

Investing in the electricity network

Tipton 2017/18



WESTERN POWER 
DISTRIBUTION

Serving the Midlands, South West and Wales

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Meet your local team



I'm John Kendrick the Distribution Manager for Tipton. We cover an area in the West Midlands known as the Black Country which includes Dudley, Sandwell, Walsall, Wolverhampton and the surrounding areas. Our network is a variety of urban and rural comprising of 9,395km of underground cables and 561km of overhead line which we aim to keep working efficiently in order to keep the lights on for our 547,639 customers.

I lead a team of 207 staff which includes craftspeople, planners, wayleaves officers, engineers and a new intake of apprentices every year. We are located at Toll End Road, Tipton, DY4 0HH. If you wish to discuss our investment with me, or my team, please get in touch using the details opposite.

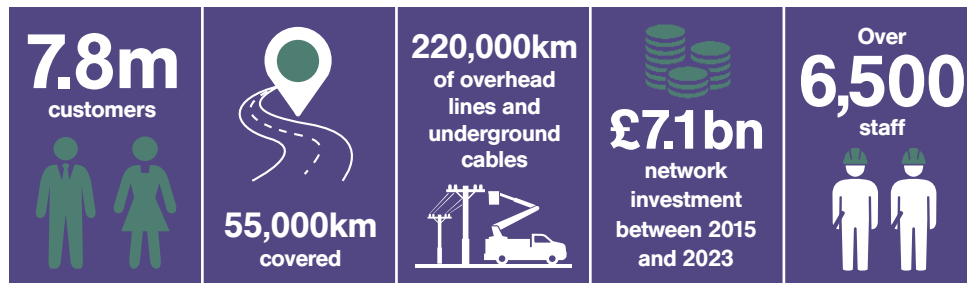
Why I am writing to you

Western Power Distribution (WPD) is investing £7.1 billion in the electricity distribution network between 2015 and 2023. This investment will go into reinforcing the existing network, improving network reliability, providing additional capacity and upgrading equipment.

We want to make sure that all of our stakeholders are aware of the changes and improvements being made, particularly in their local area.

This brochure details the investment to the Tipton electricity network that WPD is making and specifically some of the local projects that are being undertaken by my team this year.

Western Power Distribution has:



Who we are and what we do

Western Power Distribution (WPD) is a Distribution Network Operator (DNO). This means we are responsible for the network of underground cables, overhead lines and substations that distribute electricity to customers' homes and businesses every day.

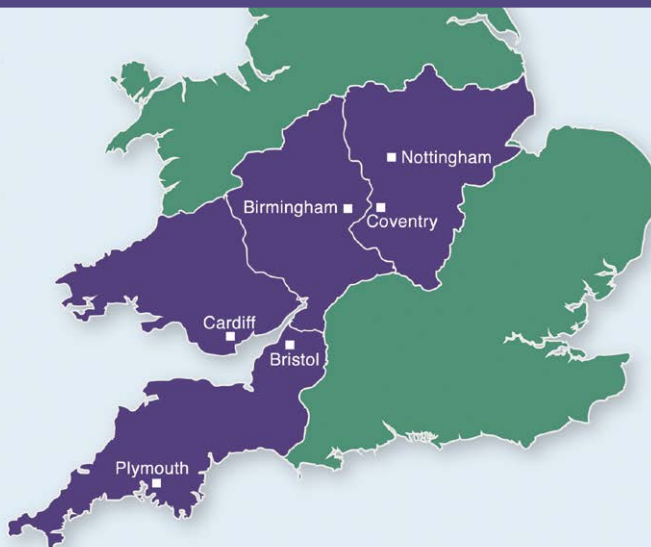
Our key responsibilities

- Operate the distribution network assets effectively to keep the lights on.
- Maintain our assets to ensure they remain in a reliable condition.
- Fix our assets if they get damaged or are faulty.
- Upgrade the existing networks or build new ones to provide additional electricity supplies and capacity for our customers.
- We are not an electricity supplier (the company who looks after your meter and sends bills).



Where we operate

WPD covers the East and West Midlands, South West England and South Wales. In the West Midlands we have depots in Birmingham, Telford, Gloucester, Tipton, Hereford, Worcester and Stoke.





