

Central London Plan Update 2019

ENABLING LONDON'S ENERGY TRANSITION



Welcome to the Central London Plan Update 2019

As part of our RIIO-ED1 business plan, we made 77 commitments. One of these was to produce an annual update about the progress we have made on improving the Central London Network.

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Our vision

To be consistently 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:



- > The safest – with an exemplary safety record
- > A place where people love to come to work
- > A diverse workforce
- > An appropriately skilled workforce for both today and the long term



- > The most reliable networks
- > The most satisfied customers
- > The most innovative
- > Deliver on our commitments
- > The most socially and environmentally responsible
- > The leading UK Distribution System Operator



- > Be the lowest-cost electricity distributor

Chief Executive's introduction



“ We are making great progress in delivering the plans set out for the Central London Area. We recognise that delivering power to customers in Central London carries great responsibility, so we continue to find ways to make our network more resilient. ”

Basil Scarsella
Chief Executive Officer

I am pleased to present the third annual update on the progress of our Central London Plan and I am delighted to say that this year has been our best ever year for performance.

We have reduced customer interruptions by 25% over the last three years in London and the duration of power cuts has come down by 13%.

We are making great progress in delivering the plans set out for the Central London Area. We recognise that delivering power to customers in Central London carries great responsibility, so we continue to find ways to make our network more resilient. Reducing the number and duration of power cuts that customers experience is a key priority and we are continually focused on improving our operational response to power cuts. We are building four new large substations to increase capacity by 300 MVA, this is in addition to 500 MVA of existing capacity delivered through other projects in London, all of which supports future growth in the capital. This report provides an update on the progress of our work in each of these areas.



We continue to support the transition to a “low carbon” city, including numerous projects that focus on the facilitation of Electric Vehicles (EV). We have secured funding through Ofgem’s Network Innovation Competition for a large new project, Optimise Prime, the world’s biggest ever electric vehicle trial. The project sets out to find practical solutions to overcome the challenges that are preventing commercial fleets from switching to electric vehicles. As part of our vision to be environmentally responsible, we are trialling electric vans as part of our operational fleet. This will improve air quality for future generations and help to reduce our carbon footprint.

I hope you will find this update informative and interesting. We welcome any feedback on the work we are doing and this report.

Basil Scarsella
Chief Executive Officer

Background to the Central London Plan

The Central London Area contains some of the world's largest political, financial and entertainment districts and is the financial hub of the United Kingdom. We recognise what a great responsibility it is to deliver power to customers in the Central London Area. That is why our plan focuses on delivering the infrastructure that will improve the network.

165,000

The Central London Area contains over 165,000 homes and businesses, the equivalent of 330 MVA

As we developed our business plan for RIIO-ED1, we engaged with our key stakeholders to find out what is important to them. Three main priorities became clear from these discussions and are reflected in our Central London Plan.

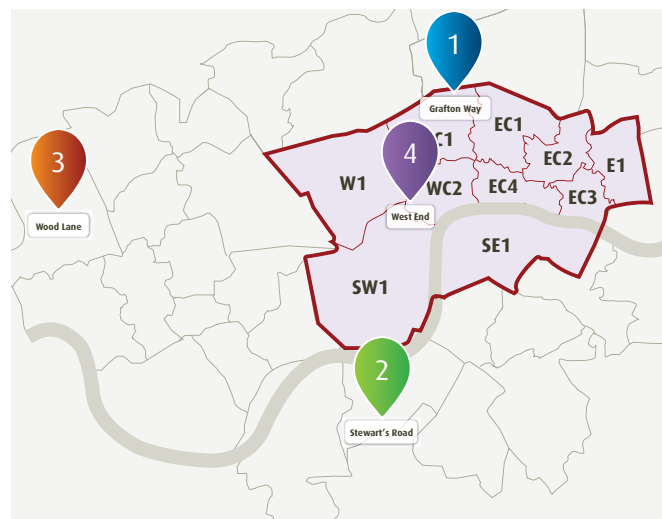
The Central London Plan has three distinct elements:

- > Increase capacity to support growth
- > Improve operational response
- > Invest in network resilience

