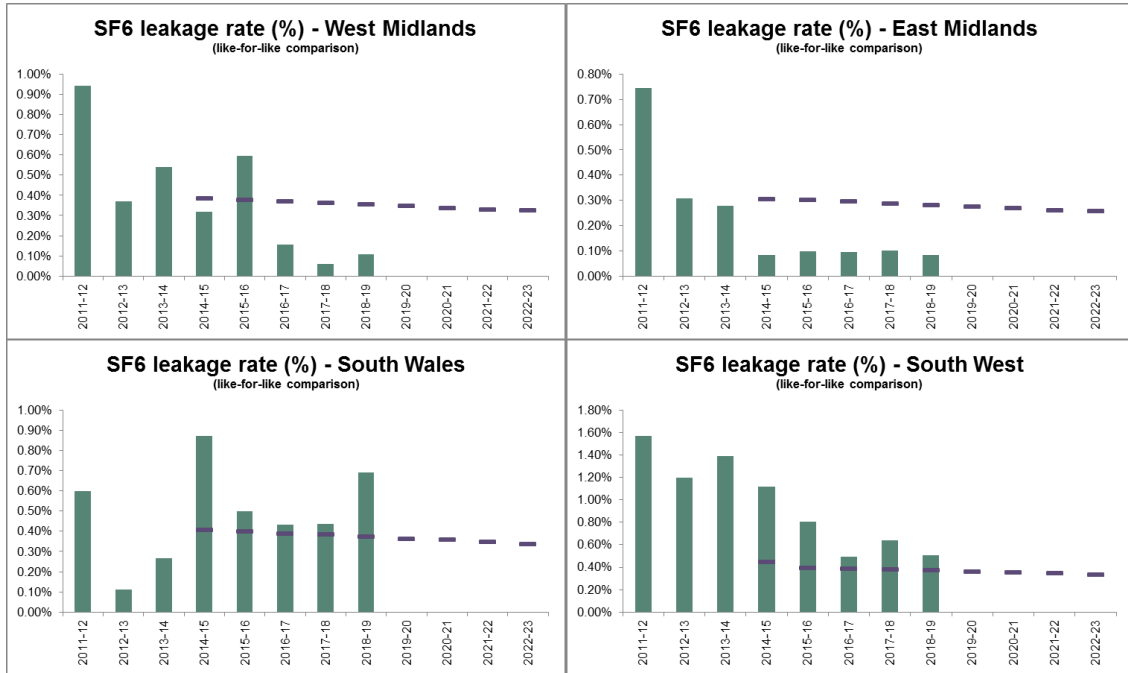


- 5.166** SF<sub>6</sub> gas is used throughout the industry as an insulating medium in switchgear. Although it provides many benefits, it is a potent greenhouse gas. There are no current alternatives to SF<sub>6</sub>.
- 5.167** When replacing switchgear priority is given to switchgear with the highest SF<sub>6</sub> leak rates. Within RIIO-ED1, WPD has committed to replacing any 11kV distribution assets that leak and higher voltage assets if they have leaked three times.
- 5.168** Leaks are identified by either a low gas alarm being triggered via control systems or from a low gas reading on a gauge being identified during a switching operation or a routine substation inspection. When a leak becomes apparent the source of the leak is located so that a strategy can be developed to manage the situation, taking into account the potential for repairs and the lead times for replacement switchgear.
- 5.169** During RIIO-ED1, WPD has committed to reducing the rate of SF<sub>6</sub> leakage by 17% based upon a four year average of emissions between 2009/10 and 2012/13.
- 5.170** The amount of SF<sub>6</sub> lost is expressed as a percentage of the overall 'bank' of switchgear containing SF<sub>6</sub> as this will vary over the period of RIIO-ED1 as new equipment is added and old equipment decommissioned.
- 5.171** The total volume of leakage is determined from a combination of sources. During 2017/18 we enhanced the data we collect for SF<sub>6</sub> by also including the volume of gas 'missing' from scrapped equipment. As this data was not included in the original information used to set targets we have provided additional comparisons that show performance on a like-for-like basis.
- 5.172** In 2018/19 we have beaten our overall target to reduce by 17% the amount of SF<sub>6</sub> gas that is lost from switchgear. (The following chart does not include the additional data gathered from scrapped equipment).

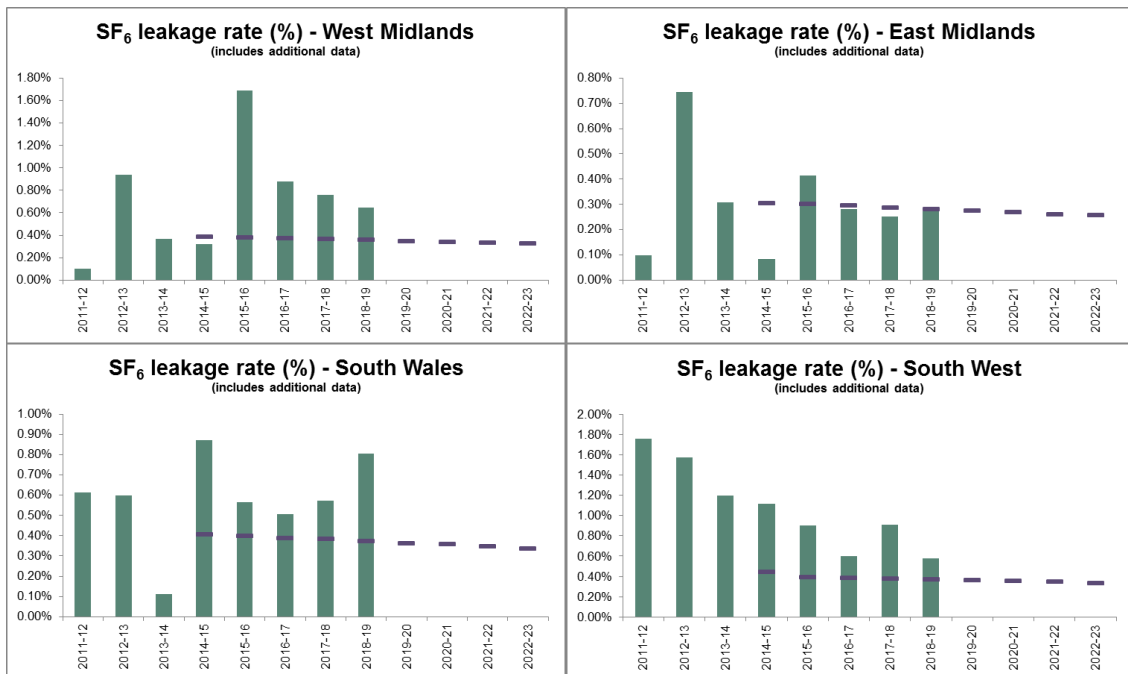


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**5.173** Performance against the RIIO-ED1 target for each licence area is shown below. Targets have been beaten in the West Midlands and East Midlands and emissions have improved in the South West.



**5.174** When the new additional data from scrapped equipment is included in the totals the original targets (which did not include this data) have only been achieved by the East Midlands licence area.



**5.175** WPD continues to work towards improving performance and to achieving the target reductions in SF<sub>6</sub> emissions. In 2016/17 we acquired leak detection equipment, which enables us to pinpoint the location of leaks once a leaking item of equipment is identified.

**5.176** In September 2017 WPD launched the NIA project SF<sub>6</sub> Alternatives with the aim of evaluating alternative insulating mediums in place of SF<sub>6</sub>. A methodology for testing alternative gases in switchgear was developed and potential gases have been tested. At present the options that were put forward by suppliers were not viable but we will test further options when they become available.

**Output (32) Install effective oil containment 'bunds' around plant containing high volumes of oil.**



**5.177** Large transformers, bulk oil containers and some items of switchgear contain large volumes of oil. This poses a risk of contamination should a leak arise, especially where the equipment is near water courses, water tables or drainage ditches.

**5.178** Containment walls or 'bunds' can be constructed around the equipment to prevent oil leaking into the environment. These are designed to be able to contain the full volume of oil that is in the equipment. Bund pumps are installed to keep the bunds clear of water. These pumps can discriminate between oil and water and stop pumping when oil is detected.

**5.179** During RIIO-ED1 WPD committed to ensuring that all 33kV, 66kV and 132kV transformers and other equipment containing oil in excess of 1,500 litres would have either a new bund installed or an existing bund refurbished to ensure effectiveness.

**5.180** An initial forecast estimated that a volume of 104 bunds would be required. Site surveys have been undertaken to assess the requirement for either the repair of an existing bund or the establishment of a new bund. This has resulted in higher volumes of activity being carried out to those originally forecasted

**5.181** Positive progress has been made across all licence areas; to date we have completed work on 134 bunds as detailed below, exceeding our target of 104 for the price control.

Oil containment bunds completed during RIIO-ED1					
	West Midlands	East Midlands	South Wales	South West	WPD Total
New bunds	1	15	2	3	21
Refurbished bunds	30	8	18	57	113
Total bunds	31	23	20	60	134

## Improve appearance in National Parks and Areas of Outstanding Natural Beauty (AONBs)

Output (33) Replace 55km of overhead lines in National Parks and AONBs with underground cables. ✓

**5.183** WPD operates 91,000km of overhead lines predominantly in rural locations. Whilst overhead lines are widely accepted as being part of the countryside, there are a number of National Parks and Areas of Outstanding Natural Beauty (AONBs) across the WPD geographical footprint containing iconic sites where the removal of WPD overhead lines would improve the visual amenity.

**5.184** The main method of improving visual amenity, whilst maintaining supplies, is to replace the overhead lines with underground cables. Following stakeholder engagement WPD committed to undergrounding 55km of overhead line during RIIO-ED1 by working with representatives from AONBs and National Parks.

**5.185** Each licence area has a steering group consisting of WPD staff and representatives from AONBs and National Parks. These groups are responsible for identifying projects and prioritising where the work will take place. WPD provides information and appropriate assistance to stakeholders to help them in scheme selection including budget costing and feasibility assessments. The acceptance and delivery of projects is dependent on the views of the steering group and the timescales to develop and implement schemes can vary.

**5.186** To date we have undergrounded 17.5 km of overhead lines. A range of further projects have been assessed and accepted for delivery, with anticipated spend of £4.4million. These projects will progress during the remainder of RIIO-ED1, and there is additional funding available dependent on further projects proposals from the steering groups.

Undergrounding in National Parks and AONBs (km)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Target for RIIO-ED1	14	10	10	21	55
Performance during RIIO-ED1	8.30	5.25	1.40	2.54	17.50

**5.187** The visual impact of work undertaken is significant, a case study is provided below.

### Case study – Morteheo, North Devon AONB

During 2018/19 work was undertaken to remove overhead power lines in the Morteheo and Woolacombe area.

The scheme involved removing just over 4 km of overhead power lines in the North Devon Coast AONB.

The site was identified following steering group discussions as the area is popular with walkers and power lines interrupted views to key features of the landscape.



2015-2023

Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
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Connections

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## 6 Connections

- 6.1** Where a customer requires a new electricity supply WPD is responsible for providing a connection. There are three main categories of customer: demand (customers who use electricity); generation (customers who generate electricity and may wish to export it to the network); and unmetered connections (customers with equipment that does not have its own meter such as street lighting).
- 6.2** During RIIO-ED1 there has also been growth in the number of customers interested in energy storage connections. Energy storage is considered to be a demand when consuming power and a generator when releasing power.
- 6.3** Within these categories there are varying customer ‘types’ with different needs and expectations ranging from minor connection customers looking for a single service connection to major connection customers managing multiple/complex connections.
- 6.4** The objective of the connections outputs is to provide an excellent service for customers connecting to the network whilst facilitating competition in the connections market. The connections outputs are in five themes.
- Provide a faster and more efficient connections service.
  - Improve communications with customers.
  - Enhance engagement with major customers.
  - Deliver guaranteed standards of performance.
  - Facilitate a competitive connections market.

### Regulatory framework

- 6.5** Ofgem has a package of incentive mechanisms to promote improvements in the connections service and these incentives influence WPD’s approach to connections. The incentives are as follows.
- The Broad Measure of Customer Satisfaction (BMCS) results in rewards or penalties for customer service. Part of the mechanism measures customer satisfaction via a survey aimed at minor connection customers.
  - The Time To Connect incentive focusses on the time taken to provide minor connection customers with a quotation and once the offer is accepted the time taken to complete the necessary works.
  - The Incentive on Connection Engagement (ICE) penalises DNOs that do not engage adequately with major connection customers.
  - Guaranteed Standards of Performance (GSOPs) are a legal obligation where customers are eligible for specified payments where a DNO fails to deliver specific levels of performance.
- 6.6** Ofgem is also keen on promoting competition in connections in order to provide customers with a choice of providers to undertake the physical connections work. Since the start of RIIO-ED1, regulatory policy for connections has continued to evolve with the development of a code of practice for competition in connections. The requirements of the code of practice have influenced delivery against the outputs proposed in the WPD RIIO-ED1 Business Plan.
- 6.7** Furthermore, the growth in low carbon technology, high volumes of distributed generation and installation of electricity storage has led to greater constraints on the network requiring more flexible approaches to managing capacity. Both Ofgem and the government department of Business, Energy and Industrial Strategy (BEIS) have recognised a greater need for flexibility and rules and requirements will continue to evolve during RIIO-ED1.

## Overview of connections outputs

Provide a faster and more efficient connections service		
<a href="#">34</a>	Meet Ofgem's targets for the overall 'time to quote' and 'time to connect' for single domestic connections and small commercial connections. Improve the overall time taken to provide a quote for all other customer groups by 20%.*	We achieved Ofgem's targets for 'time to quote' and 'time to connect' for single domestic connections and small commercial connections. We have beaten targets for two of the other customer groups.
<a href="#">35</a>	Provide excellent customer service so that customers continue to rank us as the top-performing DNO group in customer satisfaction surveys.**	We are the top-performing DNO for the Connections Customer Survey in Ofgem's Broad Measure of Customer Satisfaction, scoring an average of 8.88 out of 10 for our DNO group.
<a href="#">36</a>	Carry out surveys with distributed generation customers to find out if they are satisfied with our service and identify where we could improve.	We achieved a score of 8.71 out of 10 for distributed generation customer satisfaction surveys. We have specified a range of improvements within our work plan for the Incentive on Connections Engagement (ICE).
Improve communication with customers		
<a href="#">37</a>	Develop and improve the way we process online connection applications and make it easier for customers to track the progress of their application online.	We have made amendments to our online connections information in line with stakeholder requirements. These have been published in our ICE work plan.
<a href="#">38</a>	Make sure that the information we provide in documents and online is effective.	We have improved the information we provide in documents and online in line with stakeholder feedback.
Enhance engagement with major customers		
<a href="#">39</a>	Host 'surgeries' every three months to help connection customers to understand our processes.	11 connection surgeries took place across our four licence areas.
<a href="#">40</a>	Work with major customers to identify where our processes can be improved and quickly put in place any changes.	We engaged with over 18,000 stakeholders through events and over 2,000 through customer satisfaction surveys. The actions in our ICE work plan are based on suggestions we received from these events and surveys.
Guaranteed Standards of Performance (GSOPs)		
<a href="#">41</a>	Aim to achieve no failures of the connection GSOPs.**	There were only two failures against the connection Guaranteed Standards of Performance during 2018/2019. We had a further three failures against Competition in Connection standards, which relate to services we provide that cannot be carried out by competitors.
Further developing a competitive market		
<a href="#">42</a>	Improve customer awareness of other connection providers and regularly check that customers understand the options available to them.	We provide clear information for customers explaining that they can use other connection providers. We carry out a yearly survey to measure customer awareness. The 2018/19 survey showed that 82% of customers who had a new connection were aware of other providers.
<a href="#">43</a>	Work with other connection providers to extend the type of work they can carry out, including high voltage and reinforcement work.	We host a group to focus on the specific needs of other connection providers. Three sessions took place during 2018/19 and we used feedback to improve our processes.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

## Provide a faster and more efficient connections service

- 6.8** As part of the RIIO ED1 business plan WPD committed to providing a faster and more efficient connections service. Three outputs were identified to measure our performance against this commitment, including a commitment to improve the overall time taken to deliver a connection by 20%.
- 6.9** As connection processes have evolved, it has become clear that some customers do not necessarily require a faster service; they require an appropriate and timely service. This means that they may certainty of their connection costs prior to commencing their development and require the connection works to be delivered in line with their project timescales rather than simply as quickly as possible. Whilst WPD remains focused on improving the time to provide a quote, we consider that the measure to improve connection timeframes by 20% is now no longer a priority for all customer groups.
- 6.10** Around 60% of the connections that we made during the regulatory year were for minor connection customers (single domestic connections referred to as LVSSA and 2-4 domestic connections or a small commercial connection not requiring reinforcement work known as LVSSB). For these customers we recognise that speed of overall connection remains important and we are committed to meeting the targets set as part of Ofgem's Time to Connect incentive.
- 6.11** For all other market segments we will continue to work to achieve our commitment to improve the overall time to quote by 20%. We will also measure customer satisfaction with our connections service using Ofgem's Broad Measure of Customer Satisfaction and our own surveys for Major Connections customers and Distributed Generation customers, aiming to achieve Ofgem's target of 8.2 out of 10 and our own stretching target of 8.8 out of 10. We are committed to responding to customer requirements to improve connections processes and our actions in line with this commitment are detailed for outputs 37 to 40. Our progress is measured by our performance in line with Ofgem's Incentive on Connections Engagement (ICE) and we are committed to avoiding penalties for failure to engage with customers.
- 6.12** Output 34 of our RIIO ED1 business plan has been reworded as follows.

Output (34) Meet Ofgem targets for time to quote and time to connect for single domestic connections and small commercial connections. Improve the overall time to provide a quote (for all other market segments) by 20%.



### 2018/19 performance for the Time to Connect incentive

- 6.13** The following table shows WPD's performance against the Ofgem Time to Quote and Time to Connect targets for LVSSA and LVSSB market segments in 2018/19. All targets have been beaten.

	Time to Quote (average number of days)		Time to Connect (average number of days)	
	LVSSA	LVSSB	LVSSA	LVSSB
West Midlands	4.87	5.71	29.95	37.61
East Midlands	3.63	5.29	30.38	35.40
South Wales	3.61	6.37	27.13	34.06
South West	5.37	5.61	27.42	33.39
<b>Ofgem target</b>	<b>8.21</b>	<b>11.73</b>	<b>42.08</b>	<b>52.70</b>

### 2018/19 Time to Quote performance for all other connections

- 6.14** For all other market segments, WPD has set specific targets with the aim of achieving 20% improvement on benchmark performance for time to quote (derived from an average of 2013/14 and 2014/15) by the end of RIIO-ED1. We have a specific target for each year of RIIO-ED1 which will ensure that we meet our target for the end of the price control.

Time to Quote performance for non-incentivised market segments (working days)					
Market segment	LV	HV	DGLV	DGHV	EHV
Benchmark (2 year average 13/14 14/15)	8.5	11.2	11.4	36.7	37.2
End of ED1 target (20% improvement)	6.8	8.9	9.2	29.4	29.7
2018/19 target	7.6	10.1	10.3	33.0	33.5
2018/19 performance	7.9	9.9	12.1	21.9	34.5

- 6.15 There are a number of factors that can influence the time to provide a quote, including fluctuations in the volumes of requests received and the complexity of the analysis and design work required.
- 6.16 WPD regularly reviews processes to ensure that timescales are as short as possible and that feedback from customers is incorporated.
- 6.17 Delivery of connections quotes has been made more efficient by improving the information available to customers before an application is made, improving the systems used to make an application and developing clear processes for each stage.
- 6.18 Targets for 2018/19 have been beaten for the HV and DGHV categories.

Output (35) Provide excellent customer service so that customers continue to rank us as the top-performing DNO group in customer satisfaction surveys.	✓
Output (36) Carry out surveys with distributed generation customers to find out if they are satisfied with our service and identify where we could improve.	✓

- 6.19 During RIIO-ED1, WPD has committed to delivering excellent customer service so that WPD continues to be ranked as the top performing DNO group.
- 6.20 WPD recognises that customer satisfaction is very important to the success of the business. This applies to the whole connections process, from initial application processing through to final work on site. During the process customers interact with different WPD staff and all interactions should be of an equally excellent standard.
- 6.21 Ofgem’s Incentive on Connections Engagement (ICE) was introduced at the start of RIIO-ED1 to incentivise DNOs to understand and meet the needs of customers. Our ICE workplan details the steps that we take to engage with customers and to implement improvements based on feedback. The documentation that we submit each year to evidence this work can be found on our website at the following link.

<https://yourpowerfuture.westernpower.co.uk/our-engagement-groups/connection-customer-engagement/incentive-for-connections-engagement>



- 6.22 To understand how customers view WPD’s service, and to assess the impact of our ICE workplan, we use the following surveys to measure the satisfaction of connections customers.
  - The customer satisfaction survey score obtained as part of Ofgem’s Broad Measure of Customer Satisfaction (BMCS). This assesses customer satisfaction specifically for minor connection customers (LVSSA and LVSSB).
  - A WPD implemented survey for major demand customers (any customer not classified as LVSSA or LVSSB). This survey is undertaken on a monthly basis.