WPD investment

Our network covers densely populated residential areas and widely dispersed rural communities from the Wash in Lincolnshire down through South Wales and to Land's End and the Isles of Scilly in Cornwall. The diversity of our network can cause a variety of issues across the distribution area. This, combined with the age of the network (a large proportion of our assets were built in the 1960s) and recent environmental challenges, mean we will need to invest more than ever to keep our network efficient and reliable in order to keep the lights on.

Our business plan outlines our investment commitments until 2023 and was submitted to our regulator, the Office of Gas and Electricity Markets (Ofgem), in 2015. WPD was the only

DNO out of six in the UK to have its Business Plan 'fast-tracked'. This allowed us to maximise and secure our investment funding early. In 2015-2023 we have committed to investing £7.1 billion in our network while reducing charges to customers by an average of 13%. This results in a total investment of £2.11 billion in the West Midlands network.

In 2018, WPD is investing
approximately

£21 million

in Tipton

Project types

Due to the diversity of our network, various issues arise which must all be dealt with. This requires a range of engineering solutions to keep our network running. These solutions can be categorised as follows:



Asset replacement

Directly changing our network assets, usually due to condition or age.



Reinforcement

Upgrading of our network to deal with increased demand.



Cable undergrounding

Replacing an overhead line with an underground cable for either safety or environmental reasons.



Worst served customers

Improving the network for those with the most outages (over 12 outages in three years).



Resilience

Mitigating against the effects of adverse weather; building flood defences, tree trimming, etc.



Cable diversions

Moving the cable in the ground due to new building works.



Project locations

WPD is constantly carrying out works to maintain and improve the network, yet the large one-off projects that we commission by looking at the entire network tend to get reported more often. However, we believe that the smaller, local projects are just as important and therefore must be reported to the customers affected in the local area.

This brochure will detail a selection of the projects that are planned and being completed in 2017 and 2018 in the Tipton area.

The map below shows the locations of 2017/18 projects in our Tipton region. For information of works in the rest of the WPD area, please visit our website.



Projects in Tipton



All areas

Tipton Automation



Total spend: £1m

Customers affected: 300,000

Start quarter: Q1 2017

End quarter: Q4 2017

Duration: 10 months

Details: Continuing programme of automation to 76 of our strategic substation sites.

Customer benefits: Following a fault on our 11kV network, a significant amount of customers can be restored within the first three minutes.

North East

Darwall Street Walsall



Total spend: £181,319

Customers affected: 7,784

Start quarter: Q2 2016

End quarter: Q4 2016

Duration: 4 months

Details: Replacement of 18 11kV Switchgear Circuit Breakers due to condition and no fault indication. The substation feeds Walsall town centre (12MVA).

Customer benefits: Network rationalised to reduce equipment required. Devices fitted with remote control to allow quick operation and fault indication.



Projects in Tipton

North West

Perton Orchard



Total spend: £22,019

Customers affected: 1,277

Start quarter: Q3 2017

End quarter: Q4 2017

Duration: 2 months

Details: Existing 11kV equipment fitted with remote switching equipment to allow quick operation and fault indication.

Customer benefits: Quick restoration times, and a complete primary can be restored via the equipment.

Harriots Hayes Lane Albrighton



Total spend: £137,880

Customers affected: 2,628

Start quarter: Q3 2017

End quarter: Q4 2017

Duration: 3 months

Details: 1,000 metres of 11kV underground cabling to split a mainly overhead network from an underground network.

Customer benefits: Quick restoration times, and a complete primary substation can be restored via the equipment.

Cosford Area



Total spend: £150,000

Customers affected: 1,725

Start quarter: Q1 2015

End quarter: Q2 2017

Duration: 24 months

Details: Network area is both underground and overhead (rural). Manual switching devices fitted with remote control and fault indication.

Customer benefits: Network improvement to increase devices fitted with remote control to allow quick operation and fault indication.

Wood Hall, Codsall Wood



Total spend: £102,700

Customers affected: 2,500

Start quarter: Q4 2017

End quarter: Q2 2018

Duration: 6 months

Details: Undergrounding part of an 11kV spur which has received a number of faults in the last three years, then looping it with another 11kV circuit to improve connectivity.

