Annual Review 2016/17

Transforming power delivery







UK Power Networks is the UK's biggest electricity distributor delivering power to 8.2 million homes and businesses across London, the East and South East. We make sure the lights stay on across 29,250 square kilometres serving 18 million people.



Visit our Annual Review website: annualreview2017.ukpowernetworks.co.uk

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 the three areas below:

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
- > Deliver profitable growth in our unregulated business

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The future energy landscape page 12

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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

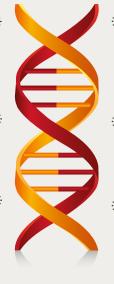
We will do what we say we will do and build trust and confidence by being honest to ourselves, our colleagues, our partners and our customers.

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.



···· Kespect

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

...... Responsibility

We always act in an ethical, safe and socially/environmentally aware manner.

;...... Unity

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

Chief Executive's introduction

2016/17 has been another strong year for UK Power Networks. Once again we have delivered our best performance across many fronts. In this Annual Review we look in turn at these aspects of our business and describe what we have done and how we have done it. The power industry is evolving fast and the pace of change is accelerating every year. We aim to be at the forefront of the future energy landscape, leading the transformation of power delivery in Great Britain.



Our journey

We are proud of our achievements since we started as an independent business in 2010 and the progress we have made in our performance.

Industry-leading safety performance

Excellent network reliability

There were only five occasions in the year where our people needed time off due to injury (called Lost Time Incidents). This resulted in a frequency rate, which is the number of incidents per 100,000 hours worked, of 0.03. This is one of the lowest in the industry.

Lost Time Incident Frequency Rate



Improvement since 2010/11

Our power cut performance has improved by 40% since 2010/11, which means customers now see an interruption on average once every two and a half years compared to an average of once every 18 months.

Frequency of power cuts



On average, a customer connected to our network will be off supply for just over half an hour per year. This is a 49% improvement over 2010/11, when the average duration was 64 minutes.

Duration of power cuts



* 2016/17 figures presented are provisional based on our regulatory submission at the date the accounts are signed. Discussion with Ofgem may result in an increase or decrease on the finalisation of exceptional event claims. The prior year comparatives have been restated to reflect the latest agreed position.

Improvement since 2010/11

Improvement since 2010/11





Read more on pages 16-17



Read more on pages 16-17

As a regulated provider of an essential service, we take our responsibility to our stakeholders extremely seriously. We recognise the privileged position we occupy and the duty that brings to take into account the needs and priorities of people we serve. We work hard to build relationships with our customers, the communities we serve and all our stakeholders. Accountability to our customers is an important aspect of this responsibility. As part of this accountability, we want to be open and transparent, so in this Annual Review we have brought together, in one place, information that we believe stakeholders will find of interest. For example, in addition to the details on the profits we have earned this year we have also set out the incentive revenue we have received from outperforming our reliability and customer service targets.

In the same spirit of openness, we are also publishing data showing the gender breakdown of our employees as we strive to increase the diversity of UK Power Networks.

In recent years UK Power Networks has built a strong foundation. With an established culture of safety, customer service, reliability and innovation, we are well-placed to consolidate our position as a leader in our industry. The people who work at UK Power Networks are of course vital to our success. We work hard to attract, retain and develop the best people in the business. Our results this year are evidence of their talent and hard work and I thank them for that.



Best-ever customer satisfaction rating

Lowest-cost distribution network operator

Recognised again for our performance

Our customer satisfaction rating stands at 86%, the best score we have ever attained.

The average annual cost of distribution services for a domestic customer at £78.99 means we continue to be the lowest cost Distribution Network Operator (DNO).

We have retained our standing in the Sunday Times Top 30 Best Big Companies to Work For, the only distribution network operator to achieve this recognition.

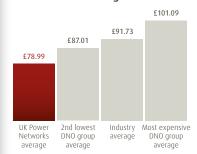
Customer satisfaction score



The figures for 2010/11 are not available as Ofgem began measuring customer satisfaction in this format in 2011/12.

Improvement since 2011/12

Annual domestic charges in the industry



14%

Lower annual domestic charges than the industry average







Read more on pages 18-19



Read more on pages 20-21



Read more on page 07

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 three networks regulated by Ofgem are:

- > Eastern Power Networks plc, serving North London and East Anglia
- > London Power Networks plc, serving Inner London
- > South Eastern Power Networks plc, serving South London, Kent, East Sussex, and parts of Surrey and West Sussex

UK Power Networks Services

Through our unregulated business, UK Power Networks Services, we deliver and manage high voltage electrical and multi-utility networks for owners of major infrastructure. Our portfolio for this part of our business includes a range of high profile clients from both the public and private sector including London's four main airports: Heathrow, Gatwick, Stansted and City, High Speed 1, Network Rail, London Underground, Southern Water, Aspire and Canary Wharf.

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

UK Power Networks in numbers

The area we serve covers more than 29,250 square kilometres from Cromer in the east to Brighton on the south coast.

№ 80,029 GWh

Energy distributed

★ 187,622 km

Total length of overhead (46,010 km) and underground (141,612 km) network

15,279 MW

Peak demand

18 million

Number of people served

171,000

Number of renewable energy generators connected



Where we operate

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.

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.

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.

Our people

Attracting and retaining talented people

It is the people at UK Power Networks who keep the lights on for customers. Our people develop the high tech solutions that lead to improvements, they go out in all weathers to fix faults or stop them happening in the first place. Staff in our service centre make the calls to vulnerable customers to let them know what's happening and our field staff deliver the cards letting customers know about planned power cuts. We want UK Power Networks to be a great place to work, so we can attract and keep the very best people to carry out these and many other vital roles that all contribute to keeping the lights on.

We work hard on a range of fronts to take care of UK Power Networks' employees so they are safe, well and motivated at work. It is our ambition to be the best performing DNO from 2015/16 to 2018/19 and having the best and brightest employees is a key factor in achieving that goal. We do our best to ensure that people are recognised and rewarded for contributing to our success. We strive to be a fair and inclusive employer, providing access to opportunities no matter who you are, and giving everyone the tools they need to build a fulfilling career path at UK Power Networks. We want to keep everyone safe and well at work.

Investors in People (IiP) have once again recognised UK Power Networks as a high performing organisation, awarding us the Gold accreditation. To quote from the award summary;

LiP would like to commend UK Power Networks on the impressive attainment of Investors in People Gold accreditation. This is of particular note given the increased rigour of the IiP sixth generation Framework; the geographical spread of UK Power Networks employees and the 24/7 nature of operations. Congratulations.

Safety

Safety – of our people and of the public – is our number one priority. We have built a culture that puts safety above all other considerations and employees are recognised and rewarded for demonstrating that they live and breathe this priority.

Training and development

We want to attract and retain the best people to work for UK Power Networks. Everyone who works here is given tools to help them map their career. They can also ask to pursue the training and development that will take them where they want to go, choosing from options such as on-the-job, coaching, mentoring, e-learning, classroom training and external study. This year, we spent over £12 million on technical training and people development.





Black, Asian and Minority Ethnic Leaders list

UK Power Networks Director, Patrick Clarke (Network Operations) has been named in a list of the top 100 Black, Asian and Minority Ethnic (BAME) business leaders. The list, compiled by an independent judging panel in association with the Sunday Times, recognises diversity excellence.

Apprenticeships

As part of the power industry's Trailblazer scheme, we offer what we believe to be one of the best apprenticeships in the country. Apprentices in UK Power Networks' Smart Metering programme were the first in the country to complete one of the new apprenticeship standards and went to the House of Commons to receive their certificates. The Duke of Edinburgh Gold Award is also now part of the programme, which is an indication of the level we are expecting from our apprentices. We also run a London Youth Engagement Programme that provides opportunities for long-term unemployed and disaffected young people in London.

We have seen a considerable increase in graduate applications this year and we are delighted with the calibre of applicants, as happened last year, we made more offers than we were planning to because of the high standard of the candidates.

Engagement

Shared vision and values is one of the ways we ensure that everyone at UK Power Networks is pulling in the same direction with a common ambition.



Women in Construction Awards

We are proud that two of our colleagues have been recognised by the Women in Construction Awards. Giulia Privitera, Innovation Engineer, was awarded as Project Manager of the Year and Jointer, Lauren Chappell was named Apprentice of the Year.

Communication at UK Power Networks is a two way process and we use a myriad of ways to keep in touch to share plans, objectives, successes and learning points. From newsletters and safety campaigns, competitions and webcasts, to the CEO's monthly broadcast known as 'Basil TV'. Everyone at UK Power Networks has the chance to hear what is happening, what really matters to the business and to feed back their thoughts and views on it.

Diversity and inclusiveness

In order to recruit and retain the best people to work at UK Power Networks we need to make sure that we are open to every sector of society. To that end, we have begun working towards the National Equality Standard and aim to achieve this accreditation by the end of 2018. This year, we are pleased to report that half our graduate intake for 2017 is made up of BAME applicants. We have also made progress on the gender equality front, with a third of this year's graduate intake being female. This new cohort of recruits serves as an encouraging indicator that we are progressing in the right direction as we work towards a more diverse workforce overall.

Our accreditations and awards won this year include



UK Power Networks continues to feature in the 'Top 30 Best Big Companies to Work For' for the third successive year. We are the only distribution network operator to appear in the list.



This award recognises high-performing, high-achieving organisations that put people at the heart of their success. Only 7% of the 14,000 entrants qualified for Gold accreditation.



We received 'Utility of the Year' three times in five years. The award, which goes to the best utility from the gas, water and electricity sectors, reflects the tremendous progress which we have made over the last six years.