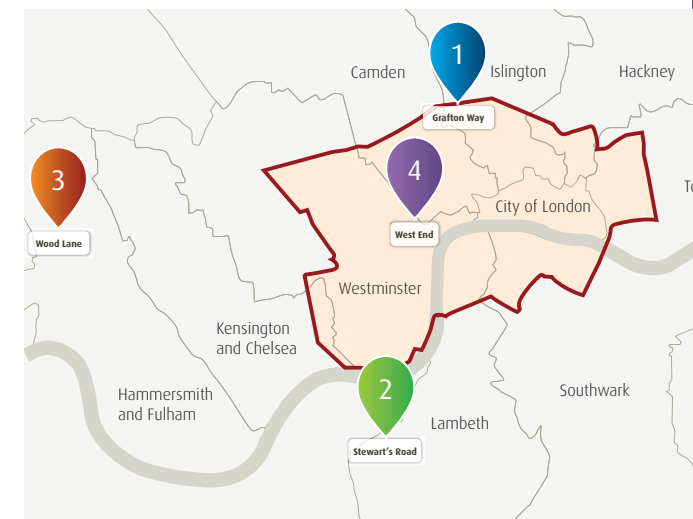
The next few pages provide an update on the progress we have made in these three areas. The maps show the geographic areas in the Central London Area, by postcode and by borough, and the locations of the new substations that will increase our network's capacity.

The Central London Area contains over 165,000 customers and in addition, numerous people visiting and working in the area.

Overview of the Central London Area by Postcode



Overview of the Central London Area by Borough



Markers show where the new substations to increase capacity will be located.

Increasing capacity to support growth

As London continues to develop and grow, so does the need for an increase in network capacity.

As part of our plan to increase capacity to support growth, we are delivering four new substations, located where demand is expected to rise over the coming years. These major new schemes will provide a combined 300MVA of additional capacity, the equivalent of powering 150,000 average homes. These projects will provide the electrical infrastructure needed to support the growth of Central London.



Increasing capacity to support growth



Capacity proposals



Forecast date



Forecast cost*

* In line with regulatory reporting guidelines, the forecast costs here are only the direct costs of delivering the project

Grafton Way



1



86 MVA



December 2018



£13.2m

Background:

Grafton Way is a part of our City Road/ City of London Regional Development Plan. The plan is to build a new substation in the Kings Cross area that will provide an increase in capacity of 86 MVA. This extra capacity will allow load to be transferred from the nearby Back Hill substation.

Progress update:

The equipment that was installed has been fully commissioned and all cables were fitted and connected. This meant we were able to meet the delivery date and establish power supply to the substation on the 20th August 2018. This was in line with when University College London Hospital required their supply. We cleared the construction site in December 2018 and the project is now complete.

Stewart's Road



2



86 MVA



December 2019



£33.3m

Background:

We proposed the building of a new substation to facilitate the development of new planning proposals in the Vauxhall, Nine Elms, Battersea area on the south bank of the Thames.

This substation will facilitate:

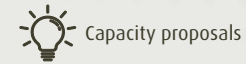
- > Power to 16,000 new homes;
- > Power to an extension to the London Underground Northern Line; and
- > Regeneration of Battersea Power Station

Progress update:

Construction of the substation began in January 2018 and we have undertaken preparatory civil works for the substation, such as excavation for the cable basement and supporting work for the structure. The building's steel frame was erected and installed in December 2018. We also completed the installation of the 132kV cable support brackets in the existing tunnel infrastructure. We have begun pulling the 132kV cable through the tunnel from Wandsworth Grid and are on target to achieve our completion date of December 2019.



Increasing capacity to support growth



Capacity proposals



Forecast date



Forecast cost*

* In line with regulatory reporting guidelines, the forecast costs here are only the direct costs of delivering the project

Wood Lane



3



43 MVA



September 2021



£16.1m

Background:

The London Borough of Hammersmith and Fulham and the Greater London Authority have agreed a new White City Development, with mixed office, residential and community use. The site is close to the BBC Television Centre and Westfield shopping centre. A new substation in the White City area was proposed to support the new development.