- A WPD implemented survey for distributed generation (DG) customers. This survey was carried out on an annual basis, however we are in the process of transferring this to a monthly survey to better align with the major customer survey and enable us to review satisfaction closer to the time the service is delivered.

**6.23** The two WPD surveys replicate the survey approach taken for BMCS.

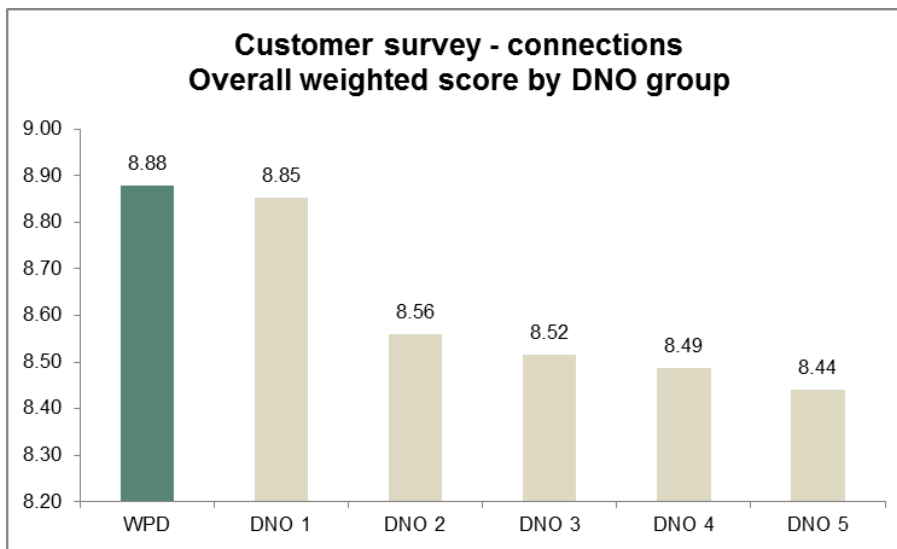
### 2018/19 performance in customer satisfaction surveys

**6.24** Ofgem specifies a target of 8.2 out of 10 for the customer satisfaction score part of BMCS and DNOs gain rewards or penalties relative to this target. In order to drive the business to provide service ahead of expectations, WPD has set a stretching internal target of 8.8.

**6.25** WPD's 2018/19 performance for the three different customer groups is shown in the following table. We have a stretching internal target of 8.8, we are beating this target for Minor Connections and work is ongoing to achieve this for the Major Connections and Distributed Generation customer surveys. We will continue to seek feedback from stakeholders in each customer group in order to improve our processes and identify best practice.

Connection customer satisfaction survey results 2018/19			
Customer Groups	Ofgem target	Internal Target	Result
Minor Connections (LVSSA and LVSSB)	8.2	8.8	8.88
Major Connections	n/a	8.8	8.66
Distributed Generation	n/a	8.8	8.71

**6.26** The BMCS customer survey score for LVSSA and LVSSB connections provides a method of comparing DNO performance. The chart below shows the results by DNO group for 2018/19, customers have rated WPD as the top performing DNO group but performance across the industry is increasingly competitive.



**6.27** WPD's performance is achieved through a strong culture of customer service embedded throughout the organisation, supported by a variety of management performance indicators which ensure customer service is treated as a priority.



## Improve communication with connections customers

Output (37) Develop and improve the way we process online connection applications and make it easier for customers to track the progress of their application online.



- 6.28 Customers are able to either apply for a new connection online or download a version of the application form to be completed on paper.
- 6.29 Some connection customers also prefer to carry out transactions and track progress online. To facilitate this, WPD committed to enhancing online connections processing and progress tracking.
- 6.30 We continue to develop the systems and processes available to customers.

### The Connection Portal

- 6.31 The Connection Portal allows customers applying for small projects and service alterations to access details of their connection offer (or budget estimate), accept the offer and pay for their connections work.
- 6.32 The Connection Portal was launched in 2014/15 and allows customers to request automatic email updates at key stages within the connection process.

### CIRT

- 6.33 The CIRT system was specifically designed for interactions with third party connection providers such as Independent Connection Providers (ICPs) and Independent Distribution Network Operators (IDNOs) for online submission of connection applications and progress tracking. The system has also been made available to developers.
- 6.34 We committed to an ICE initiative to provide customers with on-line access to information about the status of the legal process relating to their connection. Customers are now able to track the legal and consents process from initial landowner contact to the point where we instruct our lawyers. A second stage of communication is completed by our lawyers who have now given customers, their legal representatives and ICPs access to their case management system, allowing customers to track progress in relation to the purchase of land and/or rights over land for connection.

### A new online portal

- 6.35 Whilst some ICPs use CIRT, others prefer to use the online application process or email. We are therefore developing an on-line portal with access via a registration process. We developed a proposal which was discussed at stakeholder events in order to gather feedback. The new system has been user tested by nominated ICPs prior to implementation. All ICPs have been notified and invited to register for access. We are monitoring the number of registrations and continue to work with ICPs as they utilise the service so that we can obtain further feedback. The method complements existing application processes. The new portal allows customers to submit applications, self-connection requests and commissioning documents.

Output (38) Make sure that the information we provide in documents and online is effective.



- 6.37 WPD has committed to ensuring that customers requiring a connection receive clear information on the process. Information is provided to customers online via our website, through our contact centre staff or by direct contact with local planners. We regularly update the information provided to customers to ensure that it meets customer requirements.
- 6.38 The WPD website provides a valuable source of information and we undertake regular stakeholder engagement to identify potential improvements that could be made to the guidance that we provide.
- 6.39 Stakeholder requests and the improvements that we make as a result are detailed within WPD's ICE workplan and can be viewed on our dedicated ICE internet page.

[www.westernpower.co.uk/Connections/ICE.aspx](http://www.westernpower.co.uk/Connections/ICE.aspx)

6.40 Some of the improvements introduced during 2018/19 are detailed below.

- We updated our connections webpages, initial plans were presented to our connections forums and once agreed and implemented we introduced a pop-up survey on the website to ensure that we continue to gather feedback.
- We created a map hub on the website providing a single webpage for accessing the range of different mapping information provided by WPD.
- We also upgraded our online capacity map with additional functionality, providing a new 'walkthrough' function for new users. Users can easily report any potential errors with a link to an online form and data can be downloaded by registered users.
- We produced two new podcasts explaining Ofgem's charging methodologies and how future changes in DUoS charging could impact customers.
- We published WPD's first Electric Vehicle (EV) strategy together with redesigned EV webpages designed to provide clearer information for stakeholders.
- We produce short animations to help explain the ways in which customers in the community energy sector can participate with new approaches that enable us to utilise the existing electricity network more effectively. In 2018/19 following stakeholder feedback we produced three new films on the shift to Distribution System Operator, the growth of electric vehicles and the role of local flexibility. We also published three supporting case studies and promoted these via social media.
- We hosted a webinar to disseminate information on new engineering recommendations for the connection of generation – G98 and G99. We had 116 participants dial into the webinar and a further 511 stakeholders downloaded the associated 'frequently asked questions' documentation.
- We implemented a new connection offer letter format to improve presentation and clarity. Stakeholders asked us to improve the presentation of our offers, making them easier to review. We used an external design consultant and introduced new offer letters with summary boxes and clearly defined sections. We also separated the general terms and conditions, these are published on the website and signposted in the letter – making the letter shorter and more accessible.





## Improve our engagement with major customers

Output (40) Work with major customers to identify where our processes can be improved and quickly put in place any changes.



- 6.41 Major connection customers (large site developers, multiple site developers and distributed generation customers) have a wide range of requirements for their connections, and the connection arrangements can be complex.
- 6.42 In RIIO-ED1, Ofgem has introduced a penalty-only incentive to encourage DNOs to improve interaction with major connection customers. The Incentive on Connection Engagement (ICE) requires DNOs to engage with major customers, develop improvement plans and implement changes.
- 6.43 The ICE penalties only apply to market segments that Ofgem has deemed as being non-competitive; however it is important to WPD that we engage with all connection stakeholders and WPD's ICE improvement plans are therefore focused on all market segments.
- 6.44 The incentive mechanism requires DNOs to submit reports to Ofgem detailing forward looking plans and reporting on previous proposals.
- 6.45 WPD's ICE submission for 2018/19 provides further detail on WPD's connections engagement and the actions this has led to. The submission can be found at the link below.

[www.westernpower.co.uk/Connections/ICE.aspx](http://www.westernpower.co.uk/Connections/ICE.aspx)

- 6.46 The main principle of the stakeholder engagement that we undertake is that it must lead to action. During 2018/19 we delivered 48 initiatives through our ICE workplan, including substantially increasing the information available to customers, enhancements to our capacity map and the publication of a range of new guidance documents. We also increased the self-service options for Competition in Connection stakeholders which included enhancing self-design processes.



- 6.47 The following sections detail some of the mechanisms used to engage with connection stakeholders and the actions resulting from these interactions.

### Customer Connections Steering Group

- 6.48 During 2018/19, we continued to work with our Customer Connection Steering Group (CCSG). The CCSG was formed in 2013 and meets on three occasions per annum, hosted by our directors and senior managers.
- 6.49 The CCSG is made up of a range of stakeholders representing a cross section of connection customers in order to provide a balanced view of connection issues. The CCSG provides feedback on proposed initiatives and a strategic steer, ensuring that we correctly identify the priority areas for our ICE initiatives to address.
- 6.50 The CCSG directly influences ICE initiatives, for example our recent review of capacity allocation and reservation and our planning for the implementation of Assessment and Design

fees for connections. Proposals were discussed with the CCSG in advance and feedback from a wider pool of stakeholders was reviewed to ensure that processes we implemented met stakeholder expectations.

### Stakeholder workshops

- 6.51 On an annual basis WPD holds generic stakeholder workshops across a variety of locations. These workshops are available for all stakeholders to attend, but they also include specific elective sessions dedicated to connections activity – including community energy and EVs. The sessions enable stakeholders to participate in round table discussions, ask questions and provide feedback.
- 6.52 The feedback from our 2019 workshops enabled us to validate our proposed ICE workplan outputs and rank these according to stakeholder priorities.
- 6.53 Further detail of the sessions can be found at the following link.

<https://yourpowerfuture.westernpower.co.uk/workshops-and-events>

### Community Energy workshops

- 6.54 WPD has provided Community Energy Workshops since 2014/15. These workshops provide an engagement opportunity specifically for stakeholders involved with community energy projects. These community led projects allow communities to share the costs of larger scale generation plants or for groups of households/businesses to install microgeneration with the benefit of bulk buying.
- 6.55 Our activities are designed to ensure that the benefits of the DSO transition can be shared by all WPD customers and that Community Energy stakeholders are not left behind or disadvantaged when seeking entry to potential new markets. We aim to increase awareness, build knowledge and the ability to participate.
- 6.56 During 2018/19 we hosted 8 Community Energy Workshops across our licence areas engaging with 300 stakeholders overall, focusing on DSO transition and the role of flexibility. We also hosted a community energy site visit and two joint DNO and ENA community energy events.
- 6.57 Over time, the workshops have demonstrated that community energy stakeholders have rapidly developed an understanding of the connections process and are now looking to explore the topic of alternative connections, energy storage and the associated potential for involvement in smart networks and demand side response.
- 6.58 Further initiatives are planned for our 2019/20 ICE workplan including a consultation on the effectiveness of the WPD Community Energy website, a social media campaign to increase awareness of the information available to Community Energy groups and further workshops focusing on the areas where we are tendering for flexibility and the potential for Community Energy groups to participate.

#### **Case study – Community Energy Site Visit**

In July 2018 we hosted a site visit at a Community Energy project in Nottingham. The event gave Community Energy stakeholders and opportunity to see first-hand a working renewable generation, distributed energy and community battery storage scheme. The event provided attendees with the opportunity to discuss the scheme with the development team and WPD. This was followed by a networking event where further discussion on collaboration and innovation took place with Community Energy stakeholders and the WPD team.

## Distributed generation owner operator (DGOO) forum

- 6.59** We introduced a customer forum for DG owners/operators during 2016/17 as a result of feedback from DG stakeholders identifying that they needed more information on planned system outages and constraints affecting their connections. Outage costs can be significant to the DG sector and stakeholders told us that it is important for them to be able to forecast to owners/investors when there will be outages.
- 6.60** We held four DGOO meetings during 2018/19, attended by companies representing a significant proportion of WPD's connected DG.
- 6.61** The forum provides input into the development of the ICE workplan, prompting new initiatives throughout the year. As an example during 2018/19 this included a request for WPD to further develop systems and processes that provide better historical and forecast outage information. We introduced a new form for stakeholders to request historic information, a new process to provide historic and forecast information within the connections offer where required.
- 6.62** Further information on the forum can be found on our website at:

<https://www.westernpower.co.uk/connections-landing/guidance-for-connecting-generation-or-energy-storage/distribution-generation-owner-operator-forum>

## Senior manager contact for major customers

- 6.63** Stakeholder feedback indicates that major customers can benefit from a single point of contact where they deal with a large number of schemes. As a result a senior manager point of contact was offered to 50 major customers (with the highest levels of activity) in 2016/17.
- 6.64** The role of the senior manager contact is to liaise with the customer to understand the range and scope of works they propose to undertake with WPD and act as a senior escalation point of contact to resolve issues. We have continued to offer this contact to major customers and the number of customers choosing this option has increased to 83. We have also extended the availability of this service to local government authorities and local enterprise partnerships to support long-term planning for connections growth.

Output (39) Host 'surgeries' every three months to help connection customers to understand our processes.



6.65 Local 'surgeries' for connections customers continue to be promoted.

6.66 In the first two years of RIIO-ED1 we advertised set surgery dates in specific locations in a range of relevant publications. We found however that customers were more interested in attending individual meetings arranged with a planner/engineer within their local depot with some simple queries being resolved over the phone.

6.67 We have therefore amended our approach, rather than advertising set dates over the year we offer customers the opportunity to arrange a surgery (referred to as a connection appointment) at a time and location that suits their application.

6.68 We advertise this opportunity on our connection webpages and during 2018/19, a total of 11 connection 'surgeries' took place.

## Connection appointments



We operate the regional electricity network and provide new connections to homes, businesses and generation sites at voltages from 230 volts to 132,000 volts.

We understand that ahead of applying to us for a new connection and particularly for Generation Connections, our customers and Independent Connection Providers (ICPs) often have questions and want to understand more about the process, timescales, technical matters, consents/legal requirements and possible constraints of making a connection to the network in a particular area.

If you would like a 45 minute appointment with an engineer to discuss your requirements and the connection process, ahead of making an actual application for a connection to the network, then please get in touch.

### To find out more or to book an appointment

Call:  
South West & Wales: 0800 028 6229  
Midlands: 0800 121 4909

E-mail:  
[wpcconnectappoint@westernpower.co.uk](mailto:wpcconnectappoint@westernpower.co.uk)

## Guaranteed Standards of Performance

Output (41) Aim to achieve no failures of the connection GSOPs.



- 6.69 Every year WPD provides around 70,000 budget estimates and quotations, 30,000 connections and 10,000 street furniture service fault repairs for local authorities.
- 6.70 The Connection Guaranteed Standards of Performance detail minimum levels of service and set out the level of payments to customers where these standards are not met. There are thirty connection guaranteed standards of performance covering all aspects of connection provision.
- 6.71 Each failure against a standard results in a payment to the customer, with the majority of connection standards having a per day cumulative penalty.
- 6.72 WPD voluntarily doubles the value of payments for any failures against guaranteed standards.
- 6.73 During RIIO-ED1, WPD committed to a tough challenge, targeting zero failures against all of the connection guaranteed standards. In 2018/19 we have had only two failures against the connection GSOPs. We had a further three failures against Ofgem's Competition in Connection standards.
- 6.74 We aim to learn from every failure and to continue to work to maintain high standards throughout the RIIO-ED1 period.

## Further developing a competitive market

Output (42) Improve customer awareness of other connection providers and regularly check that customers understand the options available to them.



- 6.75** Prior to the introduction of competition for the provision of connections, customers could only request a connection from the incumbent DNO. It is now possible for third parties to carry out connections work, 'in competition' with the DNO.
- 6.76** The industry has a code of practice to facilitate competition, this covers the processes, practices and requirements that a DNO will use where an ICP seeks to undertake contestable works. The code therefore influences some of the actions required by DNOs to facilitate competition.
- 6.77** Over time, the scope of contestable connections work which can be undertaken by third party providers has gradually been extended. During RIIO-ED1 WPD has committed to both improving customer awareness of third party providers and to extending the types of work that can be undertaken by these providers.
- 6.78** To ensure that connection customers are aware that alternative providers exist, we provide clear links to competition in connection information on the main connections page of the WPD website; our connection process flowcharts include the option of using third party connection providers and we include information about the availability of alternative connection providers in connection packs sent to customers.
- 6.79** Annual customer satisfaction surveys include questions designed to gauge customer awareness of alternative providers. The surveys ask large connection and distributed generation customers who have obtained a connection from WPD whether they were aware that they could have asked a third party to provide the connection.
- 6.80** Awareness continues to increase and the 2018/19 results of the survey show that awareness is high with 82% of customers aware that they can use an alternative provider to deliver their new connection.

### Raising awareness of the Code of Practice

- 6.81** WPD actively participated in national working groups to develop the Competition in Connections (CIC) Code of Practice and has implemented new internal policies and procedures to ensure compliance. Information and guidance is also published on our website at the following link.

[www.westernpower.co.uk/Connections/Useful-Information/Competition-in-Connections/Information-for-Customers.aspx](http://www.westernpower.co.uk/Connections/Useful-Information/Competition-in-Connections/Information-for-Customers.aspx)



**Output (43) Work with other connection providers to extend the type of work they can carry out, including high voltage and reinforcement work.**



**6.82** WPD actively assists competition by developing processes and systems to allow third party connection providers to extend the scope of what they can do.

#### Working with connection providers

**6.83** We carry out specific engagement with Competition in Connection (CIC) stakeholders to ensure that we receive detailed feedback to enable us to make improvements in this area.

**6.84** During 2017/18 we created a new forum to focus on the specific needs of CIC stakeholders; the CIC group. During 2018/19 three CIC group meetings have taken place attended by WPD senior management and stakeholders covering a range of market segments. The group provides feedback on our CIC services, acting as a sounding board for improvement initiatives and informing the development of the ICE workplan. Details of the meetings, including minutes can be found at the following link.

[www.westernpower.co.uk/About-us/Stakeholder-information/Connection-Customer-Engagement.aspx](http://www.westernpower.co.uk/About-us/Stakeholder-information/Connection-Customer-Engagement.aspx)

**6.85** The number of attendees has reduced since the forum was created and we have therefore agreed with stakeholders that future meetings will take place twice yearly. Stakeholders felt that the group was important but that fewer meetings were required, particularly as attendees have the ability to discuss specific issues with their WPD senior point of contact where required.

#### Extending contestable work

**6.86** Since 2013, WPD has been developing processes that allow third parties to carry out work on the HV network. Initially this focused on HV jointing, allowing third party jointers to carry out physical connection work on site. This was followed by the introduction of processes to allow third parties to carry out their own switching, testing and commissioning.

**6.87** The scope of work that can be undertaken by competitors has gradually increased and this has been facilitated further by WPD's response to the implementation of the CIC Code of Practice. We have been working with CIC stakeholders to develop processes for the determining the point of connection to the network, approving the design of the connection and the delivery of connection work on site.

**6.88** In response to CIC feedback we have updated policy to enable ICP connections to the overhead HV network and expanded the scope of LV disconnections associated with developments. At this point ICPs have not undertaken these expanded scope activities but we will keep them open as an option to trial if ICPs wish to do so.

**6.89** We have published guidance for new ICP entrants providing an overview of working in WPD's region.

#### Design of Points of Connection

**6.90** We have implemented processes that allow ICPs to self-determine the point of connection to the existing network (for the majority of straightforward connections).



6.91 These processes were implemented in September 2015 and we have seen the following volumes during 2018/19.

Determined points of connection (all voltages)		
	Volumes	%
Self-Determined POC by ICP	39	1
WPD Determined POC	5,985	99
<b>Total POC's</b>	<b>6,024</b>	

6.92 In addition ICPs have the option to design the network connection without the need for design approval from WPD. Processes and procedures for authorised ICPs to carry out self-approval have been developed to facilitate competition in connections.

Approval of ICP designs (all voltages)		
	Volumes	%
ICP Self-Approved Design	165	22
WPD Design Approval	599	78
<b>Total POC's</b>	<b>764</b>	

6.93 Implementation has been assisted by the ICE initiatives delivered during 2017/18 which enhanced the policy and procedures for self-design by ICPs.