Two UK Power Networks employees were recognised by the Women in Construction Awards. Giulia Privitera was named Project Manager of the Year and Lauren Chappell was Apprentice of the Year.



The UK Power Networks project, energywise, was awarded the Community Energy Award at the European Utility Week Awards.



Flexible Urban Networks at Low Voltage (FUN-LV) Project won the Power award at the Institution of Engineering and Technology Innovation Awards



UK Power Networks Services received a Beacon Award from London Underground for outstanding performance on health, safety and environment at Stockwell during work on the Northern Line Extension.



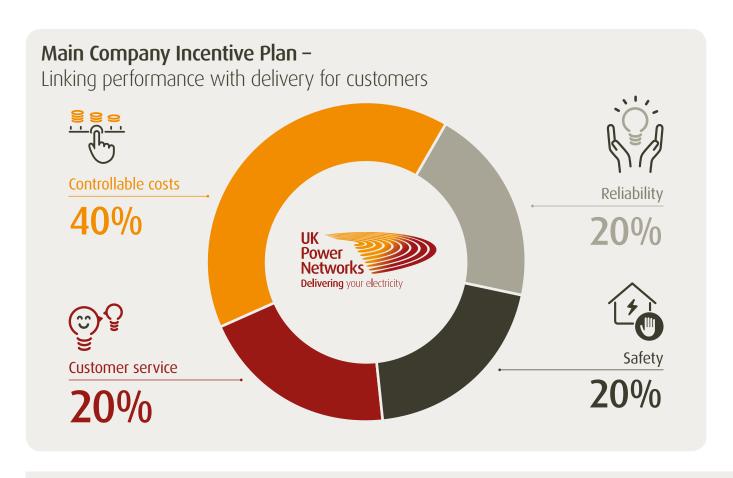
UK Power Networks picked up the trophy in the Large Scale Energy Storage category at the Solar Power/Clean Energy Awards.

Being a transparent business

We recognise that our role as a provider of a critical service brings with it both privilege and responsibility. As such, we want to be open with our stakeholders, encouraging close scrutiny of our operations, giving clear sight of matters such as our financial performance and how we reflect the diversity of the community we serve.

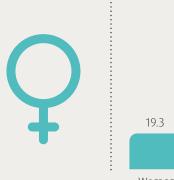
Our financial returns are among the best in the industry. They reflect the industry-leading performance set out in this review. All our employees participate in our Company Incentive Plan. The plan is weighted, with 60% of the incentive based on non-financial performance (Safety, Customer Service and Reliability) and 40% based on our financial performance. This ensures that everyone in the organisation is focused on delivering for our customers.

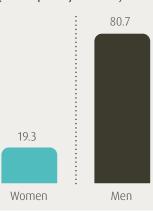
As we strive to become the best-performing DNO from 2015/16 to 2018/19, we are committed to diversity and inclusiveness. By embedding this in our culture we will serve our customers better and ensure we have access to the greatest pool of talent available. This year we have begun working towards the National Equality Standard, and we have the ambition to become accredited by the end of 2018.





Gender Mix % (Company level)

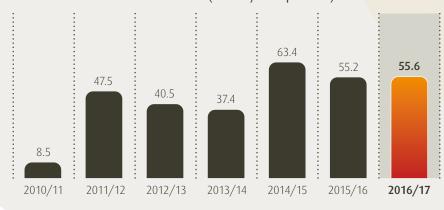






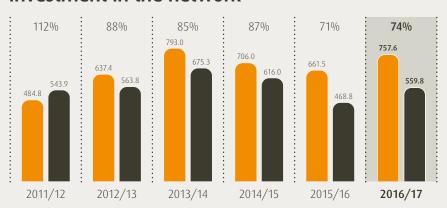
The lack of gender diversity in engineering workplaces is a widely recognised challenge. In its 2015 Skills Survey, the Institution of Engineering and Technology highlighted that females account for only 9% of all engineering and technology employees. Increasing the number of female engineers and apprentices remains a key objective of our diversity strategy.

Incentive revenue £m (2012/13 prices)



Under Ofgem's regulatory regime for our industry, we can earn additional financial rewards by delivering improved service to our customers or be penalised for delivering poor service. The main areas where we can either earn additional rewards, or be penalised are: network reliability; customer service; how we engage with our stakeholders, in particular vulnerable customers; and the service we provide customers who want a new connection to our network.

Investment in the network



On average, we invest 85% of the cash generated from operations in the network.

Operating cashflow (£m) (after interest and tax)

Amount spent on the network (£m)

Organisational resilience

Being a resilient business

In these days of increasing risks and threats from ever-changing technological, commercial and environmental challenges, it is vital to be more adaptable, flexible and agile. These characteristics are typical of a resilient organisation.

Based on an initial study and report by the UK Government's Emergency Planning College (EPC) in 2015, UK Power Networks has been developing a strategy and operational framework that brings together and strengthens all risk-related disciplines and activities. This ensures that we are prepared for the events – both planned and unforeseen – that may affect our ability to "keep the lights on".

Being a resilient business is relevant to all aspects of our operations. The scope ranges from ensuring that we can cope with extreme weather events to having access to sufficient resources, including staff, information technology and finance, to meet our customers' needs on a day to day basis.

This year we have significantly strengthened our governance structure to deliver and maintain a higher level of resilience across the entire organisation. There is corporate level responsibility overseeing the implementation of the strategy and framework for organisational resilience. This is delivered via the resilience committee, which is led by the Director of Network Operations. It is also responsible for providing assurance to the CEO and the Board that the required levels of organisational resilience are in place to support the delivery of the corporate strategic plan.









Strengthening our governance structure

Resilience framework covers all aspects of our business

Seeking external accreditation

Corporate level accountability to oversee organisational resilience



Extract from the EPC's Second Base Line Review of UK Power Networks' Organisational Resilience July 2017

Due to the nature of the business and its focus on health and safety, and in particular to "keeping the lights on" for its customers, there is a clear strength in its ability to plan for and respond to power disruption situations. This is particularly relevant to weather related events e.g. storms.

The most significant 'step change' in the company's level of Organisational Resilience lies in the area of governance and business continuity. Evidence of key BCM building blocks is in place as well as the establishment of the Organisational Resilience Leadership Team.





First in UK

UK Power Networks is the first distribution network operator to go through the Cabinet Office, Emergency Planning College assessment for Organisational Resilience based on BS 65000:2014 Guidance on Organisational Resilience.

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.

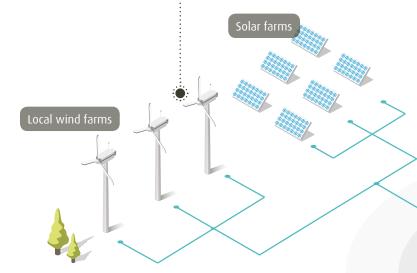
To support these changes and make the transition to a more flexible and agile energy system, we recognise that our role has to evolve. UK Power Networks will transform from being a Distribution Network Operator (DNO) which simply manages the network, to a Distribution System Operator (DSO) which is proactive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

Distributed generation

Distributed generation is smaller scale generation technology that connects to the distribution network, closer to the consumers of electricity.



Developing local energy markets

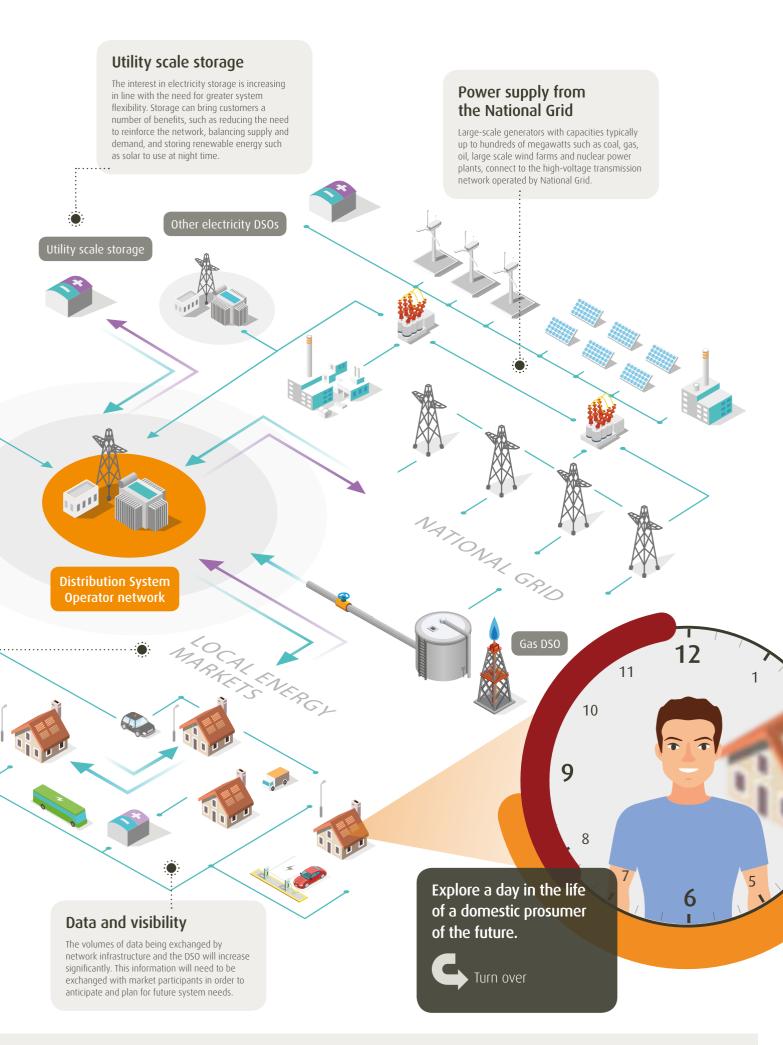
The development of local energy markets is an area of strong growth. Peer-to-peer trading, which allows consumers to trade with each other and share energy at a local level, will enable local community energy schemes and smart cities. These local energy networks can serve their own energy needs and provide surplus power to DSOs. Gas and electricity DSOs will collaborate and coordinate to meet overall energy system needs.



