

Investing in the electricity network

North Devon 2017/18



WESTERN POWER
DISTRIBUTION

Serving the Midlands, South West and Wales

Contacts in your area

Somerset:

Christian Hjelm

01823 348571

chjelm@westernpower.co.uk

Venture Way, Priorswood Ind Estate,
Taunton, TA2 8DE

Devon:

Paul Elsen

01392 352550

pelsen@westernpower.co.uk

Osprey Road, Sowton, EX2 7WP

Mendip:

Neil Patten

01761 405130

npatten@westernpower.co.uk

Radstock Road, Midsomer Norton,
Bath, BA3 2AA

and

1 Warne Road, Winterstoke,
Commercial Centre, Weston-super-Mare,
Somerset, BS23 3UU

Bodmin:

Mike Rogers

01208 892239

mrogers@westernpower.co.uk

Lostwithiel Road, Bodmin, Cornwall, PL31 1DE

Bristol:

Gwyn Jones

0117 933 2145

gjones@westernpower.co.uk

Avonbank, Feeder Road, Bristol, BS2 0TB

North Devon:

Andy Manning

01271 347720

amanning@westernpower.co.uk

Victoria Road, Barnstaple, Devon, EX32 8PR

West Cornwall:

Jon Nesbitt

01209 616742

jnesbitt@westernpower.co.uk

Trevenson Road, Pool, Redruth, TR15 3RF

Plymouth:

Chris Garnsworthy

01752 502006

cgarnsworthy@westernpower.co.uk

Elliot Road, Prince Rock, Plymouth, PL4 0SD



Meet your local team



I'm Andy Manning, the Distribution Manager for North Devon. We cover the North Devon/ Cornwall coastline from Lynton in the North to Bude in the South and as far as Okehampton to the West. The North Devon network is predominantly rural, comprising over 4,100 km of overhead line and 1,200 km of underground cables, which we aim to keep working efficiently in order to keep the lights on for our 197,000 customers.

I lead a team of 120 staff, which includes Team Managers, technicians, craftspeople, planners and engineering specialists. We are located in Victoria Road, Barnstaple, EX32 8PR. If you wish to discuss our investment with me, or my team, please get in touch using the details opposite.

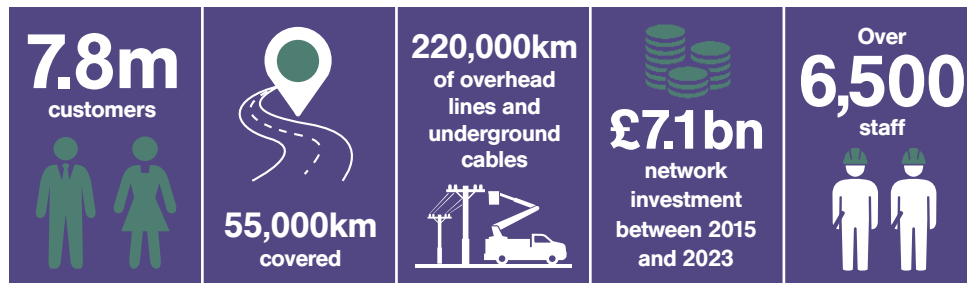
Why I am writing to you

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 in the North Devon 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 South West, we have depots in Bodmin, Bristol, Devon, Plymouth, Redruth, Sowton, Taunton and Weston-Super-Mare.





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, means 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 £1.71 billion in the South West network.

In 2018, WPD is investing
approximately

£10 million

in North Devon

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 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 could 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 North Devon area. The map below shows the locations of those projects.

For information on works in the rest of the WPD area, please contact us or visit our website.



1. Widemouth Bay
2. Marhamchurch, Hobbacott Lane
3. Bude, Meadow Drive
4. Holsworthy, Glebeldans
5. Hatherleigh, Victoria Rd
6. East Curry
7. Berner's Cross, Winkleigh
8. Watertown, Appledore
9. Cornborough road, Westward Ho!
10. Torrs Bridge, Lynmouth
11. Instow to Cedars, Barnstaple
12. Homelea, Newton St Petrock
13. Mazzard View
14. Chivener Cross
15. Score Bungalow, Ilfracombe
16. Worth Road, Ilfracombe
17. Georgeham, Putsborough Rd
18. Georgeham



Projects in North Devon

Bude

Widemouth Bay



Total spend: £5,000

Customers affected: 15

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 1 day

Details: Replacement of all pole fittings and some poles on a section of network 300 meters from the coastline that has been suffering from reliability issues due to component failure.

Customer benefits: Completion of this project will increase reliability of the 11kV and low voltage (LV) network.

Marhamchurch, Hobbacott Lane



Total spend: £28,000

Customers affected: 100

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 2 weeks

Details: Undergrounding of high and low voltage overhead lines to allow for a new housing development. Upgrading two underground substations to allow for more capacity.