Customer benefits: Improved interconnection of the 11kV network, reducing the chance of a fault and the duration of any fault.



Projects in Tipton

South West

Lye Primary



Total spend: £500,000

Customers affected: 38,000

Start quarter: Q1 2017

End quarter: Q4 2017

Duration: 9 months

Details: Our primary substation in Lye required interconnecting to other primary substations in the area so that supplies could be restored in the event of a complete loss emergency scenario of Lye Primary. This involved the installation of 2.2km of new cable and the recommission/redesign of 5km of existing cable.

Customer benefits: All customers who are supplied from Lye Primary benefit from this increase in network security. This covers the areas of Lye, Stourbridge, Pedmore, Wollaston, Wollescote, Quarry Bank and Hagley.



South East

Nimmings Road



Total spend: £110,000

Customers affected: 6,000

Start quarter: Q3 2017

End quarter: Q4 2017

Duration: 1 month

Details: Switchgear was replaced and automated to allow WPD's control centre to monitor and operate it remotely.

Customer benefits: Fewer customers affected in the event of a fault, and those who are will be restored more quickly.

Hagley Road West



Total spend: £165,000

Customers affected: 11,000

Start quarter: Q2 2015

End quarter: Q3 2015

Duration: 1 month

Details: Switchgear was replaced and automated to allow WPD's control centre to monitor and operate it remotely.

Customer benefits: The project achieved a 90% improvement in the restoration of supplies to customers following a power outage.



Projects in Tipton

Temple Way Phase 1



Total spend: £77,395

Customers affected: 74

Start quarter: Q3 2017

End quarter: Q4 2017

Duration: 4 months

Details: Network in this area has been subject to a number of faults, therefore 450 metres of low voltage cable has been replaced.

Customer benefits: Replacement of deteriorating low voltage cables will increase the reliability of the network and reduce the length of interruptions for our customers.

Temple Way Phase 2



Total spend: £101,283

Customers affected: 86

Start quarter: Q3 2017

End quarter: Q1 2018

Duration: 5 months

Details: Network in this area has been subjected to a number of faults, therefore 500m of low voltage cable is to be replaced.

Customer benefits: Replacement of deteriorating low voltage cables will increase the reliability of the network and reduce the length of interruptions for our customers.

Putney Lane



Total spend: £63,000

Customers affected: 86

Start quarter: Q2 2017

End quarter: Q2 2017

Duration: 1 month

Details: In conjunction with the Severn Trent Water Elan Valley project, the opportunity was taken to renew assets, install transformer protection and replace a manually operated overhead switch with an automated one.

Customer benefits: Network improvement with the undergrounding of overhead lines. Remote control device will reduce the amount of customers affected by a fault situation.

Tipton Rd Switch House



Total spend: £65,000

Customers affected: 1,300

Start quarter: Q3-4 2017

End quarter: Q3-4 2017

Duration: 1 month

Details: Existing 11kV equipment replaced with remote control switching equipment to allow quick operation and fault indication.

Customer benefits: Network improvement with remote control switching devices in strategic locations to allow quick operation and fault indication reducing supply interruptions to customers.



Projects in Tipton

Edwards Close



Total spend: £71,556

Customers affected: 1,500

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 1 month

Details: 11KV equipment that has reached the end of its life has been replaced with modern equipment that can be controlled remotely.

Customer benefits: In the event of a fault, fewer customers will go off supply and those that do will be restored quickly.

Summerfield Avenue



Total spend: £80,000

Customers affected: 73

Start quarter: Q3 2017

End quarter: Q1 2018

Duration: 3 months

Details: Network improvement replacing the cable which has deteriorated since its installation 40-50 years ago. LV cable overlay.

Customer benefits: Reduced length of interruptions.



Major projects in the West Midlands

Worcestershire

Worcester-Redditch & Worcester-Evesham



Total spend: £12.5m

Customers affected: 95,600

Start quarter: Q2 2014

End quarter: Q2 2018

Duration: 4 years

Details: Installation of a new 21km cable between Feckenham Grid Supply Point and Evesham Bulk Supply Point to ensure network compliance. Works were completed at Feckenham and Evesham to accommodate the new cable.