#### Delivery of physical connection work

6.94 During 2013 HV jointing trials were initiated, allowing third party jointers to carry out physical connection work on site, this was followed by the introduction of processes to allow third parties to carry out their own switching, testing and commissioning.

6.95 We work with stakeholders to support the development of competition in connections work. In 2016/17 stakeholders indicated that our processes for HV self-connection could be simplified and we trialed a new option for safety authorisation. This involved an agreement that switching could be undertaken under WPD's safety rules whilst the associated jointing work could be undertaken under the ICP's safety rules. This hybrid option (referred to as Option 4) was implemented in July 2017 and communicated to ICPs.

6.96 There is a progressive year-on-year increase in the volumes of HV connections completed by a third party ICP. The volumes are shown in the table below. Of the 36 connections completed by third parties 33 were carried out under 'option 4'.

HV connections completed								
	2015/16		2016/17		2017/18		2018/19	
	Volumes	%	Volumes	%	Volumes	%	Volumes	%
HV connected by ICP	10	4	15	7	19	8	36	13
HV for ICP connected by WPD	214	96	213	93	225	92	233	87
<b>Total POC's</b>	<b>224</b>		<b>228</b>		<b>244</b>		<b>269</b>	

6.97 Within the RIIO-ED1 business plan, WPD committed to facilitating the extension of contestable work to allow third parties to undertake network reinforcement. Network reinforcement is required where there is limited capacity on the existing network to accommodate the load of new

connections. It may result in upstream assets being increased in size or additional circuits being provided. To date there has been no take up of this option by third party providers; we are reviewing the existing trial application criteria with the aim of broadening the range of potentially interested parties.

**6.98** We have improved the administrative processes surrounding our LV jointing processes. ICPs indicated that efficiency could be improved, particularly for high volume activities such as work on unmetered supply projects. We surveyed ICPs using the live jointing processes and undertook a process review. We created a new portal (as detailed within section 6.35) which enables ICPs to log in and populate live jointing notifications. The speed of the process has been improved and we have had positive feedback, we will continue to work with ICP users to identify further improvements.

**6.99** Our stakeholders asked us to provide improved reporting on the inspection activity that is undertaken for both ICPs undertaking work to be adopted by WPD, and WPD's own works. We have therefore developed monthly reporting to enable ICPs to view their performance in relation to their peers, including WPD. This information can be found at the following link.

[www.westernpower.co.uk/connections-landing/competition-in-connections/icp-inspection-reports](http://www.westernpower.co.uk/connections-landing/competition-in-connections/icp-inspection-reports)

2015-2023

Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
Year Four – 2018/19

31 October 2019

Customer satisfaction

# Customer satisfaction

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# 7 Customer satisfaction

- 7.1** The provision of excellent customer service for WPD's 7.9 million customers is a core business objective.
- 7.2** WPD has committed to a range of outputs to improve customer satisfaction.
- 7.3** The Customer Satisfaction outputs are in six themes.
- Customer service
  - Telephone response
  - Communication with customers
  - Stakeholder engagement
  - Complaints
  - Guaranteed Standards of Performance awareness

## Regulatory framework:

- 7.4** Ofgem assesses customer service using the Broad Measure of Customer Satisfaction (BMCS). BMCS is an incentive mechanism that provides rewards or penalties in three areas of customer service – customer satisfaction, complaints and stakeholder engagement.
- 7.5** Customer satisfaction is assessed through a survey and deals separately with three types of interaction.
- Customers requesting a connection (minor connections only).
  - Customers experiencing a supply interruption.
  - Customers making a general enquiry.
- 7.6** The complaints element of the BMCS results in penalties where DNOs do not meet specified target performance. The measure is subdivided into four components with greater weighting applied to repeat complaints and complaints that take longer than 31 days to resolve.
- 7.7** The final part of the BMCS considers stakeholder engagement with rewards available for DNOs that engage well and use the information obtained to improve the service provided to customers. This incentive has been strengthened to encourage DNOs to focus more on issues relating to vulnerable customers.

## Overview of customer satisfaction outputs

Customer service		
<a href="#">44</a>	Continue to be the top-performing DNO group across all elements of the Broad Measure of Customer Satisfaction.**	We were the top-performing DNO group for overall customer satisfaction. The rating combines results of the three surveys for supply interruptions, connections and general enquiries.
<a href="#">45</a>	Maintain certification to show that we meet the Customer Service Excellence standard.**	We were awarded 'Compliance Plus' status for 44 of the 57 standards. We were the highest-scoring organisation out of all those accredited.

Telephone response		
<a href="#">46</a>	Respond to phone calls quickly, answering them within two seconds.**	Our average response time for customer calls was 1.56 seconds.
<a href="#">47</a>	Limit the number of calls that are abandoned before we can answer them to less than 1%.**	Only 0.08% of calls were abandoned.
<a href="#">48</a>	Always provide customers with the option to talk to a member of staff when they call our contact centre.	Our systems allow us to make sure that customers are always provided with the option to talk to a member of staff.

Communication with customers		
<a href="#">49</a>	Provide a restoration time for every power cut.**	All power cuts have an estimated restoration time which is updated as further information is provided by field teams.
<a href="#">50</a>	Contact all customers who have been in contact about a fault.**	We contacted 98.8% of customers who contacted us about a fault.
<a href="#">51</a>	Contact customers within two days of receiving an enquiry which was not about a fault.**	We contacted 99.6% of customers who contacted us with an enquiry which was not about a fault within two days.
<a href="#">52</a>	Provide 'on-demand' messaging through text and social media for customers who want to be kept informed in other ways, rather than a phone call.	We provided on-demand messaging through text and social media. We sent 647,063 text messages during high voltage power cuts.
<a href="#">53</a>	Develop 'self-service' options for customers to find information online.	We hosted 21,556 webchat conversations, our app for reporting power cuts was downloaded 5,203 times and we had 1.6 million hits on our online map showing power cuts.

Stakeholder engagement		
<a href="#">54</a>	Continue to host a customer collaboration panel where our CEO will meet with our expert stakeholders four times a year.	The Customer Collaboration Panel met four times during the year. We set up a new Customer Engagement Group to challenge our plans for the next price control period.
<a href="#">55</a>	Continue to host at least six stakeholder workshops each year.	We hosted six general sessions, attended by over 330 stakeholders across our licence areas.
<a href="#">56</a>	Continue to produce a stakeholder report every year providing an update on the actions we have taken as a result of stakeholder involvement.	This yearly Business Plan Commitments summary report and the separate detailed report replace the stakeholder report.

Complaints		
<a href="#">57</a>	Resolve at least 70% of complaints within one day.**	We resolved 86% of complaints within one day.
<a href="#">58</a>	Continue to have a target of no complaints where the Ombudsman has to get involved.**	There were no complaints referred to the Ombudsman.

Guaranteed Standards of Performance awareness		
<a href="#">59</a>	Continue to send the 'Power for Life' publication to all 7.9 million customers and make sure it promotes the GSOPs.**	We issued 'Power for Life' to all 7.9 million customers in September 2018. We took a new approach and promoted GSOPs through social media and our website.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1

## Customer service

Output (44) Continue to be the top-performing DNO group across all elements of the Broad Measure of Customer Satisfaction



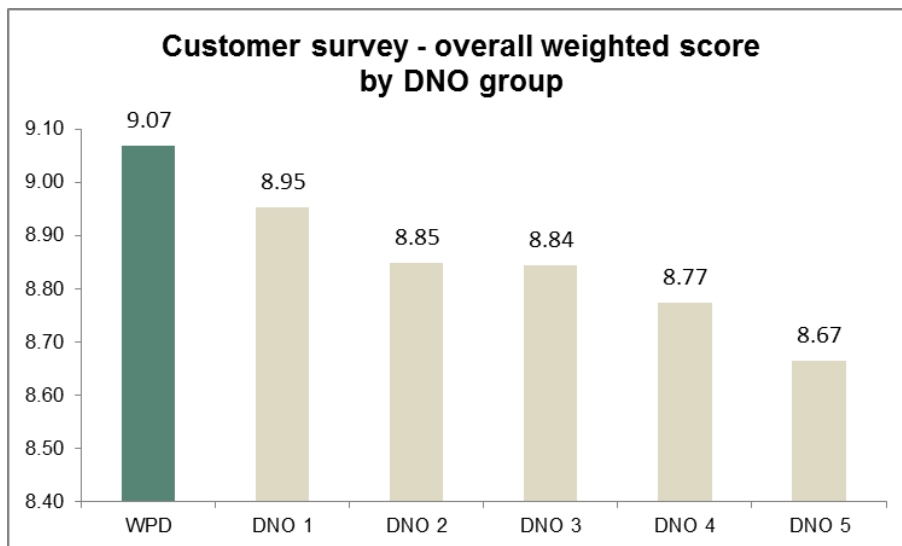
- 7.8 WPD is committed to remaining the top performer in the customer satisfaction survey part of Ofgem's Broad Measure of Customer Satisfaction.
- 7.9 There are three separate customer satisfaction surveys that are carried out covering connections, supply interruptions and general enquiries.
- 7.10 Performance in each component is subject to separate assessment, leading to rewards or penalties based upon comparison against a target score of 8.2 out of 10. In RIIO-ED1, Ofgem has placed a greater emphasis on connections within incentive reward and penalty mechanisms. The relative weighting for the three categories is shown below.

Relative weighting of customer satisfaction survey	
Connections	50%
Supply interruptions	30%
General enquiries	20%

- 7.11 This relative weighting can be used to combine the scores from the three components into an overall customer satisfaction score.

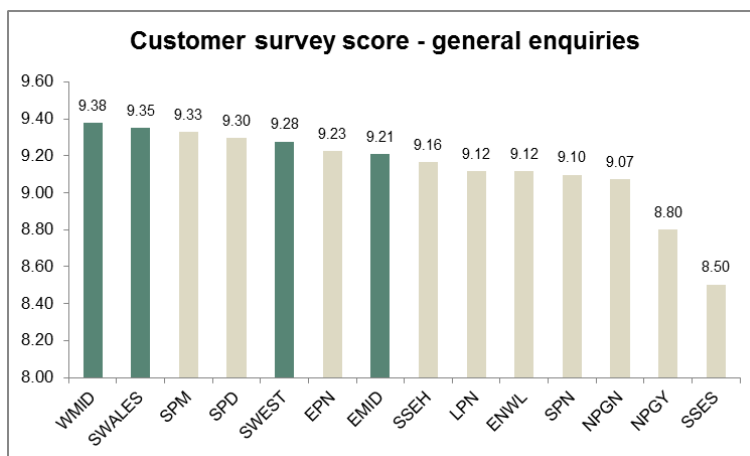
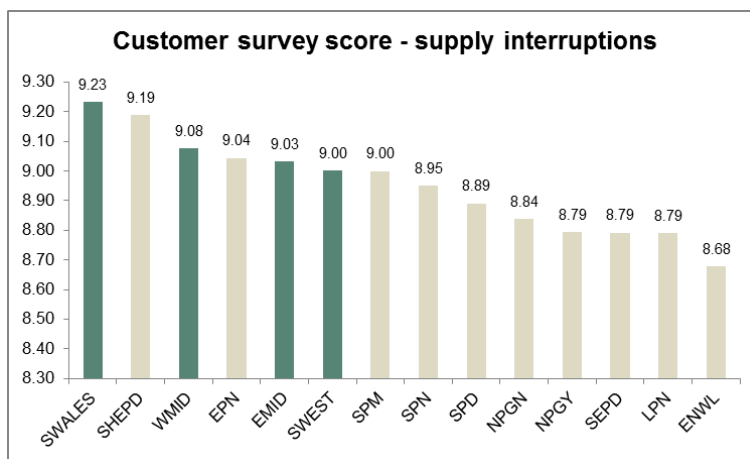
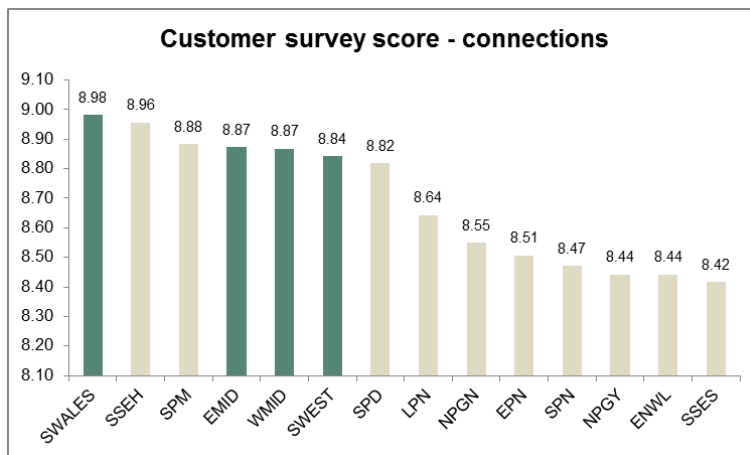
### Overall customer satisfaction

- 7.12 WPD was the top-performing DNO group in 2018/19 for overall customer satisfaction (amalgamating results for the three surveys for connections, supply interruptions and general enquiries) when compared with the other DNOs, as shown below.





**7.13** The 2018/19 performance in the three separate components is shown below for each licence area.



**7.14** Improvements to customer service have been implemented by acting on the feedback customers provide when contacted by WPD staff. This involves senior managers reviewing individual comments to identify specific business changes that will lead to maintaining industry leading performance.

**Output (45) Maintain certification to show that we meet the Customer Service Excellence standard.**



**7.15** In order to gain an independent view of customer service WPD committed to continuing to maintain the Customer Service Excellence standard. The Customer Service Excellence standard is a Government scheme which recognises organisations that provide effective and excellent customer service.

**7.16** WPD has been certified to the standard since 1992 (when it was known as the Charter Mark).

**7.17** Every year Customer Service Excellence assessors review customer service against five criteria.

- Customer insight
- Culture of the organisation
- Information and access
- Delivery
- Timeliness and quality of service

**7.18** In 2018/19 WPD increased the number of 'Compliance Plus' ratings from 43 to 44, out of a total of 57 standards (receiving a compliance rating for all others). WPD was the highest scoring organisation out of 590 companies.

## Telephone response

**Output (46) Respond to phone calls quickly, answering them within two seconds.**



- 7.19** Allowing customers to speak to someone is an essential part of good customer service. We continue to operate regionally based in-house Contact Centres that are adequately staffed to provide a fast response.
- 7.20** Where circumstances lead to exceptionally high call volumes we expand the number of call takers by using trained staff across our business to maintain service levels and provide customers with information. We also provide facilities for contact centre and other trained staff to take calls at home, should bad weather prompt this need.
- 7.21** We recognise that customers can be frustrated when their calls are not answered quickly. WPD has a track record of answering calls quickly and we will continue to do so.
- 7.22** During RIIO-ED1 we have committed to target answering calls within two seconds.
- 7.23** For 2018/19 average response times were as follows.

Average response time for customer calls					
	West Midlands	East Midlands	South Wales	South West	WPD total
Average time taken for response by an agent (seconds)	1.87	1.56	1.39	1.44	1.56

**Output (47) Limit the number of calls that are abandoned before we can answer them to less than 1%.**



- 7.24** Abandoned calls arise when customers decide to hang up before they speak to a call taker. This typically arises when customers are being kept on hold for a long time. WPD's approach of answering calls quickly results in very few abandoned calls. During RIIO-ED1 we have committed to a target of having less than 1% of our inbound calls being abandoned. Within 2018/19 only 0.08% of calls were abandoned.

**Output (48) Always provide customers with the option to talk to a member of staff when they call our contact centre.**



- 7.25** When a customer calls about a fault, WPD uses recorded messages to provide information relating to the area where the incoming call is placed. These messages are updated as more information about supply interruptions becomes known.
- 7.26** Whilst providing recorded messaging is adequate for some customers, many prefer to speak to a call taker to find out further information or to get reassurance about when supplies will be restored. The telephony systems used by WPD always provide customers with the option to talk to a call taker.

## Communication with customers

- 7.27** Keeping customers informed and updated about enquiries and services is important.
- 7.28** WPD uses a variety of methods to ensure that communication remains effective and appropriate for our broad customer base. During RIIO-ED1, we have committed to developing new channels of communication beyond the traditional telephone and written methods – including online, e-mail, text, smart phone and social networks.

Output (49) Provide a restoration time for every power cut.



- 7.29** When supplies are interrupted, customers require information about when they will be back on supply. In the RIIO-ED1 Business Plan, we stated that we would be obtaining regular progress updates from field staff in order to be able to provide a restoration time for every outage.
- 7.30** During RIIO-ED1 we have introduced a process whereby an estimated restoration time (ETR) is automatically populated into our incident management systems. ETR estimates are based on an analysis of the details of the fault – i.e. whether it affects the high or low voltage network, and typically how long it takes for specific fault types to be resolved.
- 7.31** All contact centre staff have access to the data and can ensure that customers are kept well informed in relation to the likely timeframes for restoration of supply.
- 7.32** During the course of a fault, dispatch teams gather information from field staff at regular intervals to update the ETR. The incident management system automatically reviews the ETR status of each fault every five minutes and uses an algorithm to prompt members of the dispatch team to update these in advance of the ETR expiring.
- 7.33** The data about ETRs is linked to the WPD website and to our Power Cut app which provides automatic alerts to customers. This enables customers to keep track of the ETR without having to contact WPD directly.

Output (50) Contact all customers who have been in contact about a fault.



- 7.34** When customers contact WPD because they are off supply the main thing they want to know is when the power will be restored. Although we provide an estimated time of restoration for every fault, it may become necessary to revise the estimate as the fault progresses. For these situations WPD has implemented a process of proactively contacting customers to keep them updated.
- 7.35** When a customer calls about a power outage their details are logged and automatically added to a call back list. When not taking inbound calls, contact centre staff progressively work through the call back list during the course of the fault. Customers who are medically dependent on electricity are given priority.
- 7.36** The call back process can have a number of outcomes including: a contact centre team member speaking to the customer; leaving a message or sending a text message. Where there is no reply or an engaged tone the customer's details will be returned to the call back queue.
- 7.37** A small proportion of customers refuse a call back or do not provide contact details and on occasion we also receive calls from third parties who are not able to provide the customer's contact details.

7.38 During 2018/19 call backs (or another form of contact) were made to 98.85% of customers who were in contact about a fault.

**Output (51) Contact customers within two days of receiving an enquiry which was not about a fault.**



7.39 When customers make any non-fault related general enquiry, their details are logged by central administrative staff and a prompt is created for local teams to contact the customer.

7.40 During RIIO-ED1 WPD has committed to contacting customers with non-fault enquiries within two working days. During 2018/19 the percentage of customers contacted within two working days of a non-fault enquiry are as follows.

Customers contacted within two days of a non-fault enquiry (%)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Number of enquiries	59,404	58,575	26,109	50,471	194,559
Percentage contacted within 2 working days	99.83%	99.15%	99.84%	99.70%	99.59%

7.41 In order to achieve these levels of performance WPD uses a more challenging internal target of contacting customers within one day. Where contact has not been made within one working day of the enquiry, an automated email is sent to the local manager, which is repeated daily until the contact is made.

7.42 There are occasions where the customer does not respond to telephone contact and in these circumstances an email or letter is sent to identify next steps so that the enquiry can be either progressed or closed.

Output (52) Provide 'on-demand' messaging through text and social media for customers who want to be kept informed in other ways, rather than a phone call.



**7.43** During RIIO-ED1 WPD has committed to providing network information for customers through on demand messaging via text and social media – sending information to customers who wish to be kept informed.

### Twitter

**7.44** WPD started to use Twitter to interact with customers in July 2013. The number of Twitter followers has grown year on year, increasing from 13,666 in 2015/16 to 28,115 in 2018/19. Our Twitter feed provides updates on outages (using the handle #powercut) and enables customers to interact with us, ask questions and provide information. We proactively tweet on all faults where over 500 customers are off supply and on faults that have prompted a number of social media queries or calls. We also use Twitter to promote WPD information campaigns such as public safety. Our feed can be found at [www.twitter.com/wpduk](http://www.twitter.com/wpduk).



**7.45** We seek to use Twitter innovatively to raise awareness of the business and to interact with our customer base on various electricity related issues – often reaching customers who might be less likely to engage via more traditional methods.

### Facebook

**7.46** WPD launched a profile on Facebook in February 2015, using it as a mechanism to provide customers with information on outages but also to raise awareness on key matters such as landowner safety, child safety, our apprenticeship scheme and our annual customer awareness campaign 'Power for Life'.

**7.47** We look to post on Facebook once a day, on average, providing engaging content with regular features, latest news updates, business/industry information and key messages promoting who we are and what we do. Our Facebook Page can be found at [www.facebook.com/wpduk](http://www.facebook.com/wpduk).

### LinkedIn

**7.48** We launched a WPD LinkedIn page in February 2017 page, LinkedIn is used to provide business news and to promote general campaigns as well as information on careers within WPD. We use the page as a forum to generate discussion on our business and the wider industry. Our LinkedIn page can be found at [www.linkedin.com/company/western-power-distribution](http://www.linkedin.com/company/western-power-distribution).

### Text messaging

**7.49** In 2015/16 we introduced a system to send proactive text message updates to customers affected by power cuts. In 2016/17 this was developed as a two way text messaging service so



that customers could respond to our messages with queries, initially this was introduced for deaf/hard of hearing customers but we have expanded usage to include all customers.

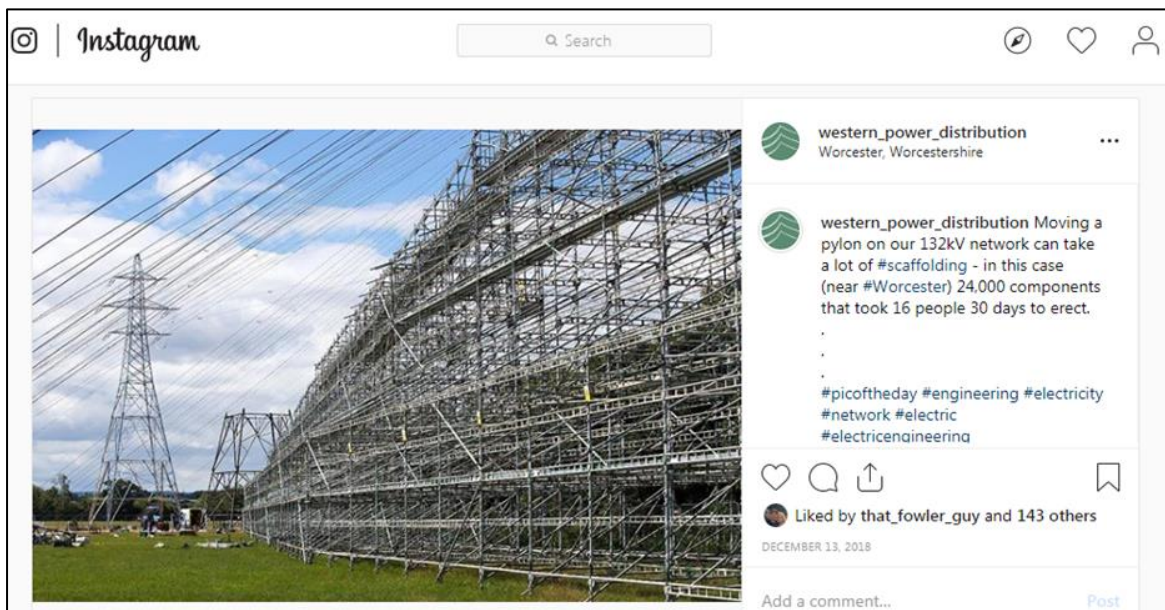
**7.50** Customers who have contacted us regarding a power cut are automatically added to a list to receive a proactive call back to provide them with updates regarding the fault. Call backs can now be made via a text message as customer feedback indicates that phone calls can at times be intrusive.

**7.51** There are exceptions to using text messages – for example we will always call customers on our Priority Services Register and if customers have experienced a supply interruption within the last week we will also ensure that they receive a phone call rather than a text message. Customers are given the opportunity to respond by text and we answer queries and provide further information in this way.

**7.52** During 2018/19 we sent 647,063 proactive texts to customers during HV outages and the two way messaging service was used to send 107,958 text messages.

## Instagram

**7.53** In August 2018 we expanded our social media portfolio by launching a WPD Instagram account. Instagram enables us to promote WPD to a new, potentially younger, audience. We aim to post interesting and eye-catching imagery, relevant to the business, while using hashtags to generate a following.





**Output (53) Develop 'self-service' options for customers to find information online.**



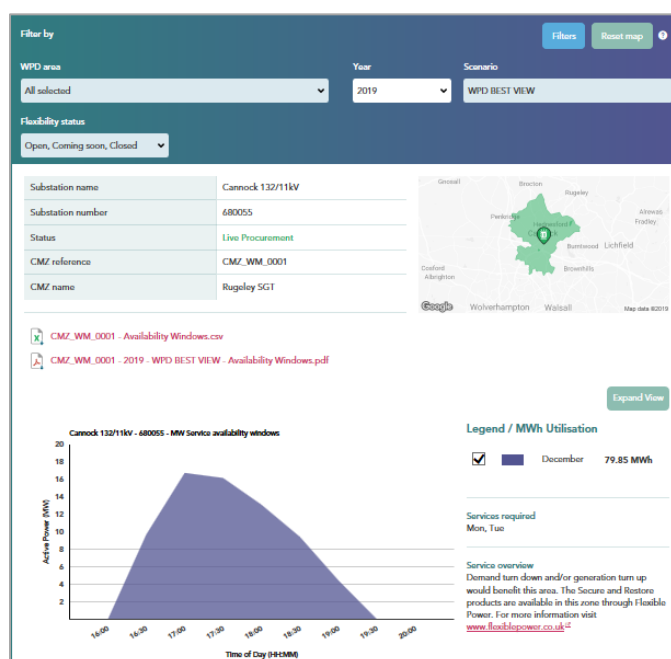
**7.54** We ensure that our website is accessible to all customers, supporting individuals with a range of needs such as impaired vision, dyslexia or customers for whom English is a second language. A dedicated 'accessibility' page is clearly signposted on every page of the website. The page provides guidance on a range of options including adjusting font size, altering background colour and the availability of free software to support our customers.

**7.55** We have a number of mechanisms designed to enhance the accessibility of the website. This includes the following.

- 'ReciteMe' which has the ability to convert to speech, reading out content to the user. The function allows translation into 103 languages, provision of text to speech and larger font. The function has been used 2,412 times in 2018/19
- 'Robobrain' allows customers to quickly convert information or documents on our website into audio books, braille or another format, the function has been used 1,096 times in 2018/19
- Animated videos on a variety of topics with British Sign Language make sure that deaf and hard of hearing customers can access key advice, the videos have been downloaded 2,874 times.

**7.56** There are a number of 'self-service' options made available on the WPD website including the following.

- Webchat functionality allows visitors to the website to communicate online in real time with a WPD advisor 24 hours a day. Usage of the functionality is high, 21,556 took place during 2018/19 with customers indicating 94% satisfaction.
- A Power cut app that can be downloaded, enabling individuals to register a post code so that they receive an automatic alert if a power cut occurs. The app also allows customers to report power cuts, register for the Priority Services Register and self-diagnose problems such as a fuse box trip or a pre-payment meter issue. During 2018/19 the app was downloaded 5,203 times.
- A network capacity map which allows users to quickly view the capacity status at each of our substation sites – including storage, capacity headroom and reinforcement cost information. The map enables potential connection customers to assess the feasibility of schemes without the need for a formal application and was accessed 21,729 times this year.
- A Power cut map with integrated Twitter feed messages, allowing quick and easy reporting of power cuts and access to live and updated fault information. The map had 1.6m hits during 2018/19.
- In 2018/19 we introduced a new Flexibility Map, enabling customers to determine where flexibility services are currently required and likely to be needed in the future to aid their planning. The map was published on our new Flexible Power website which has seen 25,332 hits since it was launched in September 2018. The website includes a Flexibility Valuation tool which



allows customers to estimate value of providing flexibility services the tool has been used 247 times. Further information on Flexible Power can be found in section 5.23 of this report.

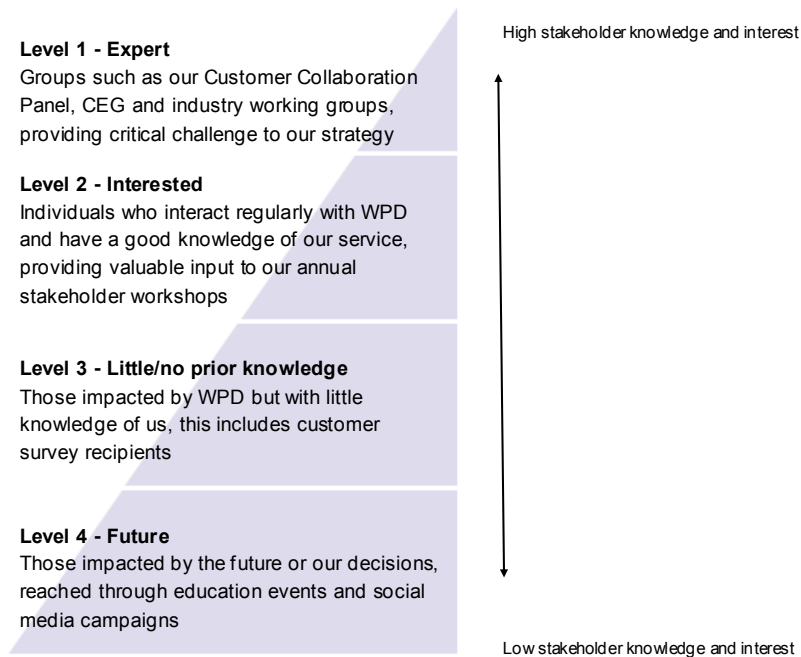
- In 2018/19 we introduced a 'storm mode' for our website – in the event of a storm a simplified homepage permanently displays our power cut map, provides a link to PSR information and live power cut storm reports. This provides customers with vital information during widespread disruption.

**7.57** Usage of our self-service options has grown in most areas since 2014/15; a snapshot of the growth of some of our services is shown below.

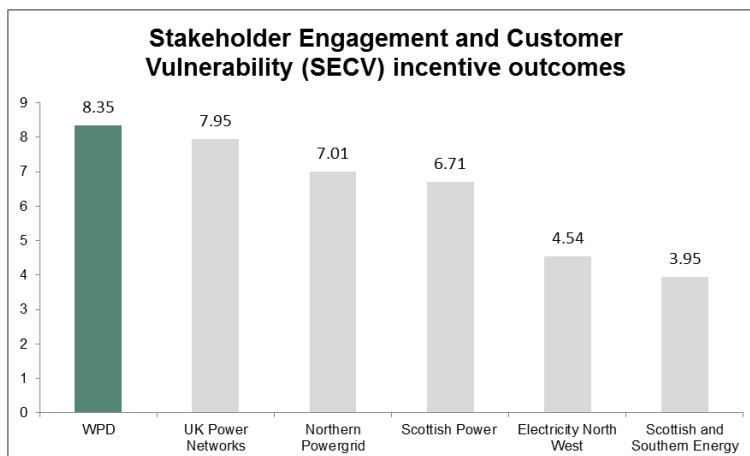
Growth in use of 'self-service' online information		
Self-service option	2014/15	2018/19
Power cut map	323,837 hits	1,672,915 hits
Post code search	575,533 hits	230,650 hits
Online connection applications	2,811 applications received	7,781 applications received
Find your distributor	85,150 hits	38,113 hits
Who is my supplier (*went live in Jan '15)	31,803 enquiries	1,418,638 enquiries
Priority Services Register applications (online)	1,555	12,716

## Involving stakeholders

- 7.58** Regular stakeholder engagement is used to improve day to day operations and inform business priorities. WPD has a database of approximately 5,500 stakeholder contacts, categorised into customer segments, allowing targeted engagement on specific issues.
- 7.59** We engage with stakeholders on a variety of levels, dependent upon their knowledge and level of interest as demonstrated in the diagram below.



- 7.60** Part of the Broad Measure of Customer Satisfaction relates to stakeholder engagement. For RIIO-ED1, Ofgem has placed a greater emphasis on service for vulnerable customers as part of the assessment of DNO performance.
- 7.61** Under Ofgem’s Stakeholder Engagement and Consumer Vulnerability (SECV) incentive, all DNOs provide information to an Ofgem expert panel about their stakeholder engagement activities and consumer vulnerability programme and the panel score each company’s performance. The results of the assessment in 2018/19 are shown in the chart below, with WPD scoring the highest.



**Output (54) Continue to host a customer collaboration panel where our CEO will meet with our expert stakeholders four times a year.**



**7.62** In preparation for the next price control, RIIO-ED2, Ofgem has set expectations for enhanced engagement, requiring DNOs to design, establish and resource Customer Engagement Groups (CEG) to scrutinise their business plans. During 2018/19 WPD appointed an independent Chair, agreed terms of reference and membership role descriptions, confirmed contracts with 14 members and held our first ‘onboarding’ session in March 2019. We will continue to provide further updates on the progress of the CEG and further information on meetings can be found on our website via the following link.

<https://yourpowerfuture.westernpower.co.uk/our-engagement-groups/our-customer-engagement-group>

**7.63** In anticipation of the appointment of the CEG WPD has worked to redefine the role of its established customer panel. This has included the following.

- The group has been renamed as the Customer Collaboration Panel (CCP).
- A new independent CCP leader has been appointed to chair member-only closed sessions and to coordinate with members to set agendas.
- The introduction of 12 new members with expertise in low carbon technologies, DSO transition, Local Enterprise Partnerships representing regional concerns, consumer representatives and wider stakeholders from key segments including businesses, utilities, charities and the health sector.

**7.64** The CCP continues to meet quarterly, led by a WPD Director or the CEO. It critically reviews WPD’s current performance, provides strategic steer on WPD’s priorities for the future and acts as a sounding board for new ideas. To enable members to do this, the CCP is provided with full transparency regarding WPD’s performance and early sight of its plans for the future.

**7.65** The Panel exists to provide expert advice and opinions and to work collaboratively with WPD to devise effective solutions and improvements for customers. The CCP debates a broad range of activities - from the impact of EVs in the future, to power cut response times. Members provide steer throughout the lifecycle of a project - raising areas of customer concern; providing advice and collaborative input to help WPD devise actions to address them, and finally; reviewing the impact post-delivery and suggesting further refinements.

**7.66** Each meeting of the CCP includes a session focusing on a different strategic priority. The topics covered during 2018/19 included the following:

- Cyber security
- Cost/Benefit of fuel poverty projects
- WPD engagement with MPs/Government
- RIIO-ED2 enhanced engagement

**7.67** The CCP provides independent challenge with the aim of improving service delivery for all customers. The CCP has produced a report which explains the role of the panel and some of the key highlights of their work with WPD during 2018/19. This report can be found on our website at the following link.

<https://yourpowerfuture.westernpower.co.uk/our-engagement-groups/customer-collaboration-panel>

**Output (55) Continue to host at least six stakeholder workshops each year.**



**7.68** In addition to the Customer Collaboration Panel, WPD engages with a wider audience through an annual round of six generic stakeholder workshops. These have been carried out each year for the last nine years and we have proposed to continue these workshops during RIIO-ED1.

**7.69** In February 2019 we hosted six sessions in locations across the WPD licence areas. Over 330 stakeholders attended from a range of backgrounds, covering all customer groups. We used the sessions to explore stakeholder priorities for the next price control, RIIO-ED2, which will establish the focus of our activities from 2023 onwards.

**7.70** We also introduced the concept of agreeing a 'social contract' as part of our commitment to operate responsibly. Stakeholders agreed that WPD should deliver a 'social contract' as part of RIIO-ED2 and identified key aspects that they believe should be included in such a document, these included the following:

- Transparent reporting (with clarity on returns and profits)
- Demonstrating WPD is a diverse, responsible employer
- Evidencing the legitimacy of our operations for the future
- Playing an active role regionally and supporting vulnerable customers

**7.71** We have committed to building our first social contract and will test this with wider stakeholders in 2019/20.

**7.72** A summary report detailing the output of these sessions can be found on our website. To view these documents please use the following weblink.

<https://yourpowerfuture.westernpower.co.uk/workshops-and-events>

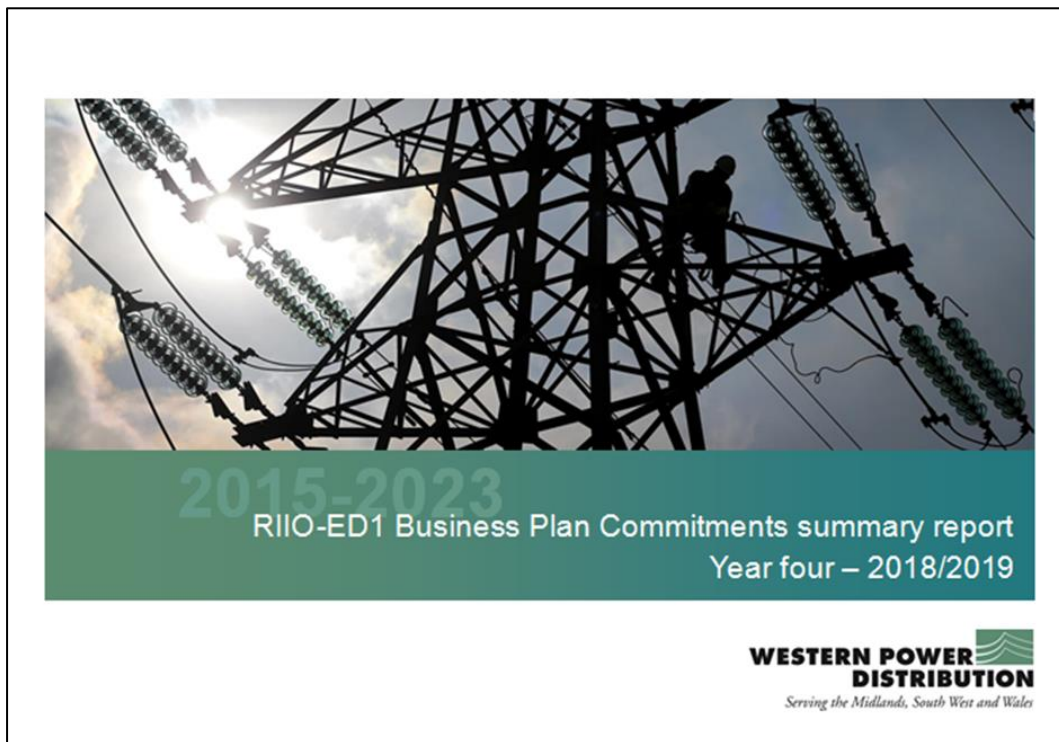
Output (56) Continue to produce a stakeholder report every year providing an update on the actions we have taken as a result of stakeholder involvement.



**7.73** A detailed and summary report will continue to be produced every year providing an update of progress toward delivering RIIO-ED1 output measures.

**7.74** The summary report will be produced concurrently with this detailed report and will focus on the key areas of interest indicated by stakeholders. The 2018/19 summary report is published on WPD's website; this can be found at the following link.

<https://yourpowerfuture.westernpower.co.uk/Summary-Business-Plan-Commitments-Report-2018-19>



## Complaints

**7.75** WPD endeavours to get things right first time but sometimes things can go wrong. When complaints are received they are treated with urgency and with an aim to resolve them to the customer's satisfaction quickly. Local team managers are responsible for dealing with complaints; actively visiting customers where necessary to understand what can be done to put things right.

**7.76** Performance in relation to complaints is measured within Ofgem's Broad Measure of Customer Satisfaction (BMCS) in four categories.

- Complaints resolved in day 1
- Complaints remaining unresolved after 31 days
- Repeat complaints
- The number of Energy Ombudsman decisions that go against the DNO

**7.77** WPD aims to have leading performance in each of these categories, avoiding penalties from Ofgem. For 2018/19 West Midlands, East Midlands and South Wales have improved (reduced) their overall complaints scores, whilst the South West has remained steady. Our performance against these categories are detailed in the following sections.



Output (57) Resolve at least 70% of complaints within one day.



**7.78** WPD has committed to resolving at least 70% of complaints within one day. This target has been achieved in each of the four WPD licence areas.

Complaints resolved in one day (%)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Percentage of complaints resolved in day 1 – 2018/19	88%	89%	84%	83%	86%

### Complaints resolved within 31 days

**7.79** WPD's focus on dealing with complaints quickly means that over 99% are resolved within 31 days.

Complaints resolved within 31 days (%)					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Percentage of complaints resolved within 31 days – 2018/19	99.62%	99.44%	99.12%	98.76%	99.23%

### Repeat complaints

**7.80** A repeat complaint occurs where a customer returns to WPD at a later date to complain about the same issue. There was only one repeated complaint during 2018/19.

Output (58) Continue to have a target of no complaints where the Ombudsman has to get involved.



**7.81** Where customers are dissatisfied with a DNO's response to a complaint they have the option to raise their complaint with the industry Ombudsman. During RIIO-ED1 WPD has committed to ensuring that every complaint is adequately dealt with by WPD staff with zero complaints needing to be investigated by the Ombudsman.

**7.82** The WPD output is subtly different to the Ofgem measure which forms part of the BMCS: Ofgem measures when an Ombudsman decision is made against a DNO, whereas the WPD output aims to prevent complaints being referred to the Ombudsman in the first place.

**7.83** During 2018/19 there were no complaints raised with the industry Ombudsman.

## Guaranteed Standards of Performance awareness

Output (59) Continue to send the 'Power for Life' publication to all 7.9 million customers and make sure it promotes the GSOPs. ✓

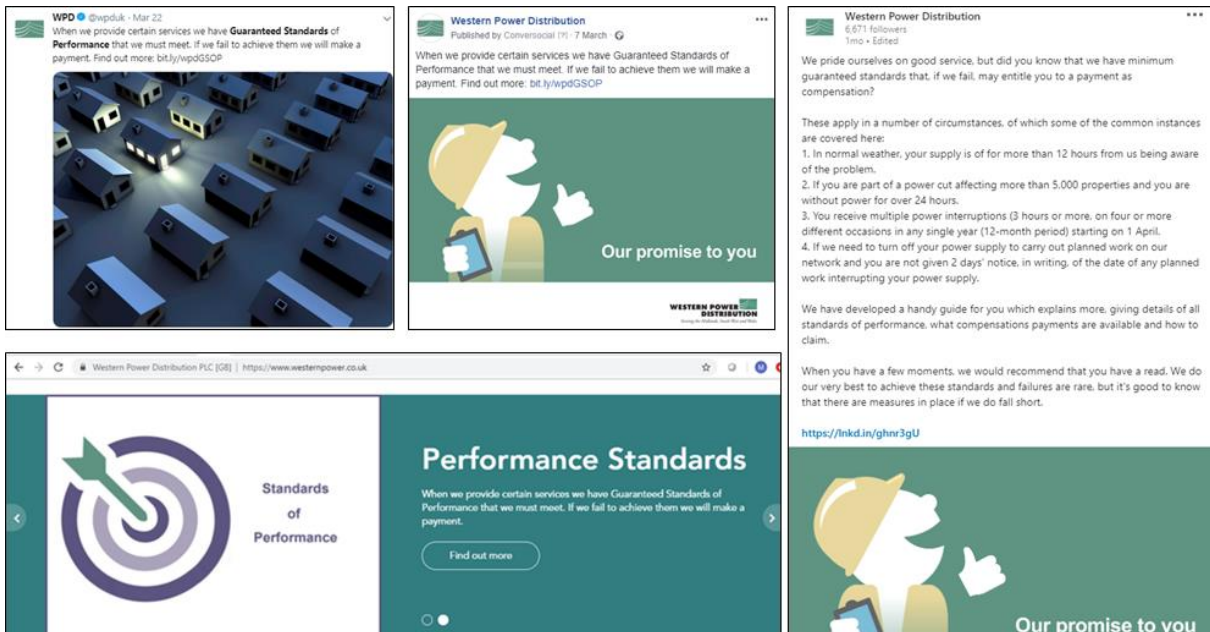
**7.84** Guaranteed Standards of Performance (GSOPs) set out the minimum service standards that DNOs must meet under Ofgem's regulatory framework. Where a standard is not met then a payment is made to that customer. GSOPs cover the provision of connections, supply interruptions and response to problems such as voltage complaints.

**7.85** Where WPD is aware of a failure a payment will be made without the need for a customer to make a claim.

**7.86** WPD committed to using its annual customer newsletter 'Power for Life' to promote GSOPs.

**7.87** Whilst 'Power for Life' was issued in September 2018 a decision was made that a new approach should be explored when promoting GSOPs. We have seen increasing numbers of stakeholders make use of our website and social media to access information, for example the number of hits on our website has increased by 27% between 2015/16 and 2018/19.

**7.88** During 2018/19 we have therefore promoted GSOPs via social media and our website.



2015-2023  
Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
Year Four – 2018/19

31 October 2019

Social obligations

# Social obligations

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## 8 Social obligations

- 8.1** In delivering electricity to 7.9 million customers, we provide a range of services to fulfil our social obligations.
- 8.2** WPD broadly defines 'social obligations' as the role we have as a Distribution Network Operator to help customers in vulnerable circumstances.
- 8.3** In RIIO-ED1, WPD's social obligations outputs are in four themes.
- Improve understanding of vulnerability.
  - Improve the data held on the Priority Services Register.
  - Improve the services provided for vulnerable customers.
  - Address fuel poverty by supporting customers to access key information.

### Regulatory framework:

- 8.4** For RIIO-ED1 Ofgem introduced the Stakeholder Engagement and Consumer Vulnerability – referred to as SECV. The incentive aims to encourage network companies to engage proactively with stakeholders in order to anticipate their needs and deliver a consumer focused, socially responsible and sustainable energy service. Rewards are available to network companies who can demonstrate high quality activities against set criteria.
- 8.5** WPD's SECV submissions for 2018/19 can be found via the following weblink.
- <https://yourpowerfuture.westernpower.co.uk/ofgems-secv-incentive>
- 8.6** The submissions provide information explaining WPD's approach to social obligations as well as broader information on stakeholder engagement and consumer vulnerability and the positive outcomes that we have delivered for customers.
- 8.7** In 2018/19 we delivered 290 key outputs and positive outcomes for customers, all of which are detailed in the submission. We invested £4.8 million delivering these outcomes, an increase of 11% from 2017/18. We have also undertaken collaborative social value measurement research to verify that customers place significant value on the improvements that we deliver.
- 8.8** Ofgem's expert panel reviewed the submissions and awarded WPD's actions a rating of 8.35 out of 10. This is the highest score awarded in 2018/19, beating all other electricity distribution network operators (DNOs), gas distribution network operators, gas transmission operators and electricity transmission operators. This is the eighth consecutive year that WPD has been rated number one in the industry for SECV.

## Overview of social obligations outputs

Improving understanding of vulnerability		
<a href="#">60</a>	Work with expert partners to improve our understanding of the needs of customers in vulnerable situations.	We worked with a wide range of expert partners and were accredited with the British Standards Institute (Standard BS18477), which specifies requirements for responding to customers in vulnerable situations.
<a href="#">61</a>	Train staff to recognise the signs of vulnerability.	We provided specialist training to the Priority Services Register (PSR) teams and contact centre staff. Field staff are trained on registering customers to the PSR.

Improving the data held on the Priority Services Register		
<a href="#">62</a>	Contact customers in vulnerable situations at least once every two years to check the details we hold on the Priority Services Register.	We contacted 1.1 million PSR customers during 2018/19 and updated 30% of the records we hold.
<a href="#">63</a>	Improve the quality of Priority Services Register data by working with other agencies and sharing information.	We increased the number of referral partners that we work with. We added 24 new partners, with the aim of achieving a better balance in the types of agencies that we work with.
<a href="#">64</a>	Co-ordinate meetings with suppliers to agree criteria for vulnerability.	27 new 'common needs codes' are now in use across the industry.

Improving the services provided for customers in vulnerable situations		
<a href="#">65</a>	Raise awareness of the Priority Services Register.	We worked with a range of organisations, including a mental health organisation and fire and rescue services, to raise awareness of the PSR.
<a href="#">66</a>	Make 10,000 crisis packs available.*	To date we have issued 6,762 crisis packs over the RIIO-ED1 period.
<a href="#">67</a>	Contact all customers who depend on a power supply for medical reasons every three hours during power cuts.**	During power cuts we prioritise contacting customers who depend on a power supply for medical reasons. We called 71% of these customers within one hour of a fault and 96% in under two hours.
<a href="#">68</a>	Continue to provide practical support through the British Red Cross and other organisations as appropriate.	We provided British Red Cross support during nine prolonged power cuts, supporting 71 customers in total.
<a href="#">69</a>	Ask for feedback from customers in vulnerable situations about our service.	We achieved customer satisfaction ratings of 9.51 out of 10 from customers on the PSR who had received a routine call to check their personal details.
<a href="#">70</a>	Develop ways of sharing information with local resilience forums.	We worked with 19 forums across our four licence areas. For 2018/19 this included offering the support of our helicopter unit during severe weather.

Reduce fuel poverty by supporting customers to access help		
<a href="#">71</a>	Build a database of regional agencies we can refer customers to for help.	There are fuel poverty projects in all our areas, working with a network of support agencies.
<a href="#">72</a>	Work with partners to develop links to and from our website.	Details on our fuel poverty projects and links to partner organisations are available on our website.
<a href="#">73</a>	Develop joint information and awareness campaigns, and co-ordinate with partners to provide customers with help.	We have four 'Power Up' fuel poverty schemes to support customers who are facing fuel poverty. We supported 8,693 customers to save over £1.8 million a year.
<a href="#">74</a>	Provide fuel poverty training to our staff who have contact with members of the public.	We provide staff in our contact centre with customised training on fuel poverty and customers in vulnerable situations.

<a href="#">75</a>	Use data analysis to help identify areas with a high concentration of vulnerable households.	We use data analysis to identify areas with a high concentration of vulnerable households. During 2018/19 we improved the methods we use to share this data with our partner organisations so that they are better able to identify vulnerable customers.
<a href="#">76</a>	Develop local outreach services.	'Affordable Warmth' and other outreach services helped 6,478 customers to save over £3.9 million a year.

\* Targets are for the full eight year RIIO-ED1 period, not for a discrete year

\*\* Target to be achieved each year of RIIO-ED1



## Emerging strategy

- 8.9** Our strategy is reviewed on an annual basis, together with our detailed action plan containing timescales, outcomes, costs and owners. As we focus on developing a smarter, more flexible energy system we recognise our responsibility to design services in such a way that all customers have the ability to easily participate with, and benefit from, the growth of flexible energy services.
- 8.10** During 2018/19, following stakeholder engagement, we have updated our customer vulnerability strategy and identified a range of priorities to help deliver our ambition to ‘leave no vulnerable customer behind in a smart future’. Our new/enhanced objectives are as follows:
- Know our customers and get the basics right
  - Help customers to lower their demand and re-engage them about energy
  - Deliver joined up services with others
  - Enable customers to participate in flexible energy services
- 8.11** Our delivery strategy will evolve over time as the full range of smart services are developed and the impacts and opportunities for customers are fully understood.

### Looking ahead to RIIO-ED2

- 8.12** We used our 2019 stakeholder workshops to start the conversation about our RIIO-ED2 business plan. We worked with stakeholders to establish their priorities for 2023 onwards but also explored the issue of how we demonstrate and justify our purpose and values to stakeholders.
- 8.13** Utilities are increasingly facing questions about profits and corporate governance. We explored this issue with stakeholders and agreed that WPD should deliver a ‘social contract’ as part of RIIO-ED2. Stakeholders identified key aspects that they believe should be included in such a document:
- Transparent reporting (with clarity on returns and profits)
  - Demonstrating WPD is a diverse, responsible employer
  - Evidencing the legitimacy of our operations for the future
  - Playing an active role regionally and supporting vulnerable customers
- 8.14** We have committed to building our first social contract and will test this with stakeholders in 2019/20.

## Improving understanding of vulnerability

- 8.15** WPD's consumer vulnerability strategy was developed through extensive engagement with stakeholders and focusses primarily on enhancing the ability of customers to cope during power cuts and developing an increasingly sophisticated understanding of the dynamic and multi-dimensional nature of vulnerability.
- 8.16** We recognise our responsibility to a wide range of customers in vulnerable situations, including those who may be temporarily vulnerable (e.g. customers who have recently left hospital) and customers struggling with energy affordability.
- 8.17** We have varied interactions with customers and consequently as part of our routine work we may identify individuals that are vulnerable or have social issues. To help these customers we have developed a range of services.
- 8.18** Central to WPD's consumer vulnerability strategy is the Priority Services Register (PSR). The PSR is a free, confidential, register of customers who require priority assistance, for reasons including:
- medical dependencies on electricity;
  - disability;
  - communication needs;
  - age; or
  - temporary vulnerabilities.
- 8.19** The PSR enables WPD to offer targeted services such as welfare support during power cuts and proactive notification ahead of planned work.

**Output (60) Work with expert partners to improve our understanding of the needs of vulnerable customers.**



- 8.20** WPD uses input from a variety of social groups, through stakeholder engagement and partnership projects, to enhance our understanding of vulnerability. During 2018/19 WPD engaged with 9,200 stakeholders specifically on our approach to consumer vulnerability.
- 8.21** Working with a variety of third parties ensures that we:
- consider a variety of viewpoints;
  - are aware of evolving issues impacting stakeholders;
  - overcome areas where we lack core expertise; and
  - improve customers' awareness of the services WPD can provide.
- 8.22** Some of the initiatives that support our understanding of the needs of customers in vulnerable situations are detailed in the following sections but further information can be found within our SECV submission.

<https://yourpowerfuture.westernpower.co.uk/ofgems-secv-incentive>

### The Customer Collaboration Panel

- 8.23** The Customer Collaboration Panel is hosted by a WPD Director or our CEO and is a key part of our engagement programme. The panel brings together expert representatives from the major stakeholder groups and entrusts them with full transparency in relation to WPD's performance and future plans. This enables them to critically evaluate our performance, make informed decisions about our activities and provide strategic steer.

- 8.24** At the close of 2018/19 the panel consisted of 38 permanent members who meet quarterly. The group consists of subject matter experts, consumer representatives and wider stakeholders from key areas including businesses, utilities and vulnerable customers. The diversity of the Customer Collaboration Panel ensures that we are provided with a balanced representation of views across a range of stakeholders. In 2018/19 the panel introduced 12 new members including experts in low carbon technologies and the DSO transition,
- 8.25** The Customer Collaboration Panel debates a broad range of activities – from the future impact of electric vehicles to power cut response times. Each session includes an in-depth surgery on ‘social obligations’.
- 8.26** Initiatives and outcomes from meetings held during 2018/19 included the following.
- A review of our social obligations strategy, which led to WPD holding a Consumer Vulnerability Conference to share best practice amongst partner agencies and launch WPD’s latest work on social indicator mapping, now freely available on our website.
  - A suite of short videos to promote the Priority Services Register.
  - The launch of a £80k Energy Affordability Fund Competition.

### Stakeholder workshops

- 8.27** WPD hosts annual generic stakeholder workshops which provide the opportunity to gain feedback on activities and proposals from a range of interested stakeholders and to ensure that our approach to vulnerability is on track.
- 8.28** The workshops held in February 2019 were attended by 330 individuals representing stakeholder groups that included local authorities, domestic customers, consumer bodies, businesses, developers, utilities and other DNOs.
- 8.29** The agenda for these workshops included a specific surgery on our approach to social obligations, testing stakeholder views on our proposals.
- 8.30** Summary findings reports from the workshops can be found at the link below.

<https://yourpowerfuture.westernpower.co.uk/workshops-and-events>

### Working with partner organisations

- 8.31** We work with a range of partners to identify vulnerable customers, to examine the social issues facing them and to co-deliver projects.
- 8.32** Working with partner organisations allows us to share knowledge and explore alternative approaches, whilst extending our reach beyond those customers who contact us directly. The approach is cost effective because we utilise the expertise of partners rather than duplicating the activity of existing organisations.
- 8.33** We now have a network of 87 referral partners for our Priority Services Register, an expansion of 156% in two years. We have used social indicator mapping to match areas of PSR eligibility with current low take up in order to establish new partnerships in under-represented areas.
- 8.34** We work with fuel poverty partners, using a ‘hub’ model where a lead agency uses a pool of sub-partners, each with differing core expertise, to ensure that customers receive a range of support via a single point of contact.
- 8.35** We held a new consumer vulnerability conference in October 2018 with stakeholders from a range of consumer groups including charities, community groups, local authorities and emergency services. The session enabled us to introduce attendees to our web based social indicator mapping tool, identify key challenges for vulnerable customers and service providers and seek views on WPD’s role in addressing these challenges.

## External validation of our approach

**8.36** Our success in continuing to develop our understanding of vulnerability has been measured with external validation, as follows.

### *Customer Service Excellence Standard*

**8.37** Each year WPD's customer service is assessed against the government's Customer Service Excellence standard, part of which tests our customer insight, including the services we provide for vulnerable customers.

**8.38** In 2018/19, we were successfully reaccredited against the Customer Service Excellence Standard and achieved one additional 'Compliance Plus' rating. In total we increased our 'Compliance Plus' ratings to 44 out of the 57 standards (achieving compliance in the rest).

**8.39** The final assessment reported that 'The extent to which WPD works with, and contributes to, the wider community is exceptional, particularly in relation to supporting vulnerable customers. Much better outcomes for customers are achieved through a wide range of targeted outreach projects and partnerships.'

### *Certification for inclusive service provision*

**8.40** The British Standards Institute certification (BSI) – BS18477: Inclusive Service Provision specifies requirements for identifying and responding to consumer vulnerability. It recognises that vulnerability is dynamic and multi-dimensional and may vary over time and in different settings.

**8.41** WPD uses assessment against the standard to improve the ability of the organisation to recognise and address the broad and complex nature of consumer vulnerability, and as a result provide flexible and inclusive services. We put forward all key, new projects developed over the previous 12 months for the BSI to assess in terms of project effectiveness and inclusivity.

**8.42** In November 2018 the BSI assessor undertook a robust three day audit of WPD, assessing our processes against 36 elements in the standard. The audit critically evaluated whether WPD's services effectively address consumer vulnerability, which included demonstrating that:

- we meet individual vulnerability needs;
- we provide improved services and accessibility as a result of engagement;
- we undertake partnership working; and
- that we provide customer satisfaction.

**8.43** WPD maintained full compliance with the standard for the sixth consecutive year.

## Output (61) Train staff to recognise the signs of vulnerability.



**8.44** WPD has a dedicated team of staff focused on updating and maintaining WPD's Priority Services Register (PSR). This team is at the forefront of our work with vulnerable customers and it has the objective of contacting PSR customers to:

- update customer records;
- remind customers about WPD and how to contact us;
- offer power cut resilience advice; and
- offer referrals for practical fuel poverty support.

**8.45** The process for contacting PSR customers was designed with the help of our Customer Collaboration Panel. It has no scripts or time quotas for calls.

**8.46** The PSR team is based across our contact centres in the East Midlands and South Wales. The call handlers receive specialist empathy skills training and attend a range of training and development events to build their understanding of the needs of vulnerable customers.

**8.47** All the staff in our contact centre receive specialist training on a regular basis. Training events undertaken during 2018/19 have included the following:

- Kidney Wales – attendees were provided with an overview of dialysis machines and the issues users might face in a power cut, together with an understanding of the types of conditions affecting users.
- RNIB – understanding how best to support customers with a visual impairment.
- Dementia Awareness – In 2016/17 we started the process to have all staff in our contact centres accredited as 'Dementia Friends', in 2018/19 six new starters attended training.
- Suicide e-learning awareness – 11 PSR staff undertook an online course designed to help them recognise the signs of suicide and how to talk to customers raising warning signs. This is particularly relevant to PSR staff who interact with our most vulnerable customers on a daily basis.
- Parkinson's UK – Midlands staff attended a workshop.
- Action on Hearing Loss – staff attended awareness training.
- West Midlands Fire Service – provided information on the home safety visits they undertake.

**8.48** Refresher training is provided to all contact centre staff each year, including an update on the PSR process and the activities of the PSR team. This training is held in advance of the busy winter months to ensure that staff are prepared for making calls within storm scenarios.

**8.49** In 2017/18 we provided training to field based staff on our PSR, including how to identify potentially vulnerable customers. In 2018/19 we have extended the delivery of this training to include all depot based customer facing teams. These teams are now trained in recognizing vulnerability, how to access support for customers through the British Red Cross and how to add a customer to the PSR.

## Improving the data held on the Priority Services Register

Output (62) Contact vulnerable customers at least once every two years to check the details we hold on the Priority Services Register.



- 8.50** It is important that the data held on WPD's Priority Services Register (PSR) is accurate so that advice and practical support can be effectively deployed to those customers most in need.
- 8.51** We undertake a range of activities to improve the data we hold on the PSR including extensive data cleansing, working with suppliers, using data models to identify vulnerable customers and working with other agencies.
- 8.52** We have 20 staff working in two dedicated teams who undertake calls to check the details that we hold for individuals on the PSR and our general contact centre staff are trained to assist with this activity when the volumes of other calls are low.
- 8.53** Our systems prompt us to contact vulnerable customers every two years. In 2018/19 we proactively contacted 1.1m PSR customers, successfully updating 30% of records as a result of this contact. 946,127 customers were contacted via WPD's data cleanse teams, and 166,783 were contacted via proactive calls to individuals on the PSR during power cuts. We have also removed 251,693 out-of-date records.
- 8.54** We contact customers to update their details but also take the opportunity to offer advice to assist customers to improve their resilience to a power cut should such an event occur. Priority is placed on the quality, rather than quantity, of calls. There are no time limits for a conversation. We treat calls with sensitivity and we listen.
- 8.55** In order to ensure we are getting it right, we carry out annual, independent satisfaction research to measure the effectiveness of our engagement and identify improvements. In 2018/19 PSR customers who undertook a survey rated our service as 9.51 out of 10, our highest ever satisfaction levels.
- 8.56** We aim to learn from best practice and during 2018/19 fuel poverty partners identified that customers respond to phone calls if a sign-posting message is sent beforehand. As a result we now send a text or email ahead of every data cleanse call or letter. We have seen a 10% increase in successful, answered, calls as a result. We provide a weblink as part of this advance contact, enabling customers to update their details via the internet, freeing up call handlers for customers that prefer to speak directly to a member of staff. 14% of those customers that we texted or emailed used the link provided.



## Output (63) Improve the quality of Priority Services Register data by working with other agencies and sharing information.



**8.57** We actively work with other agencies to:

- promote the PSR;
- share information with others already working with vulnerable customers where those customers may be eligible to join the PSR; and
- improve the quality of the data that we currently hold.

### Informed consent

**8.58** The processes we follow are designed to ensure that customers join the PSR with informed consent. We work with third parties to register vulnerable customers on the PSR and, more recently, to share the customer data with other utilities, where the customer agrees.

**8.59** We work with a network of partner organisations that have access to a range of customer groups. These partner organisations are well placed to discuss the PSR with customers directly and to identify whether the customer is happy for the agency to add them to the PSR. We hold best practice events for partners and use an e-learner tool to provide guidance on the process for adding customers to the register.

### Collaborating with others already working with vulnerable customers

**8.60** Stakeholders have identified that working with existing, trusted, agencies to identify vulnerable customers has a greater impact than just using direct outreach methods.

**8.61** During 2018/19 we used data mapping to identify areas of high PSR eligibility but low current take up. We used this information to guide our recruitment of new agencies. We aimed to achieve a better balance in the types of referral agencies we work with (between charities, local authorities and health services). These agencies tend to work with different demographics of customers, so we aimed to reduce the risk of overlap and broaden the range of customers with whom we engage.

**8.62** We have successfully added 24 new PSR referral partners, each one identified to address an area of vulnerability within WPD's region. We now work with a total of 87 PSR referral network partners. In 2018/19 these schemes led to 29,051 direct sign-ups to WPD's PSR, an increase of 56% over the last two years. We used feedback from our partners to develop five short animated videos to explain the benefits of the PSR for groups such as carers, ventilator users and the hearing impaired.

**8.63** WPD also has a number of fuel poverty outreach projects in place. Whilst the primary driver of these projects is to provide support to customers struggling to afford their energy, we ensure that projects also address power cut vulnerability, the provision of resilience advice and promoting the PSR. For example, WPD's 'Affordable Warmth' projects, which offer fuel poverty support via a consortium of partner organisations, include a remit to gain customers' informed consent to directly sign them up to the PSR on WPD's behalf.


**8.64** To support our partners we have published our social indicator data mapping, which reveals areas with potentially high levels of power cut vulnerability and/or fuel poverty in a downloadable format so that groups are able to better target their own services.

### Data sharing

**8.65** The UK Regulator's Network has called on utilities to collaborate and securely share non-financial vulnerability data. An industry working group has been set up to progress data sharing between networks and all water companies by 2020.



- 8.66 To date meetings have taken place with water companies to plan data sharing processes and the agreement of new priority need codes for data sharing.
- 8.67 WPD’s Customer Collaboration Panel encouraged us to take a lead by ensuring that we have processes in place to share and receive data, and proactively engage utilities in our region to initiate data sharing. When we register new PSR customers we also capture their informed consent to share data with other utilities. We have agreements in place with Welsh Water, Bristol, Wessex, South West and Anglian Water. With agreements in place for five of the eight water companies in our area we are currently waiting for the remaining companies to implement internal systems capable of receiving this data.
- 8.68 We have formal agreements in place with the three gas networks in our region to sign-up customers to the PSR on our behalf and for this data to be automatically shared with WPD.

Output (64) Co-ordinate meetings with suppliers to agree criteria for vulnerability.	
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- 8.69 As members of the Energy Networks Association (the industry body for UK electricity transmission and distribution) WPD worked with other DNOs, Suppliers, Ofgem, charities and consumer bodies to implement a new, common set of PSR needs codes.
- 8.70 The Safeguarding Customers Working Group agreed 27 new common needs codes to be used by all parties nationally to identify and register customers. The new codes recognise the multi-dimensional nature of vulnerability and replace categorisations which were over 15 years old.
- 8.71 The introduction of automated two-way data flows between DNOs and suppliers in July 2017 allows WPD to send accurate, complete customer records to suppliers.

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## Improving the services provided for vulnerable customers

8.72 We continue to develop and improve the services provided for customers in vulnerable situations. This includes:

- raising awareness of the PSR and the services available to those who are registered;
- assisting vulnerable customers to be prepared for a power cut;
- assisting vulnerable customers during a power cut; and
- assisting vulnerable customers during an emergency.

Output (65) Raise awareness of the Priority Services Register.



8.73 In addition to the proactive work that we undertake with partners to identify vulnerable customers we also take steps to raise awareness of the PSR via a variety of mechanisms, as detailed below.

- WPD's annual newsletter 'Power for Life' was sent to all 7.9m customers in September 2018 promoting the PSR, who is eligible and how to register.
- 12,315 leaflets promoting the PSR and providing advice on power cuts were sent to customers and partners.
- We worked with a mental health organisation to sign up customers to the PSR and provide training to WPD's PSR team.
- Five new videos launched to explain the benefits of the PSR to hard-to-reach groups.
- As part of their annual 'Apprentice Challenge' Apprentices delivered charity bags to 13,000 homes, advertising the PSR and raising money for a local hospice.
- Provided refresher training for all field staff on the PSR and included customer facing, depot based staff for the first time, enabling staff to promote the PSR.
- Provided PSR information on our new 'storm mode' website.
- Established partnerships with twelve Fire and Rescue Services to promote the PSR and resilience advice, in turn WPD refers PSR customers to Fire and Rescue teams to receive a free home fire safety check.
- Stakeholder feedback identifies that individuals are more likely to register with the PSR after a storm event. As a result tailored messages sent to customers affected by a power cut after the event include a link to register for WPD's PSR ahead of any future incidents.

### Do you know someone that needs priority assistance in a power cut? Let us know.

If you rely on electricity for medical equipment or are elderly, very ill or disabled, you may need extra support during a power cut. To join our confidential, free Priority Services Register (PSR) simply call 0800 096 3080 or visit [www.westernpower.co.uk/PSR](http://www.westernpower.co.uk/PSR)

#### What can we provide?

- A dedicated PSR telephone number enabling you to get straight through to us during a power cut;
- Support, including warm meals and drinks during prolonged power cuts;
- A password scheme to help you feel secure. You can check that visitors to your property are legitimate WPD employees;
- Personal contact ahead of any planned power cuts;
- Contact every two years to check your details and give you power cut advice;
- We will endeavour to call medically dependent customers within three hours of an unplanned power cut;
- We will seek to call all PSR customers affected during prolonged power cuts and major incidents.

#### Who is eligible?

- Customers with medical dependencies on electricity - like kidney dialysis, ventilator or oxygen concentrator users;
- The elderly, disabled or chronically sick;
- Customers who depend upon electrical equipment like stair lifts or bath hoists;
- If you have a communication need because you are blind, deaf, partially sighted, hearing or speech impaired or your first language is not English;
- Or if you have temporary vulnerabilities like recent hospital leavers or households with new-born babies.

## Output (66) Make 10,000 crisis packs available.



- 8.74** Direct assistance for customers is made available (as required) through the distribution of crisis packs.
- 8.75** WPD committed to distributing 10,000 crisis packs during RIIO-ED1. In 2018/19 we distributed 1,268 packs, with a cumulative total so far for the RIIO-ED1 period of 6,762 packs.
- 8.76** Crisis packs include items such as a flask, a torch, gloves, a hat, a reusable hand-warmer and information leaflets. Digital phones reliant upon mains power may not work during a power cut so we also provide analogue telephones to vulnerable customers who need them. We regularly review the contents of our crisis packs with our Customer Collaboration Panel. In 2018/19 the panel recommended the removal of a foil blanket, a battery torch was replaced by a wind up torch and the non-recyclable carrier bag was replaced by an eco-friendly canvas bag.
- 8.77** Crisis packs are distributed in a range of ways.
- Field staff can distribute packs as a result of a site visit and discussion with customers.
  - Partners such as the British Red Cross and Age UK are provided with stocks of crisis packs to distribute to customers where they identify a requirement.
  - Local distribution teams are provided with stocks of crisis packs that can be distributed as required during a power cut.
- 8.78** Staff are trained to identify signs of vulnerability in the customers they interact with and can provide crisis packs, arrange for the customer to join the PSR or activate support from the British Red Cross.

**Output (67) Contact all customers who depend on a power supply for medical reasons every three hours during power cuts.**



- 8.79** For unplanned outages, WPD committed to contacting medically dependent customers within the first three hours of a prolonged power cut to provide updates on power restoration times and to identify if additional support or further contact is required. It is not always clear from the start of an outage that a power cut will be prolonged. To avoid contacting customers unnecessarily, when power may be restored in a short time period, contact centre staff are prompted (via an automated system) to call medically dependent customers three hours into the power cut. Calls are only made between 9am to 8pm to avoid disrupting customers during unsocial hours.
- 8.80** During 2018/19 we contacted all medically dependent customers affected by a power cut that lasted more than three hours. This includes customers where contact was attempted but the customer did not answer a phone call.
- 8.81** During 2018/19, in response to a request from the Customer Collaboration Panel, we have improved our reporting on calls to medically dependent customers and this allows us to report the timings of when calls were made. In 2018/19, 71% of customers were called in the first hour of a power cut and 96% within two hours.
- 8.82** In total, WPD made 166,783 proactive calls to PSR customers (all categories) during power cuts.
- 8.83** During 2017/18 the introduction of smart meters led to a new initiative – SMETS2 smart meters models with a ‘last gasp’ feature are able to notify WPD that the customer has lost supply. We introduced a mechanism to allow PSR customers to specify individual preferences if they wish to receive phone calls outside of our usual 9am to 8pm sociable hours policy to let them know about power cuts.
- 8.84** Where an outage is planned the project manager arranging the shutdown is responsible for ensuring that customers who are medically dependent on electricity are contacted in advance, checking that they have received the standard shutdown notification letter (used for all customers). This process allows WPD to identify any customers who may require additional support such as a site visit in advance to discuss the outage or the provision of a generator during an outage.

**Output (68) Continue to provide practical support through the British Red Cross and other organisations as appropriate.**



- 8.85** During prolonged outages we request assistance from partner organisations to provide support to customers. For RIIO-ED1 we proposed to continue to work with the British Red Cross and the Royal Voluntary Service for these services, but the Royal Voluntary Service ceased to provide the support we require, we therefore established a new arrangement with the Nationwide Caterers Association.
- 8.86** Contact centre staff have the facility to request that the British Red Cross assist with the provision of warm meals, drinks, crisis packs and general welfare checks during an outage. Use of the British Red Cross can also be prompted by field staff who are concerned about customers and in 2018/19 they provided support during nine prolonged power cuts, supporting 71 customers in total. An independent DNO with a network embedded within the WPD area also used our arrangements to access support for 10 customers during an outage in October 2018.
- 8.87** Our agreement with the Nationwide Caterers Association enables us to provide hot food and drinks for communities impacted by prolonged power cuts. However there have been no occasions where this was needed in 2018/19. During RIIO-ED1 we will randomly carry out trial call-outs to ensure that the service remains effective.
- 8.88** WPD liaises with oxygen providers to obtain postcode data of individuals who are reliant on oxygen supplies. In the event of a power cut, WPD uses this information to automatically flag that these customers are affected so that a proactive call can be made to provide information on restoration times and to check if the individual will require additional support.

**Providing assistance during system emergencies**

- 8.89** System emergencies such as damage caused by severe weather can leave vulnerable customers without power for prolonged periods of time.
- 8.90** WPD has a range of vehicles suitable for operating in severe weather conditions that can be used to reach vulnerable customers to provide support. This includes use of the WPD helicopter fleet (where weather conditions permit flying), boats and amphibious vehicles.



- 8.91** The key capabilities of the Helicopter Unit have been extended to include:
  - delivery of provisions to remote customers who are without power;
  - customer evacuation; and
  - delivery of high volume pumps and generation.

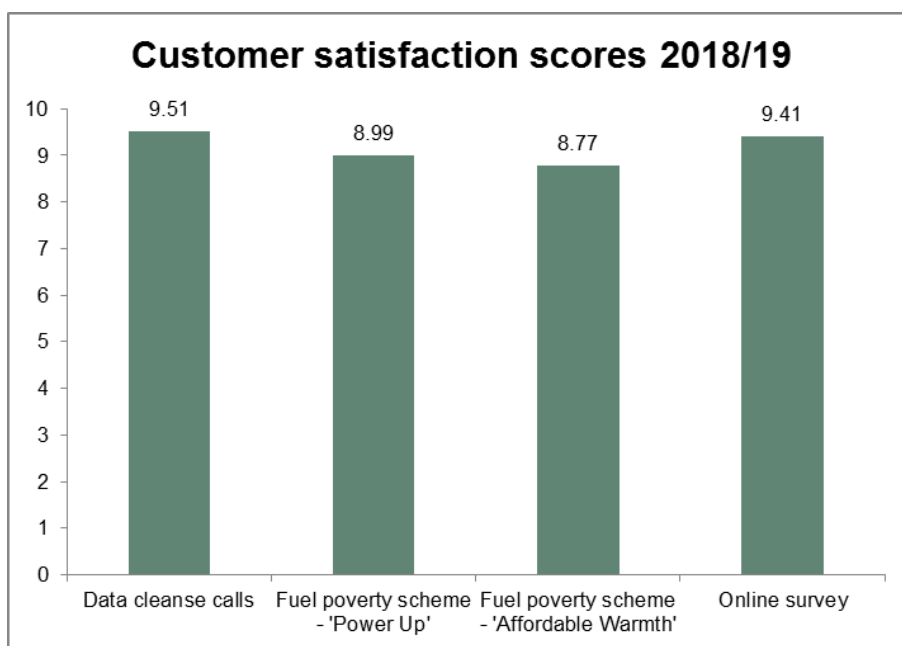
**8.92** Providing these options requires staff to be trained to prepare them for the challenges associated with severe weather. During 2018/19 the following training was delivered.

Staff training for severe weather (staff trained)					
Training type	West Midlands	East Midlands	South Wales	South West	Total WPD
All terrain vehicles – including waterlogged ground	24	16	6	39	85
Off road driver training	5	10	12	0	27
Water first responder – operating safely in or near flood water	0	9	0	7	16

## Output (69) Ask for feedback from vulnerable customers about our service.



- 8.93** Feedback from customers is invaluable in assisting us to make sure that we are supporting customers effectively and that the service we provide is appropriate.
- 8.94** As well as the surveys undertaken as part of Ofgem's Broad Measure of Customer Satisfaction, WPD commissions additional research which tests the satisfaction levels of a broader group of customers and identifies potential improvements to our services. Research is conducted by expert external research providers to ensure that the results are objective and robust. We survey customers to measure satisfaction after actions have been taken and to identify potential improvements.
- 8.95** We undertake surveys to understand the views of vulnerable customers in the following groups:
- PSR customers contacted by WPD's PSR data cleanse team to update their details and to offer power cut advice
  - Customers who have been referred to a 'Power Up' partner agency for fuel poverty advice
  - Customers who have been identified by one of our four Affordable Warmth fuel poverty outreach schemes
  - Customers who have viewed our PSR and accessibility pages. This is a new online survey introduced in 2018/19 to enable us to check satisfaction with the information we provide online in relation to the PSR and accessibility.
- 8.96** Customers are asked to rate our service out of ten and the results of these surveys are shown below.



- 8.97** The satisfaction surveys are used to ensure that we deliver the right levels of service and that customers are happy with the partners that we work with and the information that we provide.



**Output (70) Develop ways of sharing information with local resilience forums.**



**8.98** We work with local resilience forums on an ongoing basis to ensure that we are able to provide a range of services during emergencies. During 2018/19 WPD worked with 19 forums across the four licence areas, developing external partnerships as a result. Examples of the types of activities we undertake are detailed below.

- We offer the support of our helicopter unit to local resilience forums for food drops or support to customers who are isolated as a result of severe weather.
- We have formal data agreements with seven local resilience forums, enabling improved emergency response processes.

**8.99** WPD continues to be committed to working with the emergency services and taking an active part with Gold Command arrangements for emergency response during severe weather conditions. However, during 2018/19 these arrangements were not activated at any point.

**Providing information during an emergency**

**8.100** We have developed our website to ensure that effective updates are available during emergencies for customers, the media, local authorities and other emergency resilience partners.

**8.101** When a storm is forecast we increase staffing and provide more communication. We also produce storm bulletins which are emailed to customers who have registered their interest. There are three categories of bulletin – one sent in advance of a predicted event, one during a storm and one post event. The thresholds for triggering a bulletin have been agreed with the Customer Collaboration Panel. The bulletins inform stakeholders of the latest weather conditions, areas affected, the number of customers off supply and key steps we are taking to restore power.

**8.102** During 2018/19 we launched a new ‘storm mode’ for our website. During a storm a simplified homepage on the website permanently displays our power cut map, a link to PSR information and live power cut storm reports e.g. the number of customers off supply. This improves access to vital information during widespread disruption.

**8.103** In the event of a storm we open up additional ‘ramp-up’ contact centres to allow our main contact centres to prioritise outbound calls, particularly those made to vulnerable customers.

**8.104** During severe weather, regular updates are provided to the government and industry regulator - detailing contingency planning arrangements before the event, the number of customers affected during the event, advising on risks to the electricity network and information on restoration times after the event. WPD produces an extensive closedown report for key stakeholders such as Ofgem, BEIS, local resilience forums and the media, with statistics for specific regions, actions taken and lessons learnt.





## Reducing fuel poverty by supporting customers to access help

**8.105** Some customers struggle to afford their energy and to effectively heat their properties. WPD has contact with over 2 million customers each year, which provides an opportunity to identify customers in fuel poverty and offer assistance. Contact centre staff are trained to recognise the signs of fuel poverty and can arrange referrals to our partner organisations where required.

**8.106** Since the publication of the RIIO-ED1 Business Plan, WPD's approach to addressing fuel poverty has developed significantly; being informed by the results of trial initiatives and the extensive ongoing stakeholder engagement.

**Output (71) Build a database of regional agencies we can refer customers to for help.**



**8.107** WPD uses the expertise of other organisations to provide support for fuel poverty. Two different approaches are used.

- WPD referring PSR customers to our partners for fuel poverty support.
- Partners referring customers they have worked with to WPD for registration on the PSR

**8.108** We regularly undertake 'horizon scan' activities to identify and map existing vulnerable customer support agencies and schemes in our region and to identify partnership opportunities that help us to target hard-to-reach customers via trusted agencies. We select organisations that we work with based on matching the services they can provide with the customer needs revealed by the social indicator mapping that we also undertake.

**8.109** The 'horizon scan' process helps WPD to tackle consumer vulnerability to power cuts and fuel poverty in a cost-effective and strategic way. We work with partners rather than duplicating their activities. Performing this exercise regularly is vital as the types of agencies and the support provided regularly changes.

**8.110** We have worked extensively with stakeholders to define WPD's role in tackling fuel poverty. They tell us projects must deliver a holistic service dealing with a range of issues that could be contributing to fuel poverty. To ensure comprehensive support, we have therefore defined criteria that every WPD project must be capable of delivering. These are:

- Income maximisation e.g. debt management
- Energy tariff advice e.g. switching energy providers
- Energy efficiency measures e.g. home insulation schemes
- Heating solutions e.g. boiler replacement schemes
- Behavioural changes e.g. effective use of heating systems
- Health & wellbeing e.g. mobility aids and fire safety checks
- Managed referrals to water company social tariffs

**8.111** To deliver this full range of criteria, we have established a framework of multiple partners, each of which is capable of delivering support to customers over the phone and face-to-face. Working with multiple agencies has the risk of the customer having to interact with too many agencies, so we work with one lead agency (responsible for supporting the customer throughout the process and reporting on outcomes) who then manages a network of regional expert partners.

Output (72) Work with partners to develop links to and from our website.



8.112 Further details on our fuel poverty projects, and links to our partner organisations, can be found on WPD’s website together with contact details for our Social Obligations team.

[www.westernpower.co.uk/customers-and-community/priority-services/addressing-fuel-poverty](http://www.westernpower.co.uk/customers-and-community/priority-services/addressing-fuel-poverty)

Output (73) Develop joint information and awareness campaigns, and co-ordinate with partners to provide customers with help.



8.113 The ‘Power Up’ initiative is WPD’s referral service where customers identified as requiring help with fuel affordability are provided assistance. Evolving from a single pilot scheme in 2014, we now have a ‘Power Up’ scheme in each licence area. Each scheme is administered by one lead agency, who then manages a network of local partners to provide comprehensive support.

8.114 Our lead agencies are Citizens Advice Coventry, Citizens Advice Northamptonshire, Energy Saving Trust and Centre for Sustainable Energy.

8.115 Performance of each scheme is reviewed monthly, which includes tracking the outcome for every referral. Quantitative financial savings (for the customers) are recorded only when the outcome is confirmed (e.g. following a tariff switch or benefit entitlement change), alongside qualitative outcomes (e.g. free stair lift installations or subsidised connections to the gas network).

8.116 We aim to continually improve our approach and the Vulnerability Conference we hosted in October 2018 identified some new opportunities. As a result of stakeholder feedback we added new partners to our Power Up and Affordable Warmth schemes with expertise to assist customers to understand Universal Credit. We also implemented a policy to award partners two-year contracts, providing greater certainty over funding and enabling strategic planning as well as providing partners with the opportunity to explore innovative approaches.

8.117 In total, WPD’s ‘Power Up’ schemes supported 8,693 fuel poor customers during 2018/19; these customers saved a combined £1.8m. The outcomes achieved are summarised below:

Outputs:			
1,339 referrals	2,816 referrals	3,003 referrals	1,535 referrals
Saving £539k a year	Saving £368k a year	Saving £532k a year	Saving £354k a year

8.118 In 2017/18 we launched a new ‘Power Up Health’ scheme. Air Liquide (AL) provides medical equipment to almost every oxygen user in our region. As part of their interactions they identify customers who may be vulnerable to fuel poverty. A successful trial in our South West area saw AL refer customers for practical fuel poverty support covering the seven interactions outlined in output 71, but with a particular focus on warmth and affordability. The trial supported

239 customers to save £139,000 and we have now rolled out this successful mechanism across all four of the WPD licence areas.

**Output (74) Provide fuel poverty training to our staff who have contact with members of the public.**



**8.119** Every member of our PSR team has received bespoke training on fuel poverty through expert agencies such as the Energy Savings Trust and Citizens Advice. Contact Centre staff receive regular updates.

**Output (75) Use data analysis to help identify areas with a high concentration of vulnerable households.**



**8.120** We conduct extensive data mapping to identify areas with the highest concentrations of vulnerability, improved outcomes for customers are achieved through the ability to target outreach projects to areas of the highest vulnerability or deprivation.

**8.121** We have worked with the Centre for Sustainable Energy to develop social indicator maps that identified geographic areas with high concentrations of vulnerable people.

**8.122** We expanded our mapping in 2018 to include a further 36 data sets to understand the factors that impact customers' ability, knowledge and confidence in managing their energy. Key factors include age, health, financial capability and energy efficiency of properties. We also undertake regular 'horizon scans' to understand the range of potential referral partners operating within our licence areas. Combining these two sets of data enables us to identify areas of low PSR membership but high levels of network vulnerability.

**8.123** We have used this data to identify partners working in local areas within communities with a high concentration of vulnerable households. As a result we target our projects to areas of greatest need whilst working with the most appropriate agencies.

**8.124** In 2017/18 WPD published the data in a downloadable format to help groups to better target their services.

**8.125** Stakeholders have subsequently identified that smaller organisations found the data we provided too complex to drive improvements, we have therefore enhanced the accessibility of our data and launched a new interactive web based facility which presents the analysis in an easy-to-view format. We ran workshops with 20 existing partner agencies to understand their requirements and to shape the site. The website now includes:

- Maps with a zoom in feature – allowing the user to view data down to street level
- Regional view options via local authority area
- Optional overlay to show the gas connection status – showing electricity-only areas
- The ability to filter on 28 different criteria, from fuel poor householders to distance from key services

**8.126** We have promoted the new tool to 156 existing agencies, stakeholders tell us that the new site helps them to better identify vulnerable customers and target their services. It can be found at the following link.

[www.westernpower.co.uk/customers-and-community/priority-services/social-indicator-mapping](http://www.westernpower.co.uk/customers-and-community/priority-services/social-indicator-mapping)

## Output (76) Develop local outreach services.



- 8.127** As well as having our own referral networks, we also support fuel poverty outreach schemes.
- 8.128** Stakeholder feedback identified that non-financial concerns, such as well-being during emergencies, often go hand-in-hand with financial issues such as debt or fuel poverty. In 2017 we commissioned research into the correlation between power cut vulnerability and fuel poverty. This identified that of the total customers in fuel poverty, 43% were eligible for the PSR. This suggests that around half of the customers in fuel poverty are likely to be vulnerable to power cuts. This has led us to develop schemes that target fuel poor customers to identify if they are eligible for PSR services.
- 8.129** WPD's 'Affordable Warmth' projects were initiated to provide funding for fuel poverty advice to be given via existing community support schemes already working in deprived areas.
- 8.130** As with 'Power Up' we work with one lead agency who then co-ordinates with a number of smaller agencies and we have established schemes in all four licence areas.
- 8.131** In addition to providing fuel poverty support, partners are funded to provide power cut resilience advice, to promote WPD's PSR and gain informed consent to sign up eligible customers to WPD's PSR directly. During 2018/19, 6,478 customers were supported to save £3.9m a year through 'Affordable Warmth'.
- 8.132** As a new initiative we provided partners with our social indicator mapping and mandated that each project specifically targeted the top ten areas of highest fuel poverty deprivation. This led to dramatic increases in savings.
- 8.133** We seek to innovate and consider new options for supporting customers. Feedback from our Vulnerability Conference in October 2018 showed that 'supporting people in the rental sector' is a key challenge. We have therefore developed a new innovative trial to test the best way to engage customers. Working with social housing provider, Walsall Housing Group, we funded the recruitment of three Energy Champions to identify PSR customers and deliver fuel poverty support. This trial, working with a network of local partner agencies, led to customers saving £96,000.
- 8.134** A smart energy future, built on a whole-system approach to services, will require us to take a holistic approach to vulnerability. We are building new relationships and trialling new approaches as a result. Engagement with Scotia Gas has identified the most deprived area in our shared regions and launched 'Keep Warm MK'. Together we are working with National Energy Foundation, a local outreach service based in Milton Keynes. This has delivered fuel poverty interventions in line with our standard approach together with referrals for facilitated connections to the gas network and carbon monoxide detectors. The scheme also signed customers up to both Scotia Gas and WPD's PSR and resulted in 335 fuel poor customers saving a combined £87,000.

2015-2023

Western Power Distribution  
RIIO-ED1 Business Plan Commitments Report  
Year Four – 2018/19

31 October 2019

Expenditure

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# 9 Expenditure

## Introduction

- 9.1** In the RIIO-ED1 Business Plan, WPD proposed an overall 8-year expenditure of £9.2bn, of which £7.1bn was covered by the price control mechanism referred to as Totex. The remaining £2.1bn covers costs that DNOs do not have control over such as rates, licence fees and transmission charges that are 'passed through' to the charges we make to electricity suppliers.
- 9.2** The expenditure covers all aspects of running a distribution network including the following.
- Load related capex
  - Non-load related capex
  - Network operating costs
  - Non-operational capex
  - Closely associated indirects
  - Business support
  - Other costs within the price control
  - Activity costs outside the price control – not included in Totex
  - Non activity based costs (outside the price control) – not included in Totex
- 9.3** Each year, we report the expenditure across all these areas to Ofgem in line with Standard Licence Obligation 46, which has an extensive set of rules and definitions called Regulatory Instructions and Guidance. The data shown in this section is based upon the data reported for the period 1 April 2018 to 31 March 2019.
- 9.4** Within this section all values are quoted in 2012/13 prices, as this is the price base used for setting allowances, within licence conditions and within Ofgem financial models. Costs incurred in 2018/19 have been deflated to be comparable to the allowances.
- 9.5** Allowed costs include the forecast level of above inflation cost increases known as 'real price effects'.
- 9.6** Costs are shown after the deduction of customer contributions and other cost recoveries.
- 9.7** Indirect activities have been allocated across activities within and outside the price control.



## Expenditure summary

9.8 In 2018/19, WPD Totex expenditure was lower than allowances for total costs within the price control. We forecast that costs will be within our overall allowance for the eight year RIIO-ED1 period as a whole. At the close of 2018/19, expenditure is 1% below Totex allowances for RIIO-ED1 to date.

ED1 to date expenditure vs allowance (2012/13 prices) £million					
Licence area	West Midlands	East Midlands	South Wales	South West	WPD Total
Totex actual costs ED1 to date (£million)	1066.9	1067.9	523.3	851.2	3509.2
Totex allowance ED1 to date (£million)	1032.4	1063.3	584.5	855.8	3536.0
% of allowance spent	103%	100%	90%	99%	99%

9.9 The following table summarises all the areas of expenditure showing the allowed values and actual values in 2018/19 for all four licence areas and WPD as a whole.

2018/19 expenditure vs allowance (2012/13 prices) £million										
	West Midlands		East Midlands		South Wales		South West		WPD Total	
	Allow'd	18/19	Allow'd	18/19	Allow'd	18/19	Allow'd	18/19	Allow'd	18/19
Connections related reinforcement	2.6	3.9	2.4	15.4	1.1	0.2	1.2	2.7	7.2	22.2
General reinforcement	25.3	6.2	25.2	9.0	9.2	3.2	12.6	5.6	72.2	23.9
<b>LOAD RELATED CAPEX</b>	<b>27.8</b>	<b>10.1</b>	<b>27.6</b>	<b>24.3</b>	<b>10.3</b>	<b>3.4</b>	<b>13.7</b>	<b>8.3</b>	<b>79.4</b>	<b>46.1</b>
Asset replacement and refurbishment	68.4	43.3	56.9	38.0	39.6	31.7	58.6	50.6	223.4	163.7
Diversions	10.0	10.4	13.4	11.8	9.3	5.4	7.9	6.6	40.6	34.2
Operational IT and telecoms	2.1	3.8	2.9	1.8	6.0	0.9	6.4	1.1	17.3	7.6
Quality of supply	2.8	1.0	1.5	1.2	0.5	1.5	0.5	0.5	5.3	4.2
Worst served customers *	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.4
Safety and overhead line clearances	3.4	2.9	3.5	3.7	1.4	3.3	2.8	3.1	11.0	12.9
Flood defences	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.1	0.3	1.0
Environmental	0.6	1.2	0.6	0.7	0.3	0.2	0.3	0.3	1.8	2.4
Visual amenity *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2
<b>NON-LOAD RELATED CAPEX</b>	<b>87.2</b>	<b>62.9</b>	<b>78.8</b>	<b>57.4</b>	<b>57.2</b>	<b>43.7</b>	<b>76.6</b>	<b>62.5</b>	<b>299.8</b>	<b>226.5</b>
Faults and other unplanned repairs	29.4	31.4	33.7	33.9	13.5	12.7	24.3	22.5	100.9	100.4
Tree cutting	8.3	12.5	6.4	8.2	8.0	7.4	11.1	10.4	33.8	38.5
Inspections	2.7	2.7	2.8	3.0	2.0	1.8	2.9	2.7	10.4	10.3
Repair and maintenance	6.6	8.3	5.6	7.2	2.8	4.3	3.8	5.0	18.7	24.8
Other operating costs	4.9	5.0	5.6	6.8	2.3	2.7	3.3	3.5	16.1	18.1
<b>NETWORK OPERATING COSTS</b>	<b>51.8</b>	<b>60.0</b>	<b>54.1</b>	<b>59.1</b>	<b>28.6</b>	<b>28.9</b>	<b>45.4</b>	<b>44.1</b>	<b>179.9</b>	<b>192.1</b>
<b>NON-OPERATIONAL CAPEX</b>	<b>10.5</b>	<b>8.6</b>	<b>10.7</b>	<b>8.9</b>	<b>8.3</b>	<b>10.4</b>	<b>11.7</b>	<b>11.8</b>	<b>41.2</b>	<b>39.7</b>
<b>CLOSELY ASSOCIATED INDIRECTS</b>	<b>52.9</b>	<b>61.6</b>	<b>52.7</b>	<b>60.4</b>	<b>29.9</b>	<b>29.9</b>	<b>43.4</b>	<b>44.6</b>	<b>178.9</b>	<b>196.6</b>
<b>BUSINESS SUPPORT</b>	<b>27.4</b>	<b>22.3</b>	<b>28.4</b>	<b>23.2</b>	<b>14.8</b>	<b>12.4</b>	<b>23.6</b>	<b>19.6</b>	<b>94.3</b>	<b>77.4</b>
<b>OTHER COSTS WITHIN THE PRICE CONTROL</b>	<b>0.0</b>	<b>3.6</b>	<b>0.0</b>	<b>0.8</b>	<b>0.0</b>	<b>1.5</b>	<b>0.0</b>	<b>5.6</b>	<b>0.0</b>	<b>11.5</b>
<b>PRICE CONTROL ADJUSTMENTS</b>		<b>-2.9</b>		<b>-4.3</b>		<b>-2.5</b>		<b>-4.7</b>	<b>0.0</b>	<b>-14.4</b>
<b>TOTAL COSTS WITHIN PRICE CONTROL</b>	<b>257.6</b>	<b>226.3</b>	<b>252.4</b>	<b>229.8</b>	<b>149.0</b>	<b>127.7</b>	<b>214.5</b>	<b>191.8</b>	<b>873.5</b>	<b>775.6</b>
<b>PRICE CONTROL ADJUSTMENTS</b>		<b>2.9</b>		<b>4.3</b>		<b>2.5</b>		<b>4.7</b>	<b>0.0</b>	<b>14.4</b>
<b>ACTIVITY COSTS OUTSIDE PRICE CONTROL</b>	<b>18.1</b>	<b>19.3</b>	<b>17.7</b>	<b>16.6</b>	<b>5.8</b>	<b>12.3</b>	<b>9.2</b>	<b>13.3</b>	<b>50.8</b>	<b>61.5</b>
<b>NON ACTIVITY BASED COSTS</b>	<b>75.1</b>	<b>66.4</b>	<b>83.4</b>	<b>69.4</b>	<b>57.0</b>	<b>44.7</b>	<b>74.9</b>	<b>61.3</b>	<b>290.4</b>	<b>241.7</b>
<b>TOTAL COSTS</b>	<b>350.8</b>	<b>314.8</b>	<b>353.5</b>	<b>320.1</b>	<b>211.8</b>	<b>187.3</b>	<b>298.6</b>	<b>271.0</b>	<b>1214.7</b>	<b>1093.3</b>

\* The allowed levels of expenditure for worst served customers and visual amenity are subject to an ex-post (after the expenditure has been incurred) adjustment up to an overall cap for the RIIO-ED1 period.

\*\* The values shown may show small differences to the values stated in the performance snapshot provided in section one of this report as a result of rounding. The performance snapshot is based on data submitted to Ofgem in table SI1 as part of annual reporting on 31 July 2019. Totals may not reconcile as a result of rounding.

## Load related capex

- 9.10** Load related capex is expenditure incurred in providing additional capacity on the network. This reinforcement may be required to enable a new connection to be made or where the existing capacity is reaching limits as a result of load growth. Work may also be required to accommodate more distributed generation.
- 9.11** In 2018/19 expenditure across the whole of WPD was £46.1m against an allowance of £79.4m. Expenditure was lower than forecast in all four licence areas.
- 9.12** However expenditure associated with the amount of network reinforcement required for new connections was three times higher at £22.2m compared to an allowance of £7.2m. The allowance (based on forecasts in 2012/13) assumed a lower level of higher voltage demand and generation connections than have actually arisen.
- 9.13** High levels of customer driven reinforcement, especially in the East Midlands, have impacted the amount of general reinforcement that has been carried out. Some lower risk general reinforcement projects have been delayed to allow resources to focus on customer connection related work.
- 9.14** All DNOs have seen lower than forecast secondary reinforcement expenditure due to lower than forecast impact from low carbon technology.

## Non-load related capex expenditure

- 9.15** Non-load related capex is capital investment in the network, of which two thirds is on replacement and refurbishment of poor condition assets. Other large areas of expenditure are diversions and network safety work including removal of overhead line clearance issues.
- 9.16** In 2018/19, total WPD expenditure for non-load related capex was lower than allowance; £226.5m was spent against an allowance of £299.8m with variances across a number of categories.
- 9.17** £163.7m was spent on asset replacement and refurbishment against an allowance of £223.4m. Expenditure varies across the licence areas but some trends are identifiable. There were lower volumes of pole replacements as fewer poles were found in poor condition and lower volumes of overhead line replacement. Volumes for switchgear replacements and transformer replacements were higher than forecast as we advanced programmes from the remainder of RIIO-ED1.
- 9.18** Operational IT and telecoms costs were lower than allowance for WPD as a whole, apart from the West Midlands licence area. Across all areas £7.6m was spent against an allowance of £17.3m. This is due to ongoing re-evaluation of requirements as a result of the transition to DSO.

## Network operating costs

- 9.19** Network operating costs include inspections, repair and maintenance, faults and tree cutting. The majority of these areas are incurring higher costs than forecast with the total WPD expenditure being £192.1m against an allowance of £179.9m.
- 9.20** WPD uses contractors for tree clearance activities. RIIO-ED1 cost allowances were based upon historical costs, but market conditions have led to higher contract costs.
- 9.21** Whilst WPD carries out routine cyclical maintenance ensuring that all maintenance is completed in the year it is due, there has been a focus on remedial actions to remove defects from the network, this has led to higher than forecast costs.

## Non-operational capex

- 9.22** Non-operational capex includes the purchase of new IT systems and equipment, property, vehicles and small tools and equipment. Expenditure was £39.7m against a forecast of £41.2m.
- 9.23** There have been changes in the timing of IT system refreshes. There is also an ongoing evaluation of IT requirements as a result of our transition to the role of DSO and work to ensure the security of our systems in the light of cyber security threats.

## Closely associated indirects

- 9.24** Closely associated indirect costs relate to the costs of staff and systems that enable the work on the network to be carried out. This includes network design, planning and project management as well as the costs of wayleaves (paying private individuals for having equipment on their land) and the training of new staff and apprentices.
- 9.25** Expenditure of £196.6m was incurred in 2018/19, which is 10% higher than forecast.
- 9.26** Higher costs mainly relate to expenditure on core labour and this will continue to be reviewed as RIIO-ED1 progresses. There are also increases in expenditure on operational training, which includes additional recruitment of engineering trainees, rather than craft apprentice roles, as well as more refresher training for existing operational staff.

## Business support

- 9.27** Business support costs include a number of corporate activities that are provided by central functions including human resources, finance and regulation.
- 9.28** Expenditure in these areas was approximately 18% lower than forecast at £94.3m.

## Other costs within the price control

- 9.29** Other costs within the price control include atypical activity costs and costs associated with innovation activity which are funded by the Totex allowance.
- 9.30** The nature of these activities meant that minimal expenditure was included in the 2012/13 business plan.
- 9.31** Costs within this area in 2018/19 largely relate to significant volumes of claims for network apparatus in gardens. A number of agents have been active in this arena, increasing the volume of claims. We have dedicated resources to this work volume in order to ensure that claims are resolved at minimum cost.

## Price control adjustments

- 9.32** Adjustments are made to specific costs within the price control in line with guidance provided by the regulator.

## Activity costs outside the price control – not included in Totex

- 9.33** These costs relate to work funded directly by customers and not through the price control, for example some types of connections work.

## Non-activity based costs outside of the price control – not included in Totex

9.34 There are some costs that do not form part of 'regulated' expenditure because they form costs that DNOs do not have control over, some of which are treated as 'pass through' costs. Non activity based costs were lower than forecasted with expenditure of £241.7m against an allowance of £290.4m.

### Forecast for RIIO-ED1

9.35 As part of regulatory reporting requirements we provide a forecast for the expenditure out-turn for the whole price control. The forecast submitted for the end of 2018/19 takes into account actual expenditure from 2015/16 to 2018/19 together with potential developments and known challenges for the remainder of RIIO-ED1 such as changing activity volumes and developments in UK energy policy.

9.36 The following table summarises revised forecasts for load and non-load related investment on the network within the price control:

ED1 Forecast Expenditure vs Allowance (2012/13 prices) £million											
	West Midlands		East Midlands		South Wales		South West		WPD Total		
	Allow'd	F'cast	Allow'd	F'cast	Allow'd	F'cast	Allow'd	F'cast	Allow'd	F'cast	
Connections Related Reinforcement	20.0	30.9	18.8	139.1	9.5	7.8	9.4	24.8	57.7	202.7	
General Reinforcement	203.3	138.8	278.4	146.3	45.4	45.0	86.5	70.3	613.6	400.5	
<b>LOAD RELATED CAPEX</b>	<b>223.2</b>	<b>169.8</b>	<b>297.2</b>	<b>285.4</b>	<b>55.0</b>	<b>52.9</b>	<b>95.9</b>	<b>95.1</b>	<b>671.3</b>	<b>603.1</b>	
Asset Replacement and Refurbishment	547.6	503.6	459.4	418.9	311.5	282.0	474.6	423.0	1793.1	1627.5	
Diversions	75.1	62.1	80.8	81.6	32.8	34.5	75.1	78.1	263.9	256.2	
Operational IT and Telecoms	35.6	44.6	43.2	42.5	27.1	18.0	29.9	28.1	135.9	133.3	
Quality of Supply	16.5	14.3	9.2	13.3	3.1	9.6	3.1	8.3	31.9	45.5	
Worst Served Customers *	0.0	0.4	0.0	0.7	0.0	1.7	0.0	0.9	0.0	3.7	
Safety and Overhead Line Clearances	26.9	34.3	28.1	41.8	11.6	27.4	38.6	48.1	105.3	151.6	
Flood Defences	1.2	0.6	5.1	3.6	7.9	2.4	1.2	1.0	15.5	7.5	
Environmental	4.5	8.9	5.0	4.9	2.3	3.6	2.5	4.9	14.3	22.4	
Visual Amenity *	0.0	3.0	0.0	0.6	0.0	1.4	0.0	3.3	0.0	8.2	
<b>NON-LOAD RELATED CAPEX</b>	<b>707.5</b>	<b>671.8</b>	<b>630.9</b>	<b>607.9</b>	<b>396.3</b>	<b>380.6</b>	<b>625.0</b>	<b>595.7</b>	<b>2359.7</b>	<b>2255.9</b>	

\* Allowances for Worst Served Customers and Visual Amenity are shown as zero because there is an ex-post allowance adjustment for these activities

9.37 Our 2018/19 forecast suggests that load related expenditure will be around 10% lower than we anticipated within the RIIO-ED1 Business Plan in light of the lower impact of low carbon technologies such as heat pumps for domestic heating; we will continue to review these assumptions as the use of electric vehicles and other low carbon technologies changes.

9.38 We have forecasted an underspend of 4% in non-load capex for the remainder of RIIO-ED1 which takes into account expenditure to date; it anticipates that output targets will be met within these levels with efficiencies being made.

9.39 As we continue the transition from DNO to DSO there is likely to be additional expenditure across load, operational IT, telecoms and indirect activities. Some additional expenditure has been included in the 2019 forecast and requirements will continue to be re-evaluated throughout RIIO-ED1 as the transition work progresses.

# 2015-2023

## Western Power Distribution

### RIIO-ED1 Business Plan Commitments Report

#### Year Four – 2018/19

31 October 2019

Glossary

# 10 Glossary

## A

### Accident Frequency Rate

Accident frequency rate is derived from the number of annual accidents and the number of staff, and is expressed as 'accidents per 100 members of staff'. The calculation allows a like-for-like comparison irrespective of the number of staff employed.

### Alternative Connections

Standard generation connections allow customers to import or export up to the full rated capacity noted in their connection agreement at all times of normal network operation. The customer is free to use the capacity assigned to that specific generator at any level they choose without further involvement from the network operator. Where there is insufficient capacity, and costly and time consuming reinforcement is required, WPD has developed a range of 'alternative' connections which enable more active management of export capacity to enable additional connections without further reinforcement.

### Automation

Computer controlled decision making linked to remotely controlled devices which allows electricity supplies to be quickly rerouted without the need to send a person to the site.

## B

### Behavioural Safety

Behavioural safety is an approach to safety which goes beyond setting rules and enforcing compliance; it focusses on changing attitudes so that staff take responsibility for their own safety and the safety of others by acting on training, following instructions and challenging others when they see safety rules about to be broken.

### Black start

The recovery from an event of widespread power loss. We carry out specific programmes of work to make sure that the network is able to cope in these situations.

### Broad Measure of Customer Satisfaction (BMCS)

An incentive scheme made up of a customer satisfaction survey, an assessment of how complaints are dealt with and a review of stakeholder engagement. It was introduced for DPCR5 and is designed to drive improvements in the quality of the overall customer experience by capturing and measuring customers' experiences of contact with their DNO across the range of services and activities the DNOs provide.

### Building Research Establishment Environmental Assessment Method (BREEAM)

A methodology used by the building industry to assess the environmental aspects of building construction and refurbishment.

## Bund

A containment wall constructed around items of plant which contain large volumes of oil, designed to prevent oil from leaking into the environment.

## Business Carbon Footprint (BCF)

BCF is a calculation which represents the effect our work has on the environment. BCF is measured and reported using equivalent tonnes of carbon dioxide to express the impact of energy usage in offices, emissions from vehicles and the release of greenhouse gases. BCF is used to encourage DNOs to consider the direct carbon impact of conducting their operations and to be proactive in the reduction of emissions.

## C

### Capacity

The amount of power that can be distributed through an asset or the network.

### Capital expenditure (Capex)

Expenditure on investment in long-lived distribution assets, such as underground cables, overhead electricity lines and substations.

### Centre for Sustainable Energy (CSE)

An independent national charity that helps people and organisations from the public, private and voluntary sectors meet the twin challenges of rising energy costs and climate change.

### CIRT (Crown Internet Routing & Tracking)

An online system specifically designed for ICPs and IDNOs, the system allows the online submission of connection applications and progress tracking of those applications.

### Closed Circuit Television (CCTV)

A video based security monitoring system that presents images on television screens in a monitoring centre from cameras installed at remote sites allowing activities to be recorded and intruders to be identified.

### Common Network Asset Indices Methodology (CNAIM)

A standard, points based mechanism for DNOs to report risk levels associated with network assets.

### Competition in Connections

Historically, the incumbent DNO would have provided new connections. Over recent price controls, Ofgem has promoted greater involvement of third parties in both the design of connections and on-site delivery of connections work. This means that third party connection providers compete for the business of providing new connections in a competitive market.

### Connections Portal

An online system designed for customers requiring a connection for small projects and service alterations. Within the Portal, customers can make an application, accept an offer, make a payment and request automatic email updates of key stages within the process.



## Contestable work

Other organisations can carry out connections work in competition with the incumbent DNO. Work that can be carried out by a third party competitor is referred to as contestable.

## Crisis Packs

A crisis pack can be distributed to customers impacted by power outages, often vulnerable customers who are more likely to suffer a detriment as a result of a prolonged outage. The packs contain a flask, wind-up, gloves, a hat, a reusable hand-warmer and information leaflets. Analogue telephones are also available to those customers who need them.

## Customers Interruptions (CIs)

The number of customers whose supplies have been interrupted per 100 customers per year over all incidents, where an interruption of supply lasts for three minutes or longer, excluding re-interruptions to the supply of customers previously interrupted during the same incident.

## Customer Minutes Lost (CMLs)

The average duration of interruptions to supply per year, where an interruption of supply to customer(s) lasts for three minutes or longer.

## Customer Service Excellence Standard

This is a Government scheme which recognises organisations that provide effective and excellent customer service. Similar assessments were previously awarded through the Charter Mark.

## Cut-out

A piece of equipment installed at the service position to terminate incoming cables. It is positioned before the meter and contains a fuse.

## D

### DECC

The former Government Department of Energy and Climate Change. Replaced by the Department for Business, Energy and Industrial Strategy.

### Demand Response/Demand Side Response

A technique that can be employed to reduce load on the network when maximum demand is reaching or exceeding the capacity of the network. It relies upon commercial agreements being in place with customers who can reduce their load and have agreed to do so under the instruction of the DNO.

### Distributed Energy Resources (DER)

Smaller power sources embedded in the distribution network that can be used to provide the power to meet demand.

### Distributed Generation (DG)

Electricity generation connected to the distribution network. It includes wind turbines, domestic solar panels, large scale photo-voltaic farms, hydro-electric power and biomass generators. Sometimes referred to as embedded generation.

## Distribution Network Operators (DNOs)

A DNO is a holder of an electricity distribution licence. There are 14 DNOs which are owned by six different ownership groups.

## Distribution Price Control Review 5 (DPCR5)

The price control period which preceded RIIO-ED1. DPCR5 ran from 1 April 2010 until 31 March 2015.

## Distribution System Operator (DSO)

It is anticipated that changes to the energy sector will require Distribution Network Operators to evolve from a traditional, passive role of network management to a Distribution System Operator with full operational responsibility for forecasting energy production and consumption along with balancing demand and generation on the distribution network. Whilst supply and demand have traditionally been balanced at a national level by National Grid System Operator, it is anticipated that the growth of local distributed generation and other new technology will require more interaction at a local level and how this supports the national system operation.

## Distribution Use of System (DUoS) charges

These are the charges levied to electricity suppliers for DNO costs that can be recovered from customers. The amount is determined through price control reviews.

## E

## Electricity, Safety, Quality and Continuity Regulations 2002 (ESQCR)

The ESQCR specify safety standards, which are aimed at protecting the general public and customers from danger. In addition, the regulations specify power quality and supply continuity requirements. The regulations were amended in 2006 to include a requirement for resilience tree clearance.

## Embedded generation

Generation that is directly connected to the distribution network. Sometimes referred to as distributed generation.

## Energy Networks Association (ENA)

The industry body for UK transmission and distribution network operators for gas and electricity in the UK and Ireland.

## Energy Storage

The term energy storage encompasses a varied range of technologies which allow the capture of energy for subsequent release. Technology ranges from small scale domestic batteries to large scale industrial systems. Energy storage has the potential to play an important role in the future of energy networks allowing supply and demand to be balanced at times when generation exceeds network capacity or generation is insufficient to meet customer demand.

## Engagement

The process by which an organisation involves people who may be affected by the decisions it makes, or can influence the way in which actions are delivered.

## ESQCR

Electricity, Safety, Quality and Continuity Regulations 2002. The ESQCR specify safety standards, which aim to protect the general public and customers from danger.

## Extra High Voltage (EHV)

Voltages over 20kV up to, but not including, 132kV.

## Exceptional events

Events beyond the control of the DNO that impact on network performance, this could include instances of severe weather or significant one off events. Exceptional events can be exempted from calculations of network performance when strict criteria are met and verified by Ofgem.

## Fluvial flooding

Flooding related to river or coastal sites.

## Fuel poverty

Fuel poverty describes circumstances where customers struggle to afford electricity and to effectively heat their properties. Whilst WPD is not directly responsible for dealing with fuel poverty we refer customers to a network of expert partners for further advice and assistance.

## G

### Guaranteed Standards of Performance (GSOPs)

Guaranteed Standards of Performance set minimum service levels to be met across a range of activities covering supply interruptions, appointments and connections. The Guaranteed Standards are specified in statutory legislation. Where a licence holder fails to provide the level of service required, it must make a payment to the customer affected subject to certain exemptions.

## H

### Health and Safety Executive (HSE)

A Government organisation that has the responsibility of enforcing health and safety legislation.

### Health Index (HI)

Framework for collating information on the health (or condition) of distribution assets and for tracking changes in their condition over time.

### Heat Pump

Systems which capture heat energy from the ground, bodies of water or air. They can be used for space heating, water heating, heat recovery and cooling in a range of buildings. A supply of electricity is required to power the heat pump system.

### High Voltage (HV)

Voltages over 1kV and up to, but not including, 22kV.

## I

### Improvement Notice

Where there is a significant breach of Health and Safety legislation the Health and Safety Executive has the power to issue a formal Improvement Notice.

### Incentive on Connections Engagement (ICE)

An incentive mechanism which drives DNOs to improve communication and interaction with major customers. Penalties can be imposed where DNOs fail to demonstrate sufficient engagement with major customers.

### Independent Distribution Network Operator (IDNO)

A company that can construct new electricity networks, embedded within and connected to the DNOs network, retaining ownership of and being responsible for the operation of the new network.

### Independent Connections Provider (ICP)

A third party company that can construct new connections and the associated electricity network on behalf of a customer, with the network being adopted by either an IDNO or the DNO.

### Innovation projects

Projects that seek to find new and better ways of working. Projects can focus on network performance and efficiency, low carbon networks, smart grids and meters, reducing impact on the environment and developing customer service.

### Inspections and Maintenance (I&M)

Activities carried out on a routine basis for the visual checking of the external condition of assets and the invasive examination of plant and equipment.

### Interruption Incentive Scheme (IIS)

The Interruption Incentive Scheme is a mechanism that provides annual rewards or penalties based on each DNO's performance against their targets for the number of customers interrupted per 100 customers (CI) and the number of customer minutes lost per customer (CML).

### ISO 14001

This is an international standard for environmental management systems.

## L

### Load

The amount of power flowing through an asset or a network. This may also be referred to as demand. Maximum demand is compared to capacity to determine if the network needs to be reinforced.

## Load Index (LI)

Framework, introduced as part of the DPCR5 Price Control, demonstrating the utilisation of individual substations or groups of interconnected substations. It is used as a secondary deliverable capturing the impact of load related investment.

## Low Carbon Networks Fund (LCNF)

A funding mechanism introduced under DPCR5 to encourage DNOs to prepare for the move to a low carbon economy. A fund was made available for DNOs and partners to innovate and trial new technologies, commercial arrangements and ways of operating networks. The LCNF structure was replaced by the Network Innovation Competition and Network Innovation Allowance during RIIO-ED1, however some LCNF projects will continue during RIIO-ED1.

## Low Carbon Technology (LCT)

This is the collective term for devices that reduce the amount of carbon being used for heating, transport and generation. It includes electric vehicles, heat pumps and solar generation.

## Low Voltage (LV)

This refers to voltages up to, but not including, 1kV.

## LVSSA

Connections customers are categorised by Ofgem according to a range of factors. LVSSA customers are those seeking single domestic connections requiring no mains work at low voltage.

## LVSSB

Connections customers are categorised by Ofgem according to a range of factors. LVSSB customers are those seeking two to four domestic connections or one-off commercial connections at low voltage requiring no network reinforcement work.

## M

### Medically dependent customers

Customers who rely on electricity as a result of a health condition.

## N

### National Grid

The 400kV and 275kV network used to transport electricity around the country from sources of large scale generation such as power stations and off-shore wind farms to substations that feed into DNO electricity networks.

### Net zero

The UK's Climate Change Act (2008) sets out how the UK tackles climate change. The act says that by 2050 the UK Government must reduce greenhouse gas emissions by at least 100% compared with 1990 levels.

## Network Innovation Allowance (NIA)

An allowance agreed as part of the price control to fund smaller scale innovation projects. The purpose of the allowance is to encourage DNOs to innovate to address issues associated with the development of their networks. The NIA (and NIC) replaced the Low Carbon Networks Fund at the commencement of RIIO-ED1.

## Network Innovation Competition (NIC)

An annual funding competition for larger and more complex innovation projects. The NIC (and NIA) replaced the Low Carbon Networks Fund at the commencement of RIIO-ED1.

## O

### Office of Gas and Electricity Markets (Ofgem)

Ofgem is responsible for regulating the gas and electricity markets and network monopolies in the UK to ensure customers' needs are protected.

## P

### P2

DNOs have a licence obligation to manage networks to meet the requirements of Electricity Networks Association Engineering Recommendation for Security of Supply P2. This specifies the expected capability of the network to meet demands under defined outage conditions.

### Perfluorocarbon Tracer (PFT)

A chemical that is injected into fluid filled cables, used to speed up the location of leaks.

### Pluvial flooding

Flooding related to excessive rainwater (flash flooding).

### Price Control

WPD is a regional monopoly – our customers are such because of where they live and work. WPD is therefore regulated by Ofgem to make sure that we provide a high level of service for the money we are allowed to charge. The revenues that can be earned are set for a specific period of time referred to as a price control. The current price control period RIIO-ED1 runs from 1 April 2015 to 31 March 2023.

### Priority Services Register (PSR)

A database that records details about customers in vulnerable circumstances so that additional support can be provided if needed.

### Prohibition Notice

Where the Health and Safety Executive believes that an activity carries serious risk of harm it has the option to stop activities immediately using a Prohibition Notice.

## Protection batteries

Most circuit breakers on the network rely upon batteries to provide the power to monitor the network and initiate tripping and reclosing actions. These batteries are separate to SCADA batteries that provide the power for communication systems between sites and central control centres.

## Q

### Quality of Service (unweighted)

The Interruption Incentive Scheme measures Quality of Service using two metrics: Customer Interruptions and Customer Minutes Lost. The comparison of actual performance against targets converts different types of interruption using weighting factors (for example unplanned interruptions are weighted at 50%). Quality of Service (unweighted) relates to the raw pre-weighted measures.

## R

### Real Price Effects (RPE)

Increase in prices of materials, direct staff or contract labour, over and above increases in the Retail Price Index.

### Reinforcement

The provision of more network capacity by installing more assets or installing higher rated assets

### Resilience

The ability of the network to withstand extreme events such as storms and flooding, and having the ability to recover quickly from widespread power black outs.

### Resilience Tree Cutting

This is the full removal or extensive cutting of trees that are found to be within the falling distance of overhead power lines. This ensures that they cannot cause damage to the power lines in the event of severe weather.

### Revenue = incentives + innovation + outputs (RIIO)

The current regulatory framework, introduced for electricity distribution in 2015/16. It places emphasis on incentives to drive the innovation needed to deliver a sustainable energy network at value for money to existing and future consumers.

### RIIO Electricity Distribution 1 (RIIO-ED1)

The eight year price control period that runs from 1 April 2015 to 31 March 2023. It is the first electricity distribution price control that uses the RIIO framework for setting allowances.

### RIIO Electricity Distribution 2 (RIIO-ED2)

The electricity distribution price control period that will run from 1 April 2023 and is assumed to end on 31 March 2028. Ofgem has determined that the RIIO-ED2 price control will be five years in length.



## Routine Tree Cutting

Tree cutting is undertaken on a cyclical basis to provide sufficient clearance from equipment. Tree cutting prevents faults and keeps the public safe. Clearance is carried out to standard industry specified distances from equipment.

## S

### SCADA batteries

Batteries which provide the power for system communication between sites and central control centres.

### Self-approved designs

The proposals for new network connections that have been designed by ICPs without the need for approval of designs by WPD. Processes and procedure for authorised ICPs to carry out self-approval have been developed in line with the requirement to facilitate competition in connections.

### Self-determined point of connection

The proposed point at which a new connection or extension to the network, to be developed by an ICP, connects to the existing network, which has been determined without the need for approval by WPD.

### Smart Grid

A generic term for a range of measures that are used to operate electricity networks more flexibly, allowing more generation or demand (load) to be connected and managing the associated power flows.

### Smart Meters

Smart meters record the energy consumed within a property and are capable of being read remotely. The government originally mandated that by 2020 every home in Great Britain will be offered a smart electricity and gas meter, but the timescales have been extended to 2024. Smart meters have the capability to allow WPD much greater visibility of the operational state of the low voltage network.

### Stakeholder Engagement and Consumer Vulnerability Strategy (SECV)

An incentive mechanism designed to encourage network companies to engage proactively with stakeholders and to deliver a consumer focused, socially responsible and sustainable energy service. Rewards are available to network companies who can demonstrate high quality activities against set criteria.

### Substation

A part of the distribution network that transforms voltage and allows the re-routing of power by switching the configuration. It contains transformers, switchgear and equipment that protects the network components by interrupting supplies when there is a fault. Substations vary in size from bulk supply points that supply tens of thousands of customers to pole mounted substations that may supply a single rural property.

## Sulphur Hexafluoride (SF<sub>6</sub>)

A gas widely used as an insulating medium in transmission and distribution equipment. It has excellent insulating properties but is a potent greenhouse gas. It continues to be used because there are no alternatives available.

## Supervisory Control and Data Acquisition (SCADA)

This is the term used for the system that monitors and controls distributed assets. It comprises the remote terminal units, communication infrastructure and human interface within central control rooms. SCADA batteries provide the power for system communication between remote sites and central control rooms.

## Switches

Devices installed on the network that can be turned on or off and are used to alter the routing of electricity. Some can be operated remotely by central Control Engineers; others require manual operation on site by authorised staff.

## T

### Time to Connect Incentive

An incentive scheme which focusses on two elements – the time taken to provide a quotation for a connection and once the offer is accepted the time taken to complete the necessary connection works. Rewards are available to DNOs who outperform common targets set by Ofgem. Time to Connect and Time to Quote targets are expressed in days.

### Third Party Connection Providers

Independent organisations that carry out elements of connections work that are contestable. Work which is non-contestable will always be undertaken by the DNO.

## Totex

The licensee's total expenditure (with limited exceptions) on regulated business activities. It includes both capital and operating expenditure items that the licensee has control over.

## Transformer

Converts electricity from one voltage to another.

## Transmission charges

Charges made to users of the electricity transmission system. Charges cover the cost of installing and maintaining the transmission system.

## Transmission system

The transmission system is the 400kV and 275kV network used to transport electricity around the country from sources of large scale generation such as power stations and off-shore wind farms to substations that feed into DNO electricity networks. The WPD network is connected to the National Grid Transmission system at a number of grid supply points.

## U

### Upgrading Assets

Using larger capacity network equipment rather than replacing like-for-like.

### Unrestricted Domestic Tariff

The estimated annual cost of electricity distribution to the typical domestic customer, calculated under the Common Distribution Charging Methodology and assuming specific consumption of 3,100kWh. The tariff charge will vary for each licence area depending on customer numbers and the nature of the network.

## V

### Vulnerable Customers

Vulnerable customers include those customers who are medically dependent upon electricity, have special communication requirements, have other special needs with a dependence upon electricity (e.g. stair lift), are elderly, have a transient vulnerability to a power cut (e.g. such as those who have recently left hospital) or need assistance with energy affordability.

## W

### Western Power Distribution (WPD)

The electricity distribution network operator that holds four distribution licences for West Midlands, East Midlands, South Wales and South West.

### Whole system outcomes

Transmission system operators and distribution network operators coordinating their activities in order ensure that networks as a whole are managed efficiently and in the best interest of consumers.

### Worst Served Customers

Customers who experience 12 or more higher voltage interruptions over a three year period, with a minimum of three in any one year.