Customer benefits: Increased capacity and network flexibility, allowing LV system to be back fed.



Projects in North Devon

Bude, Meadow Drive



Total spend: £27,000

Customers affected: 200

Start quarter: Q3 2017

End quarter: Q3 2017

Duration: 1 month

Details: Installation of 400m high voltage cable automated switchgear, fully funded by WPD.

Customer benefits: Project to reinforce network to allow automated back feeding of large housing estate in the event of a fault.

Holsworthy, Glebelands



Total spend: £40,000

Customers affected: 116

Start quarter: Q3 2017

End quarter: Q3 2017

Duration: 2 months

Details: Replacement and upgrade of large transformer to reinforce network.

Customer benefits: Replacement of ageing assets and increased capacity.

Hatherleigh, Victoria Rd



Total spend: £70,000

Customers affected: 80

Start quarter: Q1 2017

End quarter: Q2 2017

Duration: 3 months

Details: Approximately 700m of overhead line and 12 poles being replaced with underground cables due to horizontal clearance issues. WPD funded.

Customer benefits: This will address the safety issues surrounding the clearances and remove the overhead line from sight.

East Curry



Total spend: £186,000

Customers affected: 89

Start quarter: Q3 2017

End quarter: Q4 2017

Duration: 3 months

Details: Replace 3,000m of aluminium overhead conductor with copper. Replace 93 wood poles and 10 pole-mounted transformers.

Customer benefits: Make the network more reliable and help reduce the number of interruptions experienced by customers.



Projects in North Devon

Barnstaple

Torrs Bridge, Lynmouth



Total spend: £44,668

Customers affected: 71

Start quarter: Q4 2017

End quarter: Q1 2018

Duration: 4 months

Details: Replace substation and upgrade to 800kVA. Automating the switchgear.

Customer benefits: Improved network reliability; automated switching.

Mazzard View



Total spend: £89,694

Customers affected: 131

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 3 months

Details: Installation of two new substations and 1,200 meters of high and low voltage underground cables for a housing development.

Customer benefits: Underground network in place, now with additional feeders.



Chivener Cross



Total spend: £81,000

Customers affected: 5,637

Start quarter: Q2 2017

End quarter: Q3 2017

Duration: 2 months

Details: Install 650m of high voltage underground cable to remove three poles and 200m of high voltage overhead conductors.

Customer benefits: This will allow for the building of affordable housing in North Devon.



Projects in North Devon

Score Bungalow, Ilfracombe



Total spend: £10,719

Customers affected: 5

Start quarter: Q2 2017

End quarter: Q3 2017

Duration: 1 month

Details: Removing one span of overhead line and replacing with underground cable.

Customer benefits: Allows for system replacement and removes low clearance issue.

Worth Road, Ilfracombe



Total spend: £35,666

Customers affected: Two holiday parks

Start quarter: Q2 2017

End quarter: Q3 2017

Duration: 2 months

Details: Complete substation change and reinforcement of the high voltage network.

Customer benefits: Replacement of ageing assets and providing alternative feed.

Georgeham, Putsborough Rd



Total spend: £16,203

Customers affected: 30

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 3 months

Details: LV overhead refurbishment; replacing decayed poles and LV overhead conductors.

Customer benefits: Security of overhead network. Reliability of supply to customers.

Georgeham



Total spend: £2,639

Customers affected: 2

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 1 month

Details: Two overhead cables placed underground because of low ground clearance.

Customer benefits: Security of supply to the customers and avoiding possible damage to our equipment and customers' buildings.



Projects in North Devon

Torridge

Watertown, Appledore



Total spend: £17,856

Customers affected: 13

Start quarter: Q1 2018

End quarter: Q1 2018

Duration: 6 days

Details: This project will remove nine decayed poles and involve the full refurbishment of the LV overhead network.

Customer benefits: This project removes decayed poles from the system while at the same time improving network reliability.

Cornborough road, Westward Ho!



Total spend: £21,000

Customers affected: 7

Start quarter: Q4 2017

End quarter: Q4 2017

Duration: 5 days

Details: This project repositions a transformer away from the flight path of LOMAS helicopters.

Customer benefits: Replacement of ageing assets and addressing safety issues around the flight path of commercial helicopters.

Instow to Cedars, Barnstaple



Total spend: £780,000

Customers affected: 1,100

Start quarter: Q4 2017

End quarter: Q1 2018

Duration: 2 months

Details: Full refurbishment of the LV network, including the replacement of 187 poles and 7km of LV overhead conductor.

Customer benefits: Replacement of ageing assets and increased network reliability.

Berner's Cross, Winkleigh



Total spend: £34,440

Customers affected: 5

Start quarter: Q1 2018

End quarter: Q2 2018

Duration: 2 months

Details: Replacement of two HV poles and two spans of HV overhead conductor. Upgrading the pole-mounted transformer and refurbishing the LV overhead network.

Customer benefits: This project will rectify voltage issues and lower the number of LV faults.



Major Projects in the South West

Bridgwater to Seabank



Total spend: £1.4m

Customers affected: 72,199

Start quarter: Q2 2016

End quarter: Q2 2017

Duration: 1 year

Details: Upgrade to Churchill 132kV substation, refurbishment of 132kV overhead lines and protection changes at various substations.

Customer benefits: Agreed as a target project with Ofgem, the scheme delivered further opportunities for generation to be connected in Devon and Cornwall.

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Falmouth, Bickland Hill



Total spend: £1m

Customers affected: 12,469

Start quarter: Q3 2017

End quarter: Q4 2017

Duration: 6 months

Details: Due to the age and condition of the equipment, the two 33/11kV transformers and the 11kV switchgear have been replaced.

Customer benefits: New, more modern equipment will provide a more reliable supply to the local area for many years to come.

Fraddon



Total spend: £6.5m

Customers affected: 47,276

Start quarter: Q1 2016

End quarter: Q2 2018

Duration: 2 years

Details: Reinforcement of the grid transformers and associated 132kV circuits was required. The final result will see two new grid transformers and some 132kV cable sections. We also replaced the aged outdoor EHV substation.

Customer benefits: The scheme will deliver further opportunities for generation to be connected in Cornwall and a more reliable network for many years to come.

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Ilfracombe



Total spend: £600,000

Customers affected: 9,306

Start quarter: Q1 2017

End quarter: Q4 2017

Duration: 9 months

Details: Due to the age and condition of the equipment on site, the two 33/11kV transformers were replaced in turn.

Customer benefits: This will deliver a more reliable and long-lasting network better able to cope with any rising customer demand.



Major Projects in the South West

Old Green Windfarm



Total spend: £800,000

Customers affected: 1

Start quarter: Q2 2017

End quarter: Q4 2017

Duration: 9 months

Details: Connecting a new 7MW wind farm to the north of Bristol, the customer installed a new 132kV substation and WPD redirected an existing 132kV tower line.

Customer benefits: Supporting the move towards further renewable generation with the connection of a wind power generation site.

Sherford



Total spend: £112,000

Customers affected: 5,500

Start quarter: Q1 2017

End quarter: Q4 2017

Duration: 9 months

Details: WPD successfully connected a new EHV substation to the east of Plymouth. This will take the load required by the new Sherford development.

Customer benefits: Connecting supplies to a new community development with the potential to build 5,500 homes and the associated infrastructure.

Budleigh Salterton



Total spend: £320,000

Customers affected: 2,375

Start quarter: Q2 2017

End quarter: Q3 2017

Duration: 3 months

Details: Due to the age and condition of the equipment, the 33/11kV transformers, 33kV switch and 11kV switchgear were replaced.

Customer benefits: New, more modern equipment aided by being moved indoors will provide a more reliable supply to the local area.

Taunton



Total spend: £1.2m

Customers affected: 10,658

Start quarter: Q2 2015

End quarter: Q3 2018

Duration: 3 years

Details: Assets on site were ageing. EHV switchgear and transformers were replaced with two new units able to transform more load. The replacement of the HV switchgear will follow.

Customer benefits: Out of an abandoned old power station site comes the sleek lines of a modern indoor substation. Extra planned load increase has been taken into account to benefit the local customers.



Innovation Projects in the South West

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.electricnation.org.uk

Equilibrium



The focus of Network Equilibrium is to balance voltages and power flows across the distribution

system to better configure the network. The project uses three methods:

● Enhanced Voltage Assessment (EVA)

This develops a new network modelling tool for 33kV and 11kV networks. It allows better visibility of time series power flows and voltage profiles at 33kV and 11kV.

● System Voltage Optimisation (SVO)

SVO will dynamically adjust 33kV and 11kV voltage profiles within the trial area. It will overcome the issue of fixed voltage points at key substations by using telecommunications and centralised network management software.

● Flexible Power Links (FPL)

The project will trial the use of novel power electronics to optimise the power flows between two different 33kV networks. Flexible Power Links will be used for the first time by a GB Distribution Network Operator and will transfer both real and reactive power flows, on a dynamic basis, between previously unconnected networks.

The project is developing solutions that will be demonstrated across Somerset and Devon and is running from March 2015 until June 2019.

More information is available at www.westernpower.co.uk/NEquilibrium



To report a power cut, call us on:

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Registered in England and Wales, Registered Office:
Avonbank, Feeder Road, Bristol BS2 0TB

