

# Transforming power delivery



## Our vision

To be the best performing distribution network operator in the UK from 2015/16 to 2018/19

We will achieve this by demonstrating industry leadership in these three areas:



An employer of choice

- > The safest – with an exemplary safety record
- > A place where people love to come to work



A respected corporate citizen

- > The most reliable networks
- > The most satisfied customers
- > The most innovative
- > Deliver on our commitments
- > The most socially responsible



Sustainably cost-efficient

- > Be the lowest cost electricity distributor for our customers

## Our values

The DNA of our business

Our values communicate the behaviour we expect of our staff and our contractors. They form the basis of the way we do business.

### Integrity

We will do what we say we will do and build trust and confidence by being honest to ourselves, our colleagues, our partners and our customers.

### Continuous improvement

We are committed to learning, development, innovation and achievement.

### Diversity and inclusiveness

We recognise and encourage the value which difference and constructive challenge can bring.



### Respect

We treat our colleagues and our customers the way in which we would want to be treated.

### Responsibility

We are committed to learning, development, innovation and achievement.

### Unity

We are stronger together and this comes from a shared vision, a common purpose, and supportive and collaborative working.

# Chief Executive's introduction

The 2016/17 year was another period of continued strong performance for UK Power Networks.

The price control period, known as RIIO-ED1, is set over eight years (2015/16 to 2022/23) by our regulator, the Office of Gas and Electricity Markets (Ofgem). We strive to report our performance to all our stakeholders in a transparent manner. In particular, we recognise the importance of reporting on the progress of the 77 commitments that we made as part of our business plan. I am delighted to report that we are making good progress. Seventy of the commitments are graded as green, which means we are well on the way to delivering them completely. That is three more green graded commitments than we had last year. We have seven commitments graded as amber. This means that after two years of the price control, we are slightly behind schedule on these projects but believe this to be recoverable over the next six years. Commitments that are graded as red indicate that they will not be delivered and, as in 2015/16, we have no commitments in this category.

Safety is our number one priority. UK Power Networks places the safety of our employees, our contractors and the general public, at the heart of everything we do. We are proud that we have maintained our industry-leading safety performance.

As a regulated provider of an essential service, we take our responsibility to our stakeholders extremely seriously. Understanding the priorities and perspectives of our customers and other stakeholders helps us build a sustainable business that can meet their needs now and in the future. As a result, our customer satisfaction rating reached an all-time high of 86% this year.

Our customers rely on us to keep the lights on, as long as everyone is safe and well, we see this as our purpose. This year we have again outperformed our network reliability targets and our London network remains the most reliable electricity distribution network in Great Britain. We are, however, conscious that the service we provide should be as affordable as possible. We never forget that we are spending our customers' money. Our unrelenting focus on spending efficiently has delivered customer savings of around £168m over the first two years of the price control.

This annual RIIO-ED1 commitment report sets out our progress on each of our six output areas and it also provides our view on what the day in the life of a customer in the future may look like as the industry enables the transition to a low carbon economy.

Basil Scarsella  
Chief Executive



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# 2016/17 performance snapshot

## General and financial indicators (data from the RIGs sheet SI1)

### Key

Our three regulated networks are:

- Eastern Power Networks
- London Power Networks
- South Eastern Power Networks

### Total network length km

97,632

37,042

52,924

### Overhead lines km

33,606

19

12,361

### Number of customers

3,614,431

2,330,356

2,288,599

### Underground cables km

64,026

37,023

40,563

## UK Power Networks

Total expenditure £m  
(2012/13 prices)

666.9

Total expenditure as a  
percentage of Ofgem cost  
allowance %

80

Unrestricted domestic tariff  
charge (not including domestic  
customer rebate)  
£ (2012/13 prices)

72.9

## Eastern Power Networks

Total expenditure £m  
(2012/13 prices)

286.8

Total expenditure as a  
percentage of Ofgem cost  
allowance %

83

Unrestricted domestic tariff  
charge (not including domestic  
customer rebate)  
£ (2012/13 prices)

72.9

## London Power Networks

Total expenditure £m  
(2012/13 prices)

190.9

Total expenditure as a  
percentage of Ofgem cost  
allowance %

79

Unrestricted domestic tariff  
charge (not including domestic  
customer rebate)  
£ (2012/13 prices)

61.6

## South Eastern Power Networks

Total expenditure £m  
(2012/13 prices)

189.2

Total expenditure as a  
percentage of Ofgem cost  
allowance %

77

Unrestricted domestic tariff  
charge (not including domestic  
customer rebate)  
£ (2012/13 prices)

86.7

# 2016/17 performance snapshot continued

## Eastern Power Networks

### Reliability

**Customer Interruptions<sup>1</sup>**  
(unweighted, including exceptional events)

**56.5**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, including exceptional events)

**55.1**

**Customer Interruptions<sup>1</sup>**  
(unweighted, excluding exceptional events)

**51.0**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, excluding exceptional events)

**43.5**

### Connections

**Time to Quote (LVSSA) days**

**6.1**

**Time to Connect (LVSSA) days**

**54.2**

**ICE scheme penalties incurred**  
£m (2012/13 prices)

**0**

## London Power Networks

### Reliability

**Customer Interruptions<sup>1</sup>**  
(unweighted, including exceptional events)

**17.4**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, including exceptional events)

**20.2**

**Customer Interruptions<sup>1</sup>**  
(unweighted, excluding exceptional events)

**17.4**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, excluding exceptional events)

**20.2**

### Connections

**Time to Quote (LVSSA) days**

**5.4**

**Time to Connect (LVSSA) days**

**59.6**

**ICE scheme penalties incurred**  
£m (2012/13 prices)

**0**

## South Eastern Power Networks

### Reliability

**Customer Interruptions<sup>1</sup>**  
(unweighted, including exceptional events)

**51.3**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, including exceptional events)

**39.6**

**Customer Interruptions<sup>1</sup>**  
(unweighted, excluding exceptional events)

**48.9**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, excluding exceptional events)

**37.8**

### Connections

**Time to Quote (LVSSA) days**

**5.6**

**Time to Connect (LVSSA) days**

**52.9**

**ICE scheme penalties incurred**  
£m (2012/13 prices)

**0**

## UK Power Networks

### Reliability

**Customer Interruptions<sup>1</sup>**  
(unweighted, including exceptional events)

**44.0**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, including exceptional events)

**40.9**

**Customer Interruptions<sup>1</sup>**  
(unweighted, excluding exceptional events)

**40.9**

**Customer Minutes Lost<sup>2</sup>**  
(unweighted, excluding exceptional events)

**35.3**

### Connections

**Time to Quote (LVSSA) days**

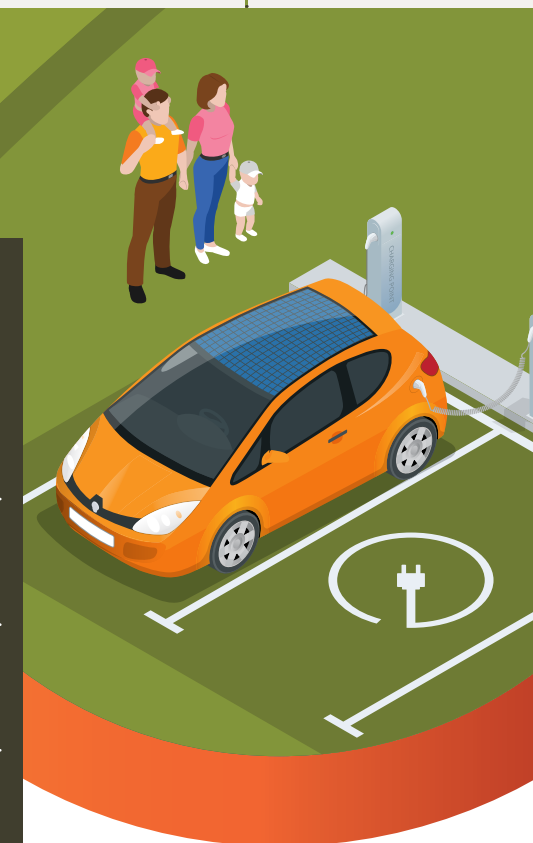
**5.8**

**Time to Connect (LVSSA) days**

**54.5**

**ICE scheme penalties incurred**  
£m (2012/13 prices)

**0**



1 Customer Interruptions (CI) are the number of customers interrupted per 100 customers on our network.  
2 Customer Minutes Lost (CML) are the average length of time customers are without power, for power cuts lasting three minutes or longer.

# 2016/17 performance snapshot continued

## Eastern Power Networks

### Customer Satisfaction

Overall Broad Measure of Customer Satisfaction (BMOCS) (Score out of 10)

**8.61**

### Social Obligations

Individual Stakeholder Engagement & Consumer Vulnerability (score out of 10)

**7.53**

### Additional qualitative summary information on:

Lost Time Incident Frequency Rate (LITFR) LTI/100,000 hours worked<sup>3</sup>

**n/a**

Environmental impact Business Carbon Footprint (tCO<sub>2</sub>e)

**30,903**

Innovation spend by each licensee  
£m (2012/13 prices)

**2.78**

## London Power Networks

### Customer Satisfaction

Overall Broad Measure of Customer Satisfaction (BMOCS) (Score out of 10)

**8.63**

### Social Obligations

Individual Stakeholder Engagement & Consumer Vulnerability (score out of 10)

**7.53**

### Additional qualitative summary information on:

Lost Time Incident Frequency Rate (LITFR) LTI/100,000 hours worked<sup>3</sup>

**n/a**

Environmental impact Business Carbon Footprint (tCO<sub>2</sub>e)

**18,087**

Innovation spend by each licensee  
£m (2012/13 prices)

**2.63**

## South Eastern Power Networks

### Customer Satisfaction

Overall Broad Measure of Customer Satisfaction (BMOCS) (Score out of 10)

**8.69**

### Social Obligations

Individual Stakeholder Engagement & Consumer Vulnerability (score out of 10)

**7.53**

### Additional qualitative summary information on:

Lost Time Incident Frequency Rate (LITFR) LTI/100,000 hours worked<sup>3</sup>

**n/a**

Environmental impact Business Carbon Footprint (tCO<sub>2</sub>e)

**19,648**

Innovation spend by each licensee  
£m (2012/13 prices)

**2.21**

## UK Power Networks

### Customer Satisfaction

Overall Broad Measure of Customer Satisfaction (BMOCS) (score out of 10)<sup>1</sup>

**8.64**

### Social Obligations

Individual Stakeholder Engagement & Consumer Vulnerability (score out of 10)<sup>2</sup>

**7.53**

### Additional qualitative summary information on:

Lost Time Incident Frequency Rate (LITFR) LTI/100,000 hours worked<sup>3</sup>

**0.03**

Environmental impact Business Carbon Footprint (tCO<sub>2</sub>e)

**68,638**

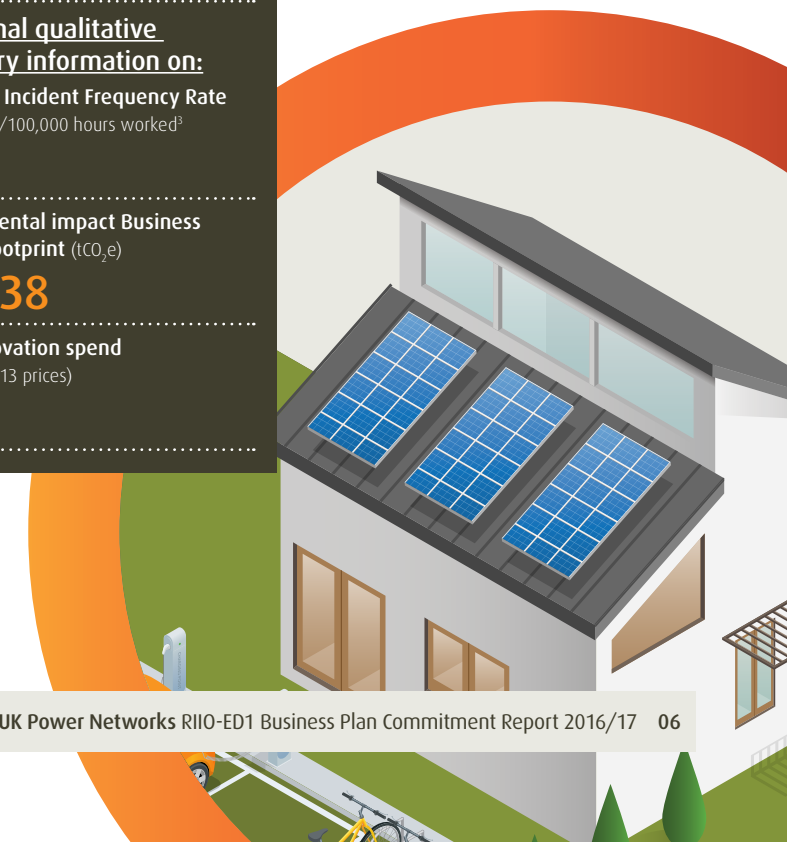
Total innovation spend  
£m (2012/13 prices)

**7.61**

<sup>1</sup> Average

<sup>2</sup> Score is given to group but applied to each licence area

<sup>3</sup> Reported at a group level regulated business only



## Our operations

# Delivering electricity to 18 million people

UK Power Networks owns, operates and manages three of the 14 regulated electricity distribution networks in Great Britain. Our networks deliver electricity to 18 million people (8.2 million homes and businesses); 28% of the United Kingdom's population.

We are purely a network operator. We do not generate or buy electricity, nor do we sell it to customers.

Our responsibility is to keep the lights on for the customers connected to our network. We:

- > **Maintain the safety and reliability of our electricity networks**
- > **Efficiently connect new customers to our electricity networks, including power generators**
- > **Restore supply as quickly as possible to customers who experience an interruption**
- > **Innovate to continually improve efficiency and the service we provide to our customers**
- > **Support our fuel poor and vulnerable customers**
- > **Facilitate a low carbon environment by investing in assets, processes and initiatives that enable low carbon technology to be connected to our network**
- > **Extend and upgrade the network to meet our customers' future needs**

### East

#### Eastern Power Networks (EPN)

We deliver power to North London and East Anglia, encompassing a diverse range of urban and rural areas as well as a huge coastline.

### London

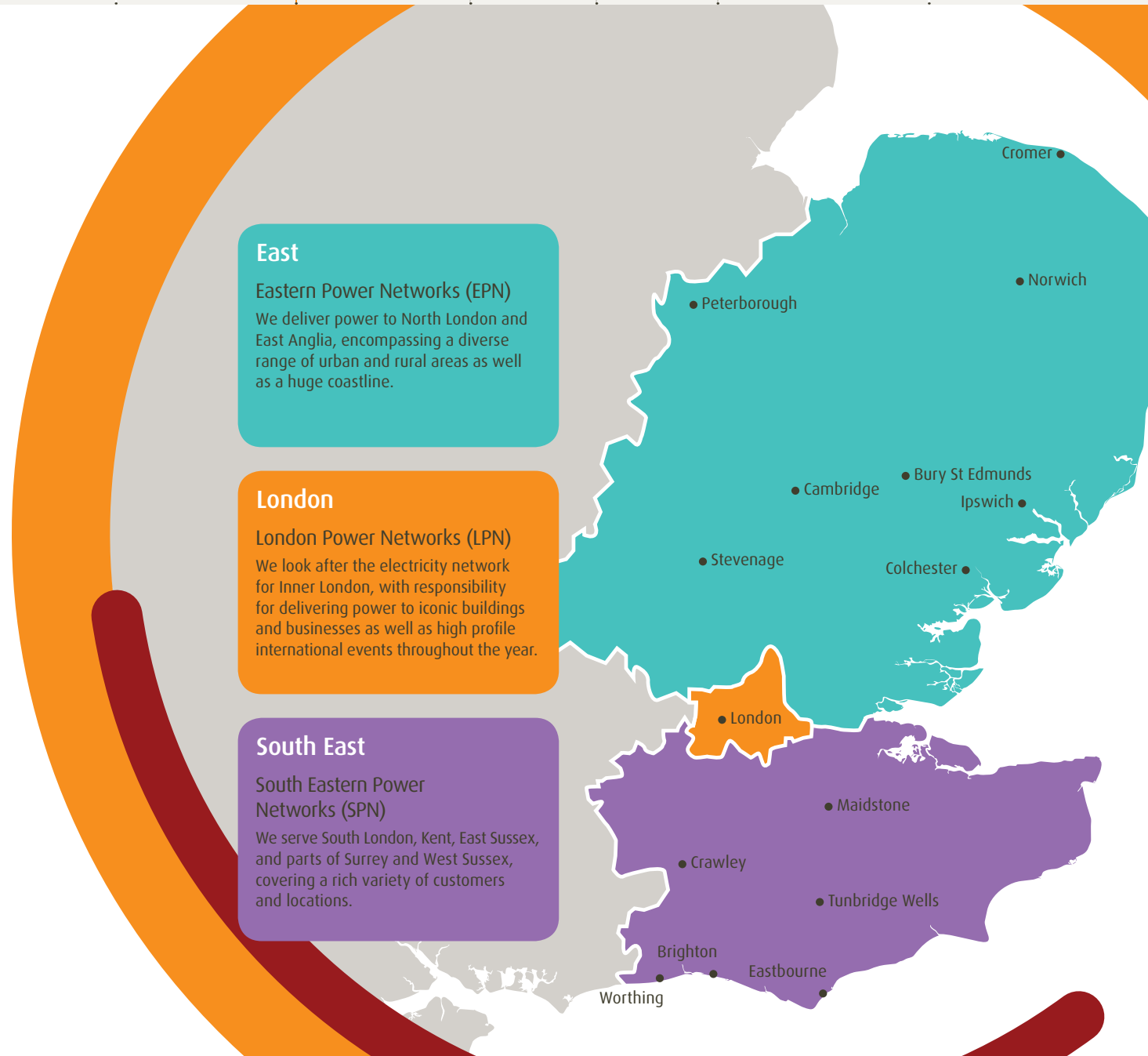
#### London Power Networks (LPN)

We look after the electricity network for Inner London, with responsibility for delivering power to iconic buildings and businesses as well as high profile international events throughout the year.

### South East

#### South Eastern Power Networks (SPN)

We serve South London, Kent, East Sussex, and parts of Surrey and West Sussex, covering a rich variety of customers and locations.



# Customer satisfaction

We want to be recognised as the UK’s best electricity distributor and deliver excellent, industry-leading services to all our residential and business customers.



This ambition drives our customer service strategy, which is to deliver first-class services to all our customers, whatever they need, first time and every time. Delivering this strategy means responding quickly, taking responsibility, and getting it right first time.

Our success rate is measured through Ofgem’s Broad Measure of Customer Satisfaction. In 2016/17 we achieved our best performance yet, with customers rating our services 8.6 out of 10, on average, across our three electricity networks.

Customers count on us for information and support in situations such as power cuts. Whether they are without power due to severe weather or planned maintenance work, we try to make it easy and convenient for people to reach us in the way they choose.

We have expanded our customer communication channels to include Facebook Messenger, Facetime, Instagram and Twitter. This year we are on track to make more proactive outbound contact with our customers than traditional inbound communication, reducing the need for our customers to contact us. We implemented a text message registration service for planned shutdowns and have sent over 116,000 text messages letting customers know about planned power cuts. Web chat offers help to customers on the most visited pages of our website. Our proactive approach consistently receives great customer feedback.

Building on this, we have begun sending weather alerts to customers on our Priority Services Register before storms. This helps those who are most at risk to prepare for potential power cuts. We have doubled the number of customers on our Priority Services Register since 2015, bringing it to over one million. We are making sure more of those entitled to receive our free extra support get the help they need.

When practical help is needed, at the scene of power cuts, our new support vehicle has free Wi-Fi and mobile charging points. Our customers tell us that being able to send and receive urgent messages means that they can get on with their lives, while we concentrate on fixing their power supply.

Our most innovative customer services are frequently co-designed with relevant experts. We enlist the advice of trusted partners to help us reduce our customers’ vulnerability when the lights go out. Sensory training, for example, enables our telephone advisers to understand what it feels like to live with arthritis, poor eyesight and other conditions, and tailor services to match. Building on our success, we expanded this style of training to other conditions including autism, deafness and dementia. We are currently giving all 5,700 staff an opportunity to become Alzheimer’s Society ‘Dementia Friends’. This means taking part in an awareness programme that improves understanding of the condition and provides practical advice on ways to help in a power cut. We also developed a virtual-reality training module with the National Autistic Society that gives our staff a sense of what people with autism experience. If this is successful, it will also become part of our versatile suite of customer service training.

It is part of our culture to be alert and ready to hear what stakeholders think and feel about the service we provide. In 2016/17 we established our CEO Panel. The purpose of the panel was to allow our leadership to hear directly from key organisations, such as charities, trade associations, businesses, customer representatives and academia. It enabled us to understand from them about their priorities and perspectives on the main challenges facing our industry.

Also by collaborating with other electricity distributors and customers, we ensured the successful introduction of 105, the new, UK-wide emergency number, that all of our customers can use to report power cuts and emergencies. We distributed a leaflet about the new service to all our 8.2 million homes and businesses.

## Customer satisfaction scores

	Power cuts	General Enquiries	Connections	2016/17 Broad measure of customer satisfaction (weighted average across the regions)
Eastern Power Networks	8.82	9.35	8.18	8.61
London Power Networks	8.55	9.30	8.42	8.63
South Eastern Power Networks	8.77	9.26	8.41	8.69



## Customer satisfaction continued

- Failed to complete an annual output or forecast to miss the remainder of our eight-year output
- Either did not meet the annual output target, but remains on target to meet the eight-year output OR successful achievement of the annual output but uncertainty about likelihood of meeting the eight-year target
- Successful achievement of an annual output and on target to meet our eight-year output

No	Eight year RII0-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
1	Improve performance of all UK Power Networks' DNOs in all components of the customer satisfaction survey, achieving an average overall performance of 8.3 for EPN and SPN and 8.1 for LPN over RII0-ED1.	Our Customer Satisfaction Survey scores continue to improve and exceed the targets we set ourselves for RII0-ED1. We have achieved scores of 8.6, 8.7 and 8.6 in Eastern Power Networks (EPN), South Eastern Power Networks (SPN) and London Power Networks (LPN) respectively.	●	●
2	On average, answer calls from customers within five seconds.	We have made changes to how we handle customer calls, which mean customers get the information they want more quickly. These changes have already led to a significant reduction in the time taken to answer customer calls, which is now 7.1 seconds on average, compared to 16.5 seconds last year. We expect these improvements to continue and to achieve this target over the RII0-ED1 period.	●	●
3	Resolve 70% of all customer complaints within one day and 95% within 31 days.	We have reduced the time taken to resolve customers' complaints. We now resolve 67% of complaints in one day, compared to 64% last year. We resolve 94% within 31 days.	●	●
4	Contact 100% of customers within 24 hours to ensure any work they have requested has been completed to their satisfaction.	Each day we review all Connections and General Enquiries work that has been completed. We contact all these customers within 24 hours to check that the work they have requested has been completed to their satisfaction.	●	●
5	Get the lights back on for 90% of HV power cuts within two hours.	We restored power for 96% of high voltage (HV) power cuts within two hours, helping to minimise the impact of power cuts to our customers.	●	●
6	Provide multiple ways for customers to stay regularly updated on the estimated time for supply restoration and on any changes to the estimated time. As a minimum this will include phone, SMS text, Twitter and online.	Since the beginning of RII0-ED1, our customers have had multiple channels available to them to stay up to date on the status of power cuts. These channels include phone, text messages, Twitter, Facebook, our online interactive map, and web chat. We were the first DNO to launch video chat and Facebook Messenger in 2016/17, providing more ways for our customers to engage with us.	●	●
7	Proactively contact 100% of registered vulnerable customers to offer support if they are without power.	When power cuts occur, we contact all registered vulnerable customers affected to make sure they have the support they need until their power is restored. We are working hard along with local charities and parish councils to increase the number of vulnerable customers registered on our Priority Services Register (PSR), which is now over a million.	●	●

## Customer satisfaction continued

No	Eight year RIIO-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
8	Continue with our three Critical Friends Panels per DNO per annum.	We committed to engaging with our Critical Friends nine times a year. Following engagement with our stakeholders, we developed an enhanced strategy that was endorsed by 94% of stakeholders. In line with this strategy, we held six Critical Friends Panels and a further five Cross-Utility Forums. This has increased the number of opportunities for us to engage with our stakeholders.	●	●
9	Publish and review a UK Power Networks business plan update every year.	This document, the RIIO-ED1 Business Plan Commitment Report, includes an update to all our output commitments from our RIIO-ED1 business plan. In the Value for Money section, later in this report, you will find an update on our expenditure forecast for the remainder of RIIO-ED1.	●	●
10	Publish an annual strategic development statement for Central London.	We published our first update to the Central London Strategy covering the 2015/16 regulatory year. <a href="#">Click here to read more.</a> We will publish an update covering the 2016/17 year in December 2017.	●	●
11	Review our economic assumptions with our Critical Friends Panels each year.	We discussed our economic assumptions with stakeholders at this year's Critical Friends Panels. We focused on assumptions regarding uptake of Electric Vehicles as we see this being a key area in the immediate future.	●	●
12	Appoint an independent chairperson to our Critical Friends Panels.	Independent chairpersons were appointed to our Critical Friends Panel in August 2013 and will continue to chair the sessions throughout RIIO-ED1.	●	●
13	Hold a Distributed Generation forum annually.	We held three Distributed Generation forums in 2016/17. This included the joint Energy Networks Association forum which was held in September 2016. Our engagement with these customers continues to help more low carbon generation to be connected to the UK energy system.	●	●
14	Continue to use our stakeholder feedback to improve our customer-facing business processes.	We use a "You said, we did" approach to our stakeholder feedback to ensure we track and implement the actions we agree with our stakeholders. Our stakeholder submission gives details of all the improvements we have made to our business processes as a direct result of stakeholder feedback. We continue to perform well and our 2016/17 submission was ranked second among the Distribution Network Operators. <a href="#">Click here to read more.</a>	●	●

## Customer satisfaction continued

We recognise that it is not only customers on the Priority Services Register who are vulnerable. A key aspect of our strategy aims to increase our understanding of vulnerability through both stakeholder engagement and careful examination of public data.



**7,000** hours

Number of hours of customer training in 2016/17, compared with 5,000 in 2015/16

**89%**

satisfaction score among customers on the Priority Services Register

## Supporting vulnerable customers

Age Exchange is a small local charity in our London Region. It is internationally known for its leading work in reminiscence (the exploration of memories) to support older carers and people with dementia. We were keen to draw on their expertise to inform our understanding of the needs of customers with dementia and the implications for vulnerability associated with an ageing population.

UK Power Networks worked with Age Exchange to run a focus group to help us understand dementia better. In particular, we gained a much greater insight into the impact of power cuts on this vulnerable group of customers.



# Reliability and availability

At UK Power Networks we work hard to retain our record as the most reliable Distribution Network Operator (DNO) in the country.



In 2017, we reduced the number of unplanned power cuts that customers experienced across our three networks by 15% since 2012/13. We have also reduced the length of time customers were without power by 26% since 2012/13.

The measures are referred to as unplanned Customer Interruptions (CI) and unplanned Customer Minutes Lost (CML) respectively. In 2016/17, our London network continued to be the most reliable network in the country.

Our approach to network reliability is straightforward: we aim to be ahead of the game in technological advancement while at the same time applying rigorous discipline to our operations.

In recent years we have developed our Automatic Power Restoration System (APRS), and this is now implemented on all three of our networks. APRS identifies and isolates faults on the networks and re-routes the power so that the impact of a fault is greatly reduced.

Rigorous discipline means that we are in control of incidents, managing them closely, keeping on top of faults as they occur and not allowing backlogs to develop. Everyone involved in looking after the network knows what they are responsible for and can see the status of the situations as they develop. This transparency extends to our customers, who are able to go online and follow faults and their progress to resolution in real time.

LV Reclosers and Fusesavers are two new technological developments we made in 2016/17 that will help to reduce the duration of interruptions to customer supplies. LV Reclosers are devices that temporarily open a circuit and interrupt supplies to customers when a fault is detected. These devices reclose the circuit shortly after the fault occurs (if it is not a permanent fault) and so restores supplies to customers, without an engineer having to visit the substation. The LV Reclosers are particularly helpful in urban areas, and we have installed 40 of them in London. The Fusesaver technology, which has a particular application in rural areas, is described in our case study on page 14.

## Percentage improvement since 2012/13<sup>1</sup> in network reliability and availability<sup>2</sup>

	Customer Interruptions <sup>3</sup>	Customer Minutes Lost <sup>4</sup>
Eastern Power Networks	12%	18%
London Power Networks	30%	40%
South Eastern Power Networks	12%	23%
UK Power Networks	15%	26%

<sup>1</sup> 2012/13 is the base year for measuring performance improvement.

<sup>2</sup> This relates to power cuts that are unplanned.

<sup>3</sup> Customer Interruptions (CI) are the number of customers interrupted per 100 customers on our network.

<sup>4</sup> Customer Minutes Lost (CML) are the average length of time customers are without power, for power cuts lasting three minutes or longer.



## Reliability and availability continued

No	Eight year RIIO-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
15	Maintain LPN's position as having the lowest level of customer interruptions and customer minutes lost in the UK targeting 23 CIs (7% improvement) and 30 CMLs (8% improvement) for unplanned interruptions (Compared to 2012/13 base).	LPN continued to be the best performing network for both Customer Interruptions (CIs) and Customer Minutes Lost (CMLs) with only 17 unplanned CIs and 19 unplanned CMLs. This is an improvement of 30% and 40% since 2012/13 respectively.	●	●
16	Reduce EPN and SPN customer interruptions by more than 12% targeting 51 CI in EPN and 49 CI in SPN for unplanned interruptions (Compared to 2012/13 base).	There were 48 unplanned Customer Interruptions per 100 customers (CIs) in EPN in 2016/17. This represents a 12% improvement since 2012/13. SPN reduced unplanned CIs to 47, which is also a 12% improvement since 2012/13.	●	●
17	Reduce EPN and SPN customer minutes lost (CML) by more than 19% targeting 35 CML in EPN and 35 CML in SPN for unplanned interruptions (Compared to 2012/13 base).	There were 35 unplanned customer minutes lost (CMLs) in 2016/17 in EPN and 32 in SPN. This performance represents a combined improvement of 20% since 2012/13.	●	●
18	Maintain the health of the network during RIIO-ED1 as measured by the health index, at least at the end of DPCR5 levels.	Since the submission of our RIIO-ED1 business plan, the Common Network Asset Indices Methodology was introduced across all DNOs in Great Britain and our target has been reset to be as challenging as the original. We remain on target to deliver 100% of this new Health Index target.	●	●
19	Continue to improve the load index of the networks by reducing the number of highly rated sites to 18 in EPN, 14 in SPN and 12 in LPN by the end of RIIO-ED1.	In this context, highly rated sites are those that are heavily loaded and so are in need of attention. At the end of the 2016/17 year there were 15 highly rated sites in EPN, 12 in SPN and nine in LPN. This is ahead of the RIIO-ED1 target and we continue to work to ensure we maintain risk levels within the target.	●	●
20	Protect 78 substation sites from the risk of flooding.	In 2016/17, we focused our attention on detailed analysis of the remaining known flood risk sites. We carried out 42 site-specific surveys to improve our understanding and prioritise the remaining work in RIIO-ED1. We have continued to protect substations from the risk of flooding with two sites completed in 2016/17. We remain on target to deliver our plan of protecting 78 sites in RIIO-ED1.	●	●
21	Reduce the number of 12 hour failures by more than 30%.	We recognise that the longer a customer is without power, the greater the inconvenience is to them. We aim to restore all supplies within 12 hours for unplanned power cuts. In 2016/17, 12,351 people experienced a power cut lasting longer than 12 hours. This is a reduction of 48% since we made this commitment in 2012/13.	●	●
22	Reduce worst served customers to less than 10,000 in either EPN or SPN.	"Worst served customers" is a category specified by Ofgem that identifies those customers who receive service that is below a stipulated level. Last year we set ourselves a target of reducing the number of worst served customers to fewer than 3,437 in EPN and 6,818 in SPN. In 2016/17 there were 3,409 and 5,526 worst served customers in EPN and SPN respectively.	●	●

## Reliability and availability continued

Our customers rely on us to keep the lights on and, as long as everyone is safe and well, we see this as our purpose.



### Fusesaver

Rural areas can have a greater tendency to power cuts due to the way the power network is configured. Rural networks tend to be longer, with multiple spurs, so when there is a fault on one of these sections, more customers are affected. The Fusesaver helps address this problem by isolating

the fault to a single spur, thereby limiting the loss of supply to customers. Following investigation and analysis in 2015/16, we now have purchased these devices. After further trials in 2016/17 we intend to deploy these devices on the rural parts of our Eastern and South Eastern Networks.

# Environment

The electricity distribution industry is changing at an unprecedented pace to support the reduction in carbon emissions and protect the environment.



In the coming years, more and more people will own electric cars, use smart appliances in their homes and generate, store and sell their own electricity.

At UK Power Networks we are playing a leading role in enabling this transition to a low carbon economy. We are making sure individuals, communities and businesses can benefit from 'green' technologies, at the same time operating our business responsibly to deliver electricity supplies.

To achieve this we have committed to investing approximately £7 million each year on innovations to support the low carbon future and on becoming a Distribution System Operator, which means we enable people to use new and emerging technologies.

Tackling air quality is a public health priority. One way we have helped is by advising local authorities and commercial vehicle fleet operators about the quickest and most efficient way to switch to electric vehicles. You can read more on page 17 about our role in Europe's largest all-electric bus depot in Waterloo where smart charging, paired with potential new timed connection arrangements, will prevent the release of 700 tonnes of harmful carbon emissions every year.

As we support our customers to reduce their carbon emissions, we still have a key role to play in keeping the lights on for over eight million homes and businesses. This work also has a carbon impact, so while we keep one eye on the future, we keep another on our day-to-day operations to reduce vehicle emissions; for example we have introduced a 'no idling' policy for our drivers. We have reduced our Business Carbon Footprint (BCF) by 11% over the last two years, exceeding our 2% per annum target.

We deliver electricity supplies across some of Britain's most treasured landscapes. Working closely with environmental experts and landowners, we remove overhead electricity lines and poles from Areas of Outstanding Natural Beauty (AONB) and National Parks. This helps return the views in these special areas to their former glory. Since 2005 we have invested £17.3m in the South East and East of England to put 123km of power lines underground. We set aside £20 million for these popular improvements between 2015 and 2023.

“ The electrification of Waterloo bus garage is an important step to improve air quality and reduce carbon emissions for Londoners and I will make sure that we can use the learnings from Waterloo across the country. ”

**Daniel Zeichner**  
Member of Parliament



## Environment continued

No	Eight year RIIO-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
23	Reduce our Business Carbon Footprint by 2% per annum.	Our Business Carbon Footprint in 2016/17 was 68,638 tCO <sub>2</sub> e. This is 8% lower than our target for the year of 74,278 tCO <sub>2</sub> e.	●	●
24	Continue to divert 70% of office and depot waste from landfill* and recycle 98% of streetworks spoil.  * The word "recycle" has been amended to "divert from landfill", to more accurately reflect UK Power Networks' long established process of diverting 70% of office and depot waste from landfill.	In 2016/17, we diverted 87% of our waste from landfill and recycled 98% of our streetworks spoil. We continue to work to maintain this performance over the RIIO-ED1 period.	●	●
25	Maintain sulphur hexafluoride (SF <sub>6</sub> ) leakage at less than 0.2% as a proportion of SF <sub>6</sub> in service.	SF <sub>6</sub> leakage was 0.13% of the SF <sub>6</sub> in service in 2016/17, which is lower than the target. SF <sub>6</sub> is a gas that contributes to the greenhouse effect, so we are committed to minimising the leakage to reduce the impact on the environment.	●	●
26	Reduce cable fluid leakage of 207,000 litres by 2% per annum.	Cable fluid loss in 2016/17 was 197,127 litres, which is below the annual target of 198,803 litres. We have achieved this by removing high-risk cables and responding more quickly when leaks do occur, thus limiting their impact on the environment.	●	●
27	Underground the equivalent of 80km of HV overhead line in SPN and 96km of HV overhead line in EPN in Areas of Outstanding Natural Beauty and National Parks.	To date in RIIO-ED1, we have removed 8.2km of overhead lines in SPN and 0.5km in EPN. We continue to work with stakeholders to identify schemes where removing overhead lines will improve a location's appearance and are confident that this commitment will be delivered over the RIIO-ED1 period.	●	●
28	Innovation expenditure of 0.5% of allowed revenues and win largest market share of the NIC competition.	In 2016/17 we spent £8.2 million (in 2016/17 prices) on innovation projects. This equates to 0.63% of allowed revenue. For the 2017 Network Innovation Competition (NIC), we submitted a project called Active Response and, if successful, this will contribute to our innovation portfolio. At the end of 2016/17, we had won the second highest market share of the NIC allowance, with plans to submit higher volumes of NIC projects for the next submission in 2018. As we cannot be certain what share of the NIC competition our project will account for over the RIIO-ED1 period, we have reflected this in the status against this commitment. We will continue to invest in innovation projects where there is potential to achieve benefits for our customers, for example in the first two years of RIIO-ED1 we have delivered £120m of benefits through use of innovative solutions on the network.	●	●
29	Investigate all noise issues and address all non-compliant sites.	We continue to investigate all noise issues raised with us. In 2016/17 we investigated 26 issues and all non compliant sites are being addressed. For example, we are deploying an innovative noise screen at Moscow Road substation in London which reduces noise without introducing any cooling issues for the installed transformers.	●	●



## Environment continued

UK Power Networks is in the vanguard of the drive towards a low carbon economy, leading initiatives that will take us and our customers into a world of smart networks and appliances, renewable energy sources producing power that can be stored, and consumers who are also producers ('prosumers').



£18.2m

Investment in innovation since start of RIIO-EDI price control

£120m

Innovation benefits delivered to customers over the last two years

### Waterloo bus garage

In partnership with the bus operator, Go-Ahead London, UK Power Networks is powering Europe's largest electric bus garage at Waterloo in London. The garage uses an innovative 'timed connection' arrangement, where the garage's 51 electric buses are charged at night, when demand

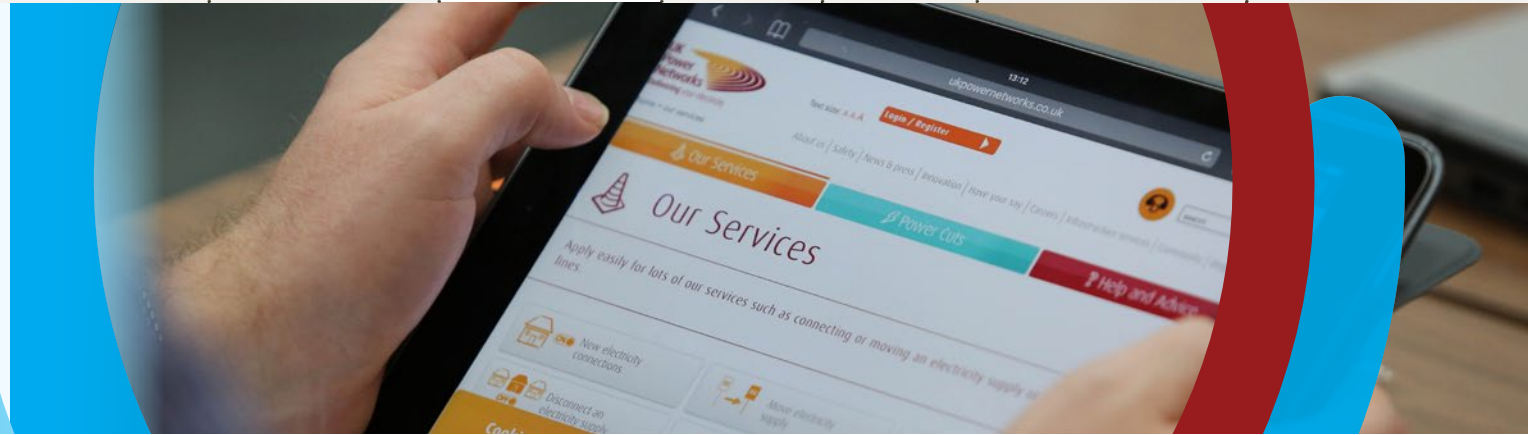
is otherwise low, so they can run through the day when they are needed. It is Transport for London's (TfL) target that all single decker buses in London will be electric by 2020 and we are working with TfL to help make this aspiration a reality.



# Connections

Our Connection's vision is:

"To offer a range of connection solutions that serve our customers' diverse needs, encouraging choice and supporting economic growth in the communities we serve".

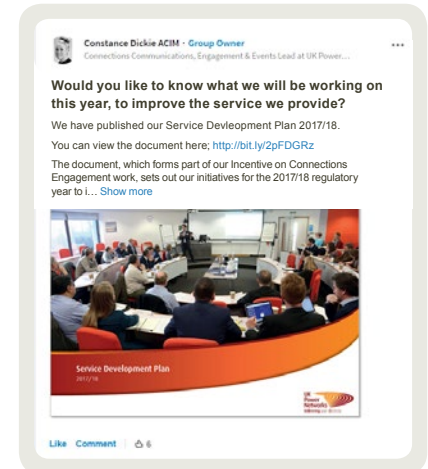
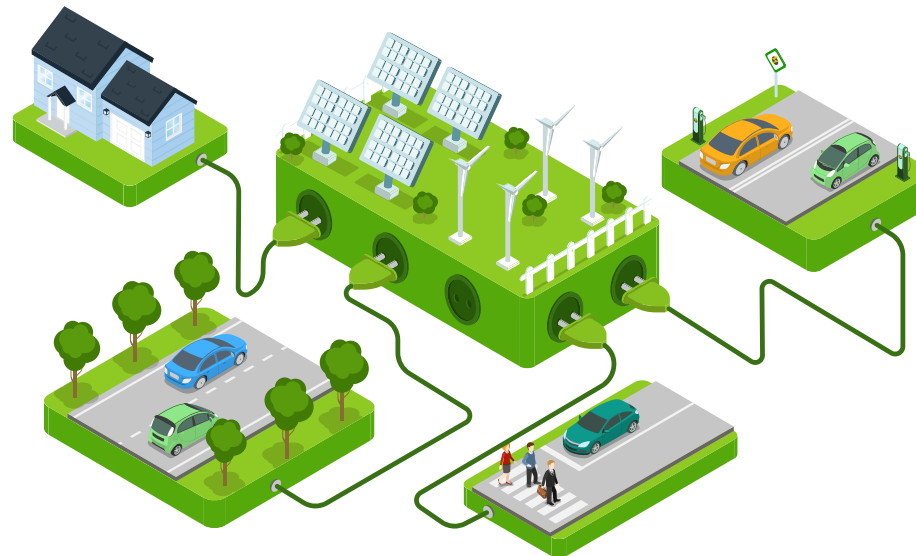


Our objective is to provide excellent customer service to all of our connections stakeholders, delivering nine out of 10 satisfaction score for every interaction.

Our stakeholders asked us to give them different ways to engage with us. We listened, and in response we have launched a number of digital and social platforms that supplement our more traditional customer surveys, forums, surgeries and account management meetings. For example, we launched our LinkedIn Connections Engagement group in June 2016, and it now has more than 190 members.

A key commitment to our generation customers was to integrate our flagship Flexible Plug and Play (FPP), now known as Flexible Distributed Generation (FDG), into business as usual. FDG uses Active Network Management (ANM) to manage the flow of power from wind, solar and other generators, without the need for costly network reinforcements. 43% of FDG connected under ANM across Great Britain is connected to our networks. In 2016/17 we introduced FDG to our Southern network where it now operates over a large area between Worthing in Sussex and Margate in Kent. In addition, on our Eastern network, we are rolling out FDG to large parts of Norfolk, Cambridgeshire, Suffolk and Essex. In 2016/17, under FDG, we connected 10MW, contracted 135MW and made offers to a further 35 MW of distributed generation.

We recognise that we need to improve the average time it takes us to connect both single and multiple low voltage services. For single services we took an average of 54 days to connect, compared with a target of 42 days. For multiple services we took 65 days, compared with a target of 53 days. We changed our operating model to improve our performance in this area by co-locating the design and service delivery function to improve both cross department communication and minimise customer hand-offs. This approach has been successfully trialled on our LPN network and is now being rolled out in our EPN area.



















Post on our Connections Engagement LinkedIn group to highlight that we'd published our Service Development Plan 2017/18.



Tweet from @UKPNnews during our Distributed forum in February.

## Connections continued

No	Eight year RII0-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
30	Achieve an average time to quote from the time of enquiry of 8.2 days for low voltage single services and 11.7 days for low voltage multiple services.	In 2016/17 we achieved an average time to quote of 5.8 days for low voltage single services and 8.5 days for low voltage multiple services.		
31	Achieve an average time to connect of 42 days for low voltage single services and 53 days for low voltage multiple services.	In 2016/17 we achieved an average time from quote acceptance to connection of 54 days for low voltage single services and 65 days for low voltage multiple services. We recognise that this performance is below target and we have put improvements in place to ensure that we achieve the target performance over the RII0-ED1 period.		
32	Achieve in excess of 99% compliance with our Guaranteed Standards of Performance (GSoP) targets.	In 2016/17 we achieved 99.64% compliance with our GSoP targets.		
33	From Q3 2014 we will commence the introduction of new online services for customers requiring new or altered metered services and all customers requiring unmetered connections. These services will include: Submission of service requests, Quotations and estimates, Service request and job delivery tracking, Payment, Appointment booking.	We have introduced online services for customers requesting General Enquiries related work, including alterations to metered services. Following a trial of the online services for Connections customers, we are taking account of customer feedback to ensure the system we put in place delivers the level of service our customers expect. We will implement this service as part of our company-wide Digital Strategy.		
34	Integrate Flexible Plug and Play connection offers (as per our Low Carbon Network Fund Project) into business-as-usual by Q2 2015.	We began rolling out Flexible Distributed Generation (FDG) connection offers in November 2014. In 2016/17 we opened three new networks for FDG offers and will continue to open more areas to FDG throughout the RII0-ED1 period.		
35	Engage regularly with other connections stakeholders on a frequency agreed with them.	We engage with our connections stakeholders through a variety of channels throughout the year. More detail can be found in our Work Plan and Incentive on Connections Engagement (ICE) reports. <a href="#">Click here to read more.</a>		
36	From 2014, agree and publish a Service Development Plan with associated key performance indicators.	We published our Incentive on Connections Engagement (ICE) plan in May 2016. <a href="#">Click here to read more.</a>		
37	Publish quarterly updates to communicate progress against the service development plan.	Quarterly ICE updates for 2016/17 can be found by <a href="#">clicking here.</a>		

## Connections continued

No	Eight year RIIO-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
38	Review and revise the plan annually in agreement with stakeholders.	We submitted our 2017/18 ICE Workplan in April 2017. <a href="#">Click here to read more.</a>	●	●
39	Publish an annual progress update to Ofgem and stakeholders.	We publish voluntary quarterly ICE reports. We also publish a formal mid-year review based on feedback from Ofgem and customers. <a href="#">Click here to read more.</a>	●	●
40	Complete an annual independent audit of our achievements against the agreed service development plan.	Before we submitted our update we asked AccountAbility to review our submission; they confirmed that it was accurate and provided a relevant update to stakeholders. Their findings are presented in the ICE report. <a href="#">Click here to read more.</a>	●	●
41	Work with Connections stakeholders to develop our products and services through 'user groups' three times per annum with common interest customer groups to gain insight into their needs and requirements and shape innovation and development within UK Power Networks.	We held multiple forums and technical working groups throughout the year. These are all described in our Work Plan, our quarterly updates and our Looking Back and Looking Forward report published in May 2017.	●	●
42	Offer account management to any business/commercial customer who requests this service. Develop more 'pre-application' support for customers to enable them to make informed decisions on their schemes.	An account manager is assigned to any business or commercial customer who requests one. In addition to this, other methods of pre-application support are available such as our Ask the Expert service and our surgeries, which commercial customers have found extremely useful. In 2016/17 we ran 29 'Ask the Expert' surgeries which 60 customers attended.	●	●
43	Extend our "Ask the Expert" service to include phone, web chat and face-to-face options.	We expanded our Ask the Expert service to Highway Services and launched an online service as set out in the ICE WorkPlan 2016/17. We met the target timescales and will report the outcome in the ICE Looking Back report 2016/17.	●	●
44	Publish 'heat maps' to provide an overview of current network capacities by location.	We have extended heat maps to show import and export conditions to support energy storage applications as detailed in our ICE Work Plan 2016/17. <a href="#">Click here to view the heat maps.</a>	●	●
45	Provide access via a web portal to cable diagrams, allowing customer access to up to date information.	Cable diagrams are now available for Independent Connection Providers (ICPs) via a web portal. This allows them to determine points of connection and this supports effective competition in connections markets.	●	●
46	Extend the online price illustrator to include all market segments and provide indicative timescales in addition to cost illustrations.	Following a trial of an online price illustrator for Small Services customers, this service is being introduced as a standard service for these market segments which will go live in Q2 2018. We continue to work with stakeholders involved in larger connections projects to provide them with a range of pre-application support options, such as surgeries or use of our Ask the Expert service, to assist them as they progress their application.	●	●

## Connections continued

No	Eight year RIIO-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
47	Extend our current DG surgery sessions to other customer groups to allow customers to discuss their connection proposals informally prior to application. Increase the choice and flexibility of connections services available to customers.	We introduced the DG surgery service in April 2015 and extended it to Highways Customers in Sept 2016. All market segments covered by the ICE are now included as detailed in our ICE Looking Back report for 2016/17.	●	●
48	Introduce longer office hours for our contact centre: a) 08.00 to 20.00 weekdays; (b) 09.00 to 16.00 Saturdays.	Following a trial, we will be offering extended office hours for our contact centre for new Small Services Connection enquiries from Q1 2018. This is the first stage in our plan for implementing this offering across all Small Services Connection enquiries.	●	●
49	Offer two-hour time-banded appointments for site visits.	We now offer two-hour time-banded appointments to customers for site visits. We are doing further work to measure how often these appointments are kept and this will be fully implemented over the RIIO-ED1 period.	●	●
50	Schedule work delivery across a wider working window to include evenings and weekends.	Delivery of new connections to the network is available at evenings and weekends if that is what the customer requests.	●	●
51	Extend the convertible quotes concept so that quotations offered in a competitive market segment can be fully or partly accepted dependent on the customer's preference.	Convertible quotes have been issued to connections customers since October 2015, making it easier for them to consider competitive options for delivery of their connection.	●	●
52	Self-determination of the Point of Connection for an increasing range of connections.	We introduced self-determination of Point of Connection in October 2015 for all connections up to 140kVA in LPN and up to 1,000kVA in SPN and EPN. We continue to engage with companies that provide independent connections and will seek to extend the scope of these arrangements further where possible.	●	●
53	HV jointing to existing networks to include all associated planning and operational activities.	As of October 2015 third party connections providers are now able to carry out all associated activities of HV jointing to existing networks. This ensures effective competition.	●	●
54	Extend live LV jointing to the LPN interconnected area.	We have introduced live LV jointing for third party connections providers in LPN. This gives customers a greater choice of provider for a wider range of activities relating to their connection.	●	●

## Connections continued

Electricity storage will be a key technology in developing a smart energy system. In 2016/17 we saw a significant increase in enquires to connect electricity storage, principally batteries, to our network with 841 enquires. So far we have customers accepting connection offers for 900MW of electricity storage – enough to power 450,000 houses.



“ UK Power Networks has recently connected two ground breaking energy storage projects for us, including the country’s first ever utility-scale subsidy free solar farm, co-located with energy storage. At a time when the technology is new to the industry and investors are justifiably cautious, UK Power Networks takes a progressive approach and understands the client’s demands in an ever changing climate. ”

**Daniel Cohen,**  
Director of Connections, Anesco

1,200

customers surveyed annually

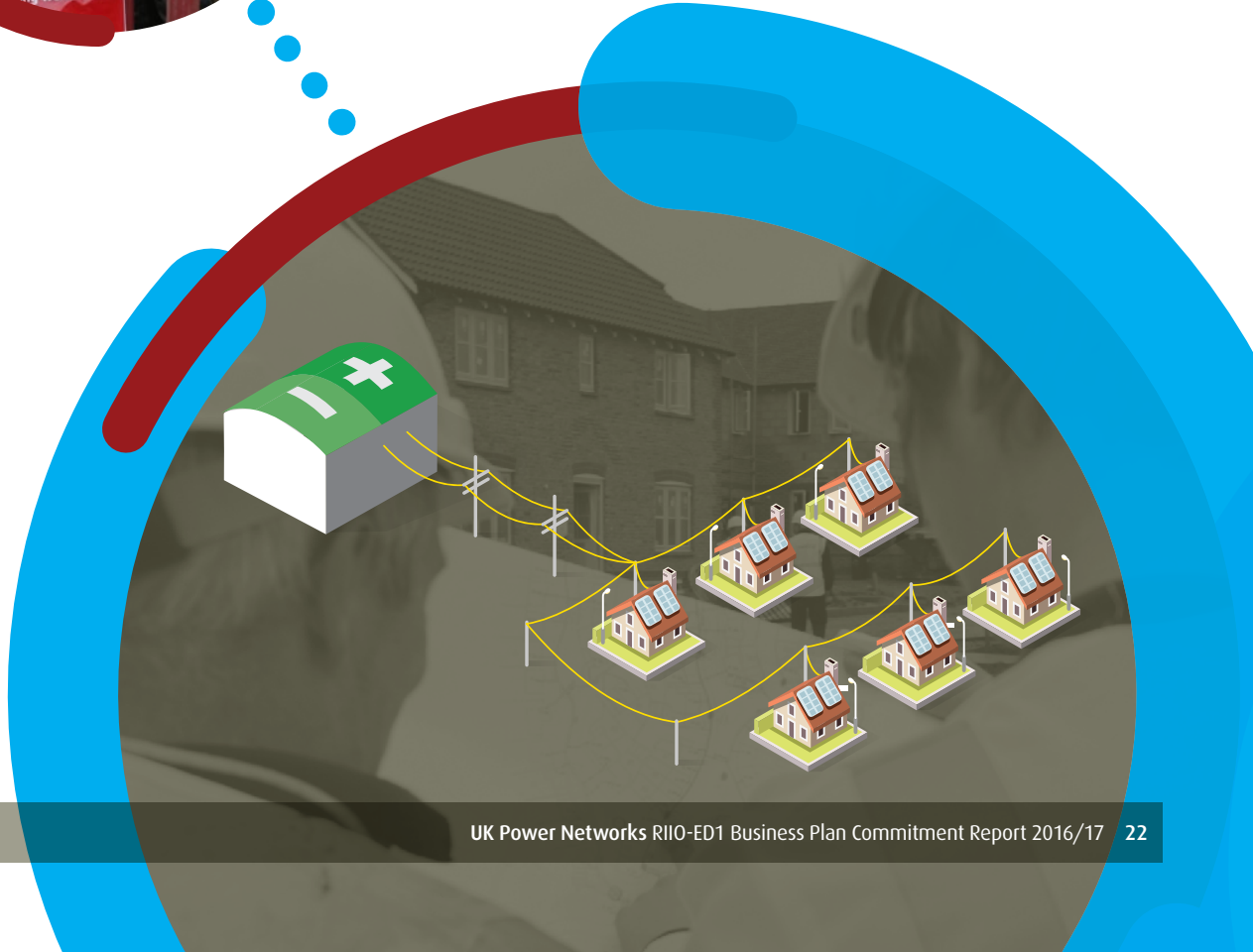
84%

customer satisfaction

### Educating customers about storage

Customer feedback during the development of our technical storage policy was that some customers would benefit from a simple non-technical guide. Following this, a number of internal stakeholders worked together to produce a guide to explain the process and outline benefits of

storage for domestic and other small-scale customers. The guide was published on our website at the beginning of March 2017. [Click here to read more.](#)



# Safety

At UK Power Networks we put safety – of our employees, contractors and the general public – at the heart of what we do.



It is our priority to make sure all our colleagues go home fit and well to their loved ones at the end of each day.

In 2016/17, five of our employees and contractors needed at least a full day off work as a result of injury. This translates to a Lost Time Recordable Injuries (LTRI) rate of 0.03. The Lost Time Recordable Injuries rate shows the number of work-related accidents where an employee needs at least one day off due to injury per 100,000 hours worked. Another key safety measure for us is Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR). This measure records the number of work-related accidents that have caused a reportable injury that results in death or requires hospital treatment. This year we had four RIDDOR incidents compared to seven last year.

At UK Power Networks we are building a culture of safe behaviour. That means all employees are encouraged to challenge each other about safety; identifying threats, including potential threats and near misses, is recognised and rewarded. Continuous improvement is one of our key values in our attitude to safety. Refreshing our Stay Safe programme, this year we introduced bespoke Stay Safe workshops for individual areas of business, designed specifically to support and meet our common goal of zero harm.

As well as engendering a culture that puts safety at the forefront of our working life, we also have a programme of activity to promote safety in the communities that we serve. Last year we engaged face to face at 38 young people's events, reaching over 43,000 people. In addition, we also continually promote our key safety messages to high-risk groups and the general public. We do this through social media and trade associations' communications. In 2016/17, we issued 54 messages/articles that reached an audience of 820,729 high-risk groups ranging from kite flyers and trades people to farmers, tippers and lorry-mounted cranes.

In addition, in 2016/17, we built strong relationships with the fire services across our areas of operations. We have agreed Memoranda of Understanding (MoU) with four of the 12 fire services across our region and are in discussions with the others. These MoUs are designed to help the fire service manage electrical fires more safely and will lead to a better and more consistent approach that will improve public safety across the region.

We reached over

**43,000**

young people through our face-to-face engagement events, discussing electricity safety and energy efficiency



**820,729**

Our communications on public safety reached an audience of 820,729 people in high-risk groups



This year we had

**4**

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) incidents compared to seven last year



## Safety continued

No	Eight year RIIO-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
55	No formal notices or prosecutions by the HSE under applicable legislation.	We received no formal notices or prosecutions by the Health and Safety Executive (HSE) relating to incidents occurring in the RIIO-ED1 period.	●	●
56	Deliver the high safety criticality element of the asset health/risk index (deliver all asset improvements with a high safety criticality score (4) in the asset risk index).	Since publishing our RIIO-ED1 business plan, the Common Methodology for measuring asset risk has been implemented. This methodology encourages us to focus on high safety criticality assets and we are committed to delivering the target risk reduction under this new methodology.	●	●
57	Reduce the Total Recordable Injuries rate (accident rate per 100,000 hours worked) by 10% per annum to less than 0.5.	Total Recordable Injuries (TRI) includes all workplace injuries that result in an individual either being absent from work, receiving professional medical treatment or receiving first aid treatment at work. The TRI rate in 2016/17 was 0.31, which is ahead of the target set for the end of RIIO-ED1. We continue to work hard to ensure this great performance is maintained.	●	●
58	Reduce the Lost Time Recordable Injuries (LTRI) rate (accident rate per 100,000 hours worked) by 10% per annum to less than 0.05.	LTRI is the measure relating to the most serious injuries and only includes injuries which result in the person being absent from work. The LTRI rate in 2016/17 was 0.03, which is ahead of the target set for the end of RIIO-ED1. We continue to work hard to ensure this great performance is maintained.	●	●
59	Achieve at least one year with no RIDDOR reportable lost time incidents for employees and contractors by the end of the period.	In 2016/17 there were four reportable LTIs relating to our regulated activities. As we continue to improve safety we aim to achieve a full year with no reportable lost time injuries over the RIIO-ED1 period.	●	●
60	At least one year with no RIDDOR reportable public harm resulting from our activities.	Over a 12 month period (May 2015 and January 2017) there were no RIDDOR reportable injuries to members of the public relating to our activities. The safety of the public remains a top priority for us and we continue to improve the ways we work to reduce risk associated with the work that we do.	●	●
61	Engage with two million children and members of the public, either through face-to-face or via online interaction, on public safety issues over RIIO-ED1.	Through our website, school visits and other interaction with young people and the public, we engaged with 508,000 people over the first two years of RIIO-ED1. This keeps us on target to achieve two million over the RIIO-ED1 period.	●	●



## Safety continued

Our number one priority is to make sure that no one comes to any harm as a result of something UK Power Networks has done or failed to do. We want to make sure that UK Power Networks is a safe place for employees and contractors to work and that we pose no risk of injury or illness to our customers or to any member of the public. We never take for granted the fact that we have the best safety record of all Distribution Network Operators (DNOs); we have worked hard to build a culture that values safety above all, and we are determined to continue to find ways to improve.



**STOP THINK  
BEFORE YOU DIG!**

Contact with underground electricity  
cables can cause **DEATH**

**PLAN IT OUT.**  
Always contact UK Power  
Networks before you  
start work on:  
**0800 056 5866**

**WORK SAFE - STAY SAFE - GO HOME SAFE**

24hr Emergency number:  
**0800 31 63 105**  
or dial **105**

**UK Power Networks**  
Delivering your electricity



### Think before you dig

Coming into contact with electricity can cause serious burns or even be fatal. Cables are often buried underground or in the walls of buildings. Such hazards are particularly dangerous for tradespeople such as electricians and plumbers. UK Power Networks has worked with trade associations

and other organisations in 2016/17 to help raise awareness among their members of the risks of working near electricity. The campaign – Think before you dig – reminded tradespeople to work safely and to use cable-locating tools before starting work at a property.

# Social

We aim to power a better world for our customers and communities by operating our business responsibly. We want to make a positive difference to our customers, employees and society.

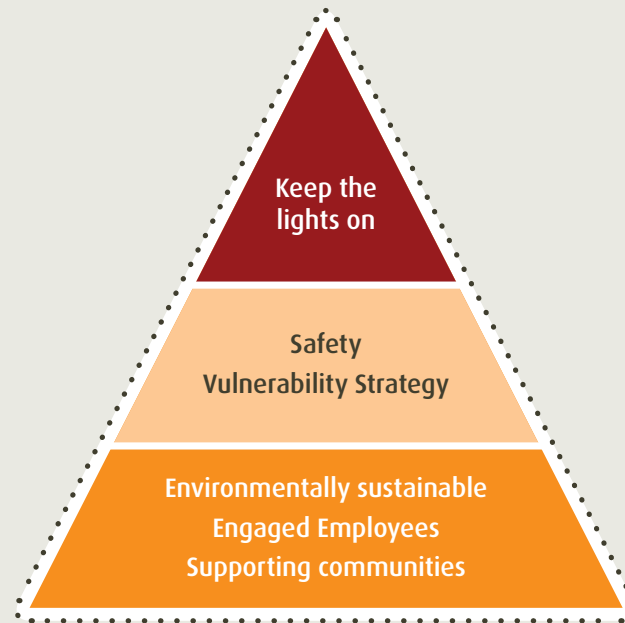


To do this we engage with our staff and communities to provide a safe, reliable and environmentally sustainable service that best serves the needs of our customers, especially those who are vulnerable.

Over 8.2 million homes and businesses rely on us to deliver their electricity supply so, above all else, our social role is to keep the lights on and keep our people and the public safe around our electricity networks.

Our customer vulnerability strategy supports those most at risk in our communities. We proactively identify hard-to-reach customers with offers of help; we minimise our environmental impact; we promote the health and wellbeing of our workforce and we provide an inclusive service, supporting the diverse communities we serve.

## UK Power Networks' Social role



### Vulnerability

The number of customers on our Priority Services Register (PSR) doubled to 1,046,722 since 2015. This means we are making sure more customers in vulnerable situations can receive free extra support in a power cut. Customers on the PSR report 89% satisfaction with our service.

### Safety

We aim to deliver safety education to two million children and members of the public by 2023, either face-to-face or through online interaction.

### Environment

We have reduced our Business Carbon Footprint (BCF) by 11% over the last two years, exceeding our 2% per annum target.

### Employees

UK Power Networks is in the Sunday Times' Top 30 Best Companies to Work For and was awarded Gold accreditation by Investors in People.

### Community

Our award-winning Faith & Power partnership with London Sustainability Exchange (LSx) approached hard-to-reach communities with free help to prepare for an emergency, gain practical help in a power cut and save energy. Our pioneering approach could be replicated anywhere in the world.

No	Eight year RII0-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
62	Double the number of customers on our Priority Services Register.	We now have over one million customers on our Priority Services Register, which is an increase of more than 176% since we made this commitment in 2013/14. This means we have already achieved our goal, and we continue to work hard to ensure all customers with additional needs are identified and receive the care they need during power cuts.	●	●
63	Proactively contact all registered vulnerable customers to offer support if they are without power.	When power cuts occur, we contact all registered vulnerable customers affected to make sure they have the support they need until their power is restored. We are working hard along with local charities and parish councils to increase the number of vulnerable customers registered on our systems.	●	●
64	Extend our local authority joint response pilot across our geographical footprint and standardise triggers.	We have extended this scheme to all areas to which we distribute electricity and we continue to update records to ensure triggers remain consistent. This means we alert the local authority at the outset of more significant power cuts and work together through to restoration of power supplies keeping our customers informed.	●	●
65	Provide every vulnerable customer an alternative high priority dedicated number.	Vulnerable customers on our Priority Services Register receive a welcome pack which includes a high-priority, dedicated freephone number for them to call in case of a power cut.	●	●
66	Distribute welcome packs to all new Priority Services Register customers.	Welcome packs are provided to all new customers on the Priority Services Register. The packs include the information these customers need to ensure that they can receive the additional support they need if they experience a power cut.	●	●
67	Host two subject-specific priority issue focus groups on vulnerable customers and fuel poverty every year.	In 2016/17 we held 10 engagement events with relevant stakeholders to discuss consumer vulnerability and fuel poverty.	●	●
68	Maintain our community fund investing £300,000 per annum.	Through "Matched Funding", "Team Sport Awards", charity partnership donations and employee volunteering time we have provided £324,000 funding for local community schemes and charities in 2016/17.	●	●
69	Work with National Energy Action (NEA) to map and profile fuel poor customers within our footprint.	We worked with NEA to understand the variation of vulnerability across our region. We did this by mapping levels of unemployment, fuel poverty, customers on the PSR and other indices. This data is then updated annually to ensure it is accurate. This map allows us to target energy efficiency advice and customer care to the most deprived areas.	●	●
70	Publish information to targeted customers on how energy efficiency and demand-side activity can be used to manage energy consumption.	We are running an innovative project, energywise, to investigate how DNOs can engage effectively with targeted customers and support them in the management of their energy use through energy saving and demand side response initiatives. All customers registering on our Priority Services Register receive energy efficiency advice.	●	●

## Social continued

No	Eight year RII0-ED1 Output Commitment	2016/17 update	2016/17 status	2015/16 status
71	Deliver a series of targeted consumer surgeries for vulnerable residents designed to raise awareness of energy efficiency and how to manage energy bills.	We referred 1,175 customers to our You and Your Home service with Citizens Advice. We sent packs to all 1,175 and 114 had in-depth face-to-face or telephone conversations, receiving support from experienced money matters experts. The total benefit to those customers was £28,377; the average benefit was £249. In addition, together with Community Energy South we ran Energy Cafes across our region, providing customers with “You and Your Home” advice; 2,371 customers attended.	●	●
72	Publish a strategy to explain how smart meters can be used to reduce fuel poverty.	Our innovative project, energywise, is researching how Smart Meters can benefit customers who are in fuel poverty. This project is due to complete in September 2018. The findings will be used to inform our strategy which will be published in 2018.	●	●
73	Create a group of UK Power Networks local community energy champions.	We have partnered with Community Energy South to create a group of local energy champions. These energy champions advise customers face-to-face about energy savings, renewable energy and finding the right tariffs. In 2016/17 we facilitated the establishment of a Community Energy hub in the East of England.	●	●
74	Develop a project with NEA to educate young carers about energy efficiency.	In 2014/15, we worked with National Energy Action and held five workshops on energy efficiency. We received 95% positive feedback and learnt that it was difficult to track benefits. As a result, we have focused on providing advice to customers on our Priority Service Register such as working with other utilities to produce information on how customers can get the best deal on their energy tariffs and how to achieve better energy efficiency. We have also run specific projects in areas more affected by fuel poverty as detailed in our Stakeholder Engagement and Consumer Vulnerability submission. <a href="#">Click here to read more.</a>	●	●
75	Organise and deliver school activity days to encourage safe, efficient use of energy.	Community Energy South and UK Power Networks worked with the Energy Heroes schools programme to support the delivery of the programme across Essex and East Sussex. Supporting the maths and physics curriculum for 9-10 year olds, pupils conduct energy audits of the school and their own homes with the aim of saving 10% on energy costs. We also developed Energy Heroes material for scouts and youth groups which was piloted with the Eastbourne Woodcraft Folk group.	●	●
76	Measure ourselves against other companies and seek inter and intra sector recognition/ accreditation by participating in external benchmarking such as achieving membership of the Sunday Times 100 Best Big Companies to Work For.	We achieved our target of “Top 25 Best Big Companies to Work For” a year ahead of schedule in 2015. We have maintained our position on the “Top 30 Best Big Companies to Work For” in 2017.	●	●
77	Recruit and train over 1,000 staff as well as up-skill and develop existing employees to ensure that we maintain a suitably skilled and motivated workforce.	As the workforce ages, skilled staff retire and new skills are required. We have an effective pipeline that supplies us with trained staff so that we can keep the lights on. This has resulted in the recruitment and training of 626 technical staff so far in RII0-ED1, and we remain on track to deliver our RII0-ED1 target.	●	●



89%

Our customer satisfaction score among customers on the Priority Services Register

11%

Business Carbon Footprint (BCF) reduced by 11% over the last two years, exceeding our 2% per annum target.

### Faith & Power

Our research with black and minority ethnic groups suggested that, in certain groups, and in particular in the Muslim community, people are more likely to turn to their own leaders for advice rather than to service providers. Building on this knowledge, and working with the London Sustainability Exchange, we developed a communications toolkit called 'Faith & Power'.

The project engaged with seldom-heard groups about preparing for and getting help in power cuts and saving energy. The toolkit was used to deliver advice on reducing energy bills, free services such as the Priority Services Register, warm home discounts, grants, and understanding the benefits of smart meters. This award-winning project was disseminated through Mosques and community centres and reached over 40,000 people.

## Value for money

Our aim is to provide the best service to our customers at the lowest cost.



Our charges typically make up approximately 17% of a domestic customer's bill. UK Power Networks' charges to domestic customers are the lowest of any DNO group.

We are conscious of our role in providing an essential service and we aim to make it as affordable as possible. Investment in our systems and processes, to improve our efficiency, is a key way that we do this. Our Business Transformation Project, which we completed in December 2016, is a prime example of this approach. Manual, paper-based and disjointed processes have been replaced with true end-to-end business processes.

These are customer-centric and more automated, and provide better management information so the business can see and manage performance more easily.

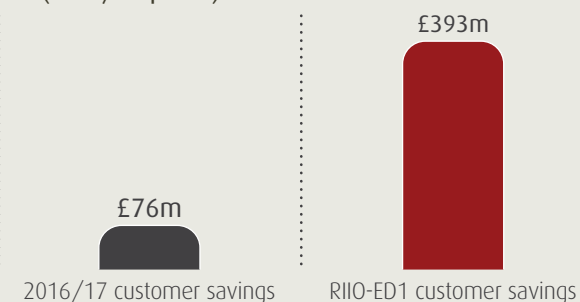
We are incentivised to deliver the outputs our customers want efficiently, and we pass on a proportion of those efficiencies to our customers via reduced charges.

In 2016/17, we outperformed our cost allowances by 20% and customers benefited by £76m. Over the first two years of RIIO-ED1 we have outperformed our allowances by 22% and customers have benefited by a total of £168m.

We did this at the same time as delivering improvements to the condition and capacity of the network as measured by the Health Index and the Load Index. The Health Index monitors the physical condition of the network and we aim to deliver 12.5% of the agreed target each year. Therefore over the first two years of RIIO-ED1 we would expect to have delivered 25% of the total target. We have achieved this across our three licenced networks. We monitor the capacity of our network via the Load Index. We have a minimum target level for the Load Index for 2023, which we must not exceed. In 2016/17 our networks were on average 32% below the pro-rated 2016/17 target.

When we spend money we are keenly aware that it is our customers' money. Our ambition over the RIIO-ED1 period is to outperform our cost allowances by approximately 14%, while still delivering all of our commitments to our stakeholders. Delivering this level of outperformance will result in customer savings of £393m over RIIO-ED1.

### Value of savings £m (2012/13 prices)



### Expenditure analysis

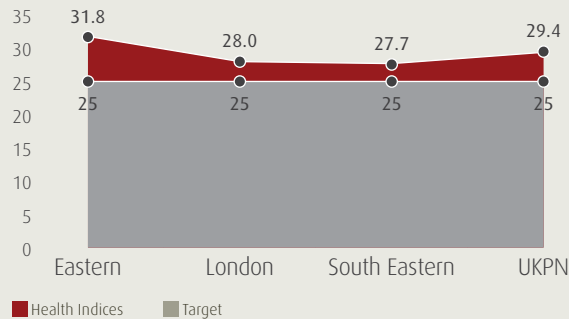
£m (2012/2013 prices)

	Eastern Power Networks				London Power Networks				South Eastern Power Networks				UK Power Networks			
	Actual	Allowance	Difference	Percentage difference	Actual	Allowance	Difference	Percentage difference	Actual	Allowance	Difference	Percentage difference	Actual	Allowance	Difference	Percentage difference
2016/17 expenditure	287	344	57	17%	191	243	52	21%	189	244	55	23%	667	830	163	20%
RIIO-ED1 expenditure	2,194	2,536	342	13%	1,517	1,771	254	14%	1,477	1,722	245	14%	5,188	6,029	841	14%

# Value for money continued

## Health of the network

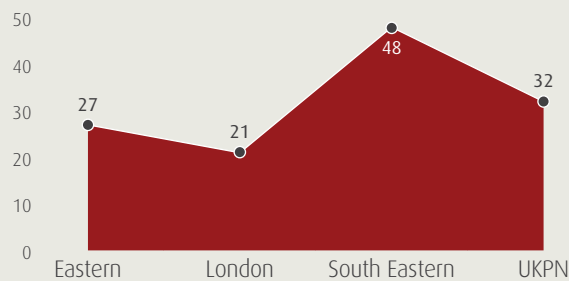
% (Cumulative for the period 2015/16 – 2016/17)



Health indices (HI) measure the condition of the network. The figure in the chart indicates the improvement we have made on our assets in the first two years as a percentage of the overall RIIO-ED1 (eight year) target

## Utilisation of the network – Load Indices

% outperformance of our 2016/17 target



Load indices (LI) measure the capacity and loading at substations. The figure in the chart indicates our position this year against the end of RIIO-ED1 target. A value of less than 100% indicates that we are ahead of target.



## Business Transformation Project

Our Business Transformation Project, which we completed in December 2016, replaced the multiple legacy IT applications in UK Power Networks with state-of-the-art integrated digital systems. Gone are the manual, paper-based processes. We now have customer-centric digital business processes providing real-time management information that helps us run the business more efficiently.

This project touched all parts of our business and included moving approximately 250 million asset records to our new asset management system and deploying more than 2,400 mobile devices to our workforce to allow their jobs to be issued electronically to them.

The end result is a more efficiently managed business, providing better service to our customers at lower cost.



# The future energy landscape

A de-centralised model

## A more flexible and agile energy system

The ways in which we produce, distribute and consume electricity are transforming in front of our eyes. In the coming years, more people will own electric and, eventually own shared access driver-less vehicles, they will use smart appliances in their homes and will generate, store and sell their own electricity.

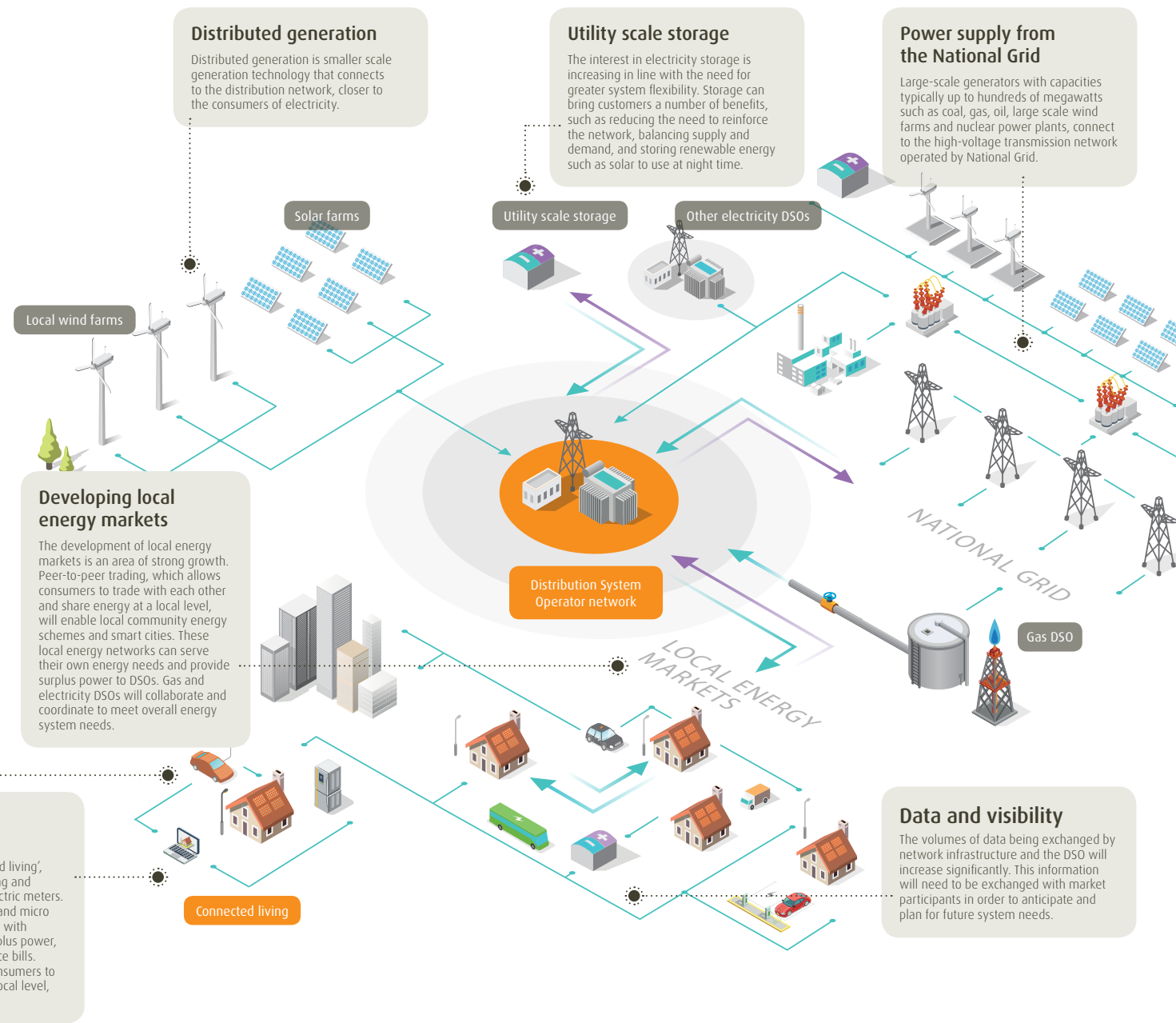
To support these changes and make the transition to a more flexible and agile energy system, we recognise that our role has to evolve. UK Power Networks will transform from being a Distribution Network Operator (DNO) which simply manages the network, to a Distribution System Operator (DSO) which is proactive and enables a smart, flexible system that responds to customers' needs.

### Vehicle-to-grid

Vehicle-to-grid (V2G) allows electric vehicles (EVs) to connect, communicate and sell services to DSOs. Smart EV charging will allow EV owners to charge their car's battery when the electricity price is low and then when the price is high they can either sell the electricity to the DSO or use it themselves.

### Connected technology and microgeneration

Many homes will evolve to support 'connected living', equipped with smart appliances, smart heating and lighting systems and with access to smart electric meters. Some homes will also have microgeneration and micro storage. The combination of domestic storage with self-generation allows customers to store surplus power, and then use it at peak times in order to reduce bills. Finally, peer-to-peer trading, which allows consumers to trade with each other and share energy at a local level, will play a bigger role.





## The future energy landscape continued

# A day in the life of a domestic prosumer

The domestic customer experience could look very different from today and expectations will continue to increase.

At the heart of the transformation to the low carbon future is the interaction customers, companies and communities will have with their energy use and the energy market. Looking to the low carbon future, we explore how a day in the life will be different for a domestic 'prosumer' – an active domestic customer who both consumes and produces electricity.

### 2. Optimising power usage with a home smart hub

After breakfast, Daniel loads the washing machine and sets the cycle to complete by 5pm. This information is relayed to his 'Home Smart Hub' which can communicate and control the smart electrical devices in the household. The Hub checks the forecast and, seeing that it's going to be a sunny afternoon, schedules the washing machine run for 2pm, when the solar panels on the roof will be generating at their maximum. Based on the forecast, he is expecting that the panels will generate excess electricity, which is good since he earns money from the local scheme for the electricity he can sell.

### 1. Being part of a community energy scheme

At 6am Daniel wakes up and hops into the shower, still amazed that the hot water is being supplied by the local Combined Heat and Power plant down the road. He's now been in his house for a month, part of a wider new development with a specially designed community energy scheme, linking the plant, households and their solar panels, offices and battery storage together.

### 3. Saving and making money through adaptable charging priorities

Daniel unplugs his electric vehicle which has reached 90% charge. As he set it to a medium charge priority (guaranteeing 70% charge and using the spare capacity to offer flexibility to the community energy scheme) the spare capacity must have been utilised for flexibility services. Daniel leaves for work, smiling at the thought of the extra money earned.

### 4. Coordinating smart appliances to offer flexible services

The Hub recognises the house is now empty and coordinates the smart appliances in the household to provide flexible demand services to the community energy scheme, with the fridge and freezer temperatures allowed to vary by  $\pm 1^{\circ}\text{C}$ .

### 5. Flexible charging rates for electric vehicles

Daniel arrives home from work, plugs in his EV and sets the charge priority to high which guarantees him a full charge by the morning. He's off on holiday tomorrow and has a long drive in the morning so needs the car battery to be at full capacity. The Hub detects the car being plugged in and removes the offer of flexibility from the community energy scheme.



# Key contacts

## General enquiries

0800 029 4285

## Emergencies or power cuts (24 hours a day)

Free power cut helpline 3-digit number: **105**  
or 0800 31 63 105

Please note this number is free  
to call from mobile phones

## Text message updates during a power cut

To keep updated if you have a power cut in your  
area text **'Power'** followed by your postcode,  
e.g. Power IP3 6QX to 80876

## Text relay

We offer a 24-hour Text Relay service for customers  
who are deaf, hard of hearing or have any other  
communication difficulties. For more information,  
visit [www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk)

## Connection services

0845 234 0040

## Our unregulated business

[services@ukpowernetworks.co.uk](mailto:services@ukpowernetworks.co.uk)

## Media enquiries

0330 159 1712



A full list of our contact details can be found at:  
[www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk)