Progress update:

Ongoing negotiations regarding the site mean that we have not yet started the construction of the new substation, however we expect to do so early in 2019. The 132kV cable works began in October 2018 and we expect to complete the project in September 2021.

West End



4



86 MVA



2024



£36.5m

Background:

London's West End is one of the most economically important areas of London. It encompasses the entertainment districts of Leicester Square and Covent Garden, as well as shopping districts on Oxford Street, Regent Street and Bond Street. We are developing plans to construct a new substation to provide additional forecast capacity.

Progress update:

We have completed the land search to identify sites for the substations and have found a number of feasible solutions. We are in discussion with landowners to develop site specific designs. A feasibility study for the tunnel will also be carried out to align the location of the site to the tunnel requirements. The three substations that currently supply the area are not forecast to exceed capacity before the new substation is completed.

Improving operational response

A reliable power supply in Central London is vital for such an economically significant capital city.

To reflect this our RII0-ED1 business plan proposed establishing an operational depot specifically for the Central London Area, with teams available to respond to problems on the network 24 hours a day, seven days a week. Now fully operational, the depot has been a great success in helping significantly reduce response times.

17
CMLs

in London, which is a 44%
reduction since 2013/14

Improving operational response

Shorts Gardens

Our Central London office is the base for over 100 members of staff, who can respond to any high or low voltage fault from its central location near Covent Garden. The performance improvements seen as a result of the depot are detailed below.



Reducing the time taken to arrive at a fault:

- > The office is staffed 24 hours a day, seven days a week, so there is always a qualified member of staff available to respond to a fault. Before we opened this depot, engineers would have to be called out from their home, which could be some distance from Central London.

The time taken to arrive on site has **reduced significantly**, with a reduction of 57% from 2014. It now takes an average of only 44 minutes to arrive at a fault*.



Reducing the duration of power cuts in Central London:

- > We have 24-hour response and repair teams working in shifts, so teams are always ready and able to respond to faults. Mobile stores delivering to site means that our engineers can get to work more quickly, instead of needing to travel to depots to collect parts and materials.

The number of customers off supply for more than 12 hours has **reduced by 96%** since 2014, with only 17 customers off supply for more than 12 hours.



Reducing the number of power cuts in Central London:

- > We have dedicated teams on a shift pattern that are responsible for maintaining the LV interconnected network. In addition, the introduction of Ultra High Speed fuses onto the network means that teams can work safely on the network without having to turn off the supply to customers. This reduces the number of power cuts.

The number of customers affected by a power cut in Central London has **reduced by 31%** since 2014.



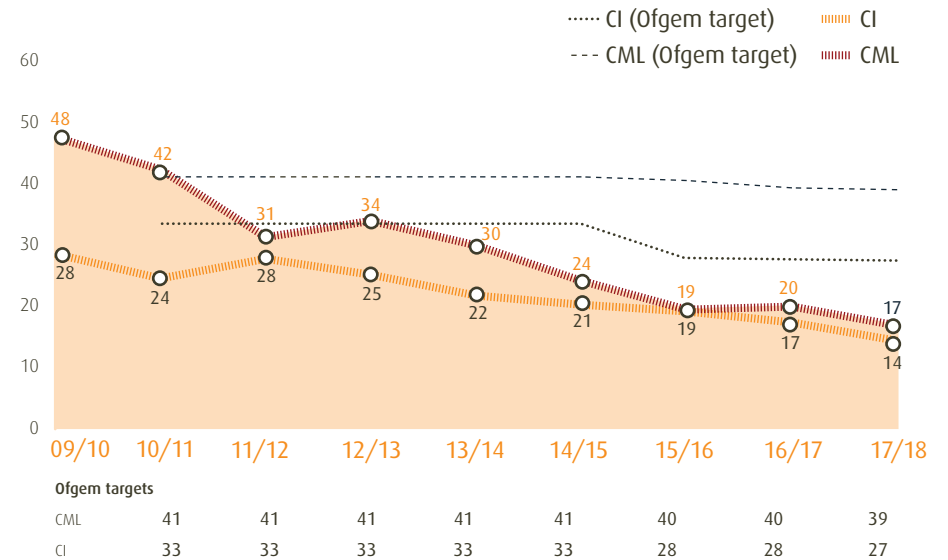
Improvement in customer satisfaction:

- > As a result of the measures taken to reduce the number of power cuts and their duration, our customer satisfaction score for the Central London Area has improved greatly, reflecting our good work.

Customer satisfaction scores are currently at **88%**, for supply interruptions.

*as of November 2018 year to date

LPN overall network



The CI and CML targets set by Ofgem for the whole London network were set more tightly to reflect the performance improvements expected as a result of establishing our Central London depot. Since 2013/14, when the Central London depot was opened, Customer Interruptions (CIs) in London have improved by 34% and Customer Minutes Lost (CMLs) by 44%.

Investing in network resilience

In order to continue improving our performance, we need to invest in making our Central London network more resilient.

The complex nature of the Central London network is a factor in its resilience, but also makes the tasks of operating the network more complicated. We are implementing a range of methods to improve network resilience. These include focusing on linkbox and substation inspections and introducing new high-tech control systems and network designs.

100%

A protection blanket has been installed in every linkbox in Central London*

*where access allows



Investing in network resilience

Increasing resilience of interconnected groups

The Central London network is unique in the UK in that it operates low voltage interconnected networks, which means that we can supply power to customers from multiple high voltage supply points. The advantage of this design is that it helps us support large amounts of concentrated electricity demand and we are able to continue to provide power to customers even when there is a fault on the high voltage network.

The design of these networks has evolved over time to provide better safety. In order to develop the design of these networks further, we have designed a new concept using unit protection. This new design aims to reduce the complexity of operating the low voltage network while ensuring that no supply is lost for a High Voltage circuit fault. This will improve safety and avoid customer interruptions.

Update on new equipment testing:

- > Full site surveys of substations are underway, to establish which sizes of new gear will fit into the respective sites
- > We have worked with manufacturers to develop the new compact and ultra compact switchgear types and we have received sets of sample equipment
- > The protection assessment and settings for the unit-protected conversion is in progress
- > Sample gear will be installed this year to enable its testing and to train operational staff to use the equipment
- > Following the testing of the gear, we will install the new equipment for a trial in the Leicester Square area
- > If the trial is successful, we will roll out the equipment to other sites

Linkbox and substation inspections

Linkboxes allow us to rearrange the low voltage network by providing links between multiple electrical cables. They are installed under covers in the pavement and are operated by inserting or removing either solid links or fuses. We inspect all linkboxes in Central London once a year, to check for defects. We have installed a protection blanket in every linkbox in Central London (where access allows). The blanket is designed to remove air/gas present in the enclosure in the linkbox and also to reduce the impact if a fault occurs. We are now in the process of installing protection blankets in all of our linkboxes. We also check our substations annually in order to spot and fix defects, to prevent them developing further. These checks contribute to the improvement of the network's availability and reliability.



136

linkboxes have been replaced in 2018



A protection blanket has been installed in every linkbox in Central London*

*where access allows

3,529

linkbox inspections carried out in 2017/18

4,130

substation inspections carried out in 2017/18

London highlights

We recognise the importance of finding innovative ways to ensure environmental sustainability in London and the key role that we play in facilitating the uptake of electric vehicles.

We have been working on a number of projects such as the electrification of buses and taxis and the development of charging points around the capital to support the transition to a low carbon future. We also continue to work closely with members of the public to increase their knowledge and understanding of fuel efficiency.



Our vision is about being an employer of choice, a respected corporate citizen and sustainably cost-efficient. We always ensure the work we do supports our vision.



London highlights

Optimise Prime

We are excited to announce that we have been successful securing funding for the world's biggest ever electric vehicle trial. Optimise Prime sets out to find practical solutions to overcome the challenges that are preventing commercial fleets from switching to electric vehicles.

With businesses buying 58% of all new vehicles in the UK, it will be commercial vehicles that determine the speed of the transition to low carbon transport. We have secured securing funding of over £16 million for the three year project under Ofgem's Network Innovation Competition (NIC) mechanism.

UK Power Networks and Hitachi will run the project along with a number of partners including Royal Mail Group, Centrica, Uber and Scottish and Southern Energy Networks. Optimise Prime is supported by the Mayor of London and Transport for London and it will help the UK achieve its carbon emission and air quality targets by delivering over 2.7m tCO₂ eq. of carbon savings by 2030. For the UK to meet its carbon-reduction targets, EVs must go from 1.7% of all new vehicles sold today to 60% by 2030. In the first phases of this transition, over 50% of the electric vehicles sold will be to commercial electric vehicles. The flexibility provided by the project will also free up enough capacity on the electricity network to supply a million homes.

Our first electric van fleet

This year we were the first of London's utility networks to put electric vehicles on the roads, as part of our operational fleet. We are trialling eight electric vans in our fleet to help improve air quality for future generations and reduce our carbon footprint, which is already down by 16.7% since 2015.

We are installing 27 charge points across 14 of our company's offices and depots. We plan to power the charge points with on-site solar generation at six of the locations.



“ We are leading the development of a smart, flexible grid to support electric vehicles, improve air quality and reduce our carbon footprint. Piloting electric vehicles in our fleet and introducing electric vehicles to the company car list is improving the environment for communities now and investing in the health of future generations. We are committed to being the most environmentally responsible and lowest cost electricity network operator.”

Patrick Clarke
Director of Network Operations

Shepherd's Bush bus garage goes electric

Thanks to a new electricity connection provided by us, a fleet of environmentally friendly buses are now operating from Shepherd's Bush bus garage. The new connection enables 36 new electric buses to charge overnight. The project represents a major contribution towards reducing pollution.

The work has provided an additional 2.5 megawatts of capacity to power buses on two of the major routes out of the garage. It uses a 'timed connection' which has avoided the need to build extra electricity cables and infrastructure to charge the vehicles.

By adopting this new approach, we have reduced costs for the bus garage, which is able to draw its maximum power requirement between 11pm and 6am when local electricity demand is very low.

Shepherd's Bush is the fifth London bus garage to 'go electric' thanks to extensive work by us.

900 tonnes of CO₂ saved

The first bus garage to go electric was in Waterloo, London in August 2016, which was the first in the UK and saved 900 tonnes of CO₂ in its first year.

London highlights continued

MyBnk

We have partnered with a leading charity, MyBnk, to empower young people to be more energy and money smart. Using Japanese cartoon Manga-inspired energy heroes, MyBnk developed lesson plans to help primary school children understand how they could save energy.

The programme, Money Buzz, forms part of our extensive energy efficiency initiative that provides advice to customers who may be in fuel poverty. Money Buzz targets schools that have more than the average number of pupils eligible for the pupil premium. Schools are paid a pupil premium payment for every child who receives a free school meal. This ensures the programme reaches children from lower income families whose energy costs are a relatively large proportion of household income. Each of the programme's workshops is backed up with teacher lesson plans and family packs allowing the pupils to continue their learning experience at home.

260 children took part in the trial programme, which ran in Hackney and Waltham Forest, and half pledged to turn off lights to help save energy after completing the lesson. The expanded Money Buzz programme will be rolled out to even more school children, with almost 1,000 children expected to take part this academic year.

MyBnk

Repowering London

We have partnered with Repowering London, a not-for-profit organisation that specialises in creating and delivering local sustainable energy projects. It supports communities to develop, own and manage renewable energy projects that deliver social, environmental and financial return back into the community.

Since 2012, Repowering London has worked on social housing estates in Brixton to deliver community owned-renewable energy projects. It has built strong relationships with local organisations and estate residents. These relationships are based on trust and on a track record of creating tangible community benefits.

Following the success of award-winning projects, Repowering London is expanding its work across London. It now works with the councils of Lambeth, Croydon, Hackney and Kensington & Chelsea. Our funding continues to provide Repowering London with the resources to support people struggling to manage the cost of their fuel bills.



Since the project began:

154

people have received one-to-one support (includes energy audits or switching advice)

93

Priority Service Registrations

£2,626

Energy supplier/tariff switching: Total savings (£/year)

145

people engaged via drop in sessions

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

0800 029 4280

Media enquiries

0330 159 1712



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