. Connected living

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.



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.

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.

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.

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 +/-1°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.

Delivering on our safety promises

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.



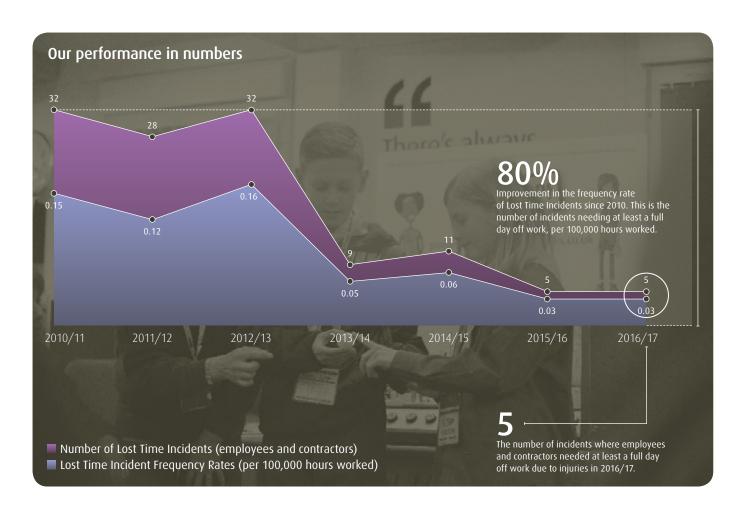


NICEIC & ELECSA



UK Power Networks actively promotes safety in the industry and through effective partnering we were able to reach a large proportion of the domestic tradespeople market.

We look forward to working together on future campaigns.



Think before you dig

Coming into contact with electricity can cause serious burns or even be fatal.

Cables are sometimes 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.



Delivering a reliable electricity supply

It is our job to keep the lights on safely and reliably for all our customers and, as long as everyone is safe and well, we see that as our purpose. As we invest to achieve technical improvements, power cuts have become increasingly rare. These days, when they do happen, they tend not to last long. External factors, particularly severe weather or vehicle accidents can still damage cables causing power cuts. We work hard to keep bringing down both the number and duration of power cuts. A key contributor to these improvements is the Automatic Power Restoration System (APRS). This innovation identifies and isolates the location of a fault and re-routes power on the network so that many fewer customers are affected by the fault for more than a couple of minutes. Once the fault is isolated, we can send an engineer to fix it. That way, only those customers who are directly affected by the breakdown are inconvenienced by a power cut. APRS is a pioneering approach to dealing with faults that is leading the industry.



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, which will be operating in both our rural networks: EPN and SPN.

Feedback from a member of public affected by Storm Doris who attended UK Power Networks' focus group to review our performance following the storm.

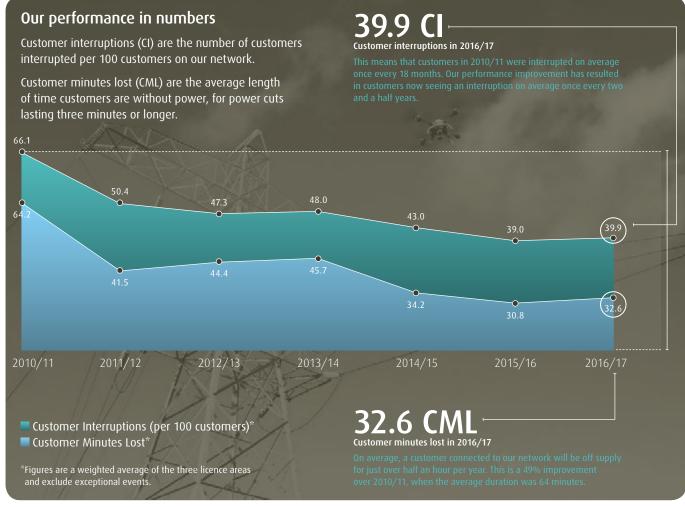


I just think, considering the amount of damage and everything, your whole workforce worked extremely well, I think they worked extremely hard.

90.5%

customer satisfaction for planned outage notification, an increase from 83.4% in 2015/16





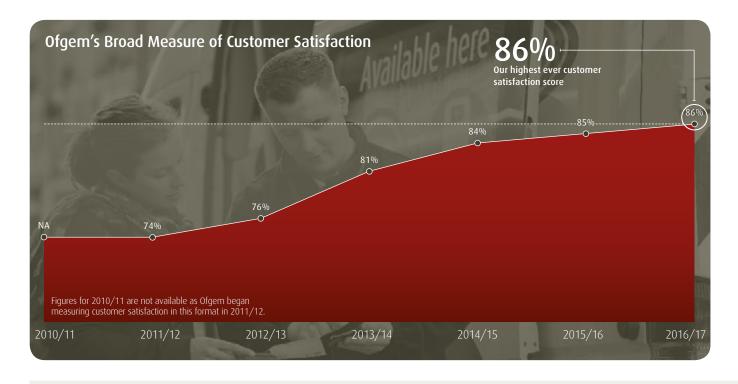
3. Customer satisfaction

Delivering for our customers

Most of the time, we deliver electricity to our customers, who may be unaware of UK Power Networks' existence. Sometimes, though, things go wrong, or customers have a particular request. Those are the times when our service becomes apparent. Our customers' satisfaction is important to us; we take our responsibility to provide the service our customers want very seriously, and to address their concerns quickly and effectively. We pay particular attention to the opinion of our customers who are vulnerable as a consequence of a variety of factors such as ill health, disability or fuel poverty.







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 living 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 group of customers.

7,000 hours

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

Feedback from a customer



We had a power cut this morning.
I contacted your Freephone number and encountered an automated voice response which kept me informed of progress by text message. I would like to congratulate whoever had the system set up. It was the very best automated system I have ever

encountered and the result left me thoroughly at ease rather than irritated by poorly designed communications. The PR value of keeping customers satisfied is not always appreciated by companies. So, thank you.

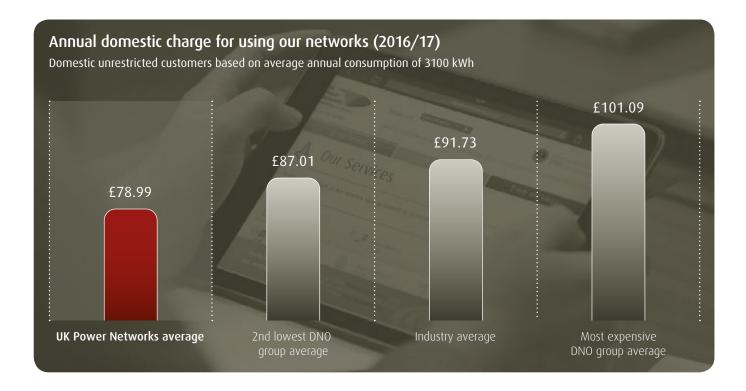


Delivering value for our customers

We understand the pressure that customers can be under. One in ten English households are in fuel poverty and, according to the government's 2016 Fuel Poverty Statistics, all three regions served by our networks saw a rise in fuel poverty in the year. We recognise that when we spend money to operate, maintain or develop our network, we are spending our customers' money, so we are careful to do so only when we have established that it is necessary. We aim to deliver the best service to our customers at the lowest cost. We do this by investing in our systems and processes. For example, our Business Transformation Project identified and developed smarter ways of working.

This relentless focus on efficient expenditure means that our customers continue to enjoy the lowest domestic electricity distribution charges in the industry, alongside excellent reliability and top notch customer service.





Business Transformation Project

Our Business Transformation Project, 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.

Dileep Viswanath

Enzen Executive Sponsor for UK Power Networks Business Transformation Project



In our view, the transformation programme undertaken by UK Power Networks has been one of the most ambitious projects, both in terms of size and scale, delivered by any utility globally.





Delivering support for communities and environment

It is part of our vision for UK Power Networks to be a respected corporate citizen. That means we work closely with communities and their representatives to identify areas where we play an active, beneficial role. Our area of operation covers the whole of London as well as large areas of rural and agricultural land and over 500 miles of coastline around the south east of England. We engage with groups as diverse as parish councils and Community Energy Groups to the London Sustainability Exchange tackling fuel poverty in London. We also play a role in helping safeguard the environment in which we operate, both by reducing our Business Carbon Footprint (BCF) and by taking action to protect and enhance the natural environment.

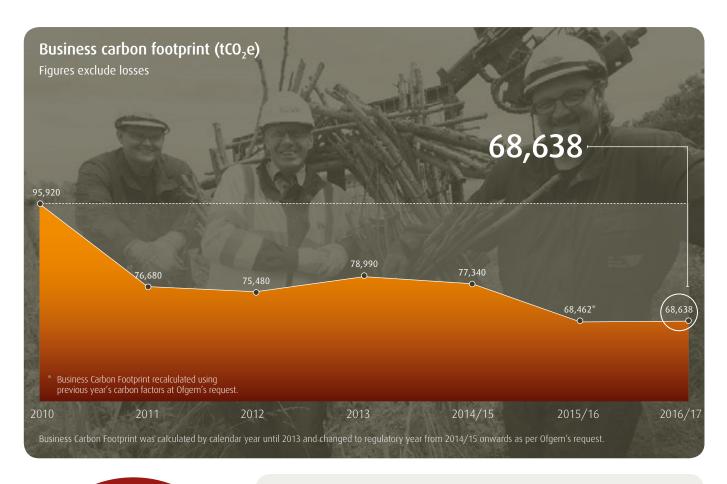




Faith & Power

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 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.