Customer benefits: Improves network security and reliability as well as increasing capacity for future network connections.

capacity for generation connections. This was done by installing a new switch house and replacing the old outdoor oil circuit breakers with indoor gas-insulated circuit breakers.

Customer benefits: Increases the fault level capacity, which gives new customers the ability to connect distributed generation to the network. Improves the security, resilience, and flexibility of the network.

Telford

Telford



Total spend: £2.3m

Customers affected: 43,000

Start quarter: Q4 2016

End quarter: Q4 2017

Duration: 1 year

Details: Increasing the fault level rating at the Bulk Supply Point to alleviate equipment stress with the additional benefit of increasing network

Hereford and Ludlow

Ludlow



Total spend: £1.7m

Customers affected: 8,000

Start quarter: Q4 2015

End quarter: Q4 2017

Duration: 2 years

Details: Installing a new transformer and 33kV board to improve the network security and capacity.

Customer benefits: Increased network resilience. Increased flexibility and operability at 33kV.



Major Projects in the West Midlands

Birmingham

Birmingham South West



Total spend: £2.87m

Customers affected: 14,800

Start quarter: Q1 2017

End quarter: Q2 2018

Duration: 15 months

Details: A new transformer and switch room is to be installed to increase the network capacity and security.

Customer benefits: Increased network security and resilience. Increases the available capacity at Selly Oak.

Birmingham South West



Total spend: £3.2m

Customers affected: 17,800

Start quarter: Q1 2015

End quarter: Q3 2017

Duration: 30 months

Details: Replacement of both transformers at Solihull was needed due to asset condition. The decision was made to replace them with larger capacity transformers to improve the firm capacity of Solihull.

Customer benefits: Improve network resilience. Increasing network capacity for future connections.

Gloucester

Chipping Sodbury



Total spend: £1.06m

Customers affected: 21,576

Start quarter: Q2 2017

End quarter: Q4 2018

Duration: 18 months

Details: Rebuild of the existing 7km Oxbridge-Alveston 33kV circuit to increase the internal rating from 24MVA to 40MVA.

Customer benefits: Improve network resilience. Increasing network capacity for future connections.

Stoke

Stoke West



Total spend: £0.8m

Customers affected: 5,396

Start quarter: Q1 2018

End quarter: Q2 2019

Duration: 15 months

Details: Replacement of both transformers at Goldenhill Bank with larger units to increase capacity for future network connections.

Customer benefits: Improve network resilience. Increasing network capacity.



Innovation Projects in the West Midlands

Electric Nation



Electric Nation is the world's biggest electric vehicle project, running throughout the WPD area. The main aim is to investigate the use of Electric Vehicles (EVs) and their impact on the electricity network. It will trial an innovative managed

charging system allowing control over charging at peak times.

As the EV market increases in the UK, WPD is looking to:

- understand the effects on the network of charging various vehicle and battery types.
- understand how vehicle usage affects charging behaviour.
- evaluate the reliability and acceptability to owners of EVs of demand control services and the influence these have on charging behaviour.

Participating EV owners will be trialling a smart charging system that will control the demand from electric vehicles in the event of their load on the local electricity network being too high.

The project began in April 2016 and will run until October 2019. For more details please visit the website: www.electrictionation.org.uk

ENTIRE/Flexible Power



Project ENTIRE focuses on the use of Demand Side Response (DSR) to help manage the network more efficiently. DSR involves customers adjusting their usage to help the network. Where cost-effective, DSR can help defer or avoid reinforcement, reducing costs for customers.

ENTIRE aims to address the conflicts between DNO requirements and those of other parties such as National Grid. To achieve this, WPD will develop new systems and contracts with commercial customers to provide benefits to the network under its Flexible Power brand. Customers will also be encouraged to seek alternative revenue sources when not required by WPD, either independently or through WPD's managed service. This focus on stacking revenues should increase the value for participants while reducing the cost to the wider customer base.

The project will run along the M1- M40 corridor, with completion expected in 2020. More details can be found at www.flexiblepower.co.uk



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