

**NEXT GENERATION
NETWORKS**

Flexibility Markets for Beginners
The old library, Cardiff
05.07.2018



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Outline

- Western Power Distribution – Who we are
 - WPD's Innovation Strategy
 - Innovation Projects with Communities
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Western Power Distribution – Who we are

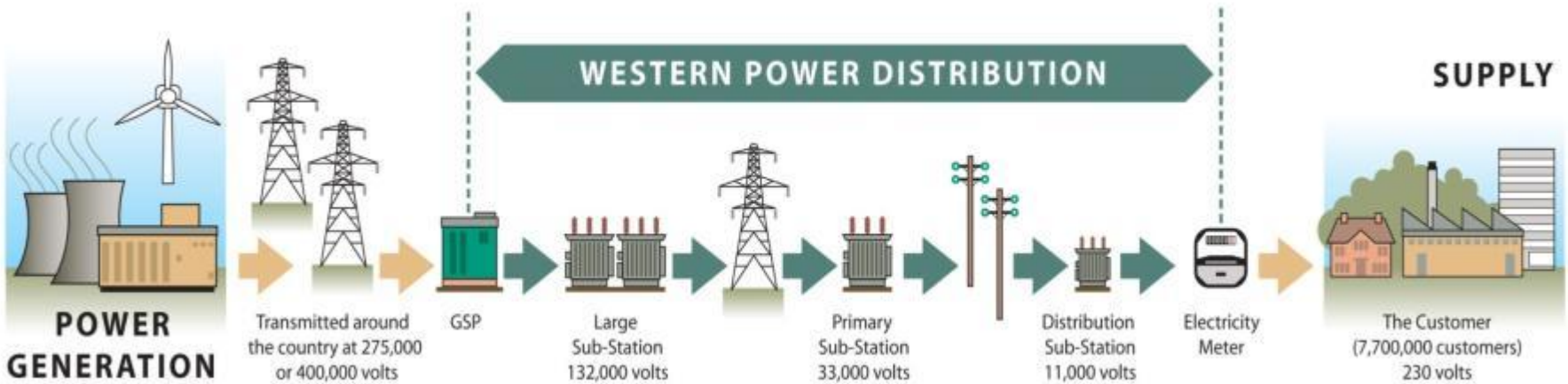
WPD is a Distribution Network Operator (DNO)

We distribute electricity to 7.8 million customers

We operate 4 of 14 distribution licence areas in the UK

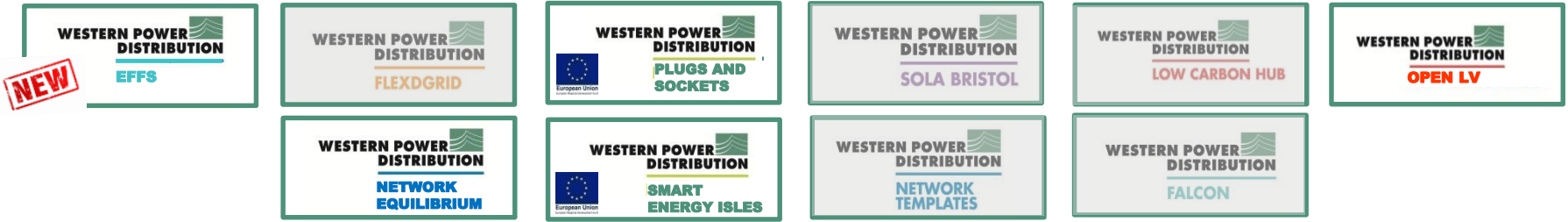


Western Power Distribution – Who we are



Key Activities

- Maintain the network
- Connect new customers
- Fix the network



Future Networks Programme

Assets

- Telemetry
- Decision support
- Improved assets
- New assets
- Flexibility
- Automation
- Incident response

Customers

- New connections
- Upgrades
- Information
- Self Serve
- Products/Service
- Tariffs
- Communities

Operations

- Reliability
- Forecasting
- DSO
- DSR
- GBSO Interface
- Efficiency
- SHE and Security

Network and Customer Data

- Airborne Inspections
- AIRSTART¹
- Telecoms Analysis
- Superconducting Cable
- SF6 Alternatives
- MVDC Test Lab
- Smart Energy Laboratory
- Statistical Ratings
- Primary Network Power Quality Analysis

- FREEDOM - Hybrid Heat Demo
- Hydrogen Heat & Fleet
- Carbon Tracing
- HV Voltage Control
- Solar Storage
- LV Connect and Manage
- Sunshine Tariff
- Electric Nation (formerly CarConnect)
- Industrial & Commercial Storage
- Smart Systems and Heat²

- DSO/SO Shared Services
- Project SYNC
- Project ENTIRE
- Smart Meter data for Network Operations
- Distribution Operability Framework
- Times Series Data Quality
- Voltage Reduction Analysis
- LV Connectivity
- Losses Investigation

INNOVATION PROJECTS WITH COMMUNITIES

OPEN LV

Software
Platform
installed at 80
LV substations.

To provide
community
energy groups
access to LV data
and trigger new
ideas!

And give the
opportunity to
develop apps
that can run
on the
platform.



INNOVATION PROJECTS WITH COMMUNITIES

OPEN LV

- Community energy groups and businesses had the chance to submit their ideas for the apps they wanted to develop.
- 7 Community Energy groups and 17 businesses have been selected and will be implementing their proposals.

App showing demand across a village to enable local balancing.

App informing residents how to save money by using power at off-peak times.

Investigation on how smart appliances can provide flexibility to the grid.

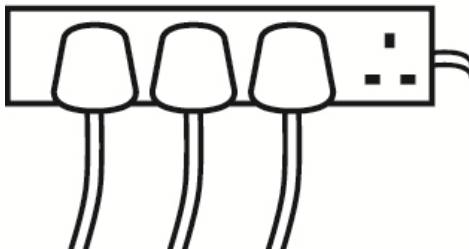
INNOVATION PROJECTS WITH COMMUNITIES

Plugs and Sockets - Cornwall Local Energy Market

Development of platform (by Centrica) for flexibility services.

Platform will allow customers to alter generation/demand to benefit a third party.

First UK DNO flexibility marketplace.



centrica

national**grid**

UNIVERSITY OF
EXETER

INNOVATION PROJECