2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report Year Two - 2016/17

31 October 2017

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

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.

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.

www.westernpower.co.uk/Performance-Snapshot-BP-Commitments-Report-2016-17

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

www.westernpower.co.uk/Summary-Business-Plan-Commitments-Report-2016-17

- 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 sections list below; and
- 'buttons' on the right hand side of the 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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Western Power Distribution

RIIO-ED1 Business Plan Commitments Report
Year Two - 2016/17

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WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Foreword, Performance Snapshot & Executive Summary Contents

Foreword

Our business is a simple one. We keep the lights on - providing a safe and reliable electricity service to over 7.8 million customers who rely on us every day. We maintain and improve a network of wires, poles, pylons, cables and substations; distributing electricity to homes and business across the Midlands, South Wales and South West.

Our RIIO-ED1 Business Plan set out our expenditure proposals and planned service improvements for the eight year regulatory price control review period which runs from April 2015 to the end of March 2023. We committed to delivering 76 outputs over this period, outputs which were informed by the requirements of our stakeholders.

This report provides an update on our progress against our business plan commitments, focusing on performance in 2016/17 - the second year of the eight year RIIO-ED1 period.

2016/17 has been a year of positive progress as we continue to successfully embed our RIIO-ED1 outputs. We have seen some significant developments in performance towards our eight year targets, including:

- reducing our accident rate to 0.93 accidents per 100 staff, a reduction of around 50% on the previous price control DPCR5;
- reducing customer interruptions by 31% and customer minutes lost by 49% from the benchmark performance agreed for RIIO-ED1;
- reducing our business carbon footprint by 4% in comparison to our 2012/13 reference position, beating our in year RIIO-ED1 target;
- continuing to expand and develop our connections service, responding to the feedback provided by connection customers;
- maintaining our position as the number one DNO for customer service; and
- undertaking training for field staff on recognising and supporting vulnerable customers in three out of our four licence areas.

Government targets for decarbonising energy are expected to lead to changes in the energy sector with increased intermittent renewable energy supplies, growth in electric vehicles and increased use of energy storage. Such changes will place increased demand on the electricity network and we will continue to use innovation projects to help us to understand how best we can develop our network to deliver what our customers need.

Robert Symons, WPD Chief Executive

Performance Snapshot for 2016/17

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
Number of Customers				
No. of Customers on DNOs network	2,470,151	2,631,017	1,128,284	1,600,520
Network length				
Overhead lines (km)	23,491.5	21,195.7	17,945.8	27,822.7
Underground lines (km)	41,083.5	52,183.8	17,834.9	22,541.0
Other (Subsea cables) (km)	0.2	0.0	9.0	86.5
Total DNO Network Length (km)	64,575.2	73,379.5	35,789.7	50,450.1
Total expenditure (TOTEX)				
Total Expenditure (£m)*	295.3	291.4	138.8	240.6
RIIO-ED1 allowance (£m)*	260.7	278.7	147.0	215.1
% of Allowed Totex	113%	105%	94%	112%
Quality of service (unweighted)				
Customers Interrupted per 100 customers (including exceptional events)	61.9	46.1	46.5	48.3
Customer Minutes Lost (including exceptional events)	33.8	22.3	19.7	30.2
Customers Interrupted per 100 customers (excluding exceptional events)**	58.1	43.2	46.5	48.3
Customer Minutes Lost (excluding exceptional events)**	27.7	20.4	19.7	30.2
Unrestricted domestic tariff (adjusted for typical consumption)				
Tariff Charge (£)*	85.7	76.5	103.4	112.3
Connections				
Time to Quote (LVSSA) (Days)	4.5	3.5	4.3	5.2
Time to Connect (LVSSA) (Days)	37.2	34.4	33.8	36.5
Customer satisfaction				
Overall Broad Measure of Customer Satisfaction score (out of 10)	8.87	8.96	8.89	8.91
Social obligations - Individual Stakeholder Engagement and Consumer Vulnerability score (out of 10)				
8.53				
Incentive on connections engagement (ICE) – penalties incurred under the ICE scheme (£)				
No penalties incurred.				
Safety - qualitative summary				
In 2016/17 the accident rate for WPD as a whole was 0.93 accidents per 100 staff. This is better than the overall target for RIIO-ED1 but is overshadowed by the death of a member of staff at work in January 2017. In 2016/17 there were no improvement notices or prosecutions from the Health and Safety Executive. We have appealed an HSE prohibition notice and will provide details on the outcome once the appeals process has concluded.				
Environmental impact - qualitative summary				
WPD's business carbon footprint has decreased by 4% in comparison to our benchmark year of 2012/13, we have beaten our in year target for RIIO-ED1.				
Innovation - qualitative summary				
WPD had 25 innovation projects active during 2016/17 including one new large scale project (Open-LV) which successfully gained funding via the Network Innovation Competition. Work has been undertaken on development of DSO transition 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 2016/17 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 in 31 July 2017. 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 2017.

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_6 leaks	✓
32	Installing bunds	✓
33	Undergrounding lines in AONBs	✓

	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 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	✓

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

Executive Summary

Who we are and what we do

1.3 WPD is a Distribution Network Operator (DNO) and distributes electricity to 7.8 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;
- upgrade the existing networks or build new ones to provide additional electricity supplies or capacity to our customers.

1.4 Our costs make up around 16% of a domestic customer's bill.

Our track record

1.5 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.

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

1.7 Our track record is second to none:

- we deliver the best network performance, restoring customers' supplies after power cuts faster than any other network operator;
- 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;
- we operate local teams made up of our own staff who deliver work in a low cost and efficient way.

Our stakeholders

1.8 Our stakeholders' views are important and we have engaged directly with stakeholders across our business, using a range of engagement techniques.

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

1.10 Stakeholder feedback has guided our approach to business plan commitments reporting. For the first year of RIIO-ED1 we agreed to produce three tiers of reporting - a high level single page summary, a short summary document focusing on specific areas of interest to stakeholders and a detailed report providing a progress update against all business plan output commitments.

1.11 Our stakeholders reviewed the reports that we produced for 2015/16 and provided positive feedback on our approach; we have taken on board suggested improvements whilst retaining the three tier reporting structure.

1.12 We promoted our 2015/16 report via social media to ensure maximum awareness and prompted stakeholders to provide us with feedback via an online survey.

Our RIIO-ED1 outputs

1.13 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

1.14 Safety is at the heart of everything we do. During RIIO-ED1 we have targeted to improve on our DPCR5 accident frequency rate by 10%. We have already achieved this target.

1.15 Our accident frequency rate for WPD as a whole during 2016/17 was 0.93 accidents per 100 staff. Whilst we are reporting better than target performance, this improvement is overshadowed by the fatality of a member of staff. We are supporting the Health and Safety Executive investigation into this accident.

1.16 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 2015/16, 5,500 staff attended behavioural safety sessions designed to augment our strong safety culture. During 2016/17 we continued to embed behavioural safety themes through the development and implementation of employee safety initiatives, revision to business processes and working with trade union representatives via safety forums.

1.17 We also focus on ensuring the safety of the public. During the last year we have undertaken over 4,600 educational sessions with around 70,000 school children and delivered safety literature to around 500,000 people, targeting those individuals who could be exposed to higher risks as a result of their work or social activities.

1.18 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

1.19 We have continued to maintain equipment, replace poor condition assets, provide additional network capacity and undertake tree clearance to ensure that we prevent power cuts. We have also installed remotely controlled equipment that allows us to speed up the restoration of supplies.

1.20 Our network performance continues to improve. During 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 31% reduction in the number of power cuts and a 49% reduction in the average duration of power cuts. We will continue to work to ensure that this performance is sustained over RIIO-ED1.

1.21 We have committed to reducing the number of customers off supply for more than 12 hours by 20% over the course of RIIO-ED1. WPD recognises the inconvenience of long duration power cuts so 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 (with exemptions applied) from 10,748 in 2012/13 to 35 in 2016/17; almost a 100% improvement.

1.22 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 will be 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 9,844 customers.

1.23 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 have increased the volume of resilience tree cutting and have completed the proposed work volumes for 2016/17.

1.24 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 completed 36% of the eight year work programme for pluvial and fluvial flood risks.

1.25 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. We are on track with our work programmes for both protection and SCADA batteries.

Environment

1.26 The WPD RIIO-ED1 Business Plan split environmental outputs into those that support the increase of low carbon technology and those that reduce WPD's impact on the environment.

1.27 The energy sector is changing as a result of developments such as the growth of intermittent generation and new technologies connecting to the distribution network. Our innovation programme is a major driver in assisting us to develop the flexibility needed to adapt to changing customer requirements.

1.28 During 2016/17 we had 25 active innovation projects. These projects aim to ensure that we operate the network as efficiently as possible and support our transition from the passive role of Distribution Network Operator to an active role as Distribution System Operator – using innovative solutions to defer costly network reinforcement.

1.29 One of the main outcomes of our innovation programme to date is the introduction of alternative connections, which are being utilised to accommodate more generation onto the network and provide lower cost solutions for connection customers.

1.30 Low carbon technology (LCT) includes distributed generation (such as solar panels) the use of electricity for transport (electric vehicles) and alternative heating (heat pumps). Increased use of LCT, especially in the same local area can lead to a requirement to provide more network capacity. We have used socio-economic data to predict where such clustering may take place. This allows us to install larger capacity assets when we carry out standard work on the network in order to cater for future LCT growth. The volume of projects where this has been applied is currently low, but has increased since the introduction of new processes in 2015/16.

1.31 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. Since the start of RIIO-ED1 we have seen improvements and have achieved a 4% reduction in our business carbon footprint in comparison to 2012/13.

1.32 We are also focused on reducing 'technical network losses' (the losses associated with power flowing through the network). Annual review of our Losses Strategy ensures that we continuously seek new ways to minimise losses. During 2016/17 losses reduction activities included the proactive replacement of assets with poor losses performance, discontinuing

smaller assets which result in higher losses and engaging with stakeholders to gauge feedback on our approach.

1.33 We have committed to improving visual amenity in National Parks and Areas of Outstanding Natural Beauty by replacing 55km of overhead lines with underground cables over the course of RIIO-ED1. We were close to achieving our in year target having completed schemes totalling 13.59km across the licence areas.

Connections

1.34 As of 1 April 2015 Ofgem introduced a new incentive to drive DNOs to provide a faster connection service for small scale connection projects. 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 16 categories of the Ofgem incentive.

1.35 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).

1.36 As a result of our engagement with over 4,700 connection stakeholders during 2016/17, we have amended processes and procedures and developed a forward looking plan that builds upon the improvements already made.

1.37 We try hard to meet the needs of connection customers and as a result we score highly in customer satisfaction surveys. In 2016/17 customers rated the four WPD licence areas within the top five places in the section of Ofgem's Broad Measure of Customer Satisfaction (BMCS) that focusses on Connections.

1.38 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. We achieved this target for the first time in 2016/17 and will work to continue to achieve this for the remainder of RIIO-ED1.

1.39 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 three trial processes for contestable work covering self-determined points of connection, self-approved designs and HV connections completed by the ICP. We have seen an increased take up of these processes during 2016/17.

Customer satisfaction

1.40 During 2016/17 we have maintained our excellent levels of customer service.

1.41 WPD's four licence areas achieved the top four scores for overall customer satisfaction derived from an amalgamation of 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 four Customer Panels (chaired by our CEO) and six annual stakeholder workshops. Engagement assisted us to understand and refine our service delivery in line with customer need.

1.43 We have maintained our fast telephone response times answering calls in 1.66 seconds on average, beating our RIIO-ED1 target of two seconds.

1.44 For calls related to power cuts, we introduced a process to provide an estimated time of restoration for all faults, regularly updating customer information with updates from field staff. In addition, we called back 99.85% of customers who had been in contact about a fault, proactively

texted over 658,000 customers during HV power cuts and introduced new online options for customers looking for information about faults.

1.45 We have achieved our eight year target for RIIO-ED1 in relation to complaints, resolving 84% of complaints within one day, against a target of 70%.

Social obligations

1.46 We recognise that we have to provide enhanced services for vulnerable customers, especially those who would be impacted as a result of being without power.

1.47 We have continued to work with a range of expert partners during 2016/17 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 11 new PSR referral networks during 2016/17, taking the total to 34.

1.48 The details of vulnerable customers are held on our Priority Service 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. We now have the equivalent of 25 people dedicated to contacting vulnerable customers to ensure that we can meet our commitment of making contact with them at least every two years. During 2016/17, we contacted 691,499 PSR customers.

1.49 To help customers during power cuts we have developed crisis packs that we provide to vulnerable customers free of charge. During 2016/17, we distributed 2,500 crisis packs (against our target of issuing 10,000 packs during RIIO-ED1).

1.50 Our fuel poverty 'Power-up' projects have been expanded to cover all four licence areas. 'Power Up' has supported 7,205 customers to save them £1.4 million over 2016/17.

Expenditure

1.51 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.

1.52 In 2016/17, WPD expenditure was 7% higher than Totex allowances for costs within the price control. Whilst our expenditure is currently ahead of plan we forecast that we will end up with costs that are within our overall allowance for the eight-year RIIO-ED1 period.

1.53 Spend on load related capex (expenditure incurred in providing additional capacity on the network) was lower than forecast as a result of reduced spend on general reinforcement. However spend on network reinforcement required for new connections was around three times higher than forecast.

1.54 Spend on non-load related capex (of which two thirds is on the replacement and refurbishment of poor condition assets), was 1% higher than forecast.

1.55 Spend on network operating costs (including inspections, repair and maintenance, faults and tree cutting) was higher than forecast. Variations in forecast are related to increased spend on fault management (driving our excellent performance on 12 hour failures) and the costs of tree clearance contractors, which have been higher than forecast.

1.56 Non-operational capex includes the purchase of new IT systems, property, vehicles, and small tools and equipment. Expenditure was lower than forecast, the main variation being due to the timing of IT system refreshes.

1.57 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 16% higher than forecast, reflecting increases in levels of connection work.

1.58 Business support (including Human Resources, Finance and Regulation) costs have been 14% lower than forecast.

1.59 Other costs within the price control include atypical activity costs. Costs within this area in 2016/17 included a pre-payment into one of the pension schemes, expenditure on innovation projects and settlement of an increased volume of claims for apparatus (wood poles) in gardens.

1.60 Costs outside the price control mechanism were higher than forecast as a result of expenditure against the established deficit element of the pension pre-payment.

Performance summary of all 76 outputs

Safety

Meeting health and safety law		
1	No improvement notices, prohibition notices and prosecutions from the Health and Safety Executive.*	No improvement notices were issued or prosecutions made relating to the current price control period during 2016/17. We have appealed an HSE prohibition notice and will provide details of the outcome at the end of the appeals process. We continue to work with the HSE in relation to the investigation of the death of a member of staff as a result of an accident at work in January 2017.
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.	We have completed the programme for clearance distances to structures for West Midlands, East Midlands and South Wales. We have completed 83% of the South West programme, and have agreed to carry out the remaining work by March 2018. We have completed 100% of the work scheduled for 2016/17 relating to the required ground clearance distances.
3	Complete inspection and maintenance programmes every year.	We completed the majority of work scheduled for completion during the year. A small number of tasks could not be carried out due to access issues and we put in place appropriate plans to manage these safely.

Reducing accidents		
4	Reduce our overall rate for the frequency of accidents by 10%.*	Our accident rate in 2016/17 is better than the 10% improvement target set for the whole of RIIO-ED1.
5	Continue to play an active part in the ENA's 'Powering Improvement' initiative, which aims to lead to improved safety performance.	Events designed around the ENA 'Powering Improvement' themes took place in 2016/17, including 'Managing Occupational Ill Health Risks' and 'Asset Management'.
6	Work with our trade unions to improve safety performance, including the use of more 'Behavioural Safety' initiatives.	We carried out further work to reinforce the principles of behavioural safety following training delivered in 2015/16. New initiatives were raised by staff and trade union representatives.
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.**	We investigated all 133 incidents that happened during the year (62 staff accidents, 56 contractor accidents and 15 significant incidents involving the public).

Substation security		
8	Improve security measures at 50 substation sites to reduce the number of repeat break-ins.*	We upgraded security measures at 11 sites that have had repeat break-ins. We introduced temporary extra security at four sites where projects are being carried out.

Educating the public		
9	Organise and run over 1,000 educational sessions to provide safety information to over 400,000 school children.*	So far in RIIO-ED1, we have delivered a total of 5,748 educational sessions to 139,586 schoolchildren.
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.*	To date in RIIO-ED1, we have issued 886,311 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		
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. *	Customer interruptions have reduced by 31% and customer minutes lost have reduced by 49% from the underlying performance benchmark calculated for 2011/12.
12	Make sure that at least 85% of customers have their power restored within an hour of a high voltage fault happening.**	89.21% of customers had their power restored within one hour of a high voltage fault.

Guaranteed Standards of Performance (GSOPs)		
13	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) fell to 35, an improvement of over 99% on our 2012/13 benchmark performance. Customers received a set payment where we failed to achieve the GSOP.
14	Achieve no failures on all other GSOPs.**	We had no failures against most GSOP categories. However, we failed to notify 15 customers of planned interruptions to their electricity supply.

Worst served customers		
15	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 9,844 customers. Our target for the whole of RIIO-ED1 was 6,812 customers.

Making our network more resilient		
16	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 27 substations. We have carried out data analysis and site surveys at a further 97 substations.
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).*	We met the revised targets (related to storm resilience) for clearing trees from overhead lines, clearing trees from 770km of overhead lines in 2016/17.
18	Improve substation battery life to last for 72 hours if there is a major, network-wide power loss.*	Protection batteries - 35% of eight-year programme complete. Protection batteries - 35% of eight-year programme complete. SCADA batteries - 25% of eight-year programme complete. Telecommunications sites - 79% 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

Environment

Make it possible for more people to use low carbon technologies (LCTs)		
19	Improve by 20% the time taken to provide a response to customers who want to use LCTs.*	We have introduced new processes to allow us to report on LCT response times from 2017/18 onwards.
20	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.
21	Selectively replace assets using larger assets in areas where more LCTs may be connected to our network.	We carried out 34 asset replacement projects, using larger assets, as a result of using information about LCT hotspots.
22	Reduce costs for future customers by developing smart solutions to provide alternative and innovative techniques for managing our network.	We had 25 innovation projects in progress during the year.
23	Provide additional network capacity by using traditional or 'smart' methods.	We reached agreement with stakeholders to speed up the roll-out of active network management zones to allow for alternative connections. We issued 126 alternative connection quotations and connected 17 sites.

Reduce technical network losses		
24	Install oversized transformers when replacing assets in areas where demand for power may become higher than equipment can cope with.	We installed 30 oversized transformers.
25	Use larger cables when installing new network in LCT hotspots.	We installed 337 metres of larger cable in LCT hotspots.

Reduce the carbon footprint of the business		
26	Make sure all replacement vehicles have lower CO_2 emissions than those they are replacing.	We have procurement processes in place to make sure that replacement vehicles have lower emissions. We are trialling the use of alternative fuels in work vehicles.
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).**	No new builds or refurbishments were assessed in 2016/17.
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.	We have achieved a reduction of over 20% in the amount of waste sent to landfill over the first two years of RIIO-ED1 and are on track to achieve our ongoing targets.
29	Reduce our carbon footprint by 5%.*	Our business carbon footprint has reduced by 4% since 2012/13. We have beaten our in-year target.

Reduce the environmental risk of leaks from equipment		
30	Reduce by 75% the amount of oil lost through leaks from oil-filled cables.*	To date, the amount of oil lost from oil-filled cables has reduced by 61% from our benchmark performance.
31	Reduce by 17% the amount of SF6 gas that is lost from switchgear.*	The amount of SF6 gas lost as a percentage of the total amount of SF6 used on our network has reduced from 0.59% in 2015/2016 to 0.31% in 2016/17. This means that we have achieved our in-year target.
32	Install effective oil containment 'bunds' around plant containing high volumes of oil.*	We have completed work on 94 bunds so far in RIIO-ED1 - this includes both new and refurbished bunds.

Improve the appearance in National Parks and Areas of Outstanding Natural Beauty (AONBs)		
33	Replace 55km of overhead lines in National Parks and AONBs with underground cables.*	To date during RIIO-ED1, we have replaced 13.59km 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		
34	Improve the overall time taken to deliver a connection by 20%.*	We achieved Ofgem's targets for 'time to quote' and 'time to connect' for LVSSA (single domestic connections) and LVSSB customers (two to four domestic connections and single small commercial connection projects).
35	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 8.73 out of 10 across our four licence areas.
36	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 8.74 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		
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.	We have made amendments to our online connections information in line with stakeholder requirements. These have been published in our ICE work plan.
38	Make sure that the information we provide in documents and online is effective.	We achieved a satisfaction score of 8.73 out of 10 from customers using our online application service.

Enhance engagement with major customers		
39	Host 'surgeries' every three months to help connection customers to understand our processes.	22 customers attended surgeries across our four licence areas and we supported a further six customers through phone calls or individual meetings.
40	Work with major customers to identify where our processes can be improved and quickly put in place any changes.	We engaged with over 4,700 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		
41	Aim to achieve no failures of the connection GSOPs.**	There were no failures against the connection Guaranteed Standards of Performance during 2016/17.

Further developing a competitive market		
42	Improve customer awareness of other connection providers and regularly check that customers understand the options available to them.	We carry out a yearly survey to measure customer awareness of other providers. The 2016/17 survey showed that 82% of customers who had a new connection were aware of other providers. This was an increase from 2015/16, when this figure was 77%.
43	Work with other connection providers to extend the type of work they can carry out, including high voltage and reinforcement work.	Trials are underway to extend the work that our competitors can carry out to include HV work. We are using feedback from stakeholders 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		
44	Continue to be the top-performing DNO group across all elements of the Broad Measure of Customer Satisfaction.**	We achieved the top four scores for overall customer satisfaction across all of the DNOs. This overall rating combines results of the three surveys for supply interruptions, connections and general enquiries.
45	Maintain certification to show that we meet the Customer Service Excellence standard.**	We were awarded 'Compliance Plus' status for 38 of the 57 standards. This meant that, for the second year running, we were the highest-scoring organisation out of all those accredited.

Telephone response		
46	Respond to phone calls quickly, answering them within two seconds.**	Our average response time for customer calls was 1.66 seconds.
47	Limit the number of calls that are abandoned before we can answer them to less than 1%.**	Only 0.19% of calls were abandoned.
48	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		
49	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.
50	Call back all customers who have been in contact about a fault.**	We called back 99.8% of customers who contacted us about a fault.
51	Contact customers within two days of receiving an enquiry which was not about a fault.**	We contacted 99.7% of customers who contacted us with an enquiry which was not about a fault within two days.
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.	We provided on-demand messaging through text and social media and we added LinkedIn to our communication methods in 2016/17. We sent 658,107 text messages during high voltage power cuts.
53	Develop 'self-service' options for customers to find information online.	We hosted 24,537 webchat conversations, our app for reporting power cuts was downloaded 4,823 times and we introduced new storm bulletins for customers who registered for updates.

Involving stakeholders		
54	Continue to host a customer panel where our CEO will meet with our expert stakeholders four times a year.	Our CEO met with the customer panel four times during the year.
55	Continue to host at least six stakeholder workshops each year.	We hosted six general sessions, attended by 270 stakeholders across our licence areas.
56	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 report and the separate summary report replace the stakeholder report.

Complaints		
57	Resolve at least 70% of complaints within one day.**	We resolved 84% of complaints within one day.
58	Continue to have a target of no complaints where the Ombudsman has to get involved.**	One complaint was referred to the Ombudsman. Following an investigation, the Ombudsman found in our favour.

Guaranteed Standards of Performance awareness		
59	Continue to send the 'Power for Life' publication to all 7.8 million customers and make sure it promotes the GSOPs.**	We issued 'Power for Life' to all 7.8 million customers in September 2016. It included information on the GSOPs.

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

Social Obligations

Improving understanding of vulnerability		
60	Work with expert partners to improve our understanding of the needs of vulnerable customers.	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 vulnerable customers.
61	Train staff to recognise the signs of vulnerability.	We provided specialist training to Priority Service Register (PSR) teams and contact centre staff. We completed training for field staff on supporting vulnerable customers in three of the four licence areas.

Improving the data held on the priority service register		
62	Contact vulnerable customers at least once every two years to check the details we hold on the Priority Service Register.	We contacted 691,499 PSR customers during 2016/17.
63	Improve the quality of Priority Service Register data by working with other agencies and sharing information.	We developed new methods for referring people to the Priority Service Register, with a focus on direct sign-ups. We standardised and simplified methods across our 34 referral networks.
64	Co-ordinate meetings with suppliers to agree criteria for vulnerability.	We agreed 27 new 'common needs codes' for use across the industry.

Improving the services provided for vulnerable customers		
65	Raise awareness of the Priority Service Register.	We worked with a range of organisations, including water utilities and gas distribution networks, to raise awareness of the PSR.
66	Make 10,000 crisis packs available.*	To date, we have issued 3,580 crisis packs over the RIIO-ED1 period. We have a new process for field staff to issue packs.
67	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 made 115,747 calls to PSR customers (including those who depend on a power supply for medical reasons) during power cuts.
68	Continue to provide practical support through the British Red Cross and other organisations as appropriate.	We provided British Red Cross support during 23 prolonged power cuts. This was an increase from 2015/16 as a result of training field staff on the support which is available to vulnerable customers.
69	Ask for feedback from vulnerable customers about our service.	We achieved customer satisfaction ratings of 9.13 out of 10 from customers on the PSR who had received a routine call to check their personal details, and 9 out of 10 for those referred for advice on fuel poverty.
70	Develop ways of sharing information with local resilience forums.	We worked with 19 forums across our four licence areas. We launched a new £10,000 fund through local resilience forums to support businesses to plan for power cuts.

Reducing fuel poverty by supporting customers to access help		
71	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. During 2016/17, we organised best practice events with all our partners to share learning.
72	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.
73	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 7,205 customers to save £1.4million a year.
74	Provide fuel poverty training to our staff who have contact with members of the public.	We provided field staff and staff in our contact centre with customised fuel poverty training. We completed vulnerable customer training for field staff in three of the four licence areas.

75	Use data analysis to help identify areas with a high concentration of vulnerable households.	In 2017 we used data on social factors such as benefit claims and long-term disability (collected from 41 different data sources) to target our projects to areas with the greatest need.
76	Develop local outreach services.	'Affordable Warmth' schemes have now been set up across all four licence areas. We created a Local Action fund to identify new ways to tackle fuel poverty and vulnerability. We helped 4,595 customers to save £1.7million.

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

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report Year Two - 2016/17

31 October 2017

Introduction

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

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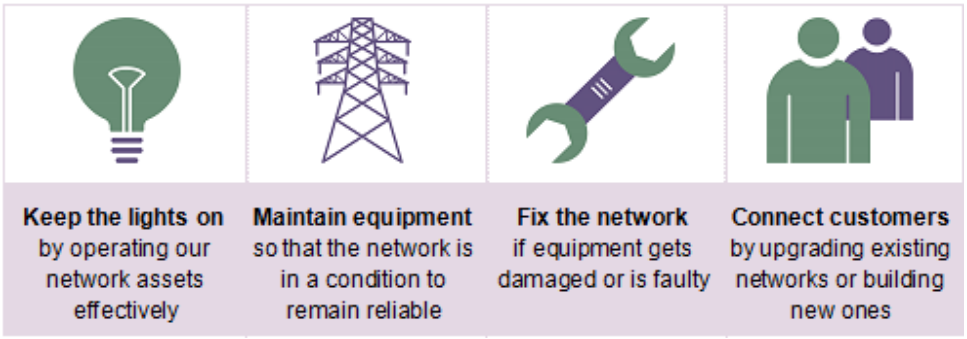
2 Introduction

Who we are and what we do

2.1 WPD is a Distribution Network Operator (DNO) and distributes electricity to 7.8 million customers across the Midlands, South Wales and the South West. Our role is to:

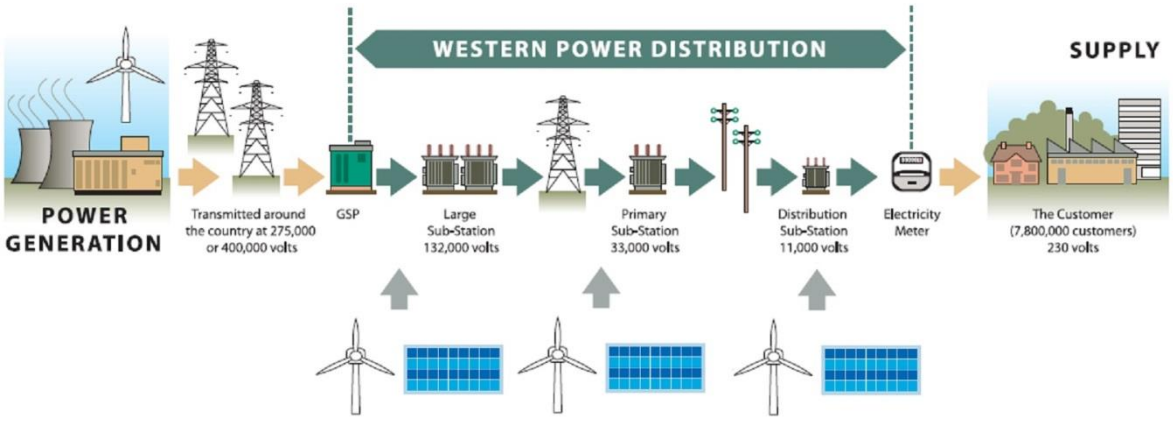
- operate our network assets to 'keep the lights on';
- maintain our assets so that they are in a condition to remain reliable;
- fix our assets if they get damaged or if they are faulty; and
- upgrade the existing networks or build new ones to provide additional electricity supplies or capacity to existing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



2.5 The WPD network currently 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	52,000	18,000	23,000	134,000
Transformers	each	50,000	44,000	41,000	53,000	187,000
Switchgear	each	84,000	97,000	36,000	79,000	296,000
Poles	each	364,000	284,000	286,000	440,000	1,375,000
Towers (Pylons)	each	4,000	5,000	2,000	4,000	15,000
Customer Numbers	each	2,470,000	2,631,000	1,128,000	1,601,000	7,830,000
Licenced Area	km^2	13,300	16,000	11,800	14,400	55,500

2.6 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.

2.7 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.

2.8 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.

2.9 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.

2.10 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.

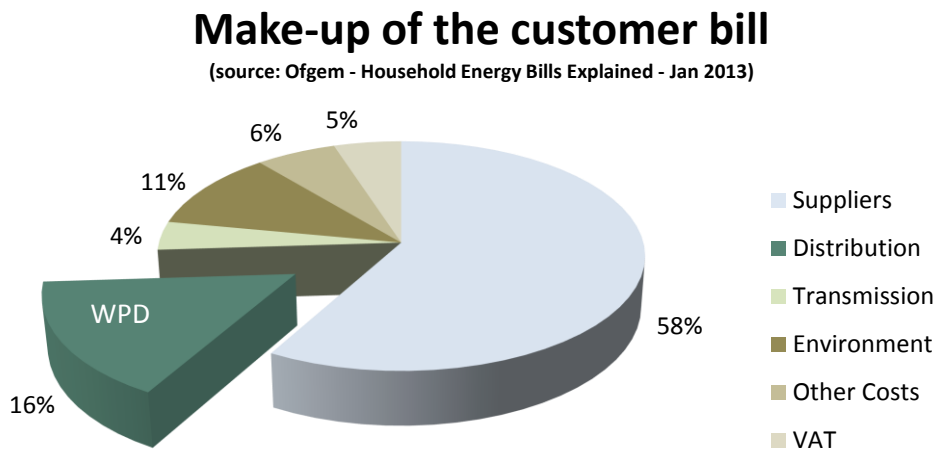
2.11 Although we are facilitating competition in some of the services we provide (such as new connections) we are a natural monopoly within the geographic area we serve. We are, therefore, regulated by the Office of Gas and Electricity Markets (Ofgem).

2.12 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.

2.13 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.

2.14 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.

2.15 Our costs account for around 16% of the make-up of an average domestic customer's bill. This percentage is based upon the latest Ofgem statistics that show distribution costs (publication Household Energy Bills Explained, January 2013). More recent data published by Ofgem and suppliers shows total network costs rather than separating transmission and distribution.



WPD's RIIO-ED1 Business Plan

2.16 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.

2.17 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.

2.18 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/About-us/Stakeholder-information/Our-Future-Business-Plan.aspx

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

Forecast expenditure

2.20 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.

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

Outputs (commitments)

2.22 The business plan specified outputs in six main categories.

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

2.23 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.

2.24 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

2.25 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.

2.26 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

2.27 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.

2.28 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.

2.29 Stakeholders also identified the commitments that they considered should be prioritised for inclusion within our summary report.

2.30 We used our 2016/17 workshops to ask stakeholders their opinion on our first year of reporting on our Business Plan Commitments. Stakeholders provided positive feedback and use of electronic voting identified that the format of reporting should be broadly similar to 2015/16. We have taken feedback into account and made the following changes.

- We have enhanced the existing expenditure information that we provide by including a high level summary of our forecasted investment for each licence area over the RIIO-ED1 period.
- We have simplified some of the detailed explanation of technical elements.
- We have submitted our summary report to the Plain English Campaign in order to achieve the 'Crystal Mark' for use of plain English.
- We have enhanced our reporting webpage to ensure that information is as accessible as possible for stakeholders.

2.31 We promoted our 2015/16 report via social media, achieving a reach of 218,000 stakeholders through Facebook and Twitter.

2.32 In addition we posted a short survey online asking stakeholders to provide feedback on the reports. We used the feedback from our workshops and the survey to shape the 2016/17 report.

Other considerations

2.33 In addition to the input provided from our stakeholder workshops the following references have been used to shape our approach to reporting.

- Citizens Advice document 'Beginning to see the light' which suggests principles for the content of consumer and stakeholder reports published under the RIIO framework.

www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Beginning%20to%20see%20the%20light%20-%20reporting%20paper.pdf

- The outcome of Ofgem's Consumer First Panel published in April 2016. The panel focused on consumer views on the approach to DNO performance reporting.

www.ofgem.gov.uk/system/files/docs/2016/05/15-035666-01_ofgem_consumer_panel_wave_2_dno_290416_final_0.pdf

- The views of WPD's Customer Panel.

Useful links

- WPD's 2016/17 submissions for the Incentive on Connections Engagement.

https://www.westernpower.co.uk/Connections/ICE.aspx

- Competition in Connections Code of Practice.

www.westernpower.co.uk/docs/connections/competition-in-connections/CiCCoP_final_January2017.aspx

- WPD's Competition in Connections webpage.

www.westernpower.co.uk/Connections/Competition-in-Connections.aspx

- WPD's 2016/17 submissions for the Stakeholder Engagement and Customer Vulnerability Incentive.

www.westernpower.co.uk/About-us/Stakeholder-information/Stakeholder-Reports.aspx

- WPD's Environment Report.

www.westernpower.co.uk/About-us/Our-Business/Environment.aspx

- WPD's 2017 Losses Strategy.

www.westernpower.co.uk/docs/Innovation-and-Low-Carbon/Losses-strategy/WPD-Losses-Strategy-Report-2017.aspx

- WPD's 2017 Innovation Strategy.

www.westernpower.co.uk/About-us/Innovation-Low-Carbon/Our-Innovation-Strategy.aspx

- WPD's RIIO-ED1 Business Plan.

www.westernpower.co.uk/About-us/Stakeholder-information/Our-Future-Business-Plan.aspx

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

www.westernpower.co.uk/About-us/Our-Business/customer-service/Guaranteed-Standards.aspx

- Link to our video guides for Community Energy Schemes.

www.westernpower.co.uk/Connections/Generation/Community-Energy-Schemes/Community-Energy/Guides-and-Information.aspx

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Western Power Distribution

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Safety

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

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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		
1	No improvement notices, prohibition notices and prosecutions from the Health and Safety Executive.*	No improvement notices were issued or prosecutions made relating to the current price control period during 2016/17. We have appealed an HSE prohibition notice and will provide details of the outcome at the end of the appeals process. We continue to work with the HSE in relation to the investigation of the death of a member of staff as a result of an accident at work in January 2017.
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.	We have completed the programme for clearance distances to structures for West Midlands, East Midlands and South Wales. We have completed 83% of the South West programme, and have agreed to carry out the remaining work by March 2018. We have completed 100% of the work scheduled for 2016/17 relating to the required ground clearance distances.
3	Complete inspection and maintenance programmes every year.	We completed the majority of work scheduled for completion during the year. A small number of tasks could not be carried out due to access issues and we put in place appropriate plans to manage these safely.

Reducing accidents		
4	Reduce our overall rate for the frequency of accidents by 10%.*	Our accident rate in 2016/17 is better than the 10% improvement target set for the whole of RIIO-ED1.
5	Continue to play an active part in the ENA's 'Powering Improvement' initiative, which aims to lead to improved safety performance.	Events designed around the ENA 'Powering Improvement' themes took place in 2016/17, including 'Managing Occupational Ill Health Risks' and 'Asset Management'.
6	Work with our trade unions to improve safety performance, including the use of more 'Behavioural Safety' initiatives.	We carried out further work to reinforce the principles of behavioural safety following training delivered in 2015/16. New initiatives were raised by staff and trade union representatives.
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.**	We investigated all 133 incidents that happened during the year (62 staff accidents, 56 contractor accidents and 15 significant incidents involving the public).

Substation security		
8	Improve security measures at 50 substation sites to reduce the number of repeat break-ins.*	We upgraded security measures at 11 sites that have had repeat break-ins. We introduced temporary extra security at four sites where projects are being carried out.

Educating the public		
9	Organise and run over 1,000 educational sessions to provide safety information to over 400,000 school children.*	So far in RIIO-ED1 we have delivered a total of 5,748 educational sessions to 139,586 schoolchildren.
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.*	To date in RIIO-ED1, we have issued 886,311 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 2016/17 there have been no improvement notices issued or prosecutions made from the HSE relating to the current price control period.

3.8 A notice of contravention (an observation) was identified by the HSE during 2016/17 as follows.

- An observation was made in March 2017 in relation to the management of a low exposed overhead conductor at a site in South Wales. This observation has been investigated and resolved by replacing the low conductors and reviewing inspection procedures. Company-wide briefings were issued to ensure that the learning from this incident was circulated across the business.

3.9 We have appealed an HSE Prohibition Notice during 2016/17 and will provide details on the outcome once the appeals process has concluded.

3.10 We are continuing to work with the HSE in relation to the fatality of a member of staff that occurred in January 2017. We are fully committed to supporting these ongoing investigations.

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.	✓

3.11 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.

3.12 A range of risks were identified as a result of regulation 18 and a work programme initiated, with most work undertaken within DPCR5 to address these risks. The work programme for West Midlands, East Midlands and South Wales is complete. Agreement was reached with the HSE

to extend the timeframe for the South West licence area to 31 March 2018. At the close of 2016/17, 83% of the work programme for South West was complete.

3.13 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 timescale for rectification of low clearance defects and therefore provides ongoing deadlines for the forward plan (between 3 and 10 years). The assessment policy required all road crossings to be inspected by December 2016 and this target was achieved in August 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.

3.14 The achievement of resolving defects within the required timeframes is monitored through key performance indicators. At the close of 2016/17 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.	✓

3.15 One method of ensuring that the network remains safe is through regular and thorough inspection, defect rectification and maintenance.

3.16 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 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.

3.17 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.

3.18 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.

3.19 WPD continues to seek ways of improving efficiency and using technology to enhance inspection and maintenance activities. In 2016/17 work has been ongoing to introduce a new 'dashboard' system for monitoring our progress in carrying our operational tasks; this provides a high level view of progress and an automatic process for extracting reports which allow managers to easily drill down into the underlying data. The dashboard will provide improved visibility of outstanding tasks with data automatically updated on a daily basis, complementing the existing weekly KPIs. The dashboard for inspection and maintenance tasks went live on 3 April 2017.

3.20 All field teams are issued with iPads for recording of information in the field. During 2016/17 we have continued to introduce new bespoke applications and develop existing ones. These applications allow better checking of existing records and automatic updates of information from site. We continue to make these applications as user friendly as possible in response to feedback from the staff using them. For example, in October 2016 we introduced an application for Tower Inspections which allowed engineers to upload photos of the asset which can be automatically geo-tagged so that we ensure the correct asset is updated on our asset database.

Updates such as these allow us to streamline our processes to ensure that they are quick and easy for staff to undertake and 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%.	✓

3.21 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.

3.22 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.

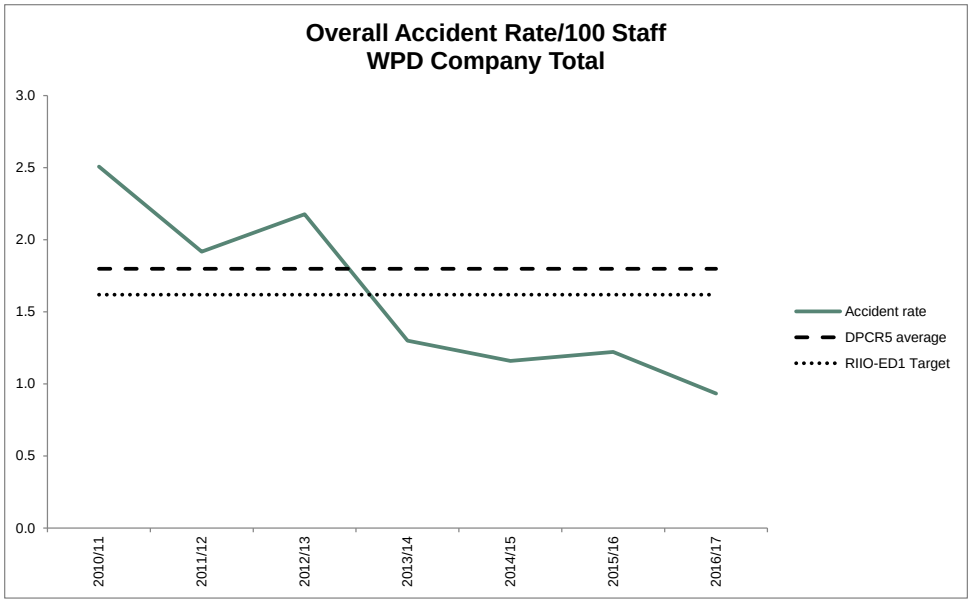
3.23 Each year, a safety action plan is produced informed by both reactive and proactive factors such as accident reports, near misses, industry incidents and any legal, regulatory or industry wide initiatives.

3.24 In 2016/17 a range of initiatives were used to promote safety and employee wellbeing as follows.

- The continued roll-out of 'Technical Managing Safety' – a programme for technical staff designed to enhance safety awareness.
- The introduction of an iPad system for recording near miss incidents to enable easier sharing of information across the business.
- Including behavioural safety training within the company's induction process.
- The design and implementation of an improved programme of training for staff who may have to deal with materials containing asbestos during the course of their activities.
- The development of a new mental health awareness policy and training programme.
- The introduction of mandatory craft refresher training on a six yearly cycle (or on the introduction of new techniques, procedures or equipment).

3.25 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 staff sickness absence and those where the individual has been able to continue to work despite the accident.

3.26 In 2016/17 the accident rate for WPD as a whole was 0.93 accidents per 100 staff. This was an improvement on the 2015/16 accident rate of 1.22 and better than the RIIO-ED1 target. The trend in safety performance is shown in the next chart.



3.27 Whilst we are reporting better than target performance, the statistics include the fatality of a member of staff. This sad incident brings home the importance of striving to eliminate accidents. Following this accident an internal panel of inquiry was immediately established and we continue to support and contribute to the external HSE investigation. To provide greater awareness of the circumstances of the accident all operational staff were required to attend a briefing session to discuss the incident and we will continue to review our systems and processes to do everything that we can to minimise the risk of such an incident occurring again.

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

3.28 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 has 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'

3.29 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.

3.30 The Powering Improvement theme for 2016 was 'Managing Occupational Ill Health Risks'. WPD chose to prepare for this theme in advance and in 2015 undertook a series of 'Switched on to Health' workshops for all staff, signposting health related services available to staff and encouraging individuals to maintain a healthy lifestyle.

3.31 To further embed the theme of managing occupational ill health risks, WPD held a safety week during October 2016. The theme of the week was 'Helping WPD Work Well' and expanded on previous 'Switched on to Health' sessions. The week enabled us to support the HSE initiative 'Helping Great Britain Work Well' which was launched with the aim of promoting six key health and safety issues including 'Tackling Ill Health'. As part of our safety week, staff were encouraged to access corporate gym discounts that were introduced as a result of feedback from 'Switched on to Health'.

3.32 We have continued to hold the regional contractor safety forums which were introduced as a result of the Powering Improvement 2015 theme of 'Working with Contractors'. In June 2016 four regional forums were attended by all major contractors and a selection of sub-contractors. As in previous years the agenda covered best practice, WPD expectations for safety, a challenge to improve accident rates and behavioural safety. During 2016 we shared elements of our 'Switched on to Health' workshops whilst two of our major contractors shared details of their approach to Health and Safety. Joint working of this nature allows us to share best practice. We work with our contractors to improve safety performance; this includes undertaking site safety audits. During 2016/17 we undertook 16 audits with contractors.

3.33 For 2017 the theme of Asset Management has been championed by WPD's Operations Director. Work will focus on demonstrating the link between effective asset management and health and safety. Powering Improvement encourages collaboration between stakeholders of the ENA so that new and existing asset management issues can be discussed; the use of case studies supports industry wide learning when incidents occur.

3.34 For 2017 WPD has led a working group conducting a review of current standards for underground low voltage link boxes. The purpose of the work is to ensure that link boxes are designed and built to an appropriate standard and are adequately maintained throughout their life span. This topic emerged as a result of a number of incidents (across the DNOs) related to disruptive link box failures. Link boxes are generally placed in pavements and consequently a key aim is to mitigate any risk to public safety. The forum has met and agreed a risk assessment process, shared best practice across the DNOs, established a UK wide database of assets and failures and are working towards a revised ENA specification for link boxes and a common risk mitigation measure.

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

3.35 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.

3.36 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.

3.37 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.

3.38 Additional topics covered in 2016/17 included:

- a review of access to standard technique documents and the ease of searching company systems for specific information;
- a review of iPad applications including those for the recording of risk assessments and site safety visits;
- a review of training provision – including the newly introduced Mental Health Awareness sessions;
- a review of staff safety conferences; and
- the provision of feedback on the suitability or availability of particular personal protective equipment.

3.39 In addition, an annual safety conference is held in each licence area, attended by all 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.

3.40 In 2016/17, the four safety conferences took place in March and April 2017 and were attended by the company's Safety and Training Manager and Occupational Health Manager. A standard agenda was agreed for the company as a whole and additional agenda items were added locally dependent on the requirements of each licence area. Topics included:

- a review of safety performance;
- an update from Occupational Health;
- a presentation from an Electricity Networks Association representative highlighting ongoing learning from incidents in the wider industry, particularly in relation to asset management;
- trade union presentations; and
- a review of actions as result of previous behavioural safety training.

3.41 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

3.42 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.

3.43 In 2015, WPD launched a behavioural safety initiative 'Switched on to Safety' with every member of staff invited to attend a training session designed to enable them to assess their own safety behaviour and to challenge the unsafe behaviours of others. Sessions were facilitated by an external provider and combined live theatre with interactive discussion.

3.44 Business managers attended an extended session to encourage them to lead safety effectively and were provided with a range of tools to use with their teams to identify areas for improvement and to develop team centred safety action plans. These local team plans are gathered and reviewed by the central Safety Team so that best practice can be shared across the business.

3.45 In 2015/16 the majority of our staff attended behavioural safety sessions. In 2016, any remaining staff were provided with the opportunity to attend. We are now working to embed the principles of the 'Switched on to Safety' events into day to day activities.

Case Study – South Wales

Teams across the business continue to use the tools and models provided as part of the 2015/16 behavioural safety initiative 'Switched on to Safety'. In February 2017 all Safety representatives in South Wales met in order to discuss new ways to promote and embed behavioural safety. A range of potential initiatives were discussed including:

- creative ways to encourage and support less experienced, or recently trained, members of staff to challenge their peers in situations where they feel that best practice is not being followed;
- ways to encourage staff to speak up when a 'near miss' occurs, with the aim of preventing potential accidents;
- how to prevent distractions, specifically related to the use of mobile phones in the work place; and
- ways to make safety briefings more interactive and engaging.

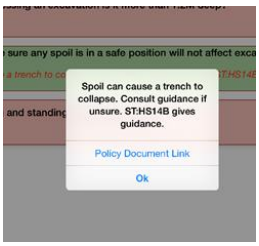
Initial ideas have been collated and will be developed into action plans as part of the standard quarterly safety forums.

3.46 The impact of staff suggestions from initiatives such as these can be significant. In 2015/16 company policy on the use of protective eyewear was changed in response to an initiative from a local depot where eyewear was worn for a greater range of tasks. Since the change to policy in November 2015 the number of eye injuries has reduced. In 2015/16 there were five accidents resulting in eye injuries, in 2016/17 this had reduced to zero related incidents.

3.47 In 2016/17 we reviewed our induction process for new trainees joining the business and agreed a behavioural safety module which will be delivered as part of our standard induction. A key aim is to provide new colleagues with the confidence to challenge others if they feel that their behaviour is unsafe. The new programme will be delivered from 2017/18 onwards.

3.48 Other activities used to promote and support behavioural safety during 2016/17 have included:

- revisions to the iPad application used for recording of risk assessments to make it easier for staff to check policies and procedures whilst completing the online form and provides prompt questions to ensure that all potential hazards are considered; and
- briefing sessions have been undertaken to ensure that staff completing risk assessments are familiar with the new functionality of the application.



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.	✓

3.49 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.

3.50 During 2016/17 there were 62 staff accidents, 56 contractor accidents and 15 significant incidents involving the public. All 133 were investigated.

3.51 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.
- 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 are particularly serious a Safety Bulletin is issued and cascaded. Within 2016/17 ten Safety Bulletins were issued – each bulletin provides an explanation of the issue, relevant learning points and the actions required by individuals for the future.

3.52 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). A 'Safety Flash' system allows individuals to submit information anonymously should they wish to do so. During 2016/17 we also introduced an electronic system for recording near misses via the company iPads (in addition to the paper form), ensuring that the process is quick and easy and that staff have a variety of options for providing feedback on potential risks.

3.53 In 2016/17, 79 near misses were reported and 14 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.

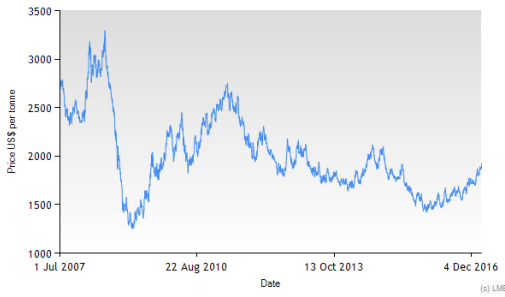
Substation security

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

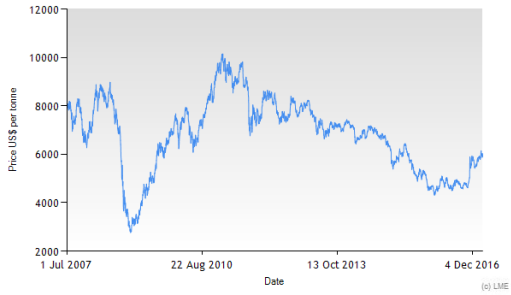
3.54 Historical increases in the value of metals led to high levels of theft from the network. Such theft can lead to electricity supplies being interrupted and sites being left in a hazardous state, potentially exposing WPD employees and members of the public to increased risks.

3.55 At the time of developing the RIIO-ED1 Business Plan metal prices were high, leading to theft from the network. Since 2011/12 metal prices have progressively become lower (as shown in the London Metal Exchange charts below). Such fluctuations have the potential to impact on levels of theft and as a result the cost benefit of security related interventions will vary over time, as will the level of priority placed on metal theft by external agencies such as police forces.

Historical price graph for Non ferrous metals - Aluminium



Historical price graph for Non ferrous metals - Copper



Monitoring break-ins to substations

3.56 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 2016/17 there were eight occasions where a specific substation was targeted more than once during the year and was therefore a candidate for potential security enhancements.

3.57 Of the eight substations where a repeat break-in occurred, enhanced substation security works have been undertaken at four sites during 2016/17. Measures taken varied from the installation of additional lighting, upgrading the perimeter fencing or in one instance installing a high resolution number plate recognition camera at the site entrance.

3.58 Whilst construction work is undertaken at sites there can be increased risk of break-ins as a result of the additional supplies and equipment on site. In order to mitigate this time-bounded risk, temporary solutions have been applied at four sites that were the subject of a repeat break in during 2016/17. Temporary measures included the short term use of security guards and investment in portable CCTV cameras for use at major project sites within the East and West Midlands.

3.59 Cumulatively during RIIO-ED1 we have undertaken permanent upgrading works at 11 sites that were the subject of repeat break-ins.

Increasing substation security in the West Midlands and East Midlands

3.60 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.

3.61 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.

3.62 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 (compared to the volumes within the RIIO-ED1 business plan).

3.63 The targets and progress are detailed below; West Midlands have completed 43% of their ED1 programme to date, East Midlands have completed 18%:

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	79	59

3.64 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 school children.	✓

3.65 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.

3.66 During RIIO-ED1 WPD committed to providing over 1,000 educational sessions to 400,000 school children about the potential dangers of electricity.

3.67 Since the start of RIIO-ED1 we have delivered a total of 5,748 sessions to 139,586 school children across our four licence areas making excellent progress towards our RIIO-ED1 target.

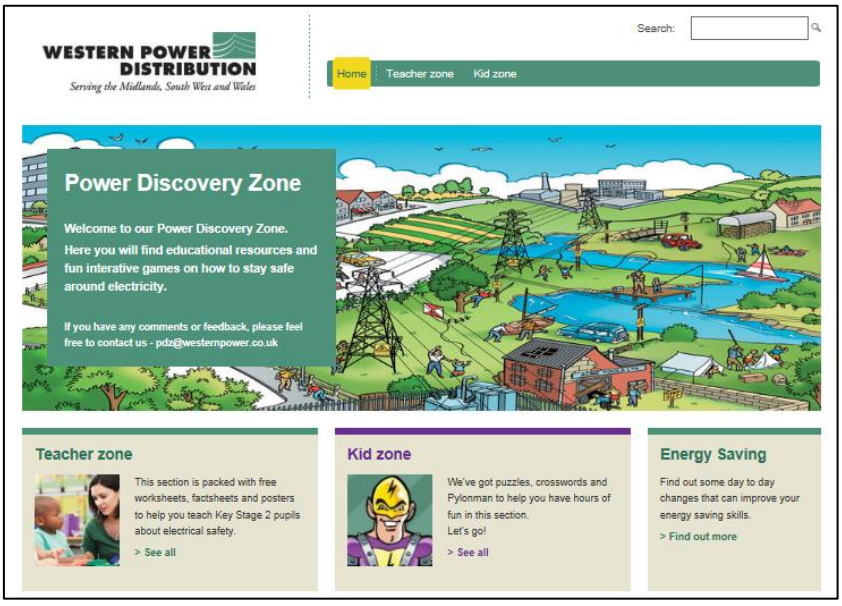
3.68 The breakdown of sessions delivered during 2016/17 is as follows:

Education sessions delivered 2016/17		
	Number of sessions	**Number of children**
West Midlands	985	10,274
East Midlands	1,036	24,844
South Wales	1,276	18,286
South West	1,337	16,448
WPD Total	**4,634**	**69,852**

3.69 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 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.

3.70 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.	✓

3.71 WPD also 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.

3.72 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.

3.73 Safety literature continues to be distributed in traditional paper based formats, but in addition 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.

3.74 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.

3.75 In 2016/17 a total of 485,112 Think Safe, Stay Safe 'leaflets' were issued or made visible to customers. Our cumulative total for the RIIO-ED1 period is 886,311 leaflets issued.

3.76 During 2016/17 information was distributed in a variety of ways as detailed below.

- Facebook campaigns promoting electrical safety which appeared in the newsfeed of 246,553 Facebook users. Posts were actively promoted to those in the agricultural industry and participants in leisure activities such as angling, sailing and hot air ballooning.
- 89,600 individuals were targeted through promotional articles placed in a variety of publications such as the Royal Cornwall Agricultural Magazine, Modern Farmer magazine and South West Farmer magazine.
- 177,034 landowners with WPD equipment on their land were sent literature as part of the wayleaves process associated with these assets.
- 2,861 attendees for the Royal Welsh Agricultural Winter Fair received e-tickets which featured 'Think Safe, Stay Safe' information.

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

3.78 We refresh our safety information regularly and respond to current issues. In July 2016 following the introduction of Pokémon Go to the UK, WPD became the first DNO to issue a safety warning to users of the game to remind them of the dangers of electricity infrastructure. We reached 215,000 users as a result of the full campaign.

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report
Year Two - 2016/17

31 October 2017

Reliability

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Reliability
Contents

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. 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		
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. *	Customer interruptions have reduced by 31% and customer minutes lost have reduced by 49% from the underlying performance benchmark calculated for 2011/12.
12	Make sure that at least 85% of customers have their power restored within an hour of a high voltage fault happening.**	89.21% of customers had their power restored within one hour of a high voltage fault.

Guaranteed Standards of Performance (GSOPs)		
13	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) fell to 35, an improvement of over 99% on our 2012/13 benchmark performance. Customers received a set payment where we failed to achieve the GSOP.
14	Achieve no failures on all other GSOPs.**	We had no failures against most GSOP categories. However, we failed to notify 15 customers of planned interruptions to their electricity supply.

Worst served customers		
15	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 9,844 customers. Our target for the whole of RIIO-ED1 was 6,812 customers.

Making our network more resilient		
16	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 27 substations. We have carried out data analysis and site surveys at a further 97 substations.
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).*	We met the revised targets (related to storm resilience) for clearing trees from overhead lines, clearing trees from 770km of overhead lines in 2016/17.
18	Improve substation battery life to last for 72 hours if there is a major, network-wide power loss.*	Protection batteries - 35% of eight-year programme complete. Protection batteries - 35% of eight-year programme complete. SCADA batteries - 25% of eight-year programme complete. Telecommunications sites - 79% 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 continued to drive improvements in network performance. By 2016/17 this has led to a 31% improvement in the number of power cuts and a 49% improvement in the average duration of power cuts. 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	-	-	-	-	-	-	40%
East Midlands	58.8	48.7	45.0	41.7	43.2	-	-	-	-	-	-	27%
South Wales	55.5	45.8	52.6	45.0	38.0	-	-	-	-	-	-	32%
South West	57.4	49.3	47.9	48.5	48.3	-	-	-	-	-	-	16%
WPD Total	69.1	56.3	53.9	50.4	47.6	-	-	-	-	-	-	31%

4.9 For 2016/17 performance for Customer Interruptions is better than the overall RIIO-ED1 improvement target and beats the in-year regulatory target in every licence area.

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	-	-	-	-	-	-	59%
East Midlands	45.2	24.4	21.5	19.9	20.4	-	-	-	-	-	-	55%
South Wales	28.7	25.1	24.2	20.7	19.5	-	-	-	-	-	-	32%
South West	35.1	32.9	31.1	29.0	30.1	-	-	-	-	-	-	14%
WPD Total	47.7	29.7	26.7	24.5	24.4	-	-	-	-	-	-	49%

4.11 For 2016/17 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 2016/17 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.

4.21 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.

4.22 Staff have been provided with training on how to use the equipment and the equipment itself will be more widely deployed during 2017/18. Our initial focus will be on areas with higher levels of transient faults.

Replacing assets

4.23 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 of the network.

4.24 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.

4.25 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.

4.26 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.

4.27 The targets are specified as overall RIIO-ED1 targets. For the purposes of tracking progress a simple annual average representing 1/8th of the total target has been used. The targets and the progress against them are shown in the table below:

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
RIIO-ED1 annual average target	-2,153,525	-1,566,277	-1,227,063	-2,038,836	-6,985,700
2015-16 delivered risk points *	-2,326,417	-2,685,965	-1,522,607	-2,143,567	-8,678,556
2016-17 delivered risk points *	-3,441,643	-2,666,829	-1,867,522	-2,963,461	-10,939,455
2015-16 percentage of target	108%	171%	124%	105%	124%
2016-17 percentage of target	160%	170%	152%	145%	157%

* 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

4.28 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.

4.29 This intervention can be through:

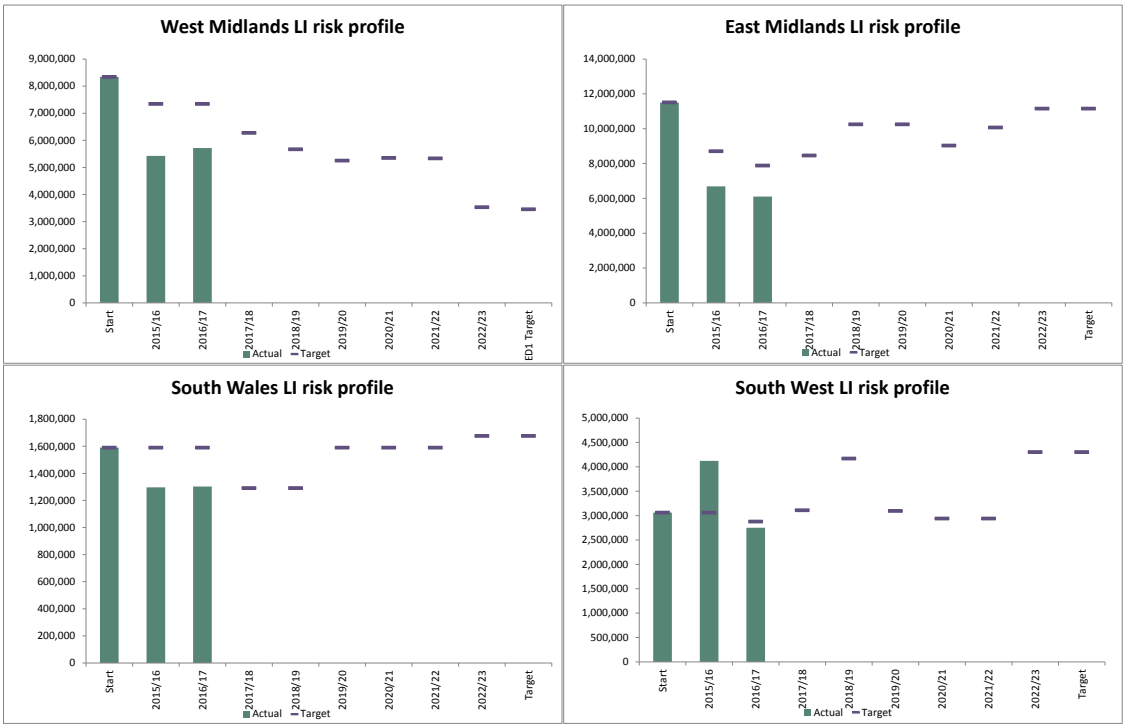
- reinforcing the network to provide more capacity - either by adding more assets or replacing existing assets with higher rated equipment which can carry greater load, or
- managing the load to reduce the maximum demand on the network.

4.30 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.

4.31 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.

4.32 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.

4.33 Progress against the forecast risk profile is shown below. For 2016/17 risk is lower than forecast in all four of the licence areas.



P2/6 compliance

4.34 DNOs have a licence obligation to manage networks to meet the requirements of Electricity Networks Association Engineering Recommendation for Security of Supply P2/6. This specifies the expected capability of the network to meet demands under defined outage conditions.

4.35 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.

4.36 Where networks become overloaded to the extent that the requirements of P2/6 cannot be met, the requirement for temporary relief from the licence obligation is identified. These temporary exemptions are referred to as derogations.

4.37 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-derogations process (which does not require application to Ofgem, but still requires the development and implementation of an action plan).

4.38 At the close of 2016/17 there are no Ofgem derogations to standard P2/6 and four self-derogations. Each derogation 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	1	3	0	0	4

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 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 2016/17 the following volumes of spans were cut.

Routine tree cutting (number of spans cut) in 2016/17					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
LV (spans)	10,065	14,715	7,813	35,581	68,174
HV (spans)	18,912	12,976	12,554	17,749	62,191
EHV (spans)	1,104	1,313	731	609	3,757
132kV (spans)	0	207	698	282	1,187

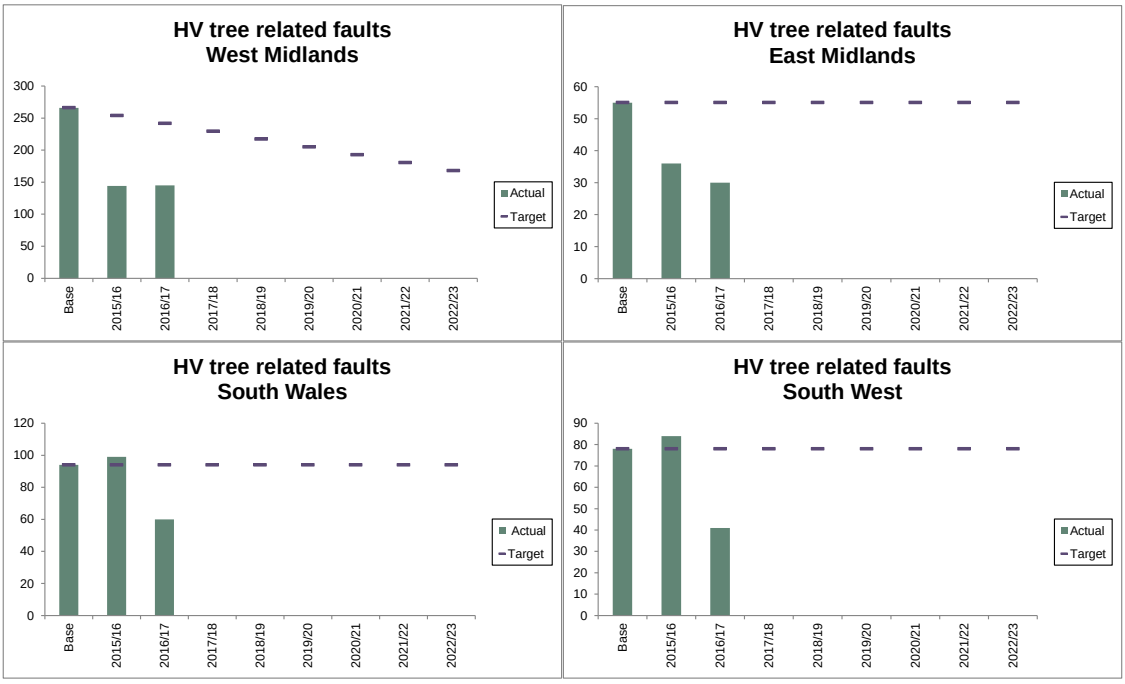
4.44 Effective tree clearance assists in the reduction of tree related faults and within RIIO-ED1 WPD targeted an overall 20% reduction in both high voltage (HV) and low voltage (LV) tree related faults. For LV tree clearance a 20% improvement was expected in each licence area, but at HV it was expected that 37% improvements in West Midlands would lead to an overall WPD improvement of 20%.

HV tree related faults

4.45 During RIIO-ED1 we have achieved a 44% 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
2016/17 performance	145	30	60	41	276
Percentage improvement - actual	45%	45%	36%	47%	44%

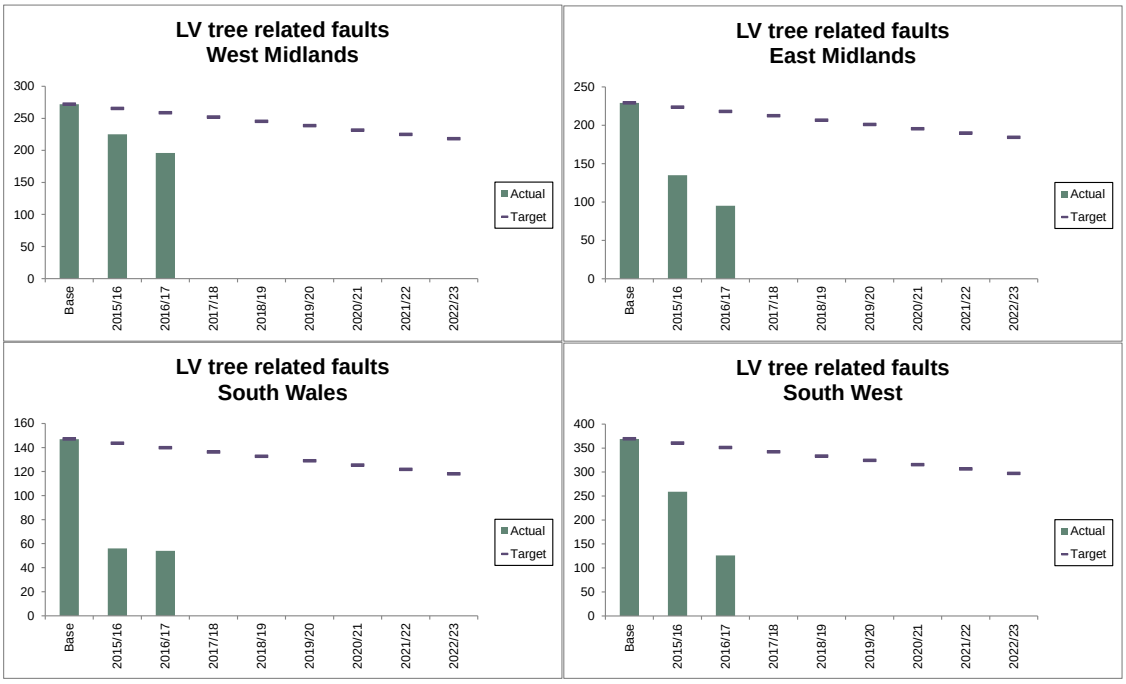


LV tree related faults

4.46 During RIIO-ED1 we have achieved a 54% improvement in the number of LV 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
2016/17 performance	196	95	54	126	471
Percentage improvement - actual	28%	59%	63%	66%	54%



4.47 All licence areas are already beating the target to reduce LV tree related faults by 20% by the end of RIIO-ED1.

Reducing the number of customers affected by power cuts

4.48 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

4.49 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.

4.50 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.

4.51 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.

4.52 The development of automatic switching algorithms allows switching actions to take place without the intervention of a Control Engineer. The algorithms use information provided by fault passage sensors to indicate which section of the network contains the fault and then communicate with remotely controlled devices to work out a sequence of switching to restore supplies to the maximum number of customers possible.

4.53 The application of this technology results in an improvement in the average number of customers affected by faults. The table below compares the RIIO-ED1 targets and performance in 2016/17.

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
2016/17 performance	374	410	233	220

4.54 Targets have already been achieved in all four licence areas as shown below

Reducing the time it takes to restore supplies

4.55 WPD has a clear focus on restoring supplies quickly.

Managerial focus

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

4.57 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.

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

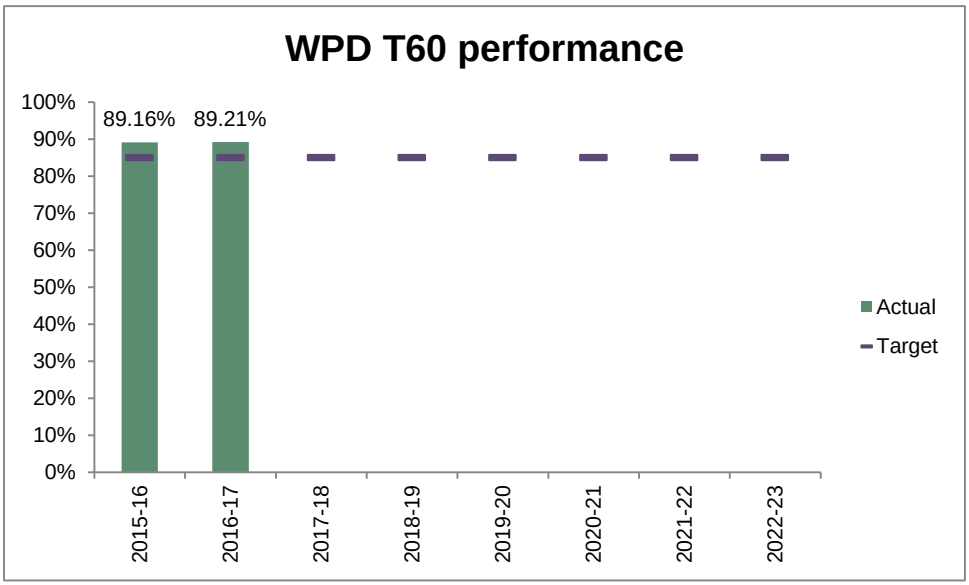
4.59 This focus can be illustrated by the response taken when a high voltage fault occurs - we send three engineers to deal with the restoration, no matter what the problem. Switching points on the network can often be miles apart (particularly in rural areas) and having only one engineer responding would inevitably slow the process.

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 that all licence areas exceeded this target in 2016/17.

Target 60 - restoration within one hour of an HV fault (% of customers)					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Performance 2016/17	91.17%	89.97%	87.74%	85.31%	89.21%

4.61 We have continued to outperform 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. 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 or this more challenging target by putting internal key performance indicators in place before the change in regulatory requirements.

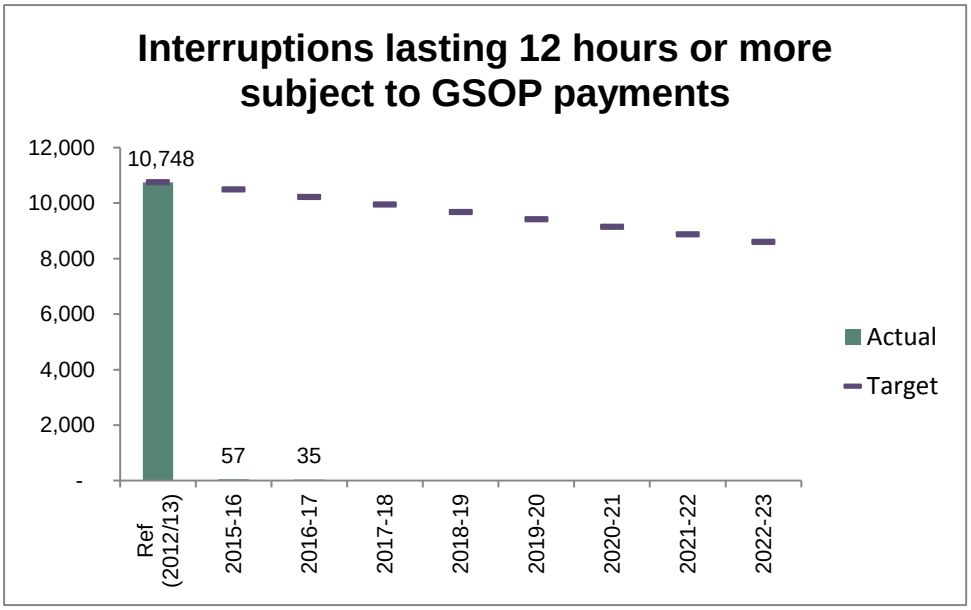
4.66 As part of the RIIO-ED1 Business Plan, WPD committed to reduce by 20% on average the number of customers experiencing interruptions lasting 12 hours or more (after clock stop and severe weather exemptions are applied).

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 2016/17 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 agreed 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 2016/17.

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
2016/17 performance (total after exemptions – GSOP payments made)	11	1	0	23	35
2016/17 performance (total before exemptions)	658	489	84	282	1,513

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 the 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

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

4.73 During 2016/17 we failed to meet these standards for 15 customers when we failed to provide notice of a planned interruption to electricity supply. We aim to learn from each failure in order to achieve our RIIO-ED1 target of zero failures.

Guaranteed Standards of Performance failures in 2016/17 (excluding restoration of supply within 12 hours)					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Main fuse failure	-	-	-	-	-
Multiple interruptions	-	-	-	-	-
Major incident	-	-	-	-	-
Rota disconnection	-	-	-	-	-
Planned interruptions	4	-	-	11	15
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.

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 spend per customer of £800.

4.79 In 2012/13 WPD estimated that 20,000 customers would be classified as being worst served and WPD committed to a 20% reduction, impacting 4,000 customers and 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.

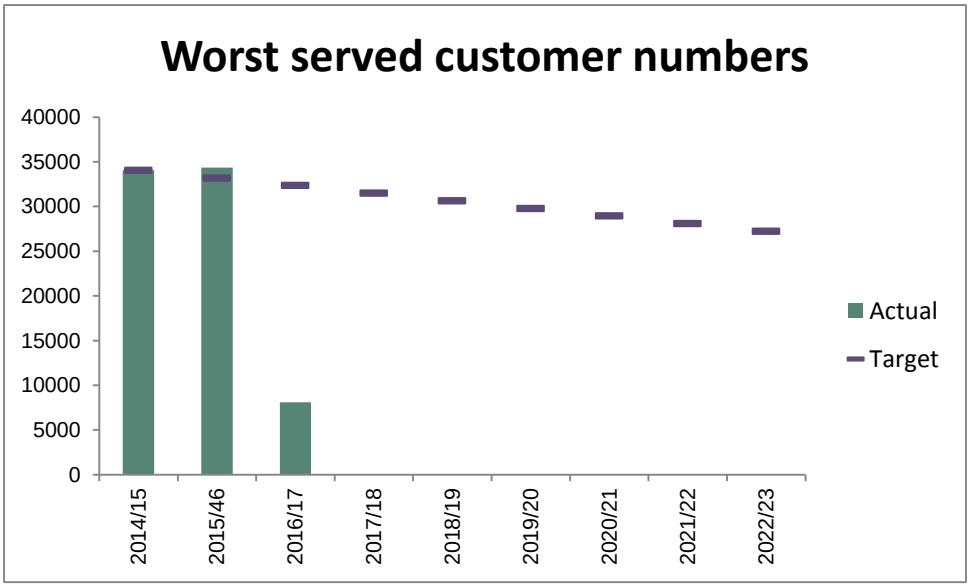
4.80 The targets have been revised using actual worst served customer numbers from 2014/15 as a reference. This leads to the following volumes.

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 number of worst served customers varies each year as different parts of the network are affected by faults. There will therefore be some volatility in the actual numbers of worst served customers from year to year.

4.82 In addition it may take a number of years to identify improvement opportunities, plan the schemes and deliver work. This means that there is a delay between when customers are identified as worst served and when benefits are delivered. In some cases projects may be addressing historic worst served customers who are no longer classified as worst served when the project is complete.

4.83 The number of worst served customers has reduced significantly during 2016/17 as shown below.



4.84 Since the number of worst served customers can fluctuate, 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 2016/17	5,636	22	501	1,924	8,083
Customers targeted for worst served customer work in ED1 to date	4,269	899	2,069	2,607	9,844

4.85 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.

Making our network more resilient

4.86 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
- Black start
- Overhead lines

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

4.87 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.

4.88 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).

4.89 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.

4.90 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 undertaken as necessary.

Fluvial flood risk

4.91 Work undertaken for fluvial sites during RIIO-ED1 is shown below.

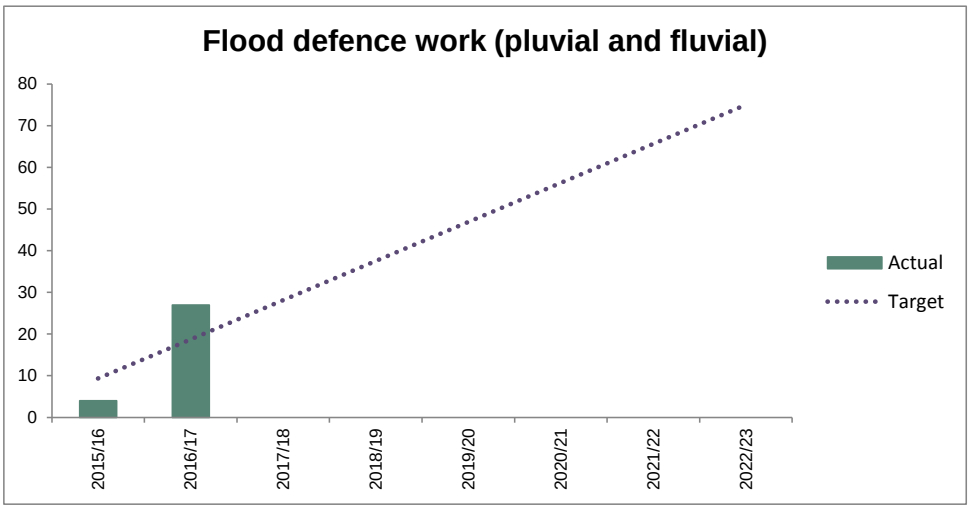
Fluvial flood defences installed (sites)					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Total number of sites to be protected during RIIO ED1 – risk of fluvial flooding	0	14	12	1	27
Flood defences installed during RIIO-ED1	0	12	2	4	18

Pluvial flood risk

4.92 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	1	0	3	5	9

4.93 Our progress towards applying flood defences to 75 substations during RIIO-ED1 is detailed below.



4.94 During the year a total of 97 site surveys were undertaken for sites identified as potentially at risk, the total number of site surveys undertaken during RIIO-ED1 is shown below.

Site surveys					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Fluvial site surveys undertaken during RIIO-ED1	0	1	2	0	3
Pluvial site surveys undertaken during RIIO-ED1	4	62	15	61	142

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).	✓

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

4.96 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.

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

Resilience tree clearance

4.98 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.

4.99 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.

4.100 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 in 2016/17 is as follows.

Tree clearance – resilience cutting					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Target for 2016/17 (km)	181	162	149	211	703
Achieved 2016/17 (km)	209	196	150	215	770
Percentage of annual programme	116%	121%	101%	102%	109%

Overhead fault volumes

4.101 The overall impact of managing the condition of overhead lines and routine and resilience tree programmes can be assessed through overhead line fault volumes.

4.102 It was forecast that the main driver of overhead line fault volume reductions would be routine tree clearance, with other overhead line activities maintaining existing fault volumes.

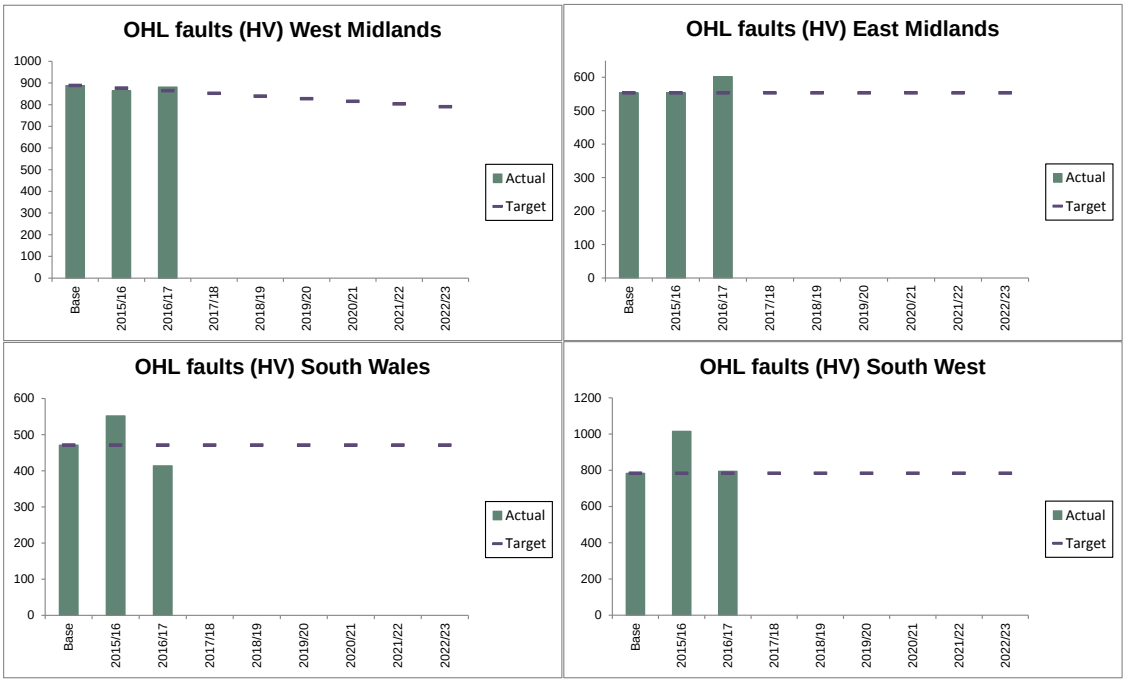
4.103 Year on year variations can be caused by different weather patterns. For example a year with more stormy weather is likely to lead to higher volumes of faults compared to a year with benign weather conditions.

4.104 The target and actual overhead line fault performance is shown below:

HV overhead line faults

HV overhead line fault targets					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	888	553	471	783	2,695
Target - end RIIO-ED1	790	553	471	783	2,597
Percentage improvement	11%	0%	0%	0%	4%

HV overhead line fault actual					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	888	553	471	783	2,695
2016/17 performance	881	602	414	795	2,692
Percentage improvement (-ve indicates increase)	1%	-9%	12%	-2%	0%



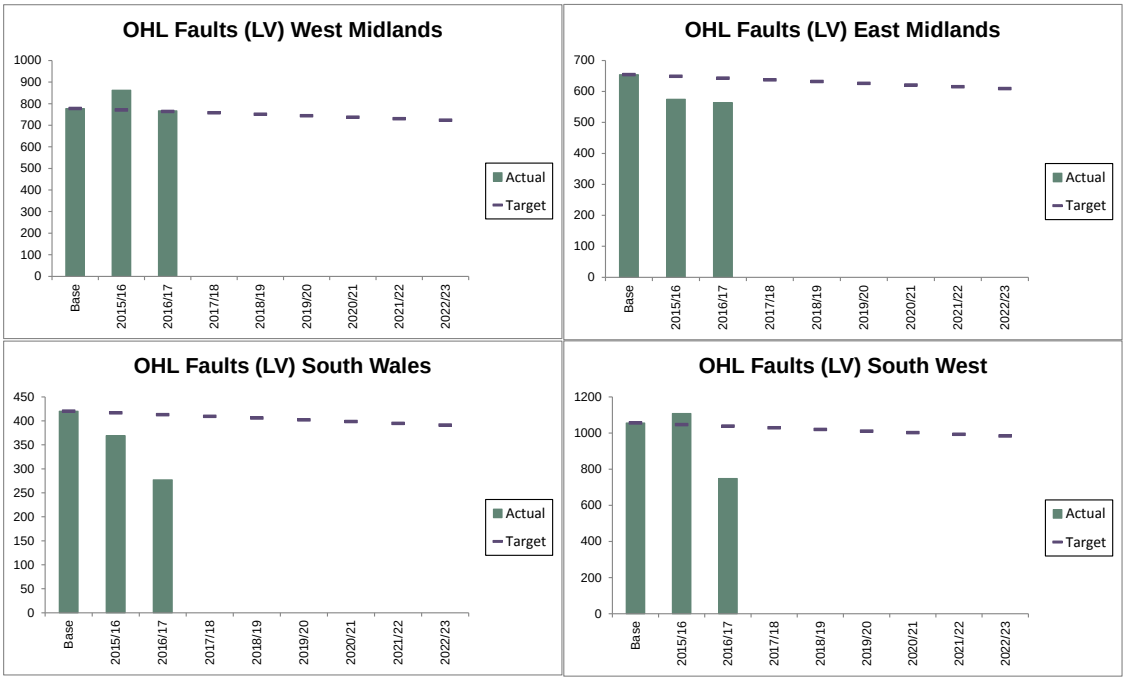
4.105 HV overhead line faults across the whole of WPD have remained at the same level as our performance reference period. However we have seen some improvement in fault levels since 2015/16. In 2015/16 2,985 HV overhead line faults occurred, during 2016/17 as a result of improvements in the South West and South Wales licence areas this reduced by 10% to 2,692 faults.

4.106 There is some variability in HV overhead line faults performance across the licence areas. West Midlands and the South West are broadly in line with in-year targets for 2016/17, South Wales has beaten the target, but the East Midlands has seen a 9% increase in HV overhead line faults.

LV overhead line faults

LV overhead line fault targets					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	777	654	420	1,055	2,906
Target - end RIIO-ED1	723	609	391	983	2,706
Percentage improvement	7%	7%	7%	7%	7%

LV overhead line fault actual					
	West Midlands	East Midlands	South Wales	South West	WPD Total
Underlying performance (4 year average from 2009/10 to 2012/13)	777	654	420	1,055	2,906
2016/17 performance	767	564	277	748	2,356
Percentage improvement (-ve indicates increase)	1%	14%	34%	29%	19%



4.107 LV overhead line faults have decreased by 19% and over the whole of WPD we have beaten our target for the end of RIIO-ED1. Performance across the licence areas is variable, West Midlands has seen improvements and are broadly in line with in-year targets for 2016/17, all other licence areas have beaten targets for the end of RIIO-ED1.

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

4.108 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.

4.109 The electricity industry has developed a standard which requires major substations to have the resilience to remain operational for 72 hours. The main consideration is the length of time that battery systems will last – this includes protection, SCADA and telecommunication system batteries.

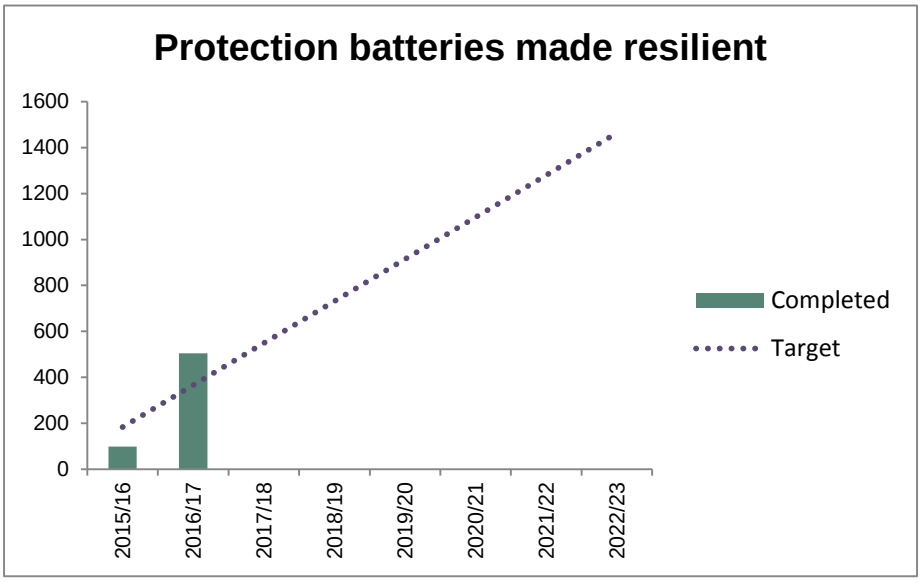
4.110 During RIIO-ED1 WPD has committed to making all substation battery systems at major substations and associated communications infrastructure resilient to 72 hours; this will be achieved by:

- 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;
- 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.

4.111 The target volume of works to achieve 72 hour resilience and progress to date are detailed below.

Protection batteries

4.112 We have developed operational policy for the installation and operation of load disconnection schemes, which has allowed us to commence our programme to make protection batteries resilient. So far during RIIO-ED1 we have delivered 35% of the overall programme and are on track to achieve our overall targets by the end of RIIO-ED1 as shown below.



4.113 Performance in each licence area is shown below.

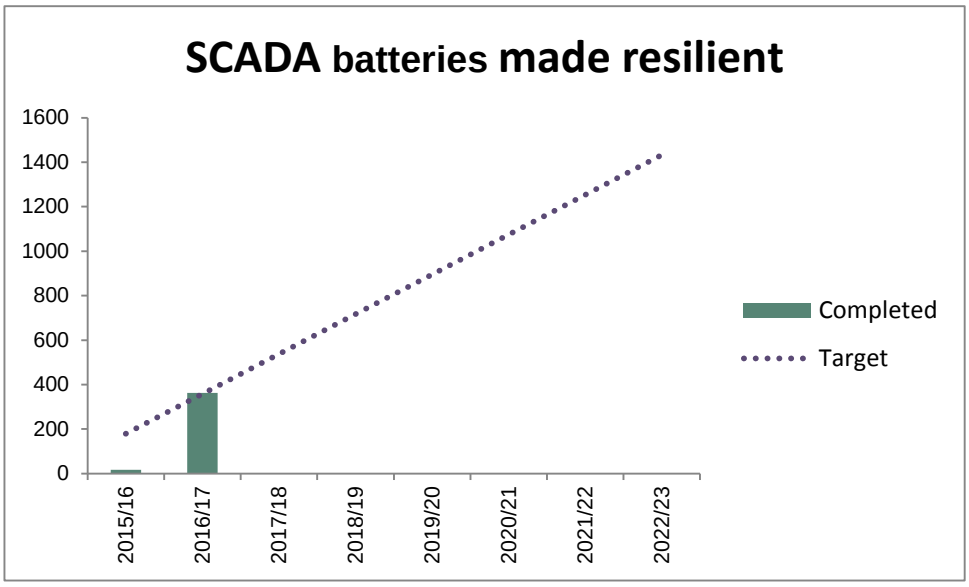
Resilience of protection batteries					
	West Midlands	East Midlands	South Wales	South West	WPD Total
RIIO-ED1 target (includes both EHV and 132kV protection batteries)	240	621	236	366	1,463
Protection batteries made resilient during RIIO-ED1	95	217	116	77	505

4.114 We will continue to review arrangements for individual substations in each licence area, which may result in the completion of different volumes to those detailed within our RIIO-ED1 business plan.

SCADA batteries

4.115 SCADA batteries 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.

4.116 During the first two years of RIIO-ED1 we have completed 25% of our overall programme and have declared 363 batteries resilient to the 72 hour standard. We are on target to achieve our commitment for RIIO-ED1.



4.117 Performance in each licence area is detailed below.

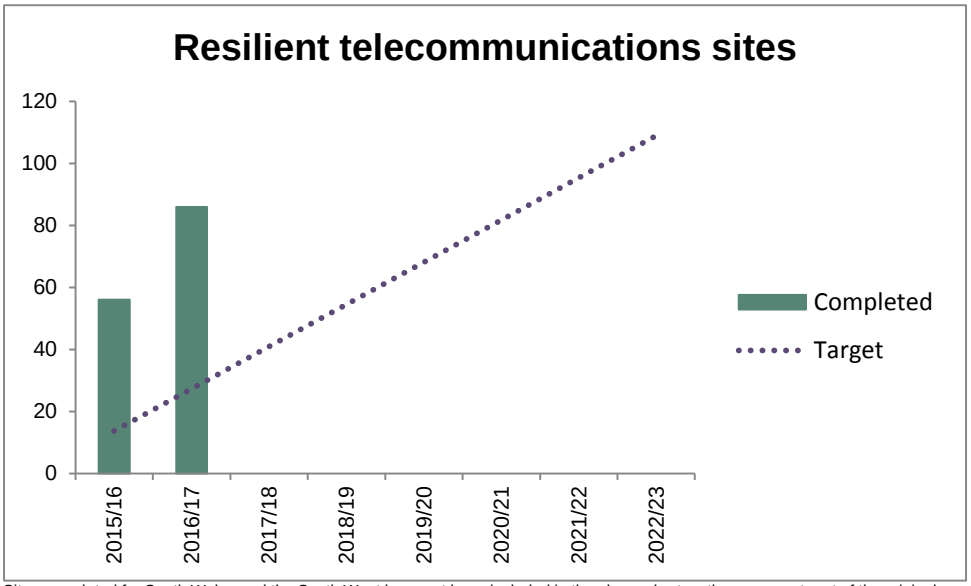
Resilience of SCADA batteries					
	West Midlands	East Midlands	South Wales	South West	WPD Total
RIIO-ED1 target (includes both EHV and 132kV protection batteries)	254	586	190	403	1,433
SCADA batteries made resilient during RIIO-ED1	76	107	63	117	363

Telecommunication sites

4.118 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 telecommunications sites in West Midlands and East Midlands.

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

4.120 Progress against the RIIO-ED1 target has been positive with 79% of the original programme already complete – 86 out of 109 sites in the East Midlands and West Midlands. An additional 58 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.

4.121 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	41	45	28	30	144

Non-operational sites

4.122 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.

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report
Year Two - 2016/17

31 October 2017

Environment

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Environment Contents

5 Environment

5.1 Business plan commitments for the environment cover 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).

Regulatory framework

5.3 At the start of RIIO-ED1 there was no specific output requirement from Ofgem in relation to driving sustainable networks. Instead it was anticipated that other outputs and incentives (for reliability, connections, efficiency and innovation) would drive transition to a low carbon economy.

5.4 In 2015 Ofgem launched a new initiative – aiming to encourage and enhance sources of system 'flexibility'. Ofgem and the Department for Business, Energy & Industrial Strategy (BEIS) issued a 'Call for Evidence' in November 2016 prompting DNOs (and the wider industry) to provide views on the changing nature of the energy sector as a result of developments such as increasing volumes of intermittent generation connecting to the system, energy storage, electric vehicles, and variations in the way that consumers are participating with energy markets. Based on the feedback provided, Ofgem and BEIS published a paper on the way forward in July 2017. We envisage that this work will shape future developments in network management.

5.5 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 business carbon footprint.

5.6 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 adopt innovative ways of reducing losses.

5.7 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

Overview of environmental outputs

Make it possible for more people to use low carbon technologies (LCTs)		
19	Improve by 20% the time taken to provide a response to customers who want to use LCTs.*	We have introduced new processes to allow us to report on LCT response times from 2017/18 onwards.
20	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.
21	Selectively replace assets using larger assets in areas where more LCTs may be connected to our network.	We carried out 34 asset replacement projects, using larger assets, as a result of using information about LCT hotspots.
22	Reduce costs for future customers by developing smart solutions to provide alternative and innovative techniques for managing our network.	We had 25 innovation projects in progress during the year.
23	Provide additional network capacity by using traditional or 'smart' methods.	We reached agreement with stakeholders to speed up the roll-out of active network management zones to allow for alternative connections. We issued 126 alternative connection quotations and connected 17 sites.

Reduce technical network losses		
24	Install oversized transformers when replacing assets in areas where demand for power may become higher than equipment can cope with.	We installed 30 oversized transformers.
25	Use larger cables when installing new network in LCT hotspots.	We installed 337 metres of larger cable in LCT hotspots.

Reduce the carbon footprint of the business		
26	Make sure all replacement vehicles have lower CO2 emissions than those they are replacing.	We have procurement processes in place to make sure that replacement vehicles have lower emissions. We are trialling the use of alternative fuels in work vehicles.
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).**	No new builds or refurbishments were assessed in 2016/17.
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.	We have achieved a reduction of over 20% in the amount of waste sent to landfill over the first two years of RIIO-ED1 and are on track to achieve our ongoing targets.
29	Reduce our carbon footprint by 5%.*	Our business carbon footprint has reduced by 4% since 2012/13. We have beaten our in-year target.

Reduce the environmental risk of leaks from equipment		
30	Reduce by 75% the amount of oil lost through leaks from oil-filled cables.*	To date, the amount of oil lost from oil-filled cables has reduced by 61% from our benchmark performance.
31	Reduce by 17% the amount of SF6 gas that is lost from switchgear.*	The amount of SF6 gas lost as a percentage of the total amount of SF6 used on our network has reduced from 0.59% in 2015/16 to 0.31% in 2016/17. This means that we have achieved our in-year target.
32	Install effective oil containment 'bunds' around plant containing high volumes of oil.*	We have completed work on 94 bunds so far in RIIO-ED1 - this includes both new and refurbished bunds.

Improve the appearance in National Parks and Areas of Outstanding Natural Beauty (AONBs)		
33	Replace 55km of overhead lines in National Parks and AONBs with underground cables.*	To date during RIIO-ED1, we have replaced 13.59km 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

Make it possible for more people to use low carbon technologies

5.8 The government's focus on reducing the emission of greenhouse gases has led to higher volumes of low carbon technology (LCT) for electricity generation, transportation and heating for buildings.

5.9 Consequently 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.

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

5.10 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.

5.11 Certain categories of smaller installations are unlikely to cause disruption to the network and in these circumstances customers can simply connect and notify their distribution network operator of the installation. Other connections will require investigation and the connection may be restricted until the network is reinforced.

5.12 Where the installation only requires acknowledgement, WPD has an internal target to respond to the customer in writing within five working days.

5.13 Other installations require a more detailed assessment of their potential impact on the network. Currently these are dealt with either as an unclassified connection enquiry or a new supply enquiry and details of our performance in terms of response times is therefore embedded within the broader timeframes published for all connection categories.

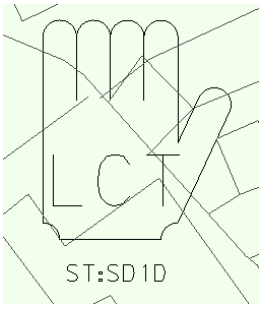
5.14 During 2016/17 we have introduced additional enquiry categories to cover small scale embedded generation (domestic solar panels, small-scale wind and hydro projects), electric vehicle charging and domestic heat pump heating systems.

5.15 These new categories will allow us to start to determine benchmark performance for the time between a customer notifying WPD of an installation of an LCT and a response being sent.

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

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

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



5.18 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. Theses flags and symbols make local planning teams aware of the LCT hotspots.

5.19 When work is planned that affects these locations, the existence of the flags and symbols prompts planners to consider uprating works (using larger sized transformers or cables rather than replacing like for like). This uprating provides additional capacity to accommodate increased network demands.

5.20 The data used to inform our understanding of LCT hotspots will be refreshed (as required) during RIIO-ED1, either by use of renewed data from the Centre for Sustainable Energy or consideration of alternative methods and data sources.

5.21 Understanding the impact of technology growth on the network will be an ongoing process during RIIO-ED1. Whilst work with the Centre for Sustainable Energy has been used to inform planning at a local level for small scale schemes, further work has been undertaken with environmental consultants ReGen to assess the potential growth in distributed generation (both small and large scale) for the purpose of informing strategic network planning.

5.22 Studies are now complete for our South West and South Wales regions. Work on the East Midlands and West Midlands studies will be completed during 2017/18. Stakeholders have provided positive feedback in relation to the reports published to date, confirming that it is useful to have an overview of where capacity is likely to be impacted in the future based on growth.

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

5.23 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.

5.24 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 2016/17, 34 asset replacement projects used larger capacity assets.

5.25 The volume of uprating equipment in LCT hotspots is low in comparison to forecasts, but has increased from 2015/16 totals as planners become more familiar with the options available for installing higher rated equipment.

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

5.26 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.

5.27 The way in which customers consume and produce energy is changing and as a result DNOs have a greater need to forecast and actively manage energy flows across the network. To meet the future energy needs of our customers, WPD will need to transition from the relatively passive role of Distribution Network Operator to Distribution System Operator (DSO). As a DSO we will take a more proactive approach to network management – balancing sources of supply and demand in real time and avoiding, where possible, the need for costly reinforcement of the network by managing generation output, load and power flows.

5.28 During 2016/17 work was undertaken to develop our DSO Transition Strategy, which sets out our proposed actions to enable the transition to the role of Distribution System Operator. After the close of the regulatory year, in June 2017 we published the strategy. We are in the process of consulting with our stakeholders and we will review our approach in line with the feedback that we receive. The initial publication can be found at the following link.

www.westernpower.co.uk/About-us/Our-Business/Our-network/Strategic-network-investment/DSO-Strategy

5.29 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 2017 Innovation Strategy can be found at the link below.

www.westernpower.co.uk/About-us/Innovation-Low-Carbon/Our-Innovation-Strategy.aspx

5.30 The Innovation Strategy aims to develop knowledge and experience in new methods and technologies. We look for innovative developments across five broad areas as detailed below.

- Network performance and efficiency – searching out better processes, equipment and technology.
- Low carbon networks – supporting future electricity demand and generation requirements.
- Smart grids and smart meters – developing new techniques and utilising enhanced data to help develop more dynamic network control.
- Environment – reducing our business impact on the environment.
- Customer service – developing smarter ways of delivering even better customer service.

5.31 Our strategy is already focused on delivering the increased flexibility highlighted as a necessity by Ofgem/BEIS in their 'Call for Evidence'; elements of flexibility include the following.

- Demand-side response (DSR) – consumers changing their patterns of consumption to assist with network demand management.
- Energy storage – allowing energy to be stored when there is excess generation (and energy prices are cheap) to be released when generation output is limited (and energy prices are more expensive).
- Distributed generation – varying generation output and providing technical network services to balance supply and demand as required.

5.32 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 selected projects win funding. During 2016/17

we introduced a number of new NIA projects and successfully gained funding for one new NIC Project – OpenLV. In total we had 25 innovation projects active during 2016/17.

5.33 The following case studies illustrate how two of our new projects for 2016/17 contribute to Ofgem's drive to promote new sources of flexibility such as demand side response.

Case study – OpenLV

OpenLV is a new NIC project which commenced in January 2017.

The UK's strategy to become a low carbon economy is forecast to create a significant change in traditional electricity usage by domestic households. This will require a move away from passive network running arrangements to more active management of power flows. The OpenLV NIC project will deploy a substation 'intelligence' system enabling the monitoring of the real time state of the network whilst exploring the potential benefits of actively managing the low voltage network e.g. by reconfiguring the network running arrangement to provide additional capacity when demands indicate that this would be required. Where additional capacity is required the traditional approach would be to reinforce the network; this project will investigate the potential to temporarily increase capacity via reconfiguration of the network carried out by a control system within each individual substation.

The project will also 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 (see table below for further details of these projects).

Case study – Car Connect Electric Nation

Car Connect is a new NIA project. As groups of neighbours acquire Plug-in Vehicles (PIV), localised clustering of demand is likely to lead to a need to reinforce the low voltage network. The project will focus on:

- modelling potential areas of PIV growth that could affect the network;
- developing monitoring options that can be applied to affected substations; and
- trialling 'smart' chargers that allow remote control of charging by network operators to optimise when charging occurs to avoid the need for reinforcement.

5.34 The full range of NIA projects active during 2016/17 are detailed below and highlight our exploration of themes such as demand side response, energy storage, accommodating increased levels of distributed generation and the move towards more active network management as part of our transition to the role of DSO.

Name	Project aim
Sunshine Tariff	To trial the feasibility of incentivising customers to use domestic demand at the same time as peak production times for PV generation (solar panels), thereby mitigating the impact of increased generation on networks with limited capacity.
Airborne Investigations	To investigate the potential for an autonomous sensing system capable of gathering data to identify faults and deterioration from helicopter overhead line inspections, maximising the data gathering capability of these inspections.
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.
SYNC – Solar Yield Network Constraints	To investigate the potential to encourage large energy users to vary their electrical load to be compatible with peak output from embedded renewable generation. This project will focus on areas where there are current issues with high levels of solar generation coupled with insufficient load.
Time Series Data Quality	To identify mechanisms for analysing network data

Voltage Reduction Analysis	To build on previous studies, looking at the potential to reduce voltage to achieve potentially positive impacts on demand.
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.
Carbon Tracing	This project will test the levels of interest that customers have in how their energy is made up i.e. the mix of solar, wind or fossil fuels. The project will involve the development of an app and website to provide visibility to customers of the generation mix.
Project ENTIRE	To identify and address the key commercial challenges that a DNO 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 on both the Western Power Distribution network and that of Wales and West Utilities. The project will investigate 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 increased local phase voltage to 400V. Potential benefits include increased network capacity - optimising the potential for emerging elements such as the increase in electric vehicle charging, distributed generation and energy storage.
Superconducting Cables – Feasibility Study	Installing the new transformers or substations required for reinforcement can be challenging in urban environments. Superconducting cables may offer a solution – allowing the installation of transformers or substations at a distance from the location requiring increased capacity. This project will conduct a feasibility study to determine if superconducting cables are an attractive solution for connecting new equipment to the physically remote networks that require additional capacity.
Telecoms Analysis	To analyse the telecommunications infrastructure that will support the development of Smart Grid technology. The project will assess current and proposed Smart Grid Telecommunications, taking a holistic view rather than the current incremental approach.
Time Series Data Tool Feasibility	DNOs keep historical data on the loading of assets within a number of databases and from a variety of sources. The data can be interrogated as and when required for planning purposes. This project will investigate the use of data analytics to identify trends and issues which might not be identifiable manually. Automated analytics will be fundamental to algorithms used in managing the network as part of the transition to DSO.
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 vulnerable parts of the network.

Collaborative 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.
Review of Engineering Recommendation P2/6	To review the requirements for and function of planning standard P2/6 and if appropriate produce an updated version. Led by Electricity North West (ENWL)
Smart Grid Forum Work Stream 7 - DS2030	To develop power system analysis and future modelling to ensure that networks can operate effectively by 2030. Project led by National Grid Electricity Transmission (NGET).

5.35 In 2016/17 we had one active NIC project:

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.

5.36 Prior to the introduction of NIA and NIC, funding was provided through the DPCR5 Low Carbon Network Fund (LCNF) mechanism. The following projects instigated through LCNF had ongoing expenditure during 2016/17.

Name	Project aim
FlexDGrid	The connection of generation to urban HV networks can lead to raised fault levels. The FlexDGrid project looks at ways to connect generation without the need to install higher rated assets to manage this increased fault level.
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.

5.37 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

www.westernpower.co.uk/docs/Innovation-and-Low-Carbon/Losses-strategy/WPD-Losses-Strategy-Report-2017.aspx%20

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

5.38 Demand growth can occur progressively as customers use more electricity or in step changes where new domestic property developments or commercial buildings require new connections.

5.39 Additional network capacity is provided when demands are forecast to exceed equipment ratings (as determined by planning standards). This ensures that equipment is not overloaded as this can lead to premature ageing and failure.

5.40 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.

5.41 Whilst traditional methods of reinforcement will continue to be used, increasing use is being made of smart interventions that can allow connections to be made more quickly. At present the following alternative options to traditional reinforcement are available as a result of the learning gained from innovation projects:

Innovation projects which allow us to utilise capacity more effectively	Uptake
Dynamic line ratings for EHV lines are available as an option to provide additional capacity without changing the conductor in overhead lines. 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. 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).	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.
The LV Templates project which 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
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. These agreements require the network to have the capacity available. With the increase in distributed generation there are parts of the network where there is insufficient capacity available to provide further generators with standard generation connection agreements and to do so would require costly and long-duration network reinforcement. To overcome this, WPD has developed a range of alternative connections which enable more active management of network capacity to allow additional connections without further reinforcement. The options currently available to customers are as follows. 1. Timed – output is permitted during specific time periods when historical data analysis shows that the network would not be adversely affected. 2. Intertrip – remote control or 'intertrip' technology is used to constrain output when certain network conditions are identified. 3. Active Network Management – certain areas of the network have been enabled to automatically allow control systems to manage the output of connections, constraining output and balancing supply	2014/15 - 212 alternative connection quotations were issued with 44 schemes subsequently accepted, 4 sites were energised. 2015/16 232 alternative connection quotations were issued, with 42 subsequently accepted, 11 sites were energised. 2016/17 126 alternative connection quotations were issued, with five subsequently accepted, 17 sites were energised.**

and demand as required. 4. Export limiting – where customers are considering installing generation to offset import requirements customers may consider output restrictions where costly reinforcement would be required to allow export. Option three, Active Network Management, requires specific control systems to be in place. At present these systems have been deployed in a limited number of Grid Supply Points (GSPs) across our network – targeting higher voltage networks where benefits are most likely to be seen. WPD planned to implement Active Network Management zones for all GSPs by 2023. However following discussions at our annual Stakeholder Workshops in January 2017 our plan has been updated to deploy Active Network Management zones to all GSPs by 2021.	
Voltage reduction - 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.	Applied as required

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

Case study – Active Network Management zones

Growth of generation connected to the distribution network in South Wales has led to parts of the network being constrained. There are two types of constraint: thermal where there is limited capacity for the required power flows and voltage where connection of additional generation at certain times would lead to voltages outside statutory limits. These constraints only occur for certain network situations and therefore it is possible to connect more generation provided that generators agree to operate flexibly.

In order to manage this flexible operation WPD has implemented two Active Network Management (ANM) zones in South Wales. One of them is the Pembroke ANM zone, which started its alternative flexible connections process in November 2016 and will be ready for generators to be connected to the ANM zone in November 2017. This requires WPD to install additional measurement hardware and a central ANM server to calculate available capacity and issue out control signals to the generators. Since activating applications for flexible arrangements, 36 quotes for generators (large solar farms and wind turbines) have been processed for an anticipated additional 100MW of generation, which would not have been able to connect without the ANM zone.

Reduce technical network losses

5.42 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'.

5.43 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.

5.44 WPD publishes a Losses Strategy on the company's website on an annual basis. The strategy can be found at the following link:

www.westernpower.co.uk/docs/Innovation-and-Low-Carbon/Losses-strategy/WPD-Losses-Strategy-Report-2017.aspx

5.45 Our approach to reducing technical network losses is based on a combination of methods including asset replacement programmes and developments in our network planning to ensure that methods for reducing losses are engineered into the design of the network.

5.46 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 performance. Further detail on these innovation projects can be found in the Losses Strategy, one example is detailed below.

Case study – The Losses Investigation Project

The Losses Investigation project is an NIA project which commenced in April 2015 and will conclude in December 2017.

The project uses monitoring equipment to gain comprehensive information about actual power flows (on a minute by minute basis) across specific 'feeders'. A feeder is a circuit emanating from a source and running to an end point. In the case of an HV feeder the end point is a distribution substation, for an LV feeder the end point is the customer's property. The project monitors power at the start and end of the feeder and at each load connection point along the feeders.

The data gathered allows losses to be assessed for the feeder being monitored and will enable us to model and predict losses so that we can target losses reductions in a cost effective manner.

Ofgem discretionary reward

5.47 In RIIO-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.

5.48 In July 2016 WPD was awarded a total of £160,000 as part of tranche 1 (12% of the maximum reward available). The second tranche is due to be assessed in 2018/19.

5.49 Feedback on tranche one from Ofgem identified a need for WPD to provide further detail on our approach to the management of losses. This feedback has been taken into account in the issuing of our 2017 Losses Strategy and in November 2017 we will hold our third 'Stakeholder consultation on losses' event. These events will be held once every two years to ensure that we keep stakeholders informed of our progress with losses but also to enable us to gather valuable feedback on our approach.

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

5.50 During RIIO-ED1 WPD has committed to installing oversize transformers for 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.

5.51 Oversizing transformers in anticipation of future load growth provides a losses benefit until the additional capacity of the transformers is used up.

5.52 The volumes of oversized transformers installed during 2016/17 are shown in the table below.

Installing oversized transformers		
	Forecast (per annum)	**Actual 2016/17**
Distribution transformers	109	30

5.53 Whilst the numbers are lower than forecasted they have increased from 2015/16 when the process for uprating assets was introduced. In 2015/16 two transformers were oversized in LCT hotspot areas.

Discontinuation of small sized transformers

5.54 Work with manufacturers has identified that operating larger size transformers with the same load as smaller size transformers produced lower losses. Consequently WPD has discontinued the use of small size ground mounted and pole mounted transformers.

5.55 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. By using a larger size transformer there has been an overall loss reduction benefit.

Volume of small size transformers no longer used	
Transformers	**WPD total (units)**
Discontinuation of 315kVA ground mounted transformers	542
Discontinuation of 16kVA single phase pole mounted transformers	912
Discontinuation of 25kVA three phase pole mounted transformers	13

Replacement of pre-1958 transformers

5.56 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.

5.57 WPD has introduced the early replacement of pre-1958 transformers and has replaced volumes as follows during 2016/17:

Volume of small size transformers no longer used	
Transformers	**WPD total (units)**
Replacement of pre-1958 transformers	457

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

5.58 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.

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

Installing oversized cables		
	Forecast (per annum)	**Actual 2016/17**
LV cables	75km	<1km

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

Discontinuation of small sized cables

5.61 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.

5.62 The following table shows the length of smaller sized cable that would have been used during 2016/17 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^2 11kV cable	409
Discontinuation of 95mm^2 LV cable	680
Discontinuation of 16mm^2 service cable	743

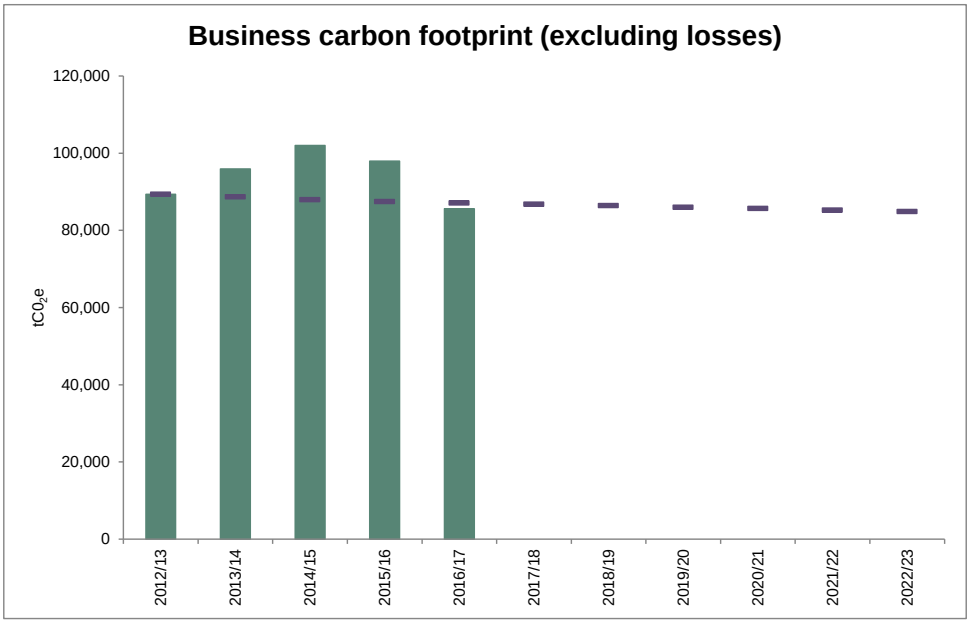
Reduce the carbon footprint of the business

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

5.63 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_2e). It takes account of the energy usage from offices, substation electricity, emissions from vehicles, fuel combustion and release of greenhouse gases.

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

5.65 BCF increased in 2013/14 and 2014/15 but has subsequently decreased since the start of RIIO-ED1. We have seen significant improvement in 2016/17 and have now achieved our in year target for RIIO-ED1, BCF has improved by 4% in comparison to our 2012/13 reference position.



**Data for 2015/16 has been restated. In our 2015/16 Business Plan Commitments Report we recorded overall BCF as 98,872 tCO2e. Subsequent data checks have identified that this value is 97,943 tCO2e.

5.66 Maintaining this progress will remain challenging over the course of RIIO-ED1. As part of our stakeholder workshops in January 2017 we provided a summary of our BCF performance and discussed with stakeholders additional actions that we could take to support continued improvement. We committed to seven actions including installing low energy lighting in all buildings that have not previously been updated and supporting industry research to investigate alternatives to the SF_6 gas used as an insulating medium in some types of switchgear.

Output (26) Make sure all replacement vehicles have lower CO2 emissions than those they are replacing.	✓

5.67 Our network is spread over an area of 55,500 km^2 and consequently we need to operate a large fleet of vehicles to allow our staff to serve this territory effectively. Emissions are calculated based on mileage information, in line with Defra guidance on conversion factors.

5.68 When operational vehicles reach the end of their useful lives they are replaced with more efficient models. Details of replacements for some of our most commonly used operational

vehicles is shown below and illustrates the reduced CO_2 emissions (emissions data comes from the vehicle registration certificate):

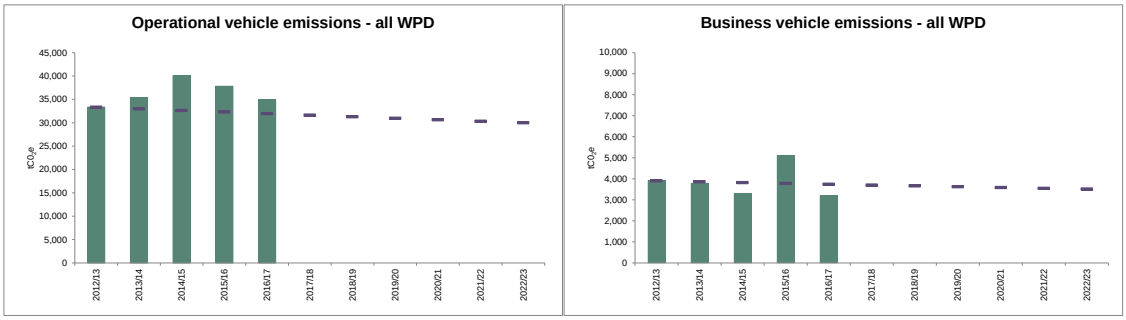
Emissions – operational vehicle replacements			
Previous vehicle	**CO2 emissions (grams per km)**	**Current vehicle**	**CO2 emissions (grams per km)**
Ford Fiesta Van 1.5	98	Ford Fiesta Van 1.5	82
Fiat Doblo SWB	137	Transit Connect SWB	115
Fiat Doblo LWB Euro 5	137	Transit Connect LWB	115
Landrover 110	295	Isuzu DMAX	196
Landrover 110 MEWP	295	Isuzu DMAX MEWP	196
Transit 350 MWB RWD	228	Transit 350 MWB RWD	196
Transit 350 LWB RWD	234	Transit 350 LWB RWD	214
Transit 350 2.2 E5	228	Transit 350 2.2 E5	214

5.69 Most operational vehicles have diesel engines, but with more alternatives becoming available WPD is trialling vehicles that utilise alternative fuels.

5.70 At present WPD is evaluating three electric operational vehicles. Criteria such as range between charging, payload (the weight capacity of the vehicle) and usage will be reviewed in order to identify the appropriateness of these vehicles for future WPD needs. At this stage in the project, some reliability issues have been identified with charging, cell failure and limits to range and payload in comparison to diesel equivalents.

5.71 In 2014 a project was initiated to trial commercial vans converted to dual fuel usage (diesel-hydrogen). Two vehicles are being converted to hydrogen usage and were due to be operational in 2016/17, however this has been delayed to 2017/18. Analysis of the project will be undertaken in conjunction with the University of South Wales and vehicles are likely to remain operational for around 6 years (depending on performance).

5.72 The contribution of vehicle emissions to our overall BCF performance is measured in terms of fuel usage converted to the equivalent tonnes of carbon dioxide. Performance during 2016/17 has improved for both operational vehicles and business vehicles. However operational vehicle emissions remain above target. In 2016/17 we achieved our RIIO-ED1 target for business vehicles.



**Data for 2015/16 has been restated. In our 2015/16 Business Plan Commitments Report we recorded operational vehicle emissions as 38,247 tCO2e. Subsequent data checks have identified that this value is 37,805 tCO2e. Business vehicle emissions were stated as 5,254 tCO2e, subsequent data checks have identified that the value is 5,116 tCO2e.

5.73 Alternative vehicles and fuel will continue to be considered by WPD over the RIIO-ED1 period depending on the availability of innovative options.

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).	✓

5.74 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.

5.75 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'.

5.76 During 2016/17, one building project was completed for a new depot in Bude within the South West licence area. The building was assessed in line with BREEAM in April 2017 and achieved the maximum rating of 'Excellent'. No other certificates were expected or issued.

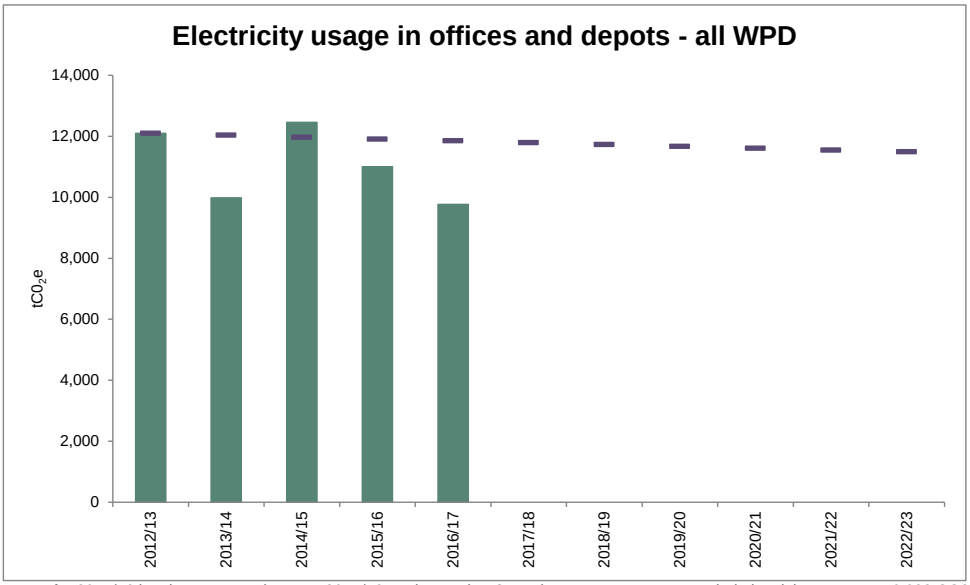
Reducing electricity usage in offices

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

5.78 Local depots and offices are encouraged to consider initiatives to save energy. Site managers receive a monthly dashboard report of electricity usage to assist them in targeting improvements.

5.79 Local initiatives, such as the replacement of standard lighting with energy saving LED lighting, are complemented by company-wide initiatives to encourage energy efficiency. In July 2016 the company promoted 'the Big Switch Off' week, sending out communication via a variety of methods to prompt employees to consider ways in which they could save energy including simple advice such as switching off all equipment and monitors at the end of the day. The event proved successful with a 5.5% reduction in overall consumption when this week was compared to an average of the previous five weeks.

5.80 Overall progress in relation to the RIIO-ED1 targets for a reduction in electricity usage is shown below. To date, we have achieved a 19.2% reduction on electricity usage in comparison to our benchmark year of 2012/13.



**Data for 2015/16 has been restated. In our 2015/16 Business Plan Commitments Report we recorded electricity usage as 10,933tCO2e. Subsequent data checks have identified that this value is 10,998tCO2e.

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.	✓

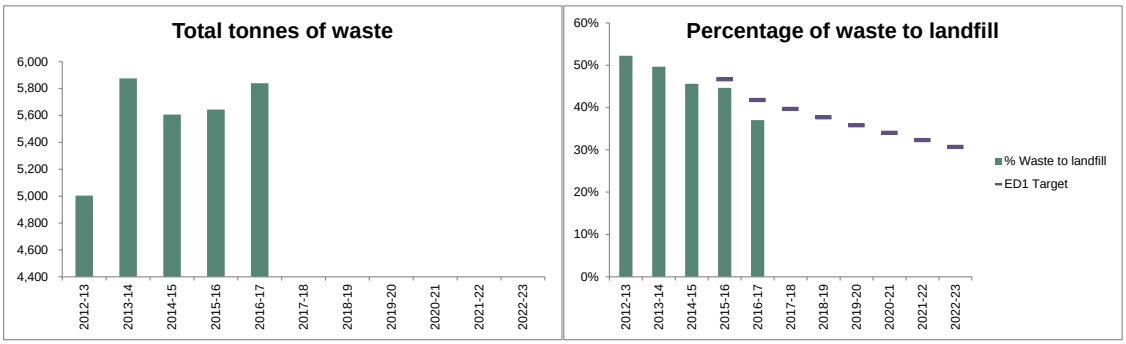
5.81 WPD's business activities create waste. This includes metal from overhead lines, cables and redundant switchgear; wood from wooden poles; packaging from new components; paper from offices and various forms of plastic.

5.82 WPD has for a number of years, segregated and recycled waste, where possible, to limit the amount being sent to landfill.

5.83 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.

5.84 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 annually has increased from our baseline year of 2012/13, the proportion of this waste that is sent to landfill has decreased and we are on track to achieve our targets for RIIO-ED1.

5.85 Since publishing our 2015/16 business plan commitments report further analysis has been carried out on the data provided by our waste contractors. This shows that a greater percentage of waste previously categorised as 'waste sent to landfill' was in fact recycled or recovered in some other way. We have therefore amended our benchmark data to reflect this more positive performance and applied our agreed targets to this more challenging benchmark. Our performance can be seen below:



5.86 In our baseline year of 2012/13 52% of the total waste produced by the business was sent to landfill, by 2016/17 this had reduced to 37%. As a result we have achieved our target to reduce the amount of residual waste being sent to landfill by 20% over the first two years of RIIO-ED1 and we have made good progress towards achieving our ongoing target for the remainder of RIIO-ED1.

5.87 We continue to trial new initiatives to assist with reducing the amount of waste sent to landfill. In 2016/17 this has included a trial in South Wales to recycle hard plastics. Items such as cones and bollards (used to maintain the safety of operational sites) would typically be sent to landfill when damaged or replaced. However we have now identified a waste contractor able to offer a cost neutral recycling option. We will review the effectiveness of the trial and the feasibility of extending this approach to other licence areas.

Case study – reducing waste at our Telford depot

During 2016/17 the team at our Telford depot have increased the amount of waste that they recycle from 4% in 2015/16 to 34% of total waste in 2016/17.

These improvements have been achieved by a range of simple mechanisms designed to make waste segregation easier. An environmental champion has been appointed, skips have been repositioned within the site to make them more accessible, new signage has been introduced to make it clear what waste should go where, larger waste bins have been removed to discourage their over use and new recycling bins have been introduced for items such as batteries and cans.

By making simple adjustments to existing facilities the team have seen significant improvements in their recycling habits.

Environment Standard ISO 14001 (2015)

5.88 All four licence areas are working towards re-certification to the ISO 14001 Environmental Management Systems standard, incorporating the requirements of the updated 2015 standard. Successful six monthly surveillance visits have been undertaken and we will apply for re-certification in May 2017.

5.89 To ensure compliance with the standard, depots have 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.

Reduce the environmental risk of leaks from equipment

5.91 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.

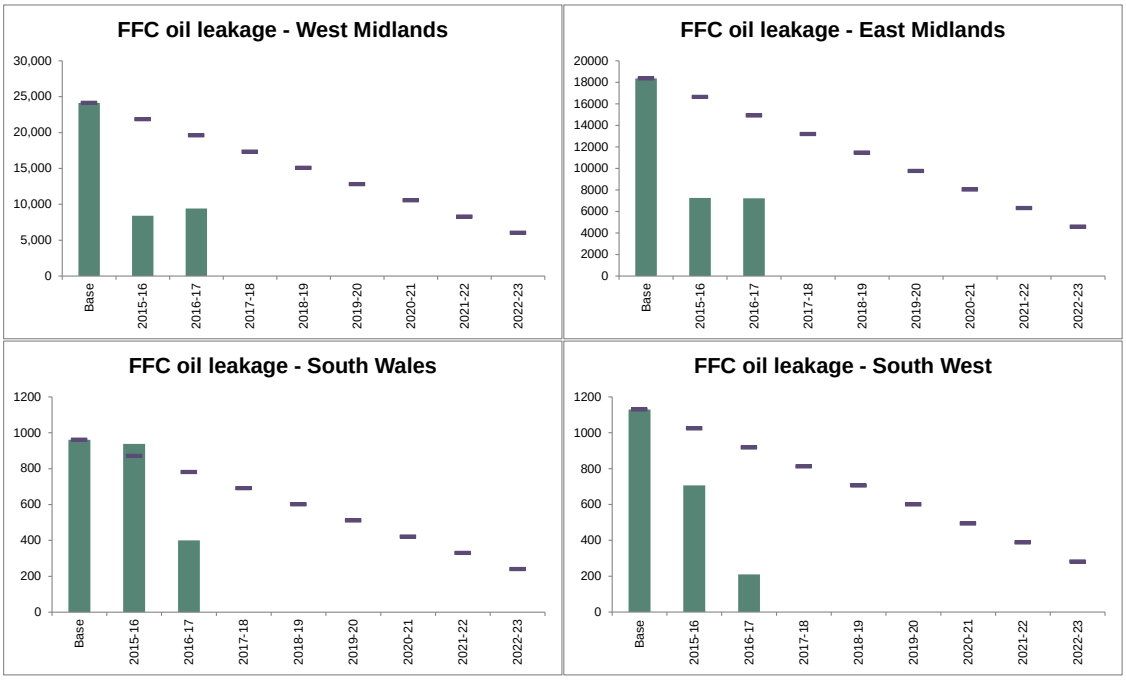
5.92 The main options available to reduce the environmental impact of any leaks are quick repairs when damage occurs and replacement of the equipment in poorest condition with the highest leakage rates.

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

5.93 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, as a result of third party damage or age related degradation. New cable designs do not use this technology so the problems associated with these cables will reduce over time.

5.94 WPD has committed to reduce the volume of oil escaping from fluid filled cables by 75% over the 8 year RIIO-ED1 period. At the end of the second year of RIIO-ED1 the volume of oil escaping from fluid filled cables has reduced by 61% from our benchmark position (a three year average from 2010/11 to 2012/13).

5.95 In 2016/17 all four licence areas have beaten the RIIO-ED1 targets for the year with significant improvements made in the South Wales and South West licence areas as shown below.



Application of PFT tagging

5.96 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.

5.97 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.

5.98 During RIIO-ED1 WPD committed to applying PFT to cables with a history of leakage and internal policy reflects this requirement. PFT was applied on 13 occasions during 2016/17.

Replacing poor condition fluid filled cable

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

5.100 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.

5.101 Joints, pressure 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 source.

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

5.103 During the course of RIIO-ED1 we have decommissioned a total of 19.8 km of fluid filled cables, 2.6% of our overall population of this asset type. We have 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	315.5*	277.2*	60.8	115.8	769.3*
Forecast 1% disposals (total RIIO-ED1)	3.2	2.8	0.6	1.2	7.7
Disposals during RIIO-ED1	16.4	3.2	0.2	0.0	19.8

*Further data cleansing has resulted in an amendment to the underlying population of fluid filled cables stated for 2014/15 in our 2015/16 Business Plan Commitments Report. West Midlands has increased from 312.3 to 315.5 and East Midlands has reduced from 277.3 to 277.2.

Output (31) Reduce by 17% the amount of SF6 gas that is lost from switchgear.

5.104 SF_6 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_6.

5.105 When replacing switchgear priority is given to switchgear with the highest SF_6 leak rates.

5.106 Within RIIO-ED1, WPD has committed to replacing any 11kV distribution assets that leak and higher voltage assets if they have leaked three times.

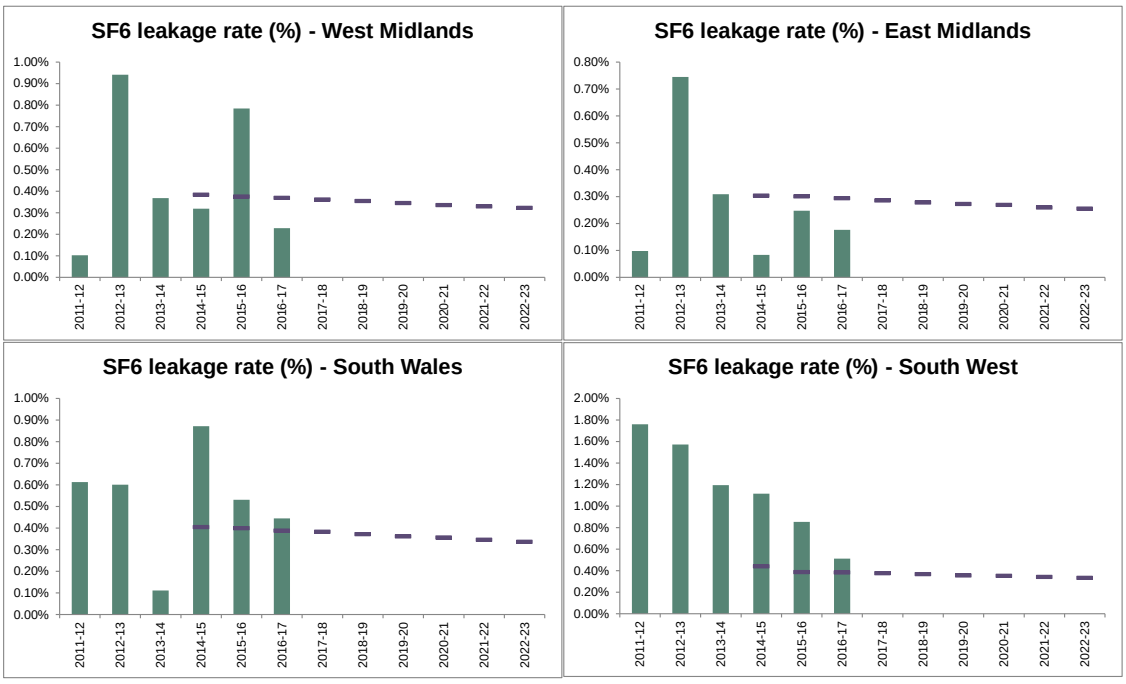
5.107 SF_6 leaks are monitored and logged within the company's asset database. The volume of leakage is determined by the volume of gas required to top up the asset or the amount taken out of the unit if it is to be replaced.

5.108 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.

5.109 During RIIO-ED1, WPD has committed to reducing the rate of SF_6 leakage by 17% based upon a four year average of emissions between 2009/10 and 2012/13.

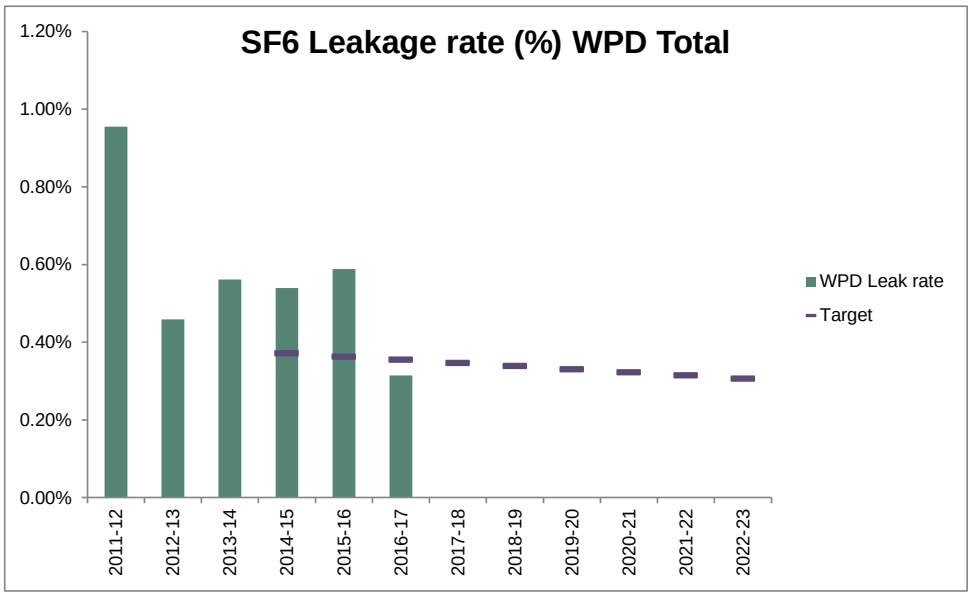
5.110 The amount of SF_6 lost is expressed as a percentage of the overall 'bank' of switchgear containing SF_6 as this will vary over the period of RIIO-ED1 as new equipment is added and old equipment decommissioned.

5.111 Performance against the RIIO-ED1 target for each licence area is shown below.



5.112 As shown by historical data the leakage of SF_6 is variable from year to year due to the impact that a significant leak event can have. Longer term trends will be monitored over the period of RIIO-ED1 to demonstrate that on average the required reductions are achieved in all four licence areas.

5.113 For WPD as a whole the leakage rate for SF_6 has reduced from 0.59% in 2015/16 to 0.31% in 2016/17 achieving our in year target for WPD as a whole.



5.114 WPD continues to work towards improving performance and to achieving the target reductions in SF_6 emissions. We have:

- continued to seek new ways to identify leaks at an early stage so that the amount of SF_6 lost when a leak occurs can be limited. In 2015/16 WPD invested in an infrared SF_6 gas leak camera which enables the detection of SF_6 gas leaks without the need for an outage, adding to the options for leak identification. In 2016/17 a decision was made to invest in a camera for each licence area to enhance leak location capability; and
- introduced new monthly reporting for senior managers summarising the items of switchgear that have leaked within the month and highlighting those which have leaked three or more times within a 12 month period. This reporting assists with the prioritisation of replacement work.

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

5.115 Large transformers 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.

5.116 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.

5.117 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.

5.118 An initial forecast estimated that a volume of 104 bunds would be required split as follows across the licence areas.

RIIO-ED1 forecast volumes of oil containment bunds					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Forecast requirement	32	32	16	24	104

5.119 Site surveys are undertaken to assess the requirement for either the repair of an existing bund or the establishment of a new bund. This may result in different volumes of activity being carried out to those forecast.

5.120 Positive progress has been made across all licence areas; to date we have completed work on 94 bunds as detailed below.

Oil containment bunds completed during RIIO-ED1					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
New bunds	1	13	1	1	16
Refurbished bunds	28	6	12	32	78

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.	✓

5.122 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.

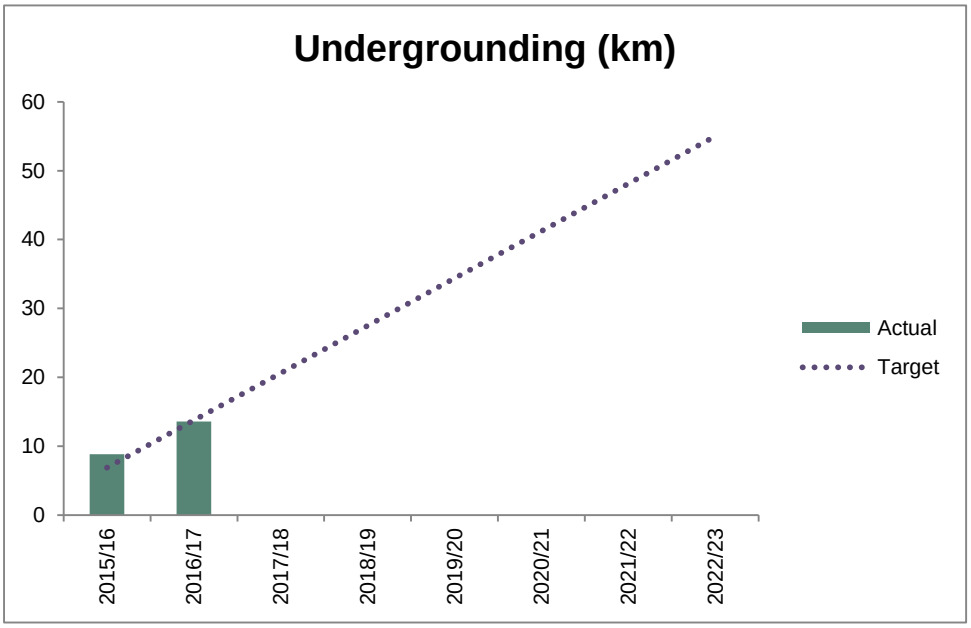
5.123 The main method of improving visual amenity whilst maintaining supplies is to replace the overhead lines with underground cables.

5.124 Following stakeholder engagement WPD committed to undergrounding 55km of overhead line during RIIO-ED1.

5.125 Work undertaken by licence area is as follows.

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	7.95	4.16	1.17	0.31	13.59

5.126 Our progress towards the overall target of undergrounding 55km of overhead lines can be seen below.



5.127 Within each licence area a steering group has been established with representatives from AONBs and National Parks.

5.128 The steering groups are responsible for identifying 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 delivery of projects is dependent on the views of the steering group, timescales to develop and implement schemes and resource availability.

Case study – Shropshire Hills AONB

The visual impact of work undertaken is significant as can be seen below. A project at Clee Hill, within the Shropshire Hills AONB, involved removing 21 wooden poles and placing 950 metres of overhead lines underground.

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report Year Two - 2016/17

31 October 2017

Connections

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Connections
Contents

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 Within these three 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.

6.3 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

6.4 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) is an incentive mechanism that provides rewards or penalties for customer service. Part of the mechanism measures customer satisfaction via a survey and is 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.

6.5 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.

6.6 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		
34	Improve the overall time taken to deliver a connection by 20%.*	We achieved Ofgem's targets for 'time to quote' and 'time to connect' for LVSSA (single domestic connections) and LVSSB customers (two to four domestic connections and single small commercial connection projects).
35	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 8.73 out of 10 across our four licence areas.
36	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 8.74 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		
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.	We have made amendments to our online connections information in line with stakeholder requirements. These have been published in our ICE work plan.
38	Make sure that the information we provide in documents and online is effective.	We achieved a satisfaction score of 8.73 out of 10 from customers using our online application service.

Enhance engagement with major customers		
39	Host 'surgeries' every three months to help connection customers to understand our processes.	22 customers attended surgeries across our four licence areas and we supported a further six customers through phone calls or individual meetings.
40	Work with major customers to identify where our processes can be improved and quickly put in place any changes.	We engaged with over 4,700 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)		
41	Aim to achieve no failures of the connection GSOPs.**	There were no failures against the connection Guaranteed Standards of Performance during 2016/17.

Further developing a competitive market		
42	Improve customer awareness of other connection providers and regularly check that customers understand the options available to them.	We carry out a yearly survey to measure customer awareness of other providers. The 2016/17 survey showed that 82% of customers who had a new connection were aware of other providers. This was an increase from 2015/16, when this figure was 77%.
43	Work with other connection providers to extend the type of work they can carry out, including high voltage and reinforcement work.	Trials are underway to extend the work that our competitors can carry out to include HV work. We are using feedback from stakeholders 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

Output (34) Improve the overall time taken to deliver a connection by 20%.	✓

6.7 In the RIIO-ED1 business plan, WPD committed to providing a faster and more efficient connections service, improving the overall time to connect by 20%.

6.8 As connection processes have improved, it has become clearer that some customers do not necessarily require a faster service; they require an appropriate and timely service. This means that they may require the facility to reserve a space in a queue for a future connection or have the facility to request connections to individual plots on a large-scale development. Whilst WPD will remain focused on improving the time to provide a quote, we will also provide connection services in line with customer requirements.

6.9 The speed of overall connection is important 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). Ofgem's Time to Connect incentive recognises this requirement and sets specific performance targets.

2016/17 performance for the Time to Connect incentive

6.10 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 2016/17. 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	4.52	6.08	37.18	47.50
East Midlands	3.48	4.73	34.40	45.78
South Wales	4.30	5.78	33.76	42.55
South West	5.16	5.86	36.53	43.39
Ofgem target	**8.21**	**11.73**	**42.08**	**52.70**

2016/17 performance for other market segments

6.11 For all other market segments, WPD specific targets have been set with the aim of achieving 20% improvement on benchmark performance (derived from an average of 2013/14 and 2014/15). The WPD RIIO-ED1 Business Plan specified that 2014/15 would be used as the benchmark year, but following the submission of business plans to Ofgem, discussions with the government led to a commitment to advance the improvements, making some prior to the start of the ED1 period. The benchmark period has been changed to incorporate performance ahead of improvements being implemented.

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
2016/17 target	8.1	10.6	10.9	34.9	35.3
2016/17 performance	7.7	9.2	12.4	28.2	47.0

Time to Connect performance for non-incentivised market segments (working days)					
Market segment	**LV**	**HV**	**DGLV**	**DGHV**	**EHV**
Benchmark (2 year average 13/14 14/15)	105.2	132.6	53.5	169.9	299.6
End of ED1 Target (20% improvement)	84.1	106.1	42.8	135.9	239.7
2016/17 target	99.9	126.0	50.8	161.4	284.6
2016/17 performance*	90.4	107.9	79.6	158.1	133.6

*Actual performance is determined using an approach consistent with the regulatory reporting rules for time to connect which uses the later of the date of acceptance or date of payment. For larger connections, some customers elect to accept a quote to reserve network capacity, but pay some time later. This can lead to shorter time to connect measures especially for EHV connections.

6.12 There are a number of factors that can influence the time to provide a quote and time to deliver connection works, including fluctuations in the volumes of requests received, the complexity of the work required to provide the connection and managing external factors such as legal permissions and consents required for certain connections.

6.13 WPD has committed to regular reviews of connection processes to ensure that timescales are as short as possible and that feedback from customers is incorporated.

6.14 Delivery of connections 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.

6.15 Targets for 2016/17 have been beaten in the LV, HV and DGHV categories for time to quote and beaten for the LV, HV, DGHV and EHV categories for time to connect.

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.	✓

6.16 During RIIO-ED1, WPD has committed to delivering excellent customer service so that WPD continues to be ranked as the top performing DNO group.

6.17 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.

6.18 Since publishing the Business Plan there has been a significant increase in the level of activity in the connection of generation. This has led to network capacity being fully utilised on parts of the network, which means that the requirements of some customers cannot be accommodated. Clear communication and transparent processes therefore have an even greater level of importance to maintain customer satisfaction in this environment.

6.19 To understand how customers view WPD's service, we use the following surveys to measure the satisfaction of connections customers.

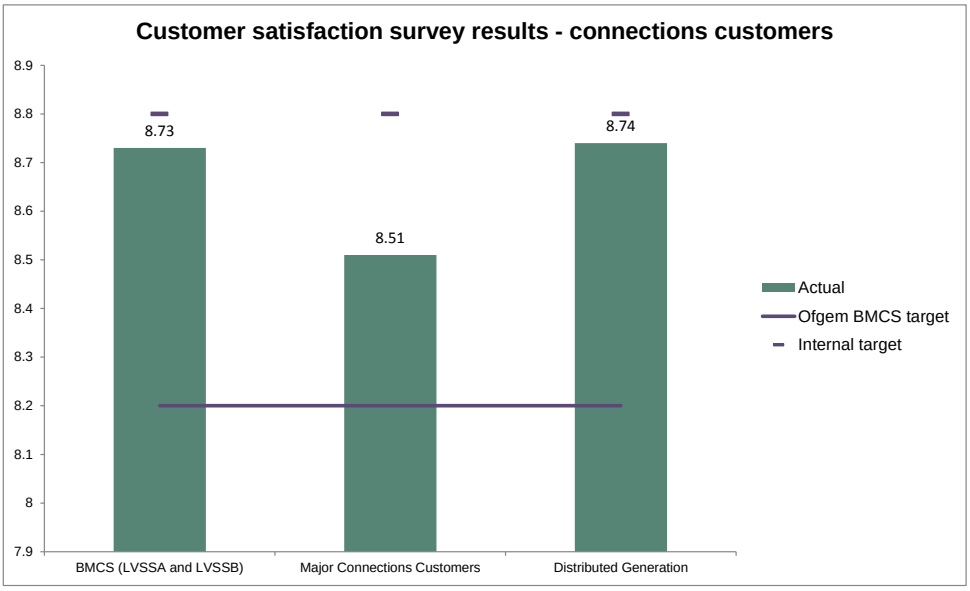
- The customer satisfaction survey score obtained as part of Ofgem's Broad Measure of Customer Satisfaction (BMCS). This assesses customer satisfaction specifically for minor connection customers (LVSSA and LVSSB).
- A WPD implemented survey for major demand customers (any customer not classified as LVSSA or LVSSB). This survey is undertaken on a monthly basis.
- A WPD implemented survey for distributed generation (DG) customers. This survey is undertaken annually and was introduced following feedback from stakeholders. The latest survey was conducted in 2016/17 for projects completed in 2015/16.

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

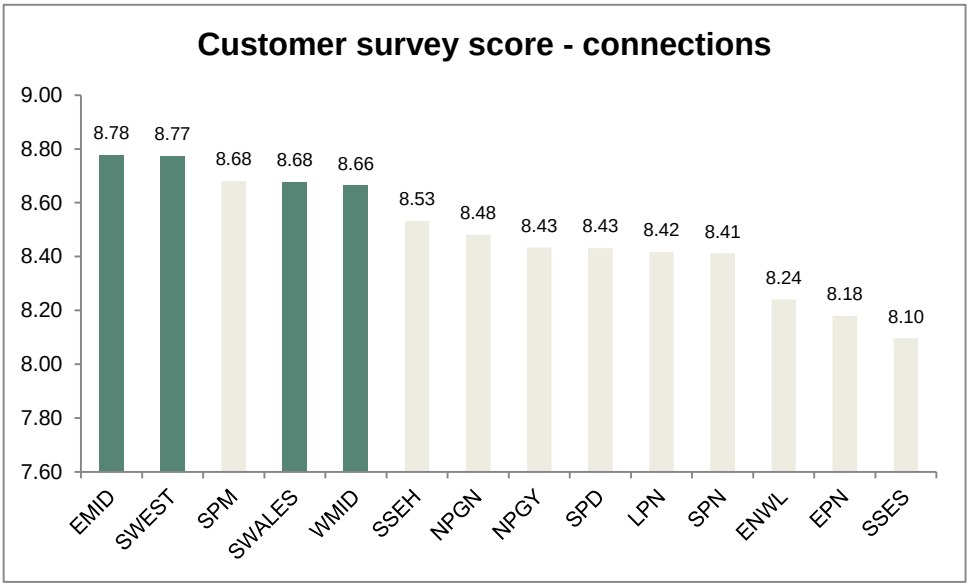
2016/17 performance in customer satisfaction surveys

6.21 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.

6.22 WPD's 2016/17 performance for all of the customer groups is shown in the following chart. Whilst performance exceeds Ofgem's target, work is ongoing to achieve the aspirational target of 8.8 in each area. We will continue to seek feedback from stakeholders in each customer group in order to improve our processes and identify best practice.



6.23 The BMCS customer survey score for LVSSA and LVSSB connections provides a method of comparing DNO performance. The chart below shows the results for 2016/17 and customers have rated the four WPD licence areas within the top five places.



6.24 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.	✓

6.25 Some connection customers prefer to carry out transactions and track progress online. To facilitate this, WPD committed to enhancing online connections processing and progress tracking. WPD had two existing online systems: a Connection Portal and the CIRT system.

The Connection Portal

6.26 The Connection Portal provides an online application tool for small projects and service alterations.

6.27 The Connection Portal was launched in 2014/15 and allows customers to make an application, accept an offer, make a payment and request automatic email updates of key stages within the connection process.

6.28 In January 2016, a survey was implemented for customers using the online application form to gauge how easy the form is to complete and the quality of the information provided during the application process. Customers are asked to provide a score out of 10. For the period January 2016 to March 2016 customers rated the service at 8.6. For the 2016/17 regulatory year the customer satisfaction score increased to 8.73 out of 10.

CIRT

6.29 The CIRT system was specifically designed for interactions with alternative connection providers such as ICPs and IDNOs for online submission of connection applications and progress tracking. The system has also been made available to DG developers.

6.30 In 2016/17, 1,971 (27.7%) of enquiries from Independent Connection Providers (ICPs) and Independent Distribution Network Operators (IDNOs) were raised via CIRT, an increase from 2015/16 when the figure was 23.7%.

6.31 During 2016/17 we evaluated the feasibility of providing updates for customers on the progress of legals and consents via the CIRT system, keeping them informed in relation to the part of the process that relies on other parties. Development of the system will take place in 2018 to allow case data to be accessed online.

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

6.32 WPD has committed to ensuring that customers requiring a connection receive clear information on their options, the process for connection and what they need to do. Information is provided to customers online via our website, through our contact centre staff or by direct contact with local planners.

Online information

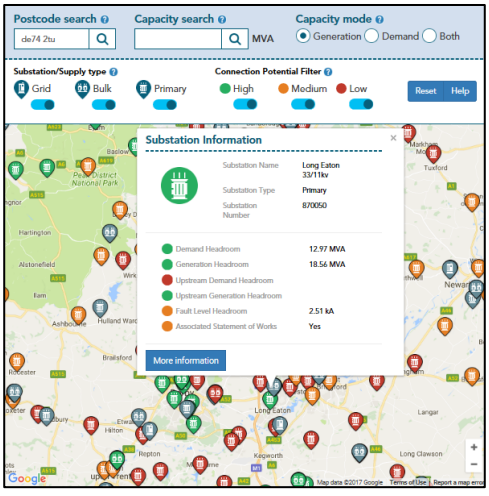
6.33 The WPD website provides a valuable source of information for customers requiring a connection. In order to ensure the effectiveness of the information provided we undertake regular stakeholder engagement and review the information available.

6.34 All connection related improvements to the website are detailed within WPD's ICE workplan and can be viewed on our dedicated ICE internet page.

www.westernpower.co.uk/Connections/ICE.aspx

6.35 During 2016/17 we took the following actions in line with stakeholder requirements.

- We introduced Data Portal 2 - an online application providing access to WPD mapping systems and the ability to download data. ICPs can now access WPD's map records and network diagrams. The portal is a key tool in allowing ICPs to self-determine a point of connection to the network. Stakeholder feedback has been central to the development of the system, which was introduced in August 2016 and has 414 active registered users to date.
- A common theme in customer survey responses has been that customers appreciate information on indicative prices at an early stage. As a result we have created a basic pricing table which provides minimum price, average price and average timescales for the provision of connections. The table is available on our website and will be further developed in 2017/18.
- We have introduced an index facility on the WPD technical website in line with user feedback. The index assists with the location of technical documents and policies.
- Contact Centre staff have been provided with updated prompts on where to refer customers for further information – including the provision of specific website links.
- We introduced a dedicated page on our website providing quarterly updates on our connections performance, competition in connections and actions arising from the ICE workplan. The page went live in February 2017 and received 173 hits by the end of March 2017.
- In March 2017 we introduced a new Network Capacity Map onto the website. Our stakeholders identified that improving the availability and quality of information regarding capacity and constraints on the network was a high priority. We were asked to consider the information provided by other DNOs. We commissioned a study to fully understand stakeholder requirements and used the feedback provided to develop the functionality of the map. The map provides an up to date view of the status of major substations on the network in terms of capacity – categorising headroom with a red/amber/green status. The map was launched in March 2017 and was viewed 370



times within the month. We will continue to monitor usage of the map and feedback from users.

- When customer applications are first received we send an initial contact letter, we have updated these letters to include information signposting customers to our connections webpages.
- The cost impact of an outage on distributed generation customers can be significant and stakeholders told us that it is important for them to be able to forecast to owners and investors when there will be outages. We are therefore in the process of developing a website portal which will provide registered users with information on planned outages for their connection, historic outage and constraint information and post outage reports.

Other information sources

6.36 We provide information for customers in a variety of ways and have looked to broaden customer awareness by increasing use of social media and other methods. As an example, in February 2017 we released online video guides on innovative connection arrangements and had 10,000 views in the first month, partly as a result of promotion on Facebook.

6.37 The video guides were commissioned to provide Community Energy groups and other interested stakeholders with a simple straightforward introduction to innovative alternative connection arrangements. These short animated videos used non-technical language and provide an entry point for interested stakeholders. The videos can be accessed at the following link.

www.westernpower.co.uk/Connections/Generation/Community-Energy-Schemes/Community-Energy/Guides-and-Information.aspx

6.38 In September 2016, we used an interactive webinar to communicate the outcomes of a strategic investment study undertaken in our South West licence area. This approach allowed us to reach customers who might not otherwise have been able to attend physical engagement events where this topic was explored.

6.39 The webinar provided an explanation of our long term predictions of likely growth in distributed generation and technologies such as electric vehicles and heat pumps. It also outlined potential approaches to reinforcement of the network to accommodate this projected growth.

6.40 A further study is complete for South Wales and studies are underway for the East Midlands and West Midlands. We will continue to promote the outcomes of these studies to our broad customer base in a range of ways. A recording of the South West webinar can be found at the following link.

www.westernpower.co.uk/About-us/Our-Business/Our-network/Strategic-network-investment.aspx%20

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.	✓

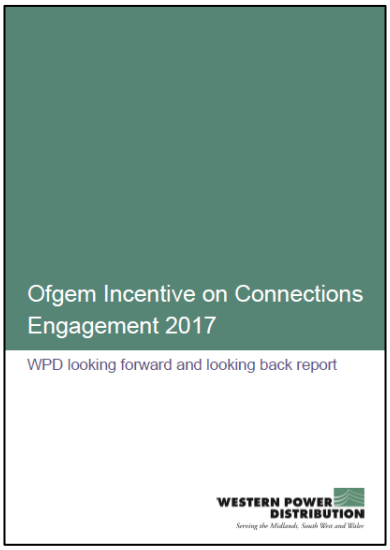
6.41 Major connection customers (large site developers, multiple site developers and distributed generation customers) have a wide range of requirements for their connections, and the connection arrangements can be complex.

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 ICE reports to Ofgem detailing forward looking plans and reporting on previous proposals. These 'looking forward and looking back' reports are used by Ofgem, along with feedback from stakeholders, to determine whether penalties should be applied.

6.45 The development of WPD's ICE plans means that some of the engagement approaches described within our RIIO-ED1 business plan have evolved significantly and been incorporated into a more detailed engagement structure.



6.46 WPD's ICE submission for 2016/17 provides further detail on WPD's connections engagement and this can be found at the link below.

www.westernpower.co.uk/Connections/ICE.aspx

6.47 In summary, WPD's mechanisms for connections engagement include the following.

- Customer Connections Steering Group
- Dedicated sessions at stakeholder workshops
- Distributed generation (DG) workshops
- Community energy workshops
- Connection surgeries

6.48 In 2016/17 we also introduced a Competition in Connections seminar and a new forum for DG owner/operators.

Customer Connections Steering Group

6.49 During 2016/17, 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 Chief Executive.

6.50 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.

6.51 In 2016 a review of the format of the panel led to specific new topics being identified for debate during 2016/17, these included the following.

- Queue and capacity management – customers can face a barrier to gaining a connection as a result of other customers accepting a connection offer to reserve the capacity but not progressing with the connection.
- Legals and consents – the processes required for obtaining legal permissions and consents for a new connection.
- Statement of Works – the process for determining whether any restrictions apply from National Grid Electricity Transmission where a large scale distributed generator wishes to connect to the WPD distribution network.
- DG Owner Operator Forum – a new group established as a result of stakeholder feedback.

6.52 The CCSG can directly influence ICE initiatives. A suggestion for us to undertake a review of the Competition in Connections design approval process led to a seminar being arranged in October 2016 focused on raising awareness of our processes for allowing ICPs to self-determine the point of connection to the network. The ICPs in attendance provided useful feedback, outlining areas where they felt WPD could provide further clarity and enhance processes. Further actions in relation to this issue have been included in the 2017/18 workplan. This is a clear example of how suggestions from the CCSG lead to action by WPD.

Stakeholder workshops

6.53 In January 2017 WPD held six generic stakeholder workshops, across a variety of locations, attended by 270 stakeholders. These workshops are available for all stakeholders to attend, but they also have specific elective sessions dedicated to connections activity.

6.54 This year, we provided stakeholders with an update on our ICE plan and asked for views on our proposed 2017/18 initiatives - such as a drive to improve consistency of service and to refine processes associated with Competition in Connections.

6.55 As a result of our discussions with stakeholders a range of actions were agreed, including the following.

- A review of our approach to the use of easements and wayleaves for connections to ensure consistency across the four WPD licence areas.
- A strategic investment workshop in the East Midlands to provide a greater focus on demand customers.
- An assessment of the network requirements of using a device that allows up to three properties with solar PV to share generation.

Distributed generation workshops

6.56 WPD initiated dedicated workshops for distributed generation stakeholders in 2014. The third annual workshop was held in November 2016, attended by 58 stakeholders from a range of backgrounds. The workshop is an opportunity for WPD to share progress, performance and new initiatives with DG stakeholders and for the stakeholders to provide feedback.

6.57 During the workshops we asked attendees to identify their most important priorities for DG connections; stakeholders identified the top two issues as queue and capacity management and the provision of information on constraints. Feedback from attendees has been used to shape our 2017/18 ICE workplan.

Community Energy workshops

6.58 In 2014/15 WPD initiated Community Energy Workshops. These workshops provide an engagement opportunity specifically for community energy projects. Projects generally focus on the opportunity for 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.

6.59 During 2016/17 we hosted nine community energy related events across our licence areas, attended by 603 stakeholders. Events focus on providing information and guidance on policy and government engagement, including, for example, the focus on network flexibility and transitioning from DNO to Distribution System Operator.

6.60 Workshops have demonstrated that community energy stakeholders have rapidly developed an understanding of the connections process and are now looking to explore the potential for alternative connections, energy storage and the associated potential for involvement in smart networks and demand side response.

6.61 Our ICE initiatives have reflected this shift in knowledge and as a result we have expanded our Community Energy connections guide to include topics such as alternative connections. In collaboration with other DNOs we have developed new best practice guides which introduce the topic of energy storage and are designed to encourage communities to engage with change and innovation in the energy sector.

Distributed generation owner operator forum

6.62 Distributed generation stakeholders identified that they wanted us to provide 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.

6.63 We introduced a customer forum for DG owners/operators during 2016/17 and held three meetings during the regulatory year. The forum attendees provided feedback on policy, procedures and a 'work-in-progress' version of new website functionality. The feedback identified some refinements and suggested possible further developments/expansion of functionality.

6.64 Further outputs included the establishment of a new role to provide a single point of contact for DG outages, the provision of email notifications for planned outages for registered users and improved communication around individual planned outages where impact could be reduced for the customer. Further information on the forum can be found on our website at:

www.westernpower.co.uk/Connections/Generation/Distribution-Generation-owner-operator-forum.aspx

Senior manager contact for major customers

6.65 Stakeholder feedback has indicated that major customers would 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 all major customers.

6.66 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. This role does not replace the day to day operational interaction required to deliver connections, which remains with the relevant local team.

6.67 The role was introduced in May 2016 and when we approached relevant customers to offer an introductory meeting, 40% accepted. Where customers have engaged with this process the senior manager has acted to resolve issues that cannot be addressed by the local team or to assist with consistency of operation across the WPD licence areas.

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

6.68 Local ‘surgeries’ for connections customers continue to be promoted with at least four sessions taking place in a year. These are advertised in a range of relevant publications such as Utility Week, Construction News and Farmers Weekly.

6.69 Customers interested in attending an event contact a central team who pass on the enquiry to the relevant local depot to assess the customer’s requirements before inviting them to a local surgery. Where possible, simple queries are resolved over the phone and, if requested, a meeting with a local planner will be arranged ahead of a surgery.

6.70 During 2016, 22 customers attended surgeries, with a further six customers supported via call backs or ad hoc meetings.

Electricity Network Connection Surgeries

FOR WPD CUSTOMERS AND INDEPENDENT CONNECTION PROVIDERS

Western Power Distribution (WPD) is the electricity distribution network operator (DNO) for the Midlands, the South West and South Wales.
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. 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.
The surgeries will run on the dates listed below and enable interested parties (like landowners, ICPs, developers and community groups) to make a 45 minute appointment with an engineer to discuss their requirements and the connection process, ahead of making an actual application for a connection to the network.

Connection surgery dates

Our connection surgeries will be held at various WPD offices and will be as close as possible to where most participants live.

31st March 2016 — **8th September 2016**
16th June 2016 — **8th December 2016**

If you are unable to attend one of our Connection Surgeries, on the dates listed above, we can accommodate an individual consultation with one of our engineers.
For details of our operational area please visit our website www.westernpower.co.uk

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

wpdconnectsurgeries@westernpower.co.uk

Please mention that your enquiry is for **connection surgeries** when you call.

Guaranteed Standards of Performance

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

6.71 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.

6.72 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.

6.73 Each failure against a standard results in a payment to the customer, with the majority of connection standards having a per day cumulative penalty.

6.74 WPD voluntarily doubles the value of payments for any failures against guaranteed standards.

6.75 During RIIO-ED1, WPD committed to a tough challenge, targeting zero failures against all of the connection guaranteed standards. In 2015/16 there were five failures but in 2016/17 there have been no failures and we have met all of our connection service standards during the regulatory year.

6.76 We are proud of this achievement and will continue to work to maintain this high standard 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.	✓

6.77 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 incumbent DNO.

6.78 During DPCR5, Ofgem implemented measures to facilitate competition in the provision of connections. One of these was the creation of a 'competition test' assessment process whereby DNOs could apply to have price regulation lifted if they were able to demonstrate that competition was sufficiently effective.

6.79 Since the industry only achieved competition status in a third of cases, Ofgem carried out a review of the market in 2014. This led to Ofgem concluding that the industry required a code of practice to facilitate competition.

6.80 The code of practice covers the end-to-end 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.

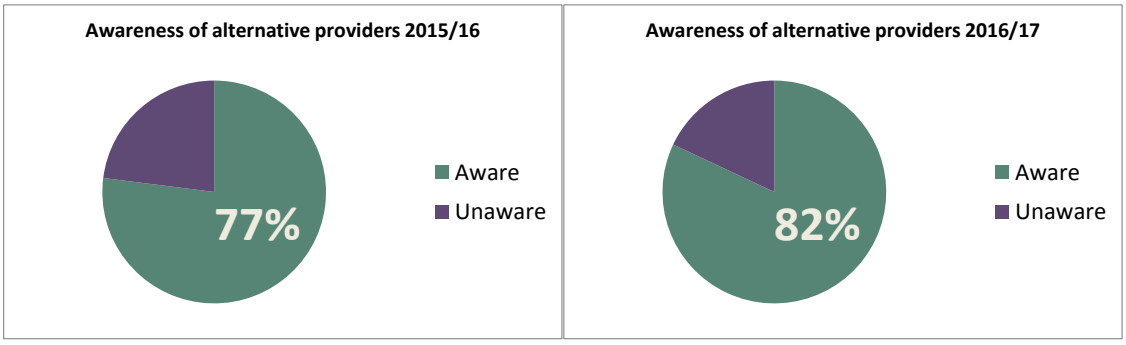
6.81 Over time, the scope of contestable connections work which can be undertaken by third party providers has gradually been extended. During RIIO-ED1 WPD has committed to both improving customer awareness of third party providers and to extending the types of work that can be undertaken by these providers.

6.82 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 and our connection process flowcharts include the option of using third party connection providers.

6.83 We also include information about the availability of alternative connection providers in connection packs sent to customers. During 2016/17 we reviewed the leaflet sent to customers and amended the layout to ensure that key information stands out as well as improving the explanation provided in relation to the differences between ICPs and IDNOs.

6.84 An annual survey was initiated in 2015/16 to gauge customer awareness of alternative providers. The survey asks 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.

6.85 The results of the survey show that awareness is high and has increased in 2016/17 as shown below.



Raising awareness of the Code of Practice

6.86 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.

6.87 During 2016/17 we used feedback from ICP/IDNO stakeholders to improve our CIC self-service processes. Stakeholders indicated that they required additional clarity on processes and asked WPD to look at making improvements to the speed and efficiency of the processes.

6.88 In October 2016 we held a CIC seminar to raise awareness of our processes for allowing ICPs to undertake self-determination of the point of connection to the network and approval of the design. We provided a detailed overview of the processes and gathered feedback which has influenced the work to be undertaken as part of the ICE 2017/18 workplan.

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

6.89 WPD actively assists competition by developing processes and systems to allow third parties to extend the scope of what they can do.

6.90 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.

6.91 The scope of work that can be undertaken by competitors has gradually increased since the implementation of the CIC Code of Practice in 2015. However stakeholder feedback suggested that we had fallen behind some other DNOs in relation to the HV self-connect process as a result of our requirements for staff authorisations and the safety rules to be applied.

6.92 To resolve these concerns we collaborated with stakeholders and reviewed our processes. We agreed to trial a new option for safety authorisation. This further option 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 should provide a greater level of flexibility for ICPs.

6.93 The outcome of this trial will be shared with the wider CIC community before we progress to implementing a business as usual process as part of the 2017/18 ICE workplan.

6.94 Once trials are complete, the arrangements will be incorporated into Connections Charging Statements.

6.95 For 2016/17 the volumes of third party connections (referred to as HV Points of Connection (POC) have remained at similar levels to 2015/16, as detailed below.

HV POC connections completed				
	2015/16		2016/17	
	Volumes	%	Volumes	%
HV POC connected by ICP	10	4.46%	15	6.58%
HV POC for ICP connected by WPD	214	95.54%	213	93.42%
Total connected HV POCs	**224**		**228**	

6.96 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.

6.97 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.

Impact of the CIC Code of Practice on contestable work

6.98 The introduction of the Competition in Connections Code of Practice led to the implementation of processes for two other elements of contestability. As a result of the Code of Practice, WPD introduced a process to trial self-assessment of the point of connection by ICPs (for the majority of straightforward connections).

6.99 In addition a process was introduced for accredited ICPs to self-approve their own designs.

6.100 These processes were implemented in September 2015 and take up was initially slow. However we have seen an increase in numbers during 2016/17 as detailed below.

Self-determined points of connection (all voltages)				
	2015/16		2016/17	
	Volumes	**%**	**Volumes**	**%**
Self-Determined POC by ICP	8	0.13%	172	3.04%
WPD Determined POC	6,242	99.87%	5,485	96.96%
Total POC's	**6,250**		**5,657**	

Self-approved designs (all voltages)				
	2015/16		2016/17	
	Volumes	**%**	**Volumes**	**%**
ICP Self-Approved Design	2	0.60%	203	26.13%
WPD Design Approval	329	99.40%	574	73.87%
Total Design Approvals	**331**		**777**	

6.101 We have committed to identifying improvement to these 'self' processes as part of our ICE workplan and would anticipate that further liaison with ICPs may result in an increase in volumes.

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report
Year Two - 2016/17

31 October 2017

Customer Satisfaction

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Customer satisfaction
Contents

7 Customer satisfaction

7.1 The provision of excellent customer service for WPD's 7.8 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		
44	Continue to be the top-performing DNO group across all elements of the Broad Measure of Customer Satisfaction.**	We achieved the top four scores for overall customer satisfaction across all of the DNOs. This overall rating combines results of the three surveys for supply interruptions, connections and general enquiries.
45	Maintain certification to show that we meet the Customer Service Excellence standard.**	We were awarded 'Compliance Plus' status for 38 of the 57 standards. This meant that, for the second year running, we were the highest-scoring organisation out of all those accredited.

Telephone response		
46	Respond to phone calls quickly, answering them within two seconds.**	Our average response time for customer calls was 1.66 seconds.
47	Limit the number of calls that are abandoned before we can answer them to less than 1%.**	Only 0.19% of calls were abandoned.
48	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		
49	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.
50	Call back all customers who have been in contact about a fault.**	We called back 99.8% of customers who contacted us about a fault.
51	Contact customers within two days of receiving an enquiry which was not about a fault.**	We contacted 99.7% of customers who contacted us with an enquiry which was not about a fault within two days.
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.	We provided on-demand messaging through text and social media and we added LinkedIn to our communication methods in 2016/17. We sent 658,107 text messages during high voltage power cuts.
53	Develop 'self-service' options for customers to find information online.	We hosted 24,537 webchat conversations, our app for reporting power cuts was downloaded 4,823 times and we introduced new storm bulletins for customers who registered for updates.

Stakeholder engagement		
54	Continue to host a customer panel where our CEO will meet with our expert stakeholders four times a year.	Our CEO met with the customer panel four times during the year.
55	Continue to host at least six stakeholder workshops each year.	We hosted six general sessions, attended by 270 stakeholders across our licence areas.
56	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 report and the separate summary report replace the stakeholder report.

Complaints		
57	Resolve at least 70% of complaints within one day.**	We resolved 84% of complaints within one day.
58	Continue to have a target of no complaints where the Ombudsman has to get involved.**	One complaint was referred to the Ombudsman. Following an investigation, the Ombudsman found in our favour.

Guaranteed Standards of Performance awareness		
59	Continue to send the 'Power for Life' publication to all 7.8 million customers and make sure it promotes the GSOPs.**	We issued 'Power for Life' to all 7.8 million customers in September 2016. It included information on the GSOPs.

* 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.

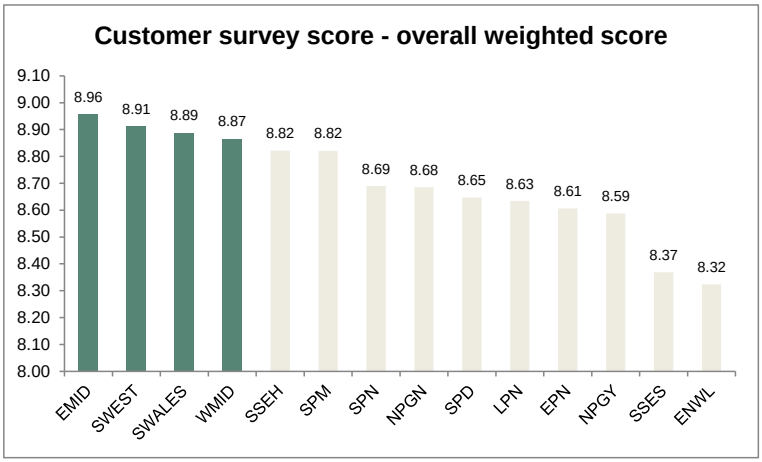
7.10 Performance in each component is subject to separate assessment, leading to rewards or penalties based upon comparison against a target score of 8.2 out of 10. In RIIO-ED1, Ofgem has placed a greater emphasis on connections within incentive reward and penalty mechanisms. The relative weighting for the three categories is shown below.

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

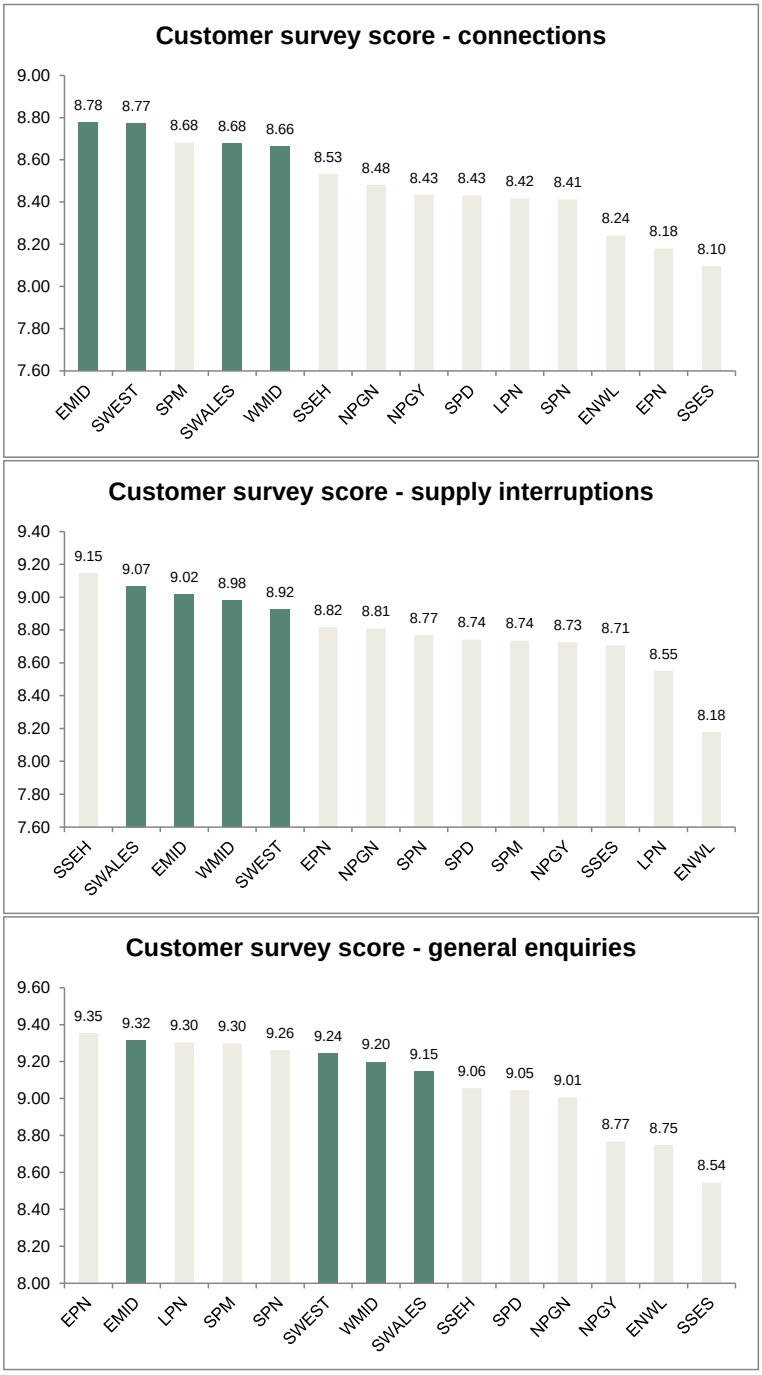
7.11 This relative weighting can be used to combine the scores from the three components into an overall customer satisfaction score.

Overall customer satisfaction

7.12 WPD achieved the top four scores in 2016/17 for overall customer satisfaction (amalgamating results for the three surveys for supply interruptions, connections and general enquiries) when compared with the other DNOs, as shown below.



7.13 The 2016/17 performance in the three separate components is shown below.



7.14 Improvements to customer service have been implemented by acting on the feedback customers provide during the surveys. 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 2016/17 WPD increased the number of 'Compliance Plus' ratings from 36 to 38, out of a total of 57 standards (receiving a compliance rating for all others). For the second year running WPD was the highest scoring organisation out of the 237 that were audited.

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 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 2016/17 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)	1.81	1.89	1.45	1.51	1.66

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 2016/17 only 0.19% 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 In May 2016 we introduced a process whereby an estimated restoration time (ETR) is automatically populated into our 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 The ETR is populated against the incident within the control system so that 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. The control 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) Call back 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, as the fault progresses it can become necessary to revise the estimate. For these situations WPD has implemented a process of proactively contacting customers to keep them updated.

7.35 During RIIO-ED1, we committed to calling back *all* customers who contact WPD about a fault. As well as providing progress updates to customers, this also provides the opportunity to identify any customer service related issues.

7.36 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.

7.37 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.

7.38 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.

7.39 During 2016/17 call backs (or another form of contact) were made to 99.85% of customers who were in contact about a fault; this figure reflects the number of customers that we attempted to call including those who did not answer.

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

7.40 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.

7.41 During RIIO-ED1 WPD has committed to contacting customers with non-fault enquiries within two working days. During 2016/17 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	52,017	52,710	26,308	52,290	183,325
Percentage contacted within 2 working days	99.86%	99.67%	99.87%	99.69%	99.76%

7.42 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.

7.43 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.	✓

7.44 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

7.45 WPD introduced a WPD twitter handle in July 2013. Customer comments via twitter are monitored and used as a prompt to proactively provide information and updates. In 2016/17 WPD achieved 17,776 followers and posted 13,273 tweets providing customer updates on outages but also promoting a range of WPD information campaigns such as public safety. The WPD Twitter page can be found at www.twitter.com/wpduk.

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

Facebook

7.47 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'.

7.48 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.

LinkedIn

7.49 In February 2017 we launched a WPD LinkedIn page and by the end of March 2017 we had established over 900 followers. LinkedIn will be used to provide business news and to promote general campaigns as well as information on careers within WPD. We will use the page as a forum to generate discussion on our business and the wider industry.

Text messaging

7.50 During 2015/16 we developed a system to send proactive text message updates to customers affected by power cuts on the HV network. We incorporated 2.9 million mobile phone records and rolled out a new process to capture additional records via all inbound calls. During 2016/17 we sent 658,107 proactive text messages to update customers during HV outages. We are also looking at developing processes to extend our use of text messaging to LV faults where it is more difficult to remotely identify the specific customers affected.

7.51 In November 2015, a text service was launched to allow deaf/hard of hearing customers to contact us for any power cut queries; the number is available via the company's accessibility page on the WPD website. In 2016/17, we further expanded our facilities for deaf/hard of hearing customers by introducing Next Generation Text Lite – an application which allows deaf/hard of hearing customers to communicate directly with us via a smartphone, tablet or computer. Details about the introduction of this new system will be sent to all of our deaf/hard of hearing customers.

Output (53) Develop ‘self-service’ options for customers to find information online.	✓

7.52 In February 2016 WPD’s website was redeveloped so that information is quick to find and in a format that is easier to use. This redevelopment included the company’s mobile site so that those using smart mobile devices are provided with a user friendly interface of the same standard as the main website.

7.53 The redevelopment ensures that the 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 which allows the website to be read aloud or translated depending on customer need.

7.54 We have worked with the Royal National Institute of Blind People (RNIB) to develop our website. An initial audit in March 2016 provided us with some areas that require system development. We expect to undergo a further audit during 2017/18 with the aim of achieving the RNIB accessibility accreditation.

7.55 During 2016/17 we added a power cut advice film by the Royal Association for Deaf people onto our website, the video was developed via an industry working group and includes signing and subtitles. A sign language pop up feature has also been added to six of our most commonly viewed videos.

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

- Webchat functionality (introduced in December 2014) which allows visitors to the website to communicate online in real time with a WPD advisor. Webchat is available 365 days a year, 7 days a week between 8am and 8pm. Usage of the functionality has remained high, with 24,537 ‘chats’ taking place in 2016/17 with 94.7% satisfaction indicated by users.
- A map-based online information system that enables customers to access up to date incident information. The map shows an overview of current power cuts for all areas and provides the user the option of drilling down to more detailed local information specific to postcodes. The user is provided with information on estimated restoration times together with contact information should they wish to speak to a member of WPD staff directly.
- A Power Cut app (introduced in February 2016) that can be downloaded for free, which enables individuals to register a post code so that they will receive an automatic alert if a power cut occurs. There is no limit to the number of post codes that can be registered. The app also allows customers to report power cuts, register for the Priority Service Register and self-diagnose problems such as a fuse box trip or a pre-payment meter issue. During 2016/17 the app was downloaded 4,823 times.
- The ability for customers to check either their supplier or distribution company, and find contact details, by entering their post code.
- A notification system where customers can register to be informed of any website changes such as amendments to content or the addition of new functionality. This removes the need to visit the website regularly to check for changes.
- A Connections Portal (launched in June 2015) built on the existing online applications service that enables customers to access details of their connection offer and to accept and pay for connections work.
- Registering to join our Priority Service Register online.

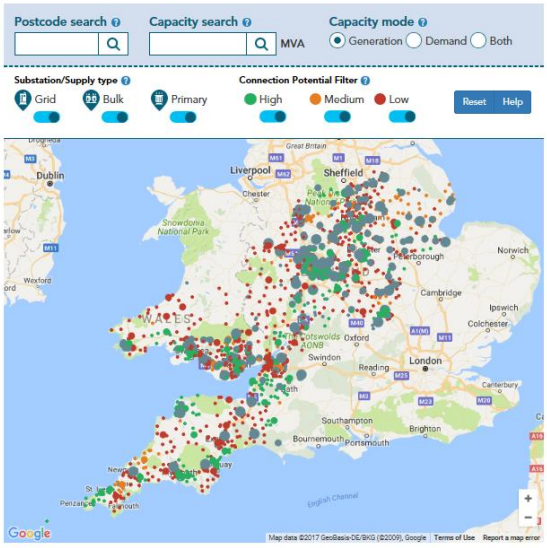
7.57 Usage of our self service options has grown in most areas since 2014/15.

Growth in use of 'self-service' online information			
Self-service option	**2014/15**	**2015/16**	**2016/17**
Power cut map	323,837 hits	666,323 hits	918,083 hits
Post code search	575,533 hits	916,960 hits	1,302,210 hits
Online connection applications	2,811 applications received	3,399 applications received	4,390 applications received
Find your distributor	85,150 hits	68,378 hits**	78,523 hits
Who is my supplier (*went live in Jan '15)	*31,803 enquiries	602,713 enquiries	738,040 enquiries
Priority Service Register applications (online)	1,555	2,489	6,747

**The number of hits for 'Find your distributor' in 2015/16 was incorrectly stated in our 2015/16 Business Plan Commitments Report and has been corrected here.

7.58 We introduced some new 'self-service' options in 2016/17, as detailed below.

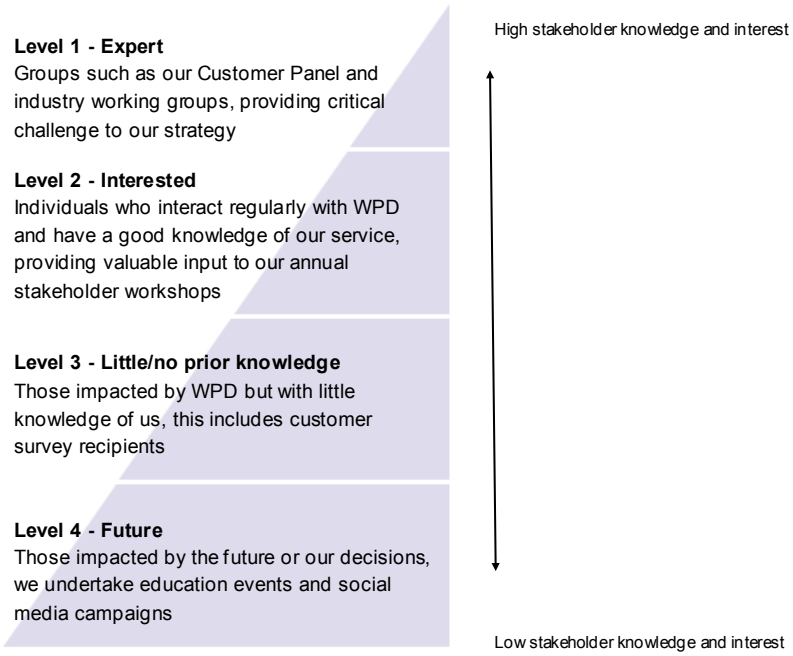
- Customers can now register to receive storm bulletins via email – there are three categories of bulletin, one sent in advance of a predicted event, one during a storm and one post event. We inform customers of the latest weather conditions, areas affected, the number of customers off supply and key steps we are taking to restore power. The bulletins were first used for Storm Angus in January 2017 and as of 31 March 2017 3,559 customers had registered their email addresses.
- We have launched an online form 'Help us to help you' which encourages customers to provide their contact details so that we can contact them if required during a power cut. The form was introduced in February 2017 and by the end of March 2017 had been completed by 20 customers.
- A network capacity map has been developed to give an indication of the network's capability to connect large scale developments to major substations – both load and generation enquiries. The map allows users to quickly view the capacity status at each of our substation sites. Customers can search by postcode or target area and identify areas where a connection may be possible without the need for reinforcement. The map was launched in March 2017 and was viewed 370 times in the month.



Involving stakeholders

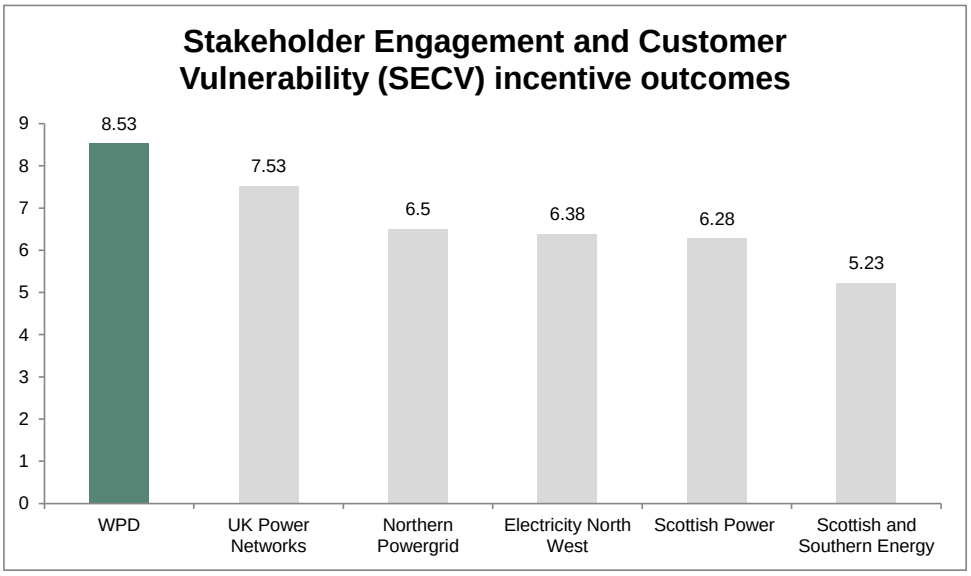
7.59 Regular stakeholder engagement is used to improve day to day operations and inform business priorities. WPD has a database of approximately 5,500 stakeholder contacts, categorised into customer segments, allowing targeted engagement on specific issues.

7.60 We engage with stakeholders on a variety of levels, dependent upon their knowledge and level of interest as demonstrated in the diagram below.



7.61 Part of the Broad Measure of Customer Satisfaction relates to stakeholder engagement. For ED1, Ofgem has placed a greater emphasis on service for vulnerable customers as part of the assessment of DNO performance.

7.62 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 the panel score each company's performance. The results of the assessment in 2016/17 are shown in the chart below, with WPD scoring the highest.



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

7.63 Every quarter, WPD's CEO meets with an expert Customer Panel to shape our thinking and future priorities.

7.64 The objective of the panel is to bring together expert representatives from every major stakeholder group to critically evaluate our performance, make informed decisions about our activities and to provide a strategic steer.

7.65 Each meeting of the Customer Panel includes a session focusing on a different strategic priority. The topics covered during 2016/17 included the following:

- Resilience
- Customer Awareness
- Stakeholder engagement
- The role of the Distribution System Operator

7.66 The Customer Panel provides independent challenge with the aim of improving service delivery for all customers. The Customer Panel has produced a report which explains the role of the panel and some of the key highlights of their work with WPD during 2016/17. This report can be found on our webpage for the Customer Panel.

www.westernpower.co.uk/About-us/Stakeholder-information/Customer-Panel.aspx

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

7.67 In addition to the Customer 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 8 years and we have proposed to continue these workshops during RIIO-ED1.

7.68 In January 2017 we hosted six sessions in locations across the WPD licence areas. 270 stakeholders attended from a range of backgrounds, covering all customer segments. Each workshop included four sessions.

- WPD's Business Plan and reporting progress – stakeholders were asked to review our approach to reporting in 2015/16.
- Review of WPD's long-term priorities – asking stakeholders to measure the value for money of our proposed actions.
- Spotlight on 'Future Networks' and smart meters – asking customers to review our proposed data privacy plan.
- A review of our approach to environment and sustainability and our efforts to reduce our business carbon footprint.

7.69 A summary report detailing the output of these sessions can be found on our website. We also published proposed actions from the stakeholder workshops. To view these documents please use the following weblink.

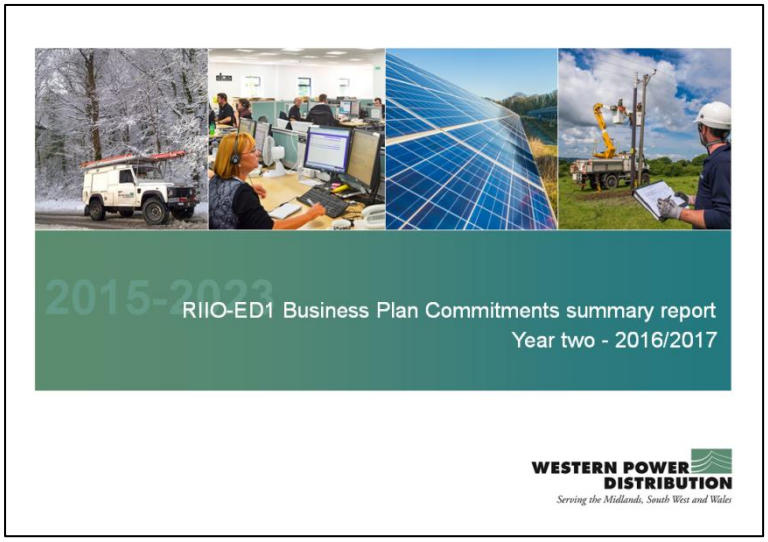
www.westernpower.co.uk/About-us/Stakeholder-information.aspx

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.	✓

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

7.71 The summary report will be produced concurrently with this detailed report and will focus on the key areas of interest selected by stakeholders. The 2016/17 summary report is published on WPD's website; this can be found at the following link.

www.westernpower.co.uk/Summary-Business-Plan-Commitments-Report-2016-17



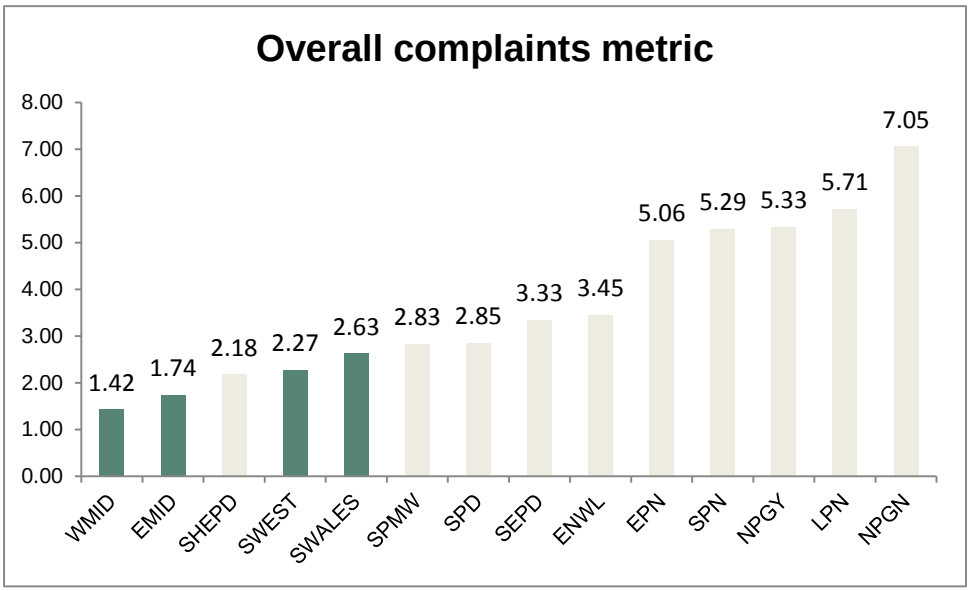
Complaints

7.72 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.

7.73 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

7.74 WPD aims to have leading performance in each of these categories, avoiding penalties from Ofgem. For 2016/17 we have improved (reduced) our overall complaints scores in each licence area (calculated using a weighted amalgamation of the four categories). The four WPD licence areas have been rated in the top five places for complaints.



7.75 For 2016/17 the outcomes in each category are detailed below.

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

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

Complaints resolved in one day (%)					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
Percentage of complaints resolved in day 1 - 2016/17	87%	86%	80%	82%	84%

Complaints 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	99.42%	98.97%	97.90%	98.53%	98.79%

Repeat complaints

7.77 A repeat complaint occurs where a customer returns to WPD at a later date to complain about the same issue. There were no repeated complaints during 2016/17.

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

7.78 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.

7.79 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.

7.80 During 2016/17 one complaint was raised with the industry Ombudsman. When we received the initial complaint we followed our usual processes and made every effort to resolve the customer's concerns with them directly. However the customer chose to pursue the option of raising their complaint with the Ombudsman, following investigation the Ombudsman found in favour of WPD.

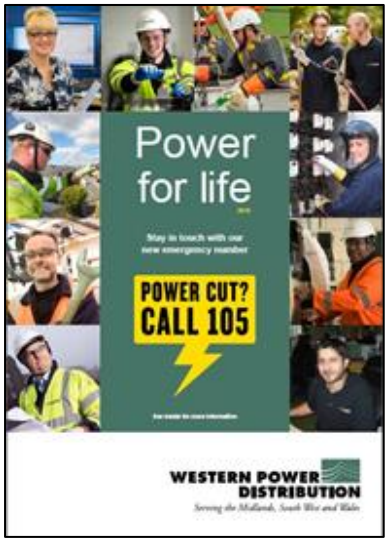
Guaranteed Standards of Performance awareness

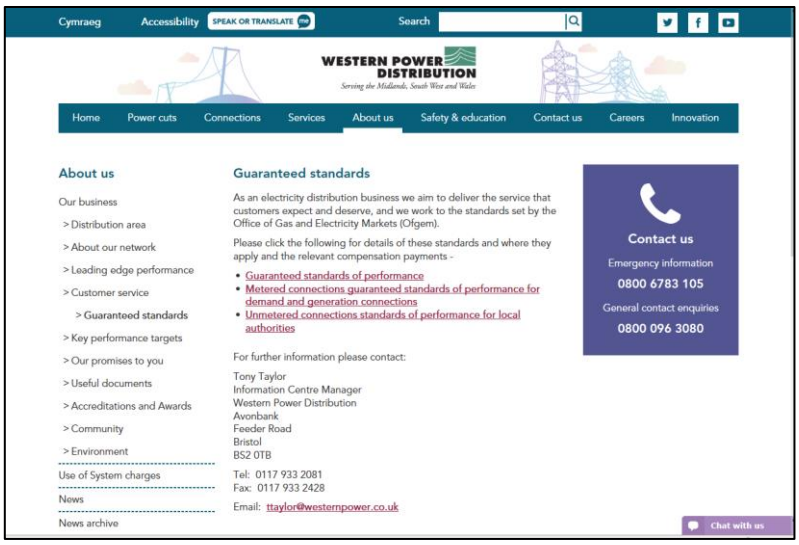
Output (59) Continue to send the 'Power for Life' publication to all 7.8 million customers and make sure it promotes the GSOPs.	✓

7.81 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.

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

7.83 WPD has committed to publicising the GSOPs in WPD's 'Power for Life' publication that is posted to all WPD customers. 'Power for Life' was issued in September 2016 to all 7.8 million customers and included information on GSOPs – directing customers to find out more on the company's website. Normally 'Power for Life' is issued in February; however the 2016 publication was delayed in order to coincide with the introduction of the national power loss number 105.





2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report
Year Two - 2016/17

31 October 2017

Social Obligations

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Social obligations
Contents

8 Social obligations

8.1 In delivering electricity to 7.8 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 This is informed by Ofgem's definition of vulnerability as circumstances that make an individual 'significantly less able than a typical consumer to protect or represent their own interests; and/or significantly more likely to experience detriment, or for that detriment to be more substantial.'

8.4 In RIIO-ED1, WPD's social obligations outputs are in four themes.

- Improve understanding of vulnerability.
- Improve the data held on the Priority Service Register.
- Improve the services provided for vulnerable customers.
- Address fuel poverty by supporting customers to access key information.

Regulatory framework:

8.5 From 2015/16 Ofgem extended the scope of the existing Stakeholder Engagement incentive to cover Stakeholder Engagement and Consumer Vulnerability – referred to as SECV. The SECV 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.

8.6 WPD's SECV submissions for 2016/17 can be found via the following weblink.

www.westernpower.co.uk/About-us/Stakeholder-information/Stakeholder-Reports.aspx

8.7 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.

8.8 Ofgem's expert panel reviewed the submissions and awarded WPD's actions a rating of 8.53 out of 10. This is the highest score awarded in 2016/17, significantly higher than all other electricity distribution network operators (DNOs), gas distribution network operators, gas transmission operators and electricity transmission operators. This is the sixth consecutive year that WPD has been rated number one in the industry for stakeholder engagement.

Overview of social obligations outputs

Improving understanding of vulnerability		
60	Work with expert partners to improve our understanding of the needs of vulnerable customers.	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 vulnerable customers.
61	Train staff to recognise the signs of vulnerability.	We provided specialist training to Priority Service Register (PSR) teams and contact centre staff. We completed training for field staff on supporting vulnerable customers in three of the four licence areas.

Improving the data held on the Priority Service Register		
62	Contact vulnerable customers at least once every two years to check the details we hold on the Priority Service Register.	We contacted 691,499 PSR customers during 2016/17.
63	Improve the quality of Priority Service Register data by working with other agencies and sharing information.	We developed new methods for referring people to the Priority Service Register, with a focus on direct sign-ups. We standardised and simplified methods across our 34 referral networks.
64	Co-ordinate meetings with suppliers to agree criteria for vulnerability.	We agreed 27 new 'common needs codes' for use across the industry.

Improving the services provided for vulnerable customers		
65	Raise awareness of the Priority Service Register.	We worked with a range of organisations, including water utilities and gas distribution networks, to raise awareness of the PSR.
66	Make 10,000 crisis packs available.*	To date, we have issued 3,580 crisis packs over the RIIO-ED1 period. We have a new process for field staff to issue packs.
67	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 made 115,747 calls to PSR customers (including those who depend on a power supply for medical reasons) during power cuts.
68	Continue to provide practical support through the British Red Cross and other organisations as appropriate.	We provided British Red Cross support during 23 prolonged power cuts. This was an increase from 2015/16 as a result of training field staff on the support which is available to vulnerable customers.
69	Ask for feedback from vulnerable customers about our service.	We achieved customer satisfaction ratings of 9.13 out of 10 from customers on the PSR who had received a routine call to check their personal details, and 9 out of 10 for those referred for advice on fuel poverty.
70	Develop ways of sharing information with local resilience forums.	We worked with 19 forums across our four licence areas. We launched a new £10,000 fund through local resilience forums to support businesses to plan for power cuts.

Reduce fuel poverty by supporting customers to access help		
71	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. During 2016/17, we organised best practice events with all our partners to share learning.
72	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.
73	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 7,205 customers to save £1.4million a year.
74	Provide fuel poverty training to our staff who have contact with members of the public.	We provided field staff and staff in our contact centre with customised fuel poverty training. We completed vulnerable customer training for field staff in three of the four licence areas.

75	Use data analysis to help identify areas with a high concentration of vulnerable households.	In 2017 we used data on social factors such as benefit claims and long-term disability (collected from 41 different data sources) to target our projects to areas with the greatest need.
76	Develop local outreach services.	'Affordable Warmth' schemes have now been set up across all four licence areas. We created a Local Action fund to identify new ways to tackle fuel poverty and vulnerability. We helped 4,595 customers to save £1.7million.

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

Improving understanding of vulnerability

8.9 Traditionally WPD has focused on the specific obligations we have to customers with health issues who may have a greater vulnerability during power cuts (e.g. those using dialysis machines). Stakeholder engagement has influenced what we do and our approach has been widened, leading to the introduction of a Consumer Vulnerability Strategy in 2013.

8.10 The Consumer Vulnerability Strategy encapsulates the company's decision to address social obligations for a broader group of vulnerable customers including customers who have transient vulnerabilities to a power cut (e.g. customers who have recently left hospital) and customers struggling with energy affordability.

8.11 The varied interactions that we have with customers as a DNO mean that we may identify individuals that are vulnerable or have social issues. To help these customers we have developed a range of services.

8.12 Central to WPD's Consumer Vulnerability Strategy is the Priority Service 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.

8.13 The PSR enables WPD to offer targeted services such as welfare support during power cuts and proactive notification ahead of planned work.

8.14 During RIIO-ED1, we are improving our understanding of vulnerability to influence how we interact with vulnerable customers and to refine the services that we provide.

8.15 Our strategy is reviewed on an annual basis, together with our detailed action plan containing timescales, outcomes, costs and owners. Over the last three years we have concentrated on developing processes and establishing key projects and partnerships. For 2016/17 we have widened our approach to increasingly focus on the customer perspective and understanding the value to our customers of the services that we provide.

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

8.16 WPD uses input from a variety of social groups through stakeholder engagement and partnership projects to help to understand vulnerability.

8.17 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.

The Customer Panel

8.18 The Customer Panel is hosted by WPD's Chief Executive 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.

8.19 The Customer Panel consists of 34 permanent members who meet quarterly. Members include an NHS trust, Warm Wales, the National Energy Foundation, British Red Cross, Citizens Advice and Energy Saving Trust, Parish Councillors, a gas distribution network (Cadent, formerly National Grid) and a supplier (British Gas). The diversity of the Customer Panel ensures that we are provided with a balanced representation of the views of our stakeholders.

8.20 The Customer Panel includes an in-depth surgery session on 'social obligations' at every meeting. The outcomes from meetings held during 2016/17 included the following.

- The introduction of a revised approach to PSR records – removing those records where we have had no contact from customers for three years. The panel recommended a clear process for removing records, ensuring that customers are provided with the opportunity to make contact or re-register as required.
- The expansion and renewal of four fuel poverty outreach schemes (referred to as 'Affordable Warmth').
- The development of a £90,000 fuel poverty local action fund.

Stakeholder workshops

8.21 WPD hosts annual 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.

8.22 The workshops held in January 2017 were attended by 270 individuals representing stakeholder groups that included local authorities, domestic customers, consumer bodies, businesses, developers, utilities and other DNOs.

8.23 The agenda for these workshops included a specific surgery on our approach to social obligations, testing stakeholder views on our proposals.

8.24 Summary findings reports from the workshops, including WPD's action plan to address the key feedback received, can be found at the link below.

www.westernpower.co.uk/About-us/Stakeholder-information.aspx

Working with partner organisations

8.25 Working with partner organisations helps us to identify vulnerable customers and assist with social issues facing them.

8.26 We specifically support a range of partnership projects focused on issues of consumer vulnerability and fuel poverty.

8.27 In 2016/17 a joint utilities event called 'Stronger Together' was launched, bringing together the major utility providers in South Wales. WPD joined forces with Welsh Water and Wales and West Utilities, together with Ofgem and Citizens Advice to discuss how communities and public and private sector organisations can work together to support vulnerable customers. We are now reviewing opportunities for collaborative action such as the sharing of PSR data.

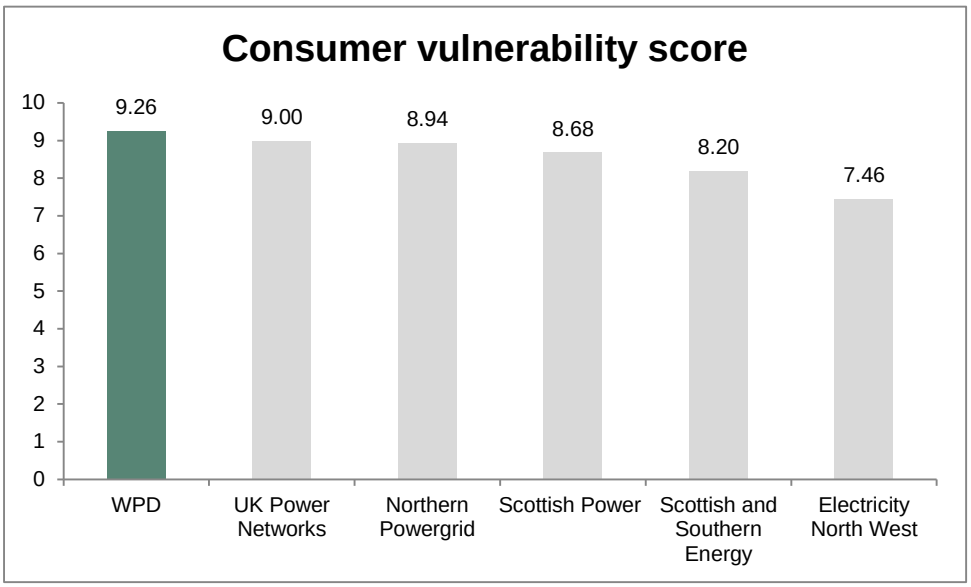
External validation of our approach

8.28 Our success in continuing to develop our understanding of vulnerability has been measured through different types of external validation, as follows.

Ofgem Consumer Vulnerability Assessment

8.29 As part of Ofgem's annual Stakeholder Engagement and Consumer Vulnerability (SECV) Incentive, the consumer vulnerability programmes of all Distribution Network Operators (DNOs) undergo an external, independent audit assessment using a balanced score card. This assesses how well we understand vulnerability and the effectiveness of our actions.

8.30 In 2016/17 WPD was rated the top performer in the industry for the specific element 'Quality of the network company's strategy to address consumer vulnerability and the quality of outcomes delivered'. The following chart compares the scores for the customer vulnerability part of the SECV assessment, showing that WPD retained the highest scores across the DNOs.



Customer Service Excellence Standard

8.31 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.

8.32 In March 2017, we were successfully reaccredited against the Customer Service Excellence Standard and achieved two additional 'Compliance Plus' ratings including one for our stakeholder engagement processes. In total we achieved 'Compliance Plus' ratings for 38 out of the 57 standards (achieving compliance in the rest). For the second year running WPD was the highest scoring organisation out of the 237 that were audited.

8.33 The final assessment report judged WPD to have 'an in-depth understanding of its customers that has enabled it to design and provide services that meet the needs of the full range of customer groups'.

Standard for inclusive service provision

8.34 The British Standards Institute (BSI) – BS18477: Standard for 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.

8.35 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.

8.36 Each year, BSI undertakes a two day audit of WPD, assessing processes against 36 elements in the standard. The audit critically evaluates whether WPD's services effectively address consumer vulnerability, which includes demonstrating that:

- policies and processes have been implemented to help employees to identify situations when consumers might be vulnerable;
- front-line staff have been trained and are empowered to act; and
- new and flexible services have been developed for customers.

8.37 In March 2017, WPD was assessed as being fully compliant with all aspects of the standard for the fourth consecutive year.

Centre for Sustainable Energy (CSE) independent audit

8.38 We commission the Centre for Sustainable Energy (CSE) to undertake an annual independent audit of our social obligations programme to assess whether we are addressing relevant social issues in a strategically coherent way. We have done so annually since 2014, prior to the introduction of the SECV incentive in 2015.

8.39 The approach, utilising a balanced scorecard, formed the basis of the consumer vulnerability assessment criteria adopted by Ofgem.

8.40 This mechanism helps to enhance our understanding of vulnerability and identify improvements to our programme. We were reassessed in March 2017.

Louder than Words charter mark

8.41 'Louder than Words' is a nationally recognised accreditation for organisations striving to offer excellent levels of service and accessibility for customers who are deaf or have hearing loss.

8.42 Assessment is carried out against 10 quality standards and WPD has achieved the 'Louder than Words' charter mark, providing further assurance that our services are accessible.

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

8.43 In 2013 WPD established a dedicated team of staff focused on updating and maintaining WPD's Priority Service Register (PSR). This team is at the forefront of our work with vulnerable customers, 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.

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

8.45 The PSR team is based across our Contact Centres in East Midlands and South Wales. The call handlers have received specialist empathy skills training and attend a range of training and development events to build their understanding of the needs of vulnerable customers. In 2016/17 this included sessions with Dementia UK for East Midlands staff. South Wales staff attended sessions with the Mid and West Wales Fire Service and the mental health charity Mind.

8.46 In addition, all Contact Centre staff in the East Midlands have undertaken specialist training with Hijinx Theatre – a company that employs actors with learning disabilities. Staff participated in bespoke role play sessions which enabled them to build their confidence in communicating effectively with individuals from a range of backgrounds. Staff in South Wales attended the same training in 2015/16.

8.47 Refresher training is provided to all Contact Centre staff each year. In 2016/17 this included an update on the PSR process and the activities of the PSR team.

8.48 In 2015/16 we initiated a programme to train all field staff to recognise vulnerability. In 2016/17 we started the process to train our 4,700 field staff in the following.

- Identifying customers in potentially vulnerable situations.
- Adding customers to the PSR.
- Arranging British Red Cross welfare support.
- Distributing crisis packs.

8.49 All staff in the East Midlands, West Midlands and South Wales attended the training in 2016/17; sessions will continue to be held during 2017/18 for field staff in the South West licence area. We have already begun to see the benefits of the these sessions; as an example the number of British Red Cross call outs during prolonged power cuts has increased from five in 2015/16 to 23 in 2016/17.

Improving the data held on the Priority Service Register

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

8.50 It is important that the data held on WPD's Priority Service Register (PSR) is accurate so that advice and practical support can be effectively deployed to those customers most in need.

8.51 Most historic data has been added to the PSR via notification from electricity suppliers and over time some of the data held has become out of date.

8.52 We therefore 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.

8.53 Our systems prompt us to contact vulnerable customers every two years. In 2016/17 we proactively contacted 691,499 PSR customers, successfully updating 50.3% of records. 575,752 customers were contacted via WPD's data cleanse teams, and 115,747 were contacted via proactive calls to individuals on the PSR during power cuts.

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 2016/17 PSR customers who undertook a survey rated our service as 9.13 out of 10.

8.56 Whilst we attempt to make contact with customers on the PSR every two years sometimes we don't get a response. Our initial approach to this was a conservative policy of keeping non respondents on the PSR. During 2016/17 we reviewed this approach with the Customer Panel and at our annual Stakeholder Workshops. As a result we have introduced a new data removal policy for records where we have had no contact with the customer for three years. The Panel recommended that we write to every customer seeking a response within 28 days before their removal from the register, clearly detailing how the customer could re-register at a future date if necessary. This process has now been initiated and we anticipate that it could result in the removal of over 350,000 redundant records. This will enable us to focus our efforts on those customers most in need of our support.

Output (63) Improve the quality of Priority Service 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 and data sharing

8.58 Where customers have joined the PSR via their supplier they are often unaware that their data has been shared and the benefits of being registered have not necessarily been explained.

8.59 We are therefore working hard to increase direct registrations with WPD, as this provides the opportunity to explain the services that WPD can provide.

8.60 In 2015/16 we introduced a new initiative referred to as informed consent. 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.

8.61 We have partnerships in place with 34 organisations including local authorities, energy advice/consumer bodies and emergency resilience services. Examples of large national partners include the British Red Cross, Age Cymru/UK, Citizens Advice and the Energy Saving Trust. We also work with local schemes such as Cardiff Care and Repair, Nottingham City Homes and the Papworth Trust.

8.62 During 2016/17 we worked to standardise the approach taken by all our partners and to simplify the sign up process. A review of all sign up methods identified that registering via WPD's online form was the most effective and user friendly mechanism; as a result we designed a new app for use on mobile phones and tablets. This app was downloaded 4,220 times in the first month.

8.63 Our stakeholder engagement suggested that our Priority Service programme should be more targeted. In 2016/17 we used social indicator mapping to identify areas with high PSR eligibility but current low levels of sign up. We have ensured that the locations of our PSR referral networks align to these areas and the partners we have selected are best suited to target the demographic groups that we have identified as underrepresented.

8.64 WPD has a number of fuel poverty outreach projects in place. Whilst the primary driver of these projects is to provide support for energy affordability, we ensure that projects also address power cut vulnerability, the provision of resilience advice and promoting the PSR. For example, WPD's 'Affordable Warmth' project, which offers fuel poverty support via a consortium of partner organisations, includes a remit to make vulnerable customers aware of the PSR.

8.65 During 2016/17 WPD engaged with Ofgem and the UK Regulator's Network to establish processes to enable us to share customer data with water companies. As a precursor to sharing data we engaged with every water company in our region and introduced links online to enable customers who have joined WPD's PSR to go directly to their water company's page to join their equivalent register.

8.66 In 2015/16 we initiated a trial with National Grid Gas Distribution (now called Cadent as a result of a change in ownership) and Wales and West Utilities in three locations to obtain informed consent from eligible PSR customers during gas works. Once consent is obtained WPD writes to the customers to explain our role, give advice and provide a direct dial number to use in emergencies. This has now been expanded as business as usual across all of our regions. In 2016/17 we received 2,126 referrals from gas distribution networks as a result.

Output (64) Co-ordinate meetings with suppliers to agree criteria for vulnerability.	✓

8.67 As members of the Energy Networks Association (the industry body for UK electricity transmission and distribution) WPD has been working with other DNOs, Suppliers, Ofgem, charities and consumer bodies to agree a new, common set of PSR needs codes.

8.68 WPD played a lead role in the work undertaken by the Safeguarding Customers Working Group. The group has 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. The new codes came into effect for all DNOs, gas networks and suppliers in June 2017. Two-way automated data flows between suppliers and DNOs (of new and updated PSR records) will replace existing manual processes.

8.69 WPD drafted the data sharing privacy impact assessments that will be used by all companies and wrote and negotiated the formal change requests required to amend industry data flows.

Improving the services provided for vulnerable customers

8.71 Work has been undertaken during 2016/17 to develop and improve the services provided for vulnerable customers. 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 Service Register.	✓

8.72 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.

8.73 WPD's annual newsletter 'Power For Life' was sent to all 7.8m customers in September 2016 promoting the PSR, who is eligible and how to register.

8.74 13,000 leaflets promoting the PSR and providing advice on power cuts were sent to customers during 2016/17, these included a freepost registration form to provide an easy mechanism for customers to join the register.

8.75 In January 2017 we distributed 250,000 pharmacy dispensary bags promoting the PSR and the new national '105' power cut line. Following the pharmacy bag promotion a survey of thirty pharmacists found that 97% would recommend the PSR to their customers.

8.76 In December 2016 WPD led a second parliamentary reception focused on gaining feedback on our approach to the future of electricity networks. More than 70 MPs and key stakeholders from Ofgem and DECC attended the event and were asked to help promote the PSR. Following the event MPs were sent a bespoke press release that they could use to promote the register. An additional 56,731 customers joined WPD's PSR in the 2 months after the MP event – a 27% increase on the same period the previous year.

8.77 WPD staff who interact with customers are a valuable resource for promoting awareness of the PSR. Training for Contact Centre teams has been followed by training for field staff to ensure that they are able to identify, register and support PSR customers. By the end of March 2017 field staff in the East Midlands, West Midlands and South Wales had received training. Training will continue within the South West licence area in 2017/18.

Output (66) Make 10,000 crisis packs available.	✓

8.78 Direct assistance for customers is made available (as required) through the distribution of crisis packs.

8.79 WPD committed to distributing 10,000 crisis packs during RIIO-ED1. In 2016/17 we distributed 2,609 packs, with a cumulative total so far for the RIIO-ED1 period of 3,580 packs.

8.80 Crisis packs include a flask, torch with batteries, gloves, a hat, a reusable hand-warmer, a foil blanket and information leaflets. Digital phones reliant upon mains power may not work during a power cuts so we provide analogue telephones to vulnerable customers who need them. Crisis packs are distributed in a range of ways.