160/0
reduction in the Business Carbon
Footprint of the vehicle fleet working
on our network in the last two years

Ollie PenderedCommunity Energy South



Community Energy South has been supported by UK Power Networks over the last 18 months in a relationship that we find extremely supportive to help us develop local decentralised energy. We see this developing relationship as fundamental to developing local energy economies and resilient communities to meet our future needs.



Delivering a sustainable business

Understanding the priorities and perspectives of our customers and other stakeholders helps us build a sustainable business to deliver a service that meets their needs now and in the future. We achieve this understanding through a comprehensive stakeholder engagement programme that includes Critical Friends Panels, forums and focus groups, bespoke events, research and other mechanisms such as newsletters. This year we have broadened and deepened our stakeholder engagement, introducing new layers of engagement such as a CEO Panel to our Critical Friends Panels.



CEO Panel

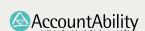
Stakeholder engagement is part of everyone's job at UK Power Networks. It is part of our culture to be alert and ready to hear what stakeholders think and feel about the service we provide. In 2016/17 we established our CEO Panel. The purpose of the panel was to allow our leadership to hear directly from key

organisations, such as charities, trade associations, businesses, customer representatives and academia their perspectives on the main challenges facing our industry. The panel has allowed our leaders to hear directly from these organisations about their priorities and perspectives.

The first CEO Panel was held in March 2017. A key agenda item for the meeting was to explore the concept of the social role of a company such as UK Power Networks. Leaders from a range of charities, along with UK Power Networks' CEO and other senior executives discussed what the social role of a DNO should be.



Extract from AccountAbility Audit



UK Power Networks has demonstrated a notable improvement in the clarity of its stakeholder and customer engagement strategy and a more effective alignment with the company's core business strategy and planning cycle in the last 12 months. Company senior management fully grasp the notion and value of effective engagement as a core driver of sustainable business success.

This is illustrated in the mature and structured approach, evident across the company, to tailor mechanisms to meet the purpose and objectives of engagement, as well as to seek customer and stakeholder input and advice in the development and improvement of company products and services.

Delivering innovation across the business

We are committed to finding ways to improve what we do for our customers. Innovation for us is all about providing a better, cheaper, safer and greener service. It is as much about finding new ways of doing what we do as it is about high tech advances. We are always looking ahead to how things might develop, but we never lose sight of the reason we are here: to keep the lights on.



Mobile Asset Assessment Vehicle (MAAV)

The low voltage (LV) cable network is the last segment of cable connecting our customers to the network. It runs over 89,446km, and faults in it can cause interruptions to the power supply as well as significant energy losses. The MAAV project developed a sensor that finds these faults before they become apparent to customers. Using a sensitive electric field detector and advanced signal processing, the specialist vehicle pinpoints faulty cables before they have begun to cause a discernible problem to customers. This improves reliability and, by reducing the losses, results in a reduction in electricity generation, which in turn saves hundreds of tonnes of CO_2 emissions.

864

Households' worth of CO₂ emissions avoided by repairing faults by the MAAV project

£120m

Innovation benefits delivered to customers over the last two years

£18.2m

Investment in innovation since the start of RIIO-ED1 price control in 2015/16

Joe WarrenChief Executive of Powervault

POWERVAULT

The Domestic Energy Storage and Control project seeks to find out if domestic energy storage, coupled with solar panels on people's homes, can play an important role in the UK's transition to a low carbon economy.

Our homes are changing, with a growing movement of people looking to take control of their energy with domestic-scale batteries. This is particularly true for the UK's one million owners of solar panels, who can now store and use more of the solar energy they collect.

Ultimately, this is about enabling users to live smarter, by optimising their ability to store and use freely-generated solar energy.



Delivering what's needed for a low carbon world

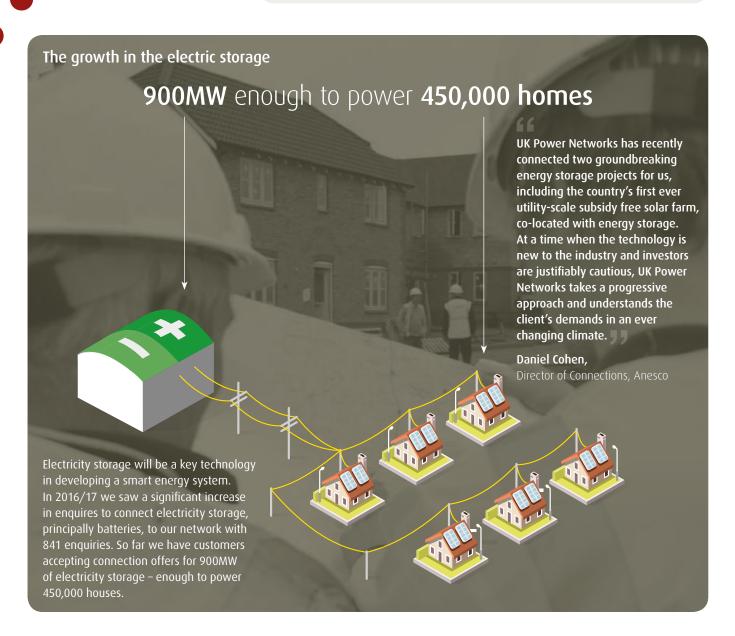
This is an exciting time to be in the power industry. The way that electricity is generated, distributed and consumed is changing. The pace of this transformation continues to accelerate and the landscape is unrecognisable from that of a decade ago. UK Power Networks is in the vanguard of the drive towards 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'). Our commitment to a low carbon future is nowhere more evident than in our drive to transform UK Power Networks from a more passive Distribution Network Operator (DNO) to an active Distribution System Operator (DSO). We are committed to enabling the low carbon future, whilst delivering value to our customers and local communities who rely on our networks for a secure supply of electricity.





Daniel ZeicherMember of Parliament

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



Waterloo bus garage

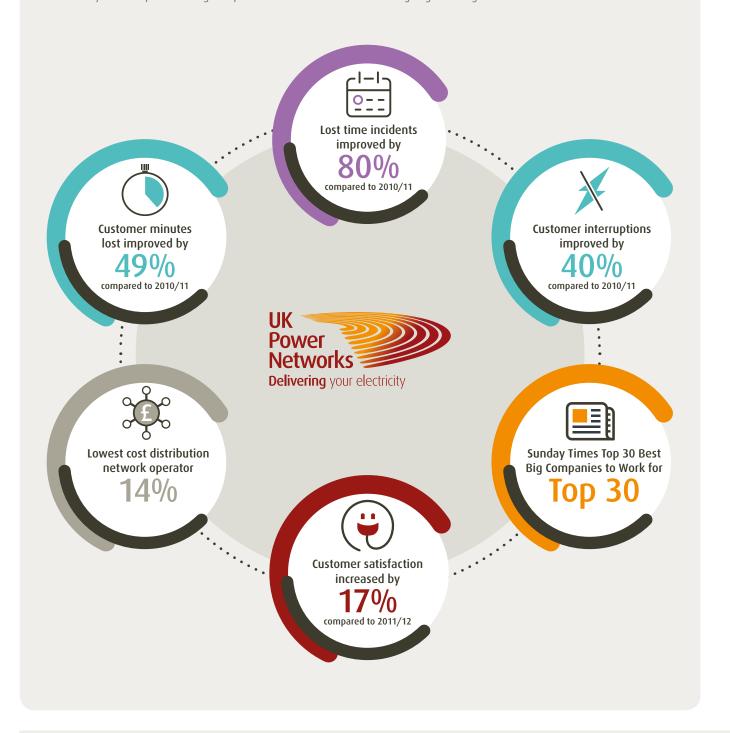
In partnership with the bus operator, Go-Ahead London, UK Power Networks is powering Europe's largest electric bus garage at Waterloo in London. The garage uses an innovative 'timed connection' arrangement, where the garage's 51 electric buses are charged at night, when demand is otherwise low, so they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

A closer look at UK Power Networks

2016/17 was another year of achievement for UK Power Networks. Our safety record has been the best in the industry since 2013, our customer satisfaction level rose to its highest level ever and we again delivered excellent network reliability.

We retained our Gold accreditation from Investors in People and the British Standards Institute (BSI) recognised us for inclusive service provision for our approach to vulnerable customers. In addition, *Utility Week* named us Utility of the Year for an unprecedented third time in five years and we were included in the Sunday Times Top 30 Best Big Companies to Work for.

Our ambition to be the best-performing DNO stems from our commitment to doing the best we can for our customers. It is established in our values that we always seek to learn and develop and we know there will always be room for improvements, but these external accolades tell us that we are going in the right direction.



Safety

Safety is our over-riding priority; it outweighs all other considerations. We never forget that there are inherent dangers in working with electricity. UK Power Networks puts safety – of our employees and contractors and the general public – at the heart of what we do. Everyone joining the company takes part in our Stay Safe training. This programme addresses the natural human behaviour that, if not recognised, can threaten safety at work. It addresses the automatic tendencies we all have to ignore, consciously or otherwise, the risks around us. It helps us recognise how habits, tiredness, personal risk perception and many other factors can lead to unsafe behaviour.

A safety culture

Complacency can be the enemy of vigilance, so we are continually refreshing our Stay Safe programme to keep it vital and relevant. In particular, this year we are introducing bespoke Stay Safe workshops for individual areas of the business, designed specifically to support them in how they meet our common goal of zero harm.

We are building a culture of safe behaviour where we are all 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 so we are committed to a learning culture and this applies especially to our attitude to safety. Meetings usually begin with a safety conversation that may be prompted by a recent event or by one of a set of cards designed to initiate such discussions.

Public safety programme

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. Helping young people to understand the dangers of electricity and what can be done to mitigate them is a key element of our public safety programme. Engagement with schools and other youth groups reached over 35,000 young people last year which covered energy saving advice as well as safety.

We are committed to a long-term programme to improve communications with the public. This programme is designed to reduce the risk to those whose work or leisure activity brings them into close proximity with electricity network equipment. We have undertaken significant qualitative engagement with high-risk target audiences that is informing our communications programmes.

In addition, in 2016/17 we built strong relationships with the fire services across our areas of operation. We have agreed Memoranda of Understanding (MoU) with four of the twelve fire services across our region and are in discussions about this 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.



Case study Agriculture industry

According to the Health and Safety Executive, agriculture is Britain's most dangerous industry. On average, two people are killed and more are injured every year in the UK when they come into contact with overhead power lines and cables during agricultural work. These numbers are reducing, and UK Power Networks is working with the industry to continue to raise awareness of the dangers among farmers and farm workers. As well as getting involved with farmers' education and Young Farmers groups, we attend county fairs and agricultural trade shows across the region, highlighting the risks and providing advice on how to stay safe in the fields.

Targeting safety messages

In 2016/17, we worked with agricultural colleges in East Anglia, helping them to develop modules of their curricula to address safety around power cables on farms and we developed a safety awareness campaign, including social media and cab stickers, for the Road Haulage Association UK.

Using public injury data and near miss analysis, we identified groups considered to be at greater than average risk from electricity network equipment. The groups we identified were private electricians, landowning farmers, and drivers of tipper and grabber lorries. We commissioned a series of independent focus groups with representatives from these sets of people to understand how our communications could be improved to deliver greater impact and ensure a lasting message. This added both preemptive measures to avoid risk and also what to do if they found themselves in a potentially dangerous situation. Drawing on the insights from these focus groups, we have increased our understanding of how we should tailor our messages for each audience, focusing on a specific action or behaviour to effect a change.

A closer look at UK Power Networks continued

Network reliability

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. We work hard to retain our record as the most reliable DNO in the country. Our approach to network reliability is straightforward: we continue to be ahead of the game regarding technological advancement at the same time applying rigorous discipline to our operations. Two developments in 2016/17 that demonstrate this approach are Fusesavers and LV Reclosers. Fusesavers, which have a particular application in rural areas, are described on page 16. LV Reclosers are important in urban areas. We have installed them in 40 sites across London.

We sometimes experience transient (temporary) faults on the electricity distribution network, which result in blown fuses at our distribution substations. This typically results in loss of supply to customers. To reduce the duration of interruptions to customer supplies we have installed LV Reclosers, in place of fuses, at some of our distribution substations. These devices temporarily open a circuit and interrupt supplies to customers when a fault is detected. However, these devices reclose (close the circuit) a short period after the fault and restore supplies to customers without an engineer having to visit the substation if the fault is not permanent.

These innovations mean that the impact of faults on the network is considerably reduced.

Rigorous discipline means that we stay 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 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.

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. Thanks to APRS, when a fault occurs, it is quickly isolated so that only a few customers are affected for more than a couple of minutes.

The weather is one of the greatest causes of faults on the network and 2016/17 delivered more than its fair share of wind, lightning and rain. We are examining the correlation between weather and faults on the network, using Met Office five day forecast data and the nature and pattern of faults on the network. This work will help us continue to improve the quality of supply and to ensure we allocate our resources efficiently in the case of bad weather.

Case study Storm Doris

Storm Doris hit the east and south east of England in February 2017, when 80mph winds caused extensive damage across East Anglia and beyond. We knew that a big storm was coming and we had resources in place to deal with it. We did more than ever before to make sure our customers were ready to deal with the effects of the possible power cuts. Our priorities for Storm Doris were to keep customers as well informed as possible and to restore lost power supply as quickly as we could. Using a variety of channels, we kept customers informed about what we were doing to restore supplies, and we made proactive contact with over 65,000 customers on the Priority Services Register.

Of the 608,000 customers whose supply was interrupted, over half had their power restored within three minutes. Over 98% of remaining customers had their supply restored by the next morning, despite the extent and complexity of the work required.

DAMAGE PEAKED AT 6PM ON 23 FEBRUARY WITH POWER SUPPLIES TO 608,000 CUSTOMERS INTERRUPTED

356,695
RESTORED WITHIN THREE \$98%
OF REMAINDER
RECONNECTED BY THE FOLLOWING MORNING

3,600
STAKEHOLDERS
CONTACTED

NEARLY

WEEKS'

WORK

WAS UNDERTAKEN
WITHIN A DAY

OVER

31,000

CALLS WERE RECEIVED
BY THE CALL CENTRE
ON FEBRUARY 23,
COMPARED TO 1,700
ON AN AVERAGE DAY
THIS IS EQUIVALENT TO OVER 18 TIMES
THE VOLUME OF CALLS IN A DAY

PSR CUSTOMERS CONTACTED THE DAY BEFORE TO HELP THEM PREPARE

PROACTIVE
OUTBOUND
CALLS WERE MADE TO
CUSTOMERS
TO UPDATE THEM

Customer service and satisfaction

Some customers may never know that they are customers of UK Power Networks. When the network is running smoothly, that is as it should be; our service is designed to run quietly in the background. But when lightning strikes or birds fly into cables, or whatever else happens to disrupt the supply of electricity, customers become aware of UK Power Networks. They will judge us on the quality of the service we provide in those circumstances. When a power cut happens, whether as part of a planned programme of maintenance or as a result of external forces such as bad weather, it our responsibility to respond as our customers want us to. This year the introduction of the UK-wide number – 105 – has made it easier for customers to report power cuts and emergencies. We also look after our customers when they have requests, such as wanting to move or upgrade their power supply, or connect to renewable sources of energy.

More proactive communication

This year we have made significant improvements to the way we communicate with customers about planned power cuts. We can identify which customers will be affected and for how long. As well as telling people about planned power cuts by putting a card through their front door, we also send texts to those affected, and we remind them about it the day before the work is taking place. We provide increasingly accurate information about how long the power interruption will last. In 2016/17 we sent over 116,000 text messages telling customers about planned work, including reminders the day before the work started and updates when start and finish times changed.

We extended this principle of proactivity to helping vulnerable customers deal with the effects of Storm Doris in February 2017. When we knew a serious storm was coming, we communicated with customers on our Priority Services Register (PSR) in a number of ways, giving them advice on how to prepare in order to minimise the effects of the likely power cuts. For those customers who had registered as deaf or hard of hearing, we sent communications that were accessible for them. Despite the severity of Storm Doris, the customer service centre received 30% fewer calls from our customers on the PSR during the storm, compared with previous storms such as Storm Katie in 2016. This told us that people were better prepared for the disruption.

More communications channels

Our customers have told us, through our Critical Friends Panels and other ways, that they want a choice of ways to be in contact with us. This year we expanded the communications channels available, starting to use Facebook Messenger and Instagram with customers. We began to offer Browsealoud on our website, which helps blind and partially sighted customers. We are improving the accessibility of other channels and will soon be providing sign language as part of our videochat service. UK Power Networks was the first DNO to introduce many customer communications channels: Webchat, Facebook Messenger, Instagram and Facetime. We were also the first DNO to be awarded the Twitter blue tick verification, which tells people that an account of public interest is authentic. And we were the first to conduct a real time customer satisfaction survey that allows us to understand the impact of a power cut as it is happening or immediately after it.

6,232
FACEBOOK MESSENGER USERS

40% OF CUSTOMERS AWARE OF 105

116,019
TEXTS SENT
FOR PLANNED
OUTAGES



Customer service culture

Our customer service centre in Ipswich is dedicated to making sure our customers are satisfied with our service. There is a 'can do' culture here, and employees are empowered to use their judgement to do what is necessary to respond to customers' needs. We take particular care to look after our vulnerable customers. Loss of power hits certain sectors of society harder than others. People who are unwell, disabled or new parents are just a few of the groups of people who warrant – and receive – special attention from us.

In recent years we have been training our customer service staff to put themselves in the shoes of our callers. We started in 2015 with sensory training. By simulating the sensation of, for example, changing a fuse with arthritic fingers, our trainees were able to experience how difficult this can be for customers. By using special glasses that replicate eye conditions such as glaucoma, our staff began to understand how it feels to be unable to read a leaflet or instructions on an appliance. This style of training has given our customer service employees much greater empathy for our vulnerable callers.

We are expanding this approach to training to address the challenges of dementia, autism and deafness, all of which affect some of our customers. For example, in partnership with the National Autistic Society, we have developed a virtual-reality training module that gives our teams a sense of the experience of autism. If the pilot programme is successful, it will become part of our customer service training. We also piloted the Dementia Friends programme, which improves understanding of dementia and provides practical suggestions on how we can help people with dementia during a power cut. This year, for our deaf customers, we are introducing British Sign Language video relay, to add to the text relay service.

A closer look at UK Power Networks continued

Value for money

UK Power Networks wants to provide the best service to its customers at the lowest cost. We are conscious of our role providing an essential service and we aim to make it as affordable as possible. In addition, we never forget that we are spending our customers' money and that informs our decisions on how and in what we invest. We are also keenly aware that a proportion of our customers are living in fuel poverty; according to government statistics, fuel poverty is rising in our areas of operation in contrast to the rest of the country where it is falling. In this context, as well as keeping a tight rein on costs, we have also focused ever more closely on what we can do to support our customers who have difficulty meeting their fuel bills.

We do this to a large extent through partnerships with organisations that are already established and trusted within the communities where we operate. For example, we work closely with Citizens Advice and community energy companies to deliver our energy efficiency programme, You and Your Home. This programme is an information and advice service that offers customers a range of energy saving tips and advice on energy tariffs, winter fuel and warmth payments and the option of a face-to-face session with an adviser.

Communities and environment

Communities

We are increasingly deeply rooted in communities that we serve, in line with our vision of being a respected corporate citizen. Partnerships are the bedrock of our community connection. This year we have invested time and energy into deepening those relationships so they are bringing ever-greater benefits to the communities in which we operate. As well as working with Citizens Advice, local schools, parish councils and community energy companies, we are also building stronger ties with other trusted organisations that are relevant to our work, such as the local fire services. Our partnership with the Fire and Rescue services ensure that the most vulnerable customers have a home safety check and are registered on the PSR. They also check that these customers are signposted where required for other local support services.

Partnerships

We develop partnerships to ensure that we understand and develop the right services to support each group on the Priority Services Register.

The Priority Services Register (PSR) is the list that captures the needs of those customers and families who would require special support in the event of a power cut. They may be elderly or disabled; they may be new parents or have a family member with particular needs.

We actively develop partnerships with relevant organisations to ensure that we understand the needs of the community that they represent. With their support we co design services and promote the PSR to those who would not otherwise know about it.

Case study Energy Café

In November, UK Power Networks ran an Energy Café in Hastings, offering people advice that helps them cut their fuel bills and get the support they are entitled to. For example, an older, hearing-impaired customer visited the Energy Café. She was looking for face-to-face advice about her recently installed smart meter and her payment schedule. She had a chat with the advisers at the Energy Café who then contacted her electricity suppler and helped her to switch to a fixed tariff paid by direct debit. They also arranged for her to be registered with her energy supplier for the Warm Home Discount and the Priority Services Register.



Some of our key partnerships include Age UK, Alzheimer's Society, British Red Cross, RAD (Royal Association for Deaf people) and National Autistic Society. In 2016/17 we formed a new partnership with British Kidney Patient Association so that we could better understand the needs of our customers who rely upon dialysis in their homes.

Hard to reach and seldom heard

We have also increased our focus this year on those communities who are hard to reach or seldom heard. We want to include as many people as possible in our communications. We do this by identifying seldom heard and their representatives and aim to ensure they benefit from our activities as much as possible. Older people, for example, tend to be less likely to engage with on-line communications, so we use articles in diocesan newspapers and other community connections to make sure we reach this important group. Our research identified that the Muslim community accessed information differently from others, so we formed a partnership with the London Sustainability Exchange (LSx), a group that works in inner London tackling the complex barriers to a sustainable city. With them, we conducted a series of focus groups among the Muslim community to identify the concerns and obstacles faced by this group and are finding ways to overcome them. You can read more about this project and its outcomes on page 23.

Environment

As a key player in the power industry, we take our responsibility towards protecting the environment seriously. We address the environment on a number of fronts. First, we are leading the drive towards a low carbon economy. Innovations in this field will contribute to a reduction in everyone's carbon footprint in our area. Second, we take the opportunity to reduce our own Business Carbon Footprint (BCF) whenever we can. We operate a fleet of more than 3,000 vehicles which are the single largest contributor to our BCF, accounting for approximately 40% of the total. Thanks to a series of initiatives including the upgrading of many of the vehicles working on our network, we have reduced our BCF by 11% over the last two years. Our target is 2% a year, so we are meeting that comfortably and looking for new ways to reduce our impact on the environment. As a result of constructive feedback with a customer in London, we have introduced a 'no idling' policy for our drivers which will further reduce emissions and wasted fuel. We are also well ahead of our target for recycling waste from the street works that we carry out and for diverting the waste produced from our offices and depots from landfill.



Case study Dom's Food Mission

UK Power Networks engineer, Dominic Warren, set up a charity called Dom's Food Mission to help local people in Hastings who are struggling to buy basic groceries to feed their families. He collects surplus unsold food from local supermarkets and distributes it to local families living in food poverty. UK Power Networks is supporting Dom by donating a van to the charity, so he can collect the food donations more efficiently and no longer needs to make multiple trips to the supermarkets, with the seats down in his car. Every Tuesday and Sunday Dom's Food Mission provides tea, coffee and meals in a subway for up to 25 homeless people, using food that would otherwise have been thrown away.

The third way in which we contribute to the protection of the environment is the work we do to safeguard the natural beauty of our area. We have built a groundbreaking relationship with Areas of Outstanding Natural Beauty (AONB) that gives stakeholders a say in where we invest to remove overhead cables, which can detract from the beauty of the countryside. We are pleased to be empowering stakeholders in this decision making. We also work locally on the day-to-day challenges of an electricity distributor, working with local environmental health officers to address fly-tipping and littering around substations.

A closer look at UK Power Networks continued

Stakeholder engagement

At UK Power Networks, we see stakeholder engagement as vital for the sustainability of our business. It enriches our decision-making, increases accountability and improves our ability to identify and anticipate emerging trends and perspectives that might affect our business. In 2016/17 we deepened and broadened our engagement programme. We have looked carefully at whom we engage with and why. By identifying and understanding where we need to learn the most, we will be more effective and so improve what we do for our customers. We review our stakeholder groups regularly to make sure we achieve the right balance of participants. We are looking for a representative spread of types as well as a range of knowledge and interest. Stakeholders include charities, pressure groups, small businesses, local authorities and employees along with the media, trade organisations and industry regulators.

As well as expanding the range of groups with whom we engage, we have also reviewed and refreshed our programme. New this year is the CEO Panel, led by our CEO Basil Scarsella and comprising of senior executives from organisations that represent the interests of our customers, such as Age UK, the Royal Association for Deaf People, and the charity working towards ending fuel poverty, National Energy Action. Complementing the CEO Panel in our engagement programme is a fresh approach to our well-established Critical Friends Panels, and a greater use of forums and focus groups where we work with stakeholders to design services and deepen our understanding of specific issues.

Innovation

At UK Power Networks we are clear about wanting to be the most innovative of all the DNOs. It is part of our drive to be a respected corporate citizen and to be sustainably cost efficient. We innovate in order to provide a service for our customers that is better, cheaper, more reliable, faster and greener. Innovation can be incremental, where a new way of working happens gradually over time, or it may be revolutionary, disrupting the accepted way of doing things. It always involves original thinking. We pride ourselves on encouraging our people and our partners to be the architects of a new solution, or pioneers; blazing a trail that replaces established practices.

The risk inherent in the nature of innovation means that we accept that some will not work out, but we are rigorous in our selection of projects. We demand that they offer good business value and have the potential to deliver measurable benefits for our customers. In particular, we look for projects that support a safer, more reliable, cost efficient power supply with particular emphasis on the transition to a low carbon economy or the future-ready network.

Innovation is not all about technology. It can relate to the human elements of our service, such as how we form partnerships to support vulnerable customers or how we train our client facing staff to help them provide better service to particular groups of customers.



Case study Flexible Urban Networks – Low Voltage (FUN-LV)

At UK Power Networks, we are always looking for ways to meet the demand for electricity in the most efficient way possible. Upgrading the network or adding new substations is expensive, can take months, and causes disruption thanks to the inevitable road works. FUN-LV identifies and releases spare capacity on the network by sharing the load with substations that have capacity, and so avoids considerable expense and inconvenience. FUN-LV works through smart electronic devices that sense when a facility is close to capacity and shares the workload with neighbouring substations that are more lightly loaded.

Low carbon readiness

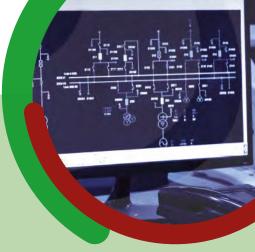
UK Power Networks is a leader in the drive towards a low carbon economy. Much of our innovation is in the field of low carbon power and is geared around the new style of operation where customers are as likely to operate as generators as they are consumers of power. See page 13 for a description of a day in the life of a producer/consumer: a 'prosumer'.

Smart meters

Smart meters are the next generation of power meters that are being installed by energy suppliers in every home in Britain. Smart meters come with an in-home display screen that shows in almost real time exactly how much is being spent on energy. They will bring an end to estimated bills.

UK Power Networks has designed and installed the systems equipment that will allow us to connect to the Smart Metering Data Communications Company (DCC); this means we will be able to offer future benefits to customers who have the latest Smart Meter equipment installed by their electricity supplier. We are working with the suppliers to support the installation of smart meters. In particular, we resolve any issues with our connection that prevents a smart meter being installed. We are the first DNO to introduce quarterly surveys among suppliers; we use the feedback to make sure we are providing the service that our customers require. We are also making sure we have the infrastructure in place so that our Customer Service and Operations staff are able to see and act on information about power cuts through the smart meters. We aim to have this up and running in the first half of 2018.

We understand how important it is to keep data safe in the context of smart meters, so we have established a strong security framework around our systems. Working with a range of industry bodies and stakeholders such as Citizens Advice, we are developing a framework that will enable all DNOs to adopt a common approach towards data privacy. We achieved an excellent outcome from an independent audit of our systems that we commissioned from the Smart Energy Code Administrator in March 2017.



Case study Kent Active System Management (KASM)

The KASM project improves the service we provide to our generation customers and makes better use of capacity on the network. As more renewable energy sources are connected to the distribution network, the flow of energy around it is becoming increasingly complex to plan and manage. Using modelling software and forecasting tools in long term and short term planning, and in near real-time, we can predict usage much more accurately so we can manage the network more efficiently.

This solution is a key step forward for smart grids, particularly in areas such as Kent, where there is a high number of alternative energy sources such as solar and wind farms, and supply can often outstrip demand unless the flow is managed by a system such as KASM.



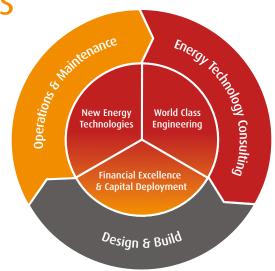
UK Power Networks Services

Delivering safe, sustainable and profitable networks

UK Power Networks also provides services on a competitive, commercial basis for clients running major national infrastructure projects and managing their own private energy networks. This is delivered by our affiliate company called UK Power Networks Services. We develop, deliver and manage safe, sustainable networks delivering high voltage electricity and multiple utilities for major national clients.

Our clients operate services where reliable power supply and innovative solutions are critical to their success. We operate throughout the UK and beyond. We provide a full range of service offerings and support our clients through the full life cycle developing their power system infrastructure.

Globally, markets are rapidly transitioning to low carbon economies. This is impacting all of the UK's leading companies as they upgrade, reinforce and adapt their infrastructure.



We see this as an opportunity to expand our capability into a rapid growing industry and we are evolving our solutions to meet our clients' expectations and needs. We help clients to increase the productivity of their assets, decarbonise their infrastructure and increase the value of their power distribution networks. We help them get the most from the existing asset base, integrating new technologies and aggregating energy solutions to maximise efficiencies and revenues.

UK Power Networks Services enables our clients to realise their infrastructure as a strategic asset.

Our clients

Our portfolio includes a range of high profile organisations from both the public and private sectors, including all four of London's airports, High Speed 1, Network Rail, London Underground, Southern Water, Aspire and Canary Wharf.























Accreditations

Our accreditations reflect our world class engineering capability, safety and quality record.



















2016/17 at a glance – This year we have:





Achievements



Case study Delivering sustainable construction

UK Power Networks Services won the Sustainable Construction Award at Network Rail's Great Western 'World Environment Day' for work electrifying sections of the Great Western Mainline route that runs from London to Cardiff.

We won the award for the revolutionary and innovative use of macro synthetic fibre in place of traditional steel reinforcement for construction of load bearing concrete structures. The fibre was added to the concrete at source, so it was not necessary to construct the steel frames on site, thus avoiding several safety hazards and environmental risks.

This product eliminated both manual handling and working from height on site, instantly lowering the risk of injury. The environmental benefits included a 42 tonne reduction of reinforcing steel going to site and reduction of embodied carbon by 18,000 kg CO₂ equivalent.



RACE THE PLANE WITH HEATHROW AIRPORT We helped Heathrow raise more than £100,000 for the charity Oxfam by racing an aircraft in real time 3,452 miles across the Atlantic from John F Kennedy International to Heathrow.



WE WON A
NETWORK RAIL
SUSTAINABLE
CONSTRUCTION
AWARD

for our work to design and construct 33 substations as part of the Great Western mainline electrification project from London to Cardiff.



WE RECEIVED A
BEACON AWARD
FROM LONDON
UNDERGROUND

for outstanding performance on health, safety and environment at Stockwell during work on the Northern Line Extension.

18,000 kg CO₂

Reduction of embodied carbon equivalent

42 tonnes

Reduction of reinforcing steel

Our financial performance

The tables below summarise the key financial information for our three networks regulated by Ofgem.

Eastern Power Networks plc, serving North London and East Anglia

£m	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17*
Turnover	425.1	480.4	542.4	551.4	608.7	607.4	636.1
EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation)	239.5	295.1	350.1	356.9	411.6	416.8	449.3
Tax charge/(credit)	(12.0)	(10.1)	(9.6)	13.1	30.4	28.9	21.4
Profit after tax	33.1	108.3	146.4	221.5	115.3	178.8	128.4
Operating cashflow post capex, interest and tax	(256.5)	(21.9)	32.6	4.9	16.2	19.3	59.5
Capital expenditure	255.6	245.3	238.1	307.1	288.1	182.9	234.9
Net debt	1,284.1	1,424.5	1,403.0	1,438.1	1,588.5	1,593.5	1,629.8
Regulated asset value (RAV)	1,966.3	2,084.8	2,196.2	2,332.2	2,413.5	2,436.1	2,530.7
Net debt to RAV	65%	68%	64%	62%	66%	65%	64%
Incentive revenue (2012/13 prices)	(1.9)	18.9	17.5	14.9	28.4	24.8	24.6

London Power Networks plc, serving Inner London

£m	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17*
Turnover	362.0	394.2	446.1	481.5	497.0	462.0	502.3
EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation)	224.8	264.6	305.9	349.9	356.2	317.7	347.4
Tax charge/(credit)	5.9	10.5	12.2	24.0	51.2	23.6	31.8
Profit after tax	69.9	147.7	191.2	234.1	193.6	161.0	167.4
Operating cashflow post capex, interest and tax	(253.8)	(3.7)	56.9	63.9	49.6	127.5	65.1
Capital expenditure	139.2	141.6	173.1	192.2	186.6	138.3	155.7
Net debt	908.7	1,012.2	943.9	970.0	989.1	967.9	1,046.6
Regulated asset value (RAV)	1,330.0	1,367.5	1,420.5	1,468.3	1,484.7	1,509.7	1,579.3
Net debt to RAV	68%	74%	66%	66%	67%	64%	66%
Incentive revenue (2012/13 prices)	3.0	7.3	5.8	8.7	12.7	15.7	16.2

South Eastern Power Networks plc, serving South London, Kent, East Sussex, and parts of Surrey and West Sussex

£m	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17*
Turnover	269.9	306.6	356.5	394.8	404.8	388.7	449.0
EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation)	173.3	200.4	250.4	288.0	298.6	279.0	330.1
Tax charge/(credit)	(4.9)	1.2	7.9	19.5	39.4	20.3	33.4
Profit after tax	29.6	91.8	123.7	179.8	151.6	126.9	173.6
Operating cashflow post capex, interest and tax	(274.9)	(33.5)	(15.9)	48.9	24.2	45.9	73.2
Capital expenditure	180.9	173.9	167.3	189.6	154.6	114.6	152.7
Net debt	832.2	911.5	942.8	956.0	1,023.6	980.9	1,025.1
Regulated asset value (RAV)	1,220.5	1,313.4	1,398.5	1,484.5	1,514.1	1,541.8	1,622.1
Net debt to RAV	68%	69%	67%	64%	68%	64%	63%
Incentive revenue (2012/13 prices)	7.4	21.3	17.2	13.8	22.2	14.8	14.8

^{*} Financial information for 2016/17 is presented under the new UK accounting standard FRS 102 and the comparatives in 2015/16 have been restated to be on a consistent basis.

Our ownership

UK Power Networks is part of the Cheung Kong Group (CKG)

Operating in more than 52 countries, CKG has a proven track record in managing high-quality utility companies for the long term. It successfully operates electricity and gas distribution businesses serving communities in Hong Kong, Great Britain, Australia and New Zealand.

Our shareholding structure



40% 40% 20%



CK Infrastructure Holdings

Limited is the largest publicly listed infrastructure company in Hong Kong with diversified investments in energy infrastructure, transportation infrastructure, water infrastructure, waste-to-energy management and infrastructure-related business. Operating in Hong Kong, Mainland China, the United Kingdom, Australia, New Zealand, the Netherlands, Portugal and Canada, it is a leading player in the global infrastructure arena.



Power Assets Holdings

Limited is a global investor in energy and utility-related businesses with investments in electricity generation, transmission and distribution; renewable energy; energy from waste; gas distribution and oil transmission.

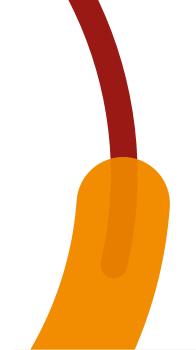


The **Li Ka Shing Foundation**, established by Sir Li Ka Shing in 1980 has supported numerous charitable activities with significant grants,

sponsorships and commitments.

Board of Directors

The Board of UK Power Networks is responsible for managing the group, agreeing strategy, overseeing performance and discharging certain legal responsibilities. The Board delegates day-to-day responsibility for running the group to the UK Power Networks executive management team, with specialist tasks passed to various Board committees.





Kam Hing Lam
Director – UK Power Networks Holdings
Limited and certain of UK Power Networks'
wholly owned subsidiaries

Aged 70, the Group Managing Director of CK Infrastructure Holdings Limited since its incorporation in May 1996. Mr Kam is an Advisor of the 12th Beijing Municipal Committee of the Chinese People's Political Consultative Conference of the People's Republic of China. He holds a Bachelor of Science degree in Engineering and a Master's degree in Business Administration.