- Contact Centre staff can arrange for a pack to be provided if they feel that it would be beneficial as a result of discussions during a customer call.

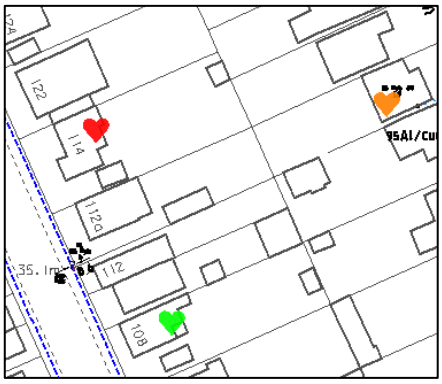
- Field staff can distribute packs as a result of a site visit and discussion with customers.
- Partners such as the British Red Cross and Age UK are provided with stocks of crisis packs to distribute to customers where they identify a requirement.
- Local distribution teams are provided with stocks of crisis packs that can be distributed as required if an outage lasts longer than six hours.

Output (67) Contact all customers who depend on a power supply for medical reasons every three hours during power cuts. ✓

8.81 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.

8.82 The mapping systems available to field staff have been improved to provide engineers with clearer data about vulnerable customers. Previously all PSR records were displayed on network maps using one common symbol, during 2016/17 this was amended with customers groups identified as follows.

- Red symbol – electrically dependent customers where an outage could be life threatening.
- Amber – customers who could experience discomfort, distress and inconvenience as a result of an outage.
- Green – customers who may require additional information but have no immediate dependency, this might include elderly customers or those with special communication needs.



8.83 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.

8.84 During 2016/17 we contacted all 1,203 medically dependent customers affected by a power cut that lasted more than three hours. This figure reflects the number of customers where contact was attempted, including those who did not answer a phone call.

Output (68) Continue to provide practical support through the British Red Cross and other organisations as appropriate. ✓

8.85 In 2016/17 we proactively contacted 115,747 vulnerable customers on the PSR to offer reassurance, advice and the latest restoration information during power cuts. This removed the need for vulnerable customers to contact us.

8.86 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.

8.87 Contact Centre staff have the facility to contact the British Red Cross to 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 2016/17 they provided support at 23 prolonged power cut incidents.

8.88 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 2016/17. During RIIO-ED1 we will randomly carry out trial call-outs to ensure that the service remains effective.

8.89 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.

8.90 In 2016/17 we launched a project designed to utilise technology to support PSR customers. WPD has designed a plug-in-device which will notify us in real time when a vulnerable customer has a power cut, much as smart meters will do when SMETS2 meters are rolled out. Running a trial of 250 devices will allow us to understand the procedures required for vulnerable customers once smart meter outage notification is fully operational.

8.91 We seek to improve the services that we provide to customers and this includes assisting partners and competitors to deliver benefits to customers. In January 2017 our engagement with a major Independent Distribution Network Operator (IDNO) led us to agree a new arrangement to extend British Red Cross support to customers of this IDNO. If the IDNO identifies a vulnerable customer affected by either an electricity or gas outage on their networks, WPD arranges British Red Cross support through our established call out arrangements.

Providing assistance during system emergencies

8.92 System emergencies such as damage caused by severe weather can leave vulnerable customers without power for prolonged periods of time.

8.93 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.

8.94 In 2015/16 the key capabilities of the Helicopter Unit were extended to include:

- delivery of provisions to remote customers who are without power;
- customer evacuation; and
- delivery of high volume pumps and generation.

8.95 Providing these support options requires staff to be trained to prepare them for the challenges associated with severe weather. During 2016/17 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	13	6	16	5	40
Flood rescue boat operator	0	9	0	0	9
Off road driver training	11	20	8	17	56
Water first responder – operating safely in or near flood water	3	15	3	13	34
Co-worker rescue from water	10	8	0	8	26

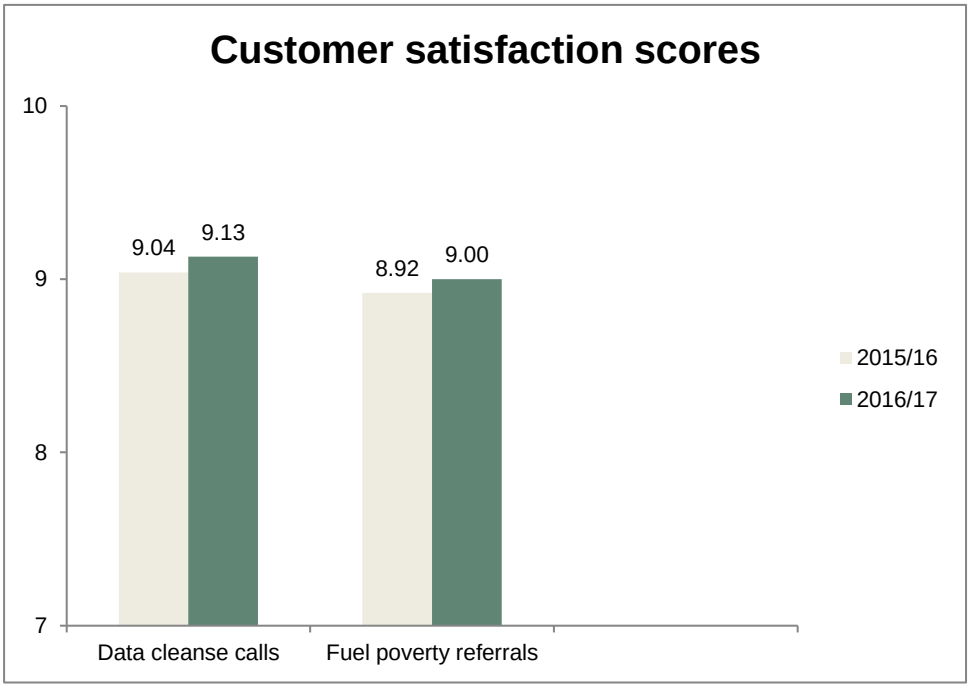
Output (69) Ask for feedback from vulnerable customers about our service.	✓

8.96 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.

8.97 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.

8.98 In 2015/16 we introduced a new survey specifically for vulnerable customers. This measures the impact of the PSR data cleanse team, and the views of customers who have been referred to a partner agency for fuel poverty advice.

8.99 Our results for the first two years of RIIO-ED1 are shown below.



8.100 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.

Output (70) Develop ways of sharing information with local resilience forums.	✓

8.101 We work with Local Resilience Forums (LRF) on an ongoing basis to ensure that we are able to provide a range of services during emergencies. During 2016/17 WPD worked with 19 forums across the four licence areas, developing external partnerships as a result. Work in 2016/17 included the following.

- Establishing additional partnerships with Fire and Rescue Services in Northamptonshire and Staffordshire (we already work with services in South Wales, East Wales and Avon & Somerset) to identify and sign-up eligible PSR customers, share data and align our services.
- Launching a new £10,000 fund to support local resilience forums to devise innovative ways to engage their member networks in relation to developing resilience to power cuts. For example Leicestershire Council have produced a series of short videos for social media relaying key power cut tips for small businesses that have been shared with all their local resilience forum members.

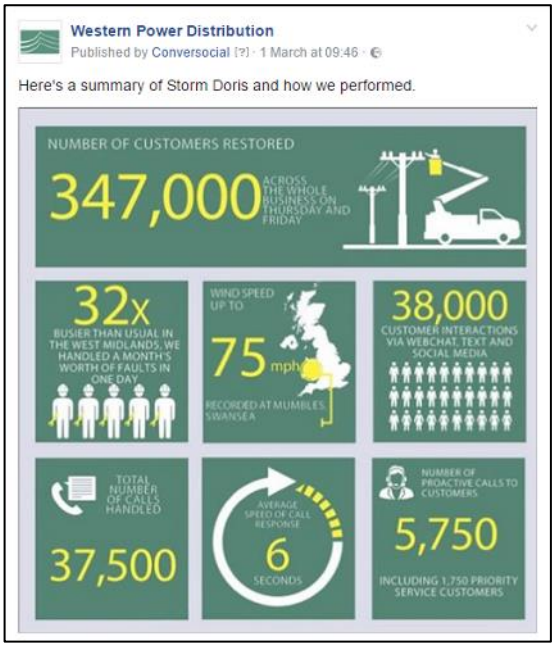
8.102 WPD continues to be committed to taking an active part with Gold Command arrangements for emergency response during severe weather conditions, working with the emergency services. However, during 2016/17 these arrangements were not activated at any point.

8.103 We participate with training exercises to ensure that we are prepared for emergencies. For example in September 2016 we participated in a multi-agency exercise testing responses to a simulated major flood event in Leicester.

8.104 During 2016/17 we have developed a power cut advice booklet which will be issued to 50,000 small businesses through the Chambers of Commerce. 10,000 have been issued to date and this will continue in 2017/18.

Providing information during an emergency

8.105 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.



8.106 When a storm is forecast we increase staffing and provide more communication. In 2016/17 we introduced new 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 Panel. We inform stakeholders of the latest weather conditions, areas affected, the number of customers off supply and key steps we are taking to restore power. The bulletins were first used for Storm Angus in January 2017 and we have had 3,559 stakeholders register their email addresses.

8.107 In the event of a storm we open up additional 'ramp-up' contact centres staffed by non-operational staff. During 2016/17 we extended the timeframes for these ramp-up centres to be open and expanded their remit to include making outbound calls. With the assistance of the ramp-up centres our main Contact Centres can prioritise outbound calls, particularly those made to vulnerable customers. During Storm Doris, in February 2017, we made 5,747 proactive calls in 24 hours whilst handling 37,447 inbound calls.

Case study – how we communicated during Storm Doris

Having received weather forecasts several days in advance we arranged for additional staff to be available in call centres and to answer social media and web chat queries.

During the storm itself, a 'Power cut alerts' banner was posted on the website home page, this appeared in red at the top of the page for both desktop and mobile devices. We provided contact information, information about the impact of the storm, and details on what we were doing to get customers back on supply. We also directed customers to the live online power cut map for details of specific incidents and to Twitter where we were posting regular newsfeeds. Further information was also available on our Facebook page.

The website received a record 126,299 web hits in a 24 hour period. As well as providing summary data though the website, the Press Office was available 24 hours a day handling all media enquiries.

8.108 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

8.109 Some customers struggle to afford electricity 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.

8.110 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 influence of stakeholder engagement.

Output (71) Build a database of regional agencies we can refer customers to for help.	✓

8.111 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

8.112 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 detailed below.

- Income maximisation e.g. debt management
- Energy tariff advice e.g. switching
- 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

8.113 To deliver this full range of capabilities, a framework of multiple partners is established, 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 manage a network of regional expert partners.

8.114 Our lead partner organisations are Citizens Advice Coventry, Citizens Advice Northamptonshire, Energy Saving Trust and Centre for Sustainable Energy.

8.115 Overall through these lead agencies and their network of supporting organisations, WPD worked with over 70 agencies in 2016/17.

8.116 During 2015/16 we expanded our initial pilot scheme to cover all four licence areas. During 2016/17 we have worked to improve and enhance the services provided, this included:

- hosting best practice events with all partners to share learning and tackle common challenges to ensure consistency;
- rolling out a consistent contact process across all partners;
- rolling out research by the Energy Saving Trust to help quantify the impact of behaviour change actions such as bleeding radiators, changing thermostat settings and washing machine temperatures; and
- ensuring that all schemes offer support with Winter Fuel Payment applications.

Output (72) Work with partners to develop links to and from our website.	✓

8.117 Further details on our fuel poverty projects, and links to our partner organisations, can be found on WPD's website together with a contact details for our Social Obligations team.

www.westernpower.co.uk/About-us/Priority-Services/Addressing-fuel-poverty.aspx

Output (73) Develop joint information and awareness campaigns, and co-ordinate with partners to provide customers with help.	✓

8.118 The 'Power Up' initiative is WPD's referral service where customers identified as requiring fuel affordability help are assisted by a partner organisation.

8.119 Evolving from a single pilot scheme in 2014, we established three full time partnerships in 2014/15 and, following further stakeholder engagement, a fourth partnership in February 2016. WPD now has a 'Power Up' scheme in each licence area.

8.120 Each scheme is administered by one lead agency, who then manage a network of local partners to provide comprehensive support.

8.121 Our lead agencies are Citizens Advice Coventry, Citizens Advice Northamptonshire, Energy Saving Trust and Centre for Sustainable Energy.

8.122 Performance of each scheme is reviewed monthly, which includes tracking the outcome for every referral. Quantitative 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).

8.123 In total, WPD's 'Power Up' schemes supported 7,205 fuel poor customers during 2016/17; these customers saved a combined £1.4m. The outcomes achieved by the individual schemes are summarised below:

Outputs:			
POWER UP! East Midlands	POWER UP! South Wales	POWER UP! South West	POWER UP! West Midlands
1,202 referrals	1,904 referrals	3,378 referrals	721 referrals
Saving £497k a year	Saving £226k a year	Saving £392k a year	Saving £302k a year
8.89/10 customer satisfaction	9.07/10 customer satisfaction	8.99/10 customer satisfaction	8.89/10 customer satisfaction

Output (74) Provide fuel poverty training to our staff who have contact with members of the public.	✓

8.124 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.	✓

8.125 In 2013, we worked with the Centre for Sustainable Energy to develop social indicator maps that identified geographic areas with high concentrations of vulnerable people. The data enabled us to target partnership projects to those areas with the greatest need.

8.126 In 2017 we took account of changes to definitions of vulnerability and fuel poverty and refreshed social indicator mapping. We combined WPD network and PSR data with 41 other sources including government statistics on benefit claims and long term disability, more granular health data and a more extensive range of socio-demographic datasets.

8.127 Four summary multiple indicator maps were produced showing the following.

- Priority Service Register eligibility
- Fuel poverty
- Network vulnerability
- Low community resilience

8.128 This data enables us to target our projects to areas of greatest need whilst allowing us to work with the most appropriate agencies. For example the data has enabled us to identify partnership organisations in areas with high PSR eligibility but low levels of PSR registration.

8.129 We have invited relevant partner agencies to use this data to propose joint project opportunities focused on tackling the areas of need demonstrated by the data. This information has been made available on our website and can be found at the following link.

www.westernpower.co.uk/About-us/Priority-Services/Social-indicator-mapping

Output (76) Develop local outreach services. ✓

8.130 To ensure that we capture the widest possible scope of vulnerable customers we also support fuel poverty outreach schemes. Whilst our 'Power Up' schemes provide support for customers already on the PSR, we identified that we needed to develop more innovative approaches to reach customers vulnerable to fuel poverty who are not known to us.

8.131 The 'Affordable Warmth' project was initiated in November 2014 to provide funding for fuel poverty advice to be given via existing community support schemes already working in deprived areas.

8.132 As with 'Power Up' we work with one lead agency who then co-ordinates with a number of smaller agencies. During 2015/16 we established schemes in all four licence areas.

8.133 In addition to providing fuel poverty support, partners are funded to provide power cut resilience advice and to promote WPD's PSR; as well as gaining informed consent to sign up eligible customers to WPD's PSR directly.

8.134 During 2016/17, 3,528 customers were supported to save £1m a year through 'Affordable Warmth'; 1,863 of these individuals were added to the PSR.

8.135 To identify organisations that can help to tackle fuel poverty in new and innovative ways we have also created a £90k 'Local Action Fund' where schemes bid for funding. With the assistance of the Centre for Sustainable Energy we established detailed scoring criteria.

Five pilot schemes have been established as a result.

'Local Action Fund' – pilot projects			
Organisation and project detail	**Funding provided**	**Numbers supported**	**Customer savings**
Northampton Citizens Advice – work with Macmillan Cancer and Anglian Water to identify customers with ill health and in fuel poverty.	£25k	248	£400,311
Cornwall Rural Community – work with carers to support rurally isolated elderly people on the Isles of Scilly where 20.4% are fuel poor. Deliver benefit health checks, fuel debt reduction and energy efficiency measures.	£25k	78	£45,823
Derbyshire Council Healthy Homes – target very low income residents in private housing, suffering from long term illnesses worsened by the cold. Work closely with GP practices and housing and social care services.	£15k	140	£175,800
Birmingham Disability Resource Centre – support disabled people and those with long-term illnesses via workshops to reduce bills, improve energy efficiency, register on the PSR, undertake health and wellbeing activities and receive employment and finance advice.	£15k	508	£74,930
Wellington Homes – create a model for GP practices to provide preventative healthcare support for patients suffering from the health impacts of cold homes via local cross sector partnership working (WPD, Centre for Sustainable Energy, Wessex Water and Taunton Borough Council). Use combined data analysis: e.g. energy property ratings, WPD's PSR and GP health referrals to proactively contact patients and deliver home visits via Health Outreach Workers.	£10k	93	£19,664

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report
Year Two - 2016/17

31 October 2017

Expenditure

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Expenditure
Contents

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
- Non activity based costs (outside the price control)

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 2016 to 31 March 2017.

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 2016/17 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 2016/17, WPD Totex expenditure was 7% higher than allowances for costs within the price control. We are continuing to focus on the delivery of our business plan work programmes and commitments. Whilst expenditure is currently ahead of plan we forecast that costs will be within our overall allowance for the eight year RIIO-ED1 period as a whole.

9.9 The following table summarises all the areas of expenditure showing the allowed values and actual values for all four licence areas and WPD as a whole.

9.10 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.

2016/17 expenditure vs allowance (2012/13 prices)										
	West Midlands		East Midlands		South Wales		South West		WPD Total	
	Allow'd	16/17	Allow'd	16/17	Allow'd	16/17	Allow'd	16/17	Allow'd	16/17
Connections related reinforcement	2.2	2.5	2.1	14.0	1.0	0.8	1.1	2.3	6.3	19.7
General reinforcement	22.4	14.4	44.3	17.6	3.1	2.7	5.4	7.8	75.1	42.5
LOAD RELATED CAPEX	**24.6**	**16.9**	**46.3**	**31.6**	**4.0**	**3.6**	**6.5**	**10.2**	**81.4**	**62.2**
Asset replacement and refurbishment	67.9	71.2	56.1	67.5	37.9	35.2	58.3	59.2	220.1	233.1
Diversions	9.3	7.8	13.6	9.4	18.0	4.1	13.9	12.7	54.9	34.0
Operational IT and telecoms	7.7	7.6	9.7	6.8	2.4	1.5	2.3	2.2	22.0	18.1
Quality of supply	2.8	2.9	1.5	2.6	0.5	2.2	0.5	1.6	5.3	9.3
Worst served customers *	0.0	0.1	0.0	0.1	0.0	0.9	0.0	0.2	0.0	1.4
Safety and overhead line clearances	3.4	6.2	3.5	7.3	1.4	4.2	8.1	12.3	16.4	30.0
Flood defences	0.1	0.0	1.7	0.8	2.2	0.5	0.1	0.3	4.1	1.6
Environmental	0.6	1.5	0.6	0.3	0.3	0.7	0.3	0.6	1.8	3.1
Visual amenity *	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5
NON-LOAD RELATED CAPEX	**91.6**	**97.8**	**86.8**	**94.8**	**62.7**	**49.5**	**83.4**	**89.2**	**324.6**	**331.2**
Faults and other unplanned repairs	29.6	38.2	33.9	35.1	13.6	11.6	24.5	24.8	101.7	109.7
Tree cutting	8.2	17.0	6.4	8.3	7.9	7.6	11.1	11.7	33.6	44.6
Inspections	2.7	3.2	2.8	3.1	2.0	2.1	2.9	3.0	10.4	11.4
Repair and maintenance	6.6	9.3	5.6	8.2	2.8	3.9	3.8	5.3	18.8	26.7
Other operating costs	3.9	3.2	4.8	3.5	1.8	1.7	2.9	2.7	13.4	11.0
NETWORK OPERATING COSTS	**51.1**	**70.9**	**53.4**	**58.2**	**28.2**	**26.9**	**45.1**	**47.6**	**177.8**	**203.5**
NON-OPERATIONAL CAPEX	**12.9**	**8.4**	**10.7**	**10.2**	**7.6**	**7.3**	**13.8**	**13.1**	**45.0**	**39.1**
CLOSELY ASSOCIATED INDIRECTS	**53.0**	**63.9**	**52.8**	**64.2**	**29.7**	**31.0**	**42.7**	**47.9**	**178.3**	**206.9**
BUSINESS SUPPORT	**27.4**	**24.0**	**28.5**	**24.1**	**14.8**	**12.7**	**23.6**	**20.8**	**94.4**	**81.6**
OTHER COSTS WITHIN THE PRICE CONTROL	**0.0**	**17.4**	**0.0**	**13.3**	**0.0**	**10.6**	**0.0**	**17.1**	**0.0**	**58.5**
PRICE CONTROL ADJUSTMENTS	**0.0**	**-4.0**	**0.0**	**-4.9**	**0.0**	**-2.8**	**-0.1**	**-5.2**	**-0.1**	**-16.9**
TOTAL COSTS WITHIN PRICE CONTROL	**260.7**	**295.3**	**278.7**	**291.4**	**147.0**	**138.8**	**215.1**	**240.6**	**901.4**	**966.1**
PRICE CONTROL ADJUSTMENTS	**0.9**	**4.0**	**0.2**	**4.9**	**0.7**	**2.8**	**1.0**	**5.2**	**2.9**	**16.9**
ACTIVITY COSTS OUTSIDE PRICE CONTROL	**17.8**	**13.0**	**17.4**	**10.8**	**5.8**	**9.1**	**9.5**	**10.0**	**50.5**	**42.9**
NON ACTIVITY BASED COSTS	**66.5**	**101.5**	**71.9**	**107.5**	**52.7**	**76.4**	**70.1**	**100.4**	**261.3**	**385.9**
TOTAL COSTS	**345.9**	**413.9**	**368.2**	**414.6**	**206.2**	**227.1**	**295.7**	**356.2**	**1216.1**	**1411.8**

Load related capex

9.11 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.

9.12 In 2016/17 expenditure across the whole of WPD was £62.2m against an allowance of £81.4m. Expenditure was lower than the original business plan forecast in the West Midlands, East Midlands and South Wales and higher than forecast in the South West.

9.13 The most significant variation is associated with the amount of network reinforcement required for new connections. Expenditure is almost three times higher at £19.7m compared to a forecast of £6.3m. The forecast (made in 2012/13) assumed a lower level of higher voltage demand and generation connections than have actually arisen. This is particularly the case in East Midlands where expenditure is £14m against an allowance of £2.1m.

9.14 The high levels of customer driven reinforcement in 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.

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 2016/17, total WPD expenditure for non-load related capex was 1% higher than allowance, compared to an underspend of 10% in 2015/16.

9.17 £233.1m was spent on asset replacement and refurbishment against an allowance of £220.1m, with all licence areas apart from South Wales spending above allowances. The overall higher than allowance expenditure in this category in 2016/17 contrasts to expenditure which was 5% lower than allowance in 2015/16.

9.18 Diversion costs were lower than allowance because of delays to rail electrification projects.

9.19 Network performance is a key business driver and we continue to invest in remotely controlled devices and other initiatives to reduce the number of customer affected by faults and the length of time customers are without power. We spent £9.3m in this area compared to an allowance of £5.3m.

9.20 Another area of higher expenditure is related to safety work for removing overhead line clearance issues. A programme of road crossing inspections has led to the identification of a number of lines where their height has to be increased. The scale of this programme is greater than forecast.

Network operating costs

9.21 Network operating costs include inspections, repair and maintenance, faults and tree cutting. All these areas are incurring higher costs than forecast with the total WPD expenditure being £203.5m against an allowance of £177.8m.

9.22 WPD has an excellent track record of minimising the impact of faults on customers. This is achieved by responding quickly, with adequate resources and utilising mobile generation to provide temporary supplies. The change made to the guaranteed standard for normal weather supply restoration, reducing it from 18 hours to 12 hours, has proven to be achievable, albeit at a cost.

9.23 WPD has enhanced its fault response processes to virtually eliminate the number of customers affected for more than 12 hours. This has involved using more teams to respond to faults, a requirement for excavation contractors to provide a one-hour response and greater use of mobile generation. These enhancements have resulted in fault costs being higher than forecast.

9.24 WPD uses contractors for tree clearance activities. RIIO-ED1 cost forecasts were based upon historical costs, but market conditions have led to higher costs.

Non-operational capex

9.25 Non-operational capex includes the purchase of new IT systems, property, vehicles and small tools and equipment. Expenditure was £39.1m against a forecast of £45m with the main variation being due to the timing of IT system refreshes.

Closely associated indirects

9.26 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.

9.27 Expenditure of £206.9m was incurred in 2016/17, which is 16% higher than forecast.

9.28 This increase reflects the need for additional planning resources to deal with increased volumes of connection requests.

Business support

9.29 Business support costs include a number of corporate activities that are provided by central functions including human resources, finance and regulation.

9.30 Expenditure in these areas was approximately 14% lower than forecast at £81.6m

Other costs within the price control

9.31 Other costs within the price control include atypical activity costs and costs associated with innovation activity which are funded by the Totex allowance.

9.32 The nature of these activities meant that minimal expenditure was included in the 2012/13 business plan. Costs within this area in 2016/17 included a payment into pension schemes, expenditure on innovation projects and settlement of an increased volume of claims for apparatus (wood poles) in gardens.

Price control adjustments

9.33 Adjustments are made to specific costs within the price control in line with guidance provided by the regulator.

Non-activity based costs outside of the price control

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 and are therefore treated as 'pass through' costs. Non activity based costs were higher than forecasted with expenditure of £385.9m against an allowance of £261.3.

Forecast for RIIO-ED1

9.35 As part of our 2017 stakeholder engagement workshops stakeholders requested further information on forecasted investment for each licence area over the RIIO-ED1 period.

9.36 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 2016/17 takes into account actual expenditure for 2015/16 and 2016/17 together with potential developments and known

challenges for the remainder of RIIO-ED1 such as changing activity volumes and developments in UK energy policy.

9.37 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)										
	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	28.1	18.8	56.7	9.5	12.0	9.3	16.2	57.6	113.0
General Reinforcement	203.3	185.4	278.4	215.1	45.4	43.7	86.5	77.7	613.6	521.8
LOAD RELATED CAPEX	**223.2**	**213.5**	**297.2**	**271.8**	**54.9**	**55.6**	**95.9**	**93.9**	**671.2**	**634.8**
Asset Replacement and Refurbishment	547.6	552.4	459.4	470.8	311.5	302.2	474.6	460.7	1793.1	1786.1
Diversions	94.5	87.9	91.0	83.3	71.0	46.9	84.4	78.4	340.9	296.5
Operational IT and Telecoms	35.6	27.9	43.2	32.4	27.1	20.6	29.9	37.3	135.9	118.3
Quality of Supply	16.5	19.7	9.2	12.6	3.1	6.8	3.1	5.9	31.9	45.0
Worst Served Customers *	0.0	0.3	0.0	0.4	0.0	1.5	0.0	0.8	0.0	3.0
Safety and Overhead Line Clearances	26.9	33.1	28.1	35.1	11.6	17.8	38.6	45.4	105.3	131.5
Flood Defences	1.2	1.3	5.1	3.9	7.9	1.9	1.2	1.8	15.5	8.9
Environmental	4.5	5.8	5.0	4.8	2.3	3.2	2.5	3.7	14.3	17.5
Visual Amenity *	0.0	3.0	0.0	1.0	0.0	1.3	0.0	2.7	0.0	7.9
NON-LOAD RELATED CAPEX	**727.0**	**731.5**	**641.1**	**644.3**	**434.4**	**402.2**	**634.2**	**636.7**	**2436.7**	**2414.7**

* Allowances for Worst Served Customers and Visual Amenity are shown as zero because there is an ex-post allowance adjustment for these activities

9.38 Our 2016/17 forecast suggests that load related expenditure will be around 5% lower than we anticipated within the RIIO-ED1 Business Plan. This is primarily as a result of a scale back in forecasts for heat pump related expenditure; current industry views suggest that take up levels are expected to be lower than anticipated. We will continue to review these assumptions together with an assessment of the impact of the uptake of electric vehicles.

9.39 We have forecasted a small underspend (0.9%) in non-load capex for the remainder of RIIO-ED1. The most significant change impacting our original forecasts is in relation to rail electrification projects (diversions) where there is uncertainty in relation to the status of the projects and funding arrangements.

9.40 We are anticipating costs associated with the transition from a DNO to Distribution System Operator. At present, we do not propose to seek additional funding for this change in operating model; instead we intend to utilise the lower expenditure elsewhere to offset the costs. This is in line with the operation of a Totex price control which provides the flexibility for us to utilise the overall allowances to meet changing business needs.

2015-2023

Western Power Distribution

RIIO-ED1 Business Plan Commitments Report Year Two - 2016/17

31 October 2017

Glossary

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

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

Remotely controlled devices which allow 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 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.

BEIS

The department for Business, Energy & Industrial Strategy

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)

A composite incentive consisting of a customer satisfaction survey, a complaints metric and an assessment 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 impact on the environment of operational activities. 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

DNOs are obligated to promote the fact that customers requiring a connection to the network have a choice in terms of who undertakes the work. Ofgem prompted the publication of a Code of Practice for Competition in Connections identifying the responsibilities of DNOs in this area.

Condition Based Risk Management (CBRM)

This is an asset replacement modelling approach that makes use of asset condition information to forecast which assets require replacement and when.

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 DNOPS. Work that can be carried out by a competitor is referred to as contestable.

Cost Benefit Analysis (CBA)

A methodology that compares the costs of carrying out an investment against the benefits (such as risk reduction or service improvement) to evaluate different options and/or demonstrate value for money.

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, torch with batteries, gloves, a hat, a reusable hand-warmer, a foil blanket 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.

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 Generation (DG)

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. It was the fifth price control using RPI-X regulation and was replaced with the RIIO framework from 1 April 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.

ENMAC™

ENMAC is the trade name for GE Network Solutions control room software used for managing real-time operation of the distribution network.

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.

F

Feeder Cable

A cable circuit emanating from a substation and supplying other substations or customers. HV feeder cables emanate from a circuit breaker at a primary substation and supply HV substations. LV feeder cables emanate from a fuseway in a distribution substation to LV supplies for domestic or commercial customers.

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 which is stored in 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 company that can construct 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

Link box

A device installed on the low voltage network that brings together two or more cables and facilitates the insertion and removal of links to allow power to be redirected.

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 reinforcement work.

M

Medically dependent customers

Customers who rely on electricity as a result of a health condition.

MPAN

Meter Point Administration Number – the unique identifier used for each individual point of connection to the distribution system.

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.

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

P2/6

DNOs have a licence obligation to manage networks to meet the requirements of Electricity Networks Association Engineering Recommendation for Security of Supply P2/6. 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 Service Register (PSR)

A database that records details about vulnerable customers so that additional support can be provided.

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

Remote Terminal Unit (RTU)

Communications devices that transmit data about the status of the network back to the control centre.

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, replaced the previous RPI-X regime. It places more 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 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 2031.

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 a standard industry specified distance from equipment.

RPI-X

The form of price control previously applied to network monopolies. Each company was given a revenue allowance in the first year of each control period. The price control then specified that in each subsequent year the allowance would reduce by 'X' per cent in real terms.

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 allowing more generation or demand (load) to be connected to a given electricity circuit without the need for traditional reinforcement (or upgrade) of that equipment.

Smart Grid Forum (SGF)

The Smart Grid Forum was established by Ofgem and DECC in early 2011 bringing together key opinion formers, experts and stakeholders involved in the development of smart grids, with the aim of providing strategic input to help shape Ofgem's and DECC's thinking and leadership in smart grid policy and deployment.

Smart Meters

Smart meters record the energy consumed within a property and are capable of being read remotely. The government has mandated that by 2020 every home in Great Britain will be offered a smart electricity and gas meter. 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 property.

Sulphur Hexafluoride (SF_6)

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.

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

Uprating 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.

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.