Andrew John Hunter
Director and Chairman – UK Power
Networks Holdings Limited and UK
Power Networks' wholly owned
subsidiaries

Aged 58, an Executive Director of CK Infrastructure Holdings Limited (CKI) since December 2006 and Deputy Managing Director of CKI since May 2010. Mr Hunter holds a Master of Arts degree and a Master's degree in Business Administration. He is a member of the Institute of Chartered Accountants of Scotland and of the Hong Kong Institute of Certified Public Accountants. He has over 34 years of experience in accounting and financial management.



Hok Shan ChongDirector – UK Power Networks Holdings Limited and certain of UK Power Networks' wholly owned subsidiaries

Aged 69, Mr Chong is the Chairman and Director of numerous enterprises. He is also a Director of many philanthropic associations, such as the Li Ka Shing Foundation, and a Director of a variety of public committees and commercial associations of Hong Kong. He received a BSc from McGill University and a MBA from Columbia University.



Ivan Chan
Director – UK Power Networks Holdings
Limited and certain of UK Power Networks'
wholly owned subsidiaries

Aged 54, Chief Planning and Investment Officer, Mr Chan has been with CK Infrastructure Holdings Limited since September 1999. He is also the Chief Financial Officer of Power Assets Holdings Limited. He has over 30 years of experience in investment, banking and finance. He holds a Bachelor's degree in Science, a Bachelor's degree in Chinese Law and a Master's degree in Business Administration.



Neil McGee

Director – UK Power Networks Holdings Limited and certain of UK Power Networks' wholly owned subsidiaries

Aged 65, Mr McGee is an Executive Director of Power Assets Holdings Limited and the Managing Director of Hutchison Whampoa Europe S.A.R.L. He holds a Bachelor of Arts degree and a Bachelor of Law degree.



Duncan Macrae

Director – UK Power Networks Holdings Limited and certain of UK Power Networks' wholly owned subsidiaries

Aged 46, Head of International Business, Mr Macrae joined CK Infrastructure Holdings Limited in February 2011. He has over 23 years of experience in the infrastructure investment field. He holds Bachelor's and Master's degrees in Philosophy, Politics & Economics, and is a member of the Institute of Directors in the United Kingdom.



Dominic ChanDirector – UK Power Networks Holdings Limited and UK Power Networks' wholly owned subsidiaries

Aged 54, Mr Chan is an Executive Director and the Chief Financial Officer of CK Infrastructure Holdings Limited and an Executive Director of Power Assets Holdings Limited. He is a fellow of the Hong Kong Institute of Certified Public Accountants, a fellow of the Association of Chartered Certified Accountants and also a member of the Institute of Certified Management Accountants (Australia).



Charles Tsai Director – UK Power Networks Holdings Limited and certain of UK Power Networks' wholly owned subsidiaries

Aged 59, appointed to the Board and Chief Executive office in January 2014. He has been with the Group since June 1987. Mr Tsai is the Chief Executive Officer of Power Assets Investments Limited, a wholly-owned subsidiary of the Company. He is also a Director or Alternate Director of most of the subsidiaries and certain joint ventures of the Company. He holds a Bachelor of Applied Science Degree in Mechanical Engineering, and is a Registered Professional Engineer and a Charlered Engineer.



Chi Tin Wan
Director – UK Power Networks Holdings
Limited and certain of UK Power Networks'
wholly owned subsidiaries

Aged 66, Mr Wan has worked for the Power Assets Group since 1978 and was Group Managing Director of Power Assets Holdings Limited from January 2013 to January 2014. He is an Executive Director of Power Assets Holdings Limited and Chief Executive Officer of HK Electric Investments. He holds a BSc degree in Electrical Engineering and is also a Chartered Engineer. He is an Honorary Fellow of the Energy Institute in the United Kingdom, a Fellow of the Institution of Engineering and Technology, a Fellow of the Hong Kong Institution of Engineers, and a member of the Engineers Registration Board of Hong Kong.



Christopher Clarke
Sufficiently Independent Director of London
Power Networks plc, Eastern Power Networks
plc and South Eastern Power Networks plc

Mr Clarke was admitted as a solicitor of the Supreme Court of England and Wales in 1974. He spent over 30 years practising in Asia and specialised in corporate and regulatory work. He previously served as an INED of two companies listed on the Hong Kong Stock Exchange and is currently a director of Myanmar Strategic Holdings Ltd and a council member of the Royal Society for Asian Affairs.



Paul Jeffery

Sufficiently Independent Director of London Power Networks plc, Eastern Power Networks plc and South Eastern Power Networks plc

Aged 62, Mr Jeffery was previously a Managing Director and Head of the European Power Utility & Infrastructure Investment Banking team at Barclays. He is also a Non Executive Director of Southern Gas Networks Ltd, Scotland Gas Networks Ltd and Saeta Yield S.A.



Basil Scarsella

Director UK Power Networks Holdings Limited and UK Power Networks' wholly owned subsidiaries. Chief Executive Officer UK Power Networks group of companies

Aged 62, Mr Scarsella has been Chief Executive Officer of UK Power Networks Holdings Limited since its establishment in late 2010. He has a degree in Economics and is a Certified Practising Accountant. He is a Life Member of Football Australia and received the Australian Sports Medal in 2000. In 2003 he became a Member of the Order of Australia (AM) for his services to sport. Mr Scarsella is the current Chairman of both the Energy Networks Association (ENA) and the Energy & Utilities Skills Partnership in the United Kingdom.

Executive Management Team

Our Executive Management Team has collective responsibility for running our business and executing our strategy.



Matt Rudling
Director of Customer Services

Matt is responsible for ensuring that UK Power Networks delivers the best possible customer service to our eight million customers in London, the South East and East of England. Matt has worked in the electricity distribution industry for over 25 years, fulfilling a variety of operational and managerial roles. He has a Higher National Diploma in Electrical and Electronic Engineering as well as a certificate in Sustainable Business from Cambridge University.



Nirmal Kotecha
Director of Capital Programme and Procurement

Nirmal is responsible for UK Power Networks' Capital Programme and Procurement. Prior to joining in 2011, Nirmal was a main Board Director at the Highways Agency for three years with responsibility for delivering the Agency's £9 billion Roads Programme. He is an accredited OGC High Risk Project Reviewer and a Fellow of both the Institution of Civil Engineers and the Chartered Institute of Purchasing and Supply.



Suleman AlliDirector of Safety, Strategy & Support Services

Suleman is responsible for safety, strategy and support services at UK Power Networks. He joined in 2015, having previously led the utility network operation practice in the UK for Accenture. Suleman has 15 years utilities experience, delivering business transformation, company restructures and operational performance improvement across gas, electricity and water sectors. He holds a BSc (Hons) in Accounting and Finance from the London School of Economics and Political Science.



Chris DeggDirector of Human Resources

Chris is responsible for the UK Power Networks HR activity, including internal communications. He has over 30 years' experience in senior roles at blue chip companies across the power and drinks sectors. Previous roles included HR Director of Allied Distillers and Director of Employee Relations at EDF Energy. Chris has a BA Honours degree, majoring in Sociology and is a Fellow of the Chartered Institute of Personnel Development (CIPD).



Barry HattonDirector of Asset Management

Barry is responsible for the development and deployment of network and asset strategies for optimising investment and performance. He has over 30 years' experience in the operations and management of electricity distribution networks. Barry is a Chartered Electrical Engineer and a Fellow of the Institution of Engineering and Technology and has a Masters degree in technology management.



lan Smyth
Director of UK Power Networks Services

lan joined UK Power Networks in August 2016, to lead the commercial division called UK Power Networks Services. Prior to joining UK Power Networks Services Ian was a Managing Director at Navigant, a Partner with LCP and a consultant with Ernst & Young. Ian has a BA(Hons) and an MSc in philosophy, psychology, statistics and artificial intelligence.



Richard RobertsDirector of Finance

Richard leads the finance function at UK Power Networks. He has over 17 years' experience in regulated and non-regulated activities in the energy sector. He joined in 1992 from KPMG, where he held a number of senior finance and strategy positions. He is an experienced FCA, having qualified in 1987, and holds a BA (Hons) in Accounting and Finance.



Mark Adolphus
Director of Connections

Mark is responsible for UK Power Networks' Connections business. He joined London Electricity in 1992 as an engineering graduate trainee and has enjoyed a diverse career across a number of operational, engineering and commercial roles. Mark is a Chartered Electrical Engineer and holds a Masters degree in engineering business management from Warwick Business School as well as a degree in electrical engineering from the University of Leicester.



Patrick Clarke
Director of Network Operations

Patrick has day-to-day responsibility for managing the distribution of electricity to eight million customers in East Anglia, Hertfordshire, Kent, Surrey, Sussex and London. He joined the industry in 1978 and has risen from an apprentice to an executive director over that period. He holds a Honorary Doctorate in Engineering, OBE, MBA and an MA.

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**

Connection services

0845 234 0040

Our unregulated business

services@ukpowernetworks.co.uk

Media enquiries

0330 159 1712

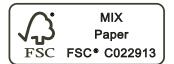








A full list of our contact details can be found at: **www.ukpowernetworks.co.uk**



Heaven 42 is FSC certified, is elemental chlorine free and fully recyclable and bio-degradable giving it excellent environmental credentials

Printed by Pureprint Group using its pureprint environmental print technology, a guaranteed, low carbon, low waste independently audited process that reduces environmental impact. Pureprint Group is ISO 9001, ISO 14001, EMAS and FSC certified and holds the Queens Award for Enterprise: Sustainable Development.

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UK Power Networks Holdings Limited

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www.ukpowernetworks.co.uk

UK Power Networks Holdings Limited is the holding company of the companies in the UK Power Networks group of companies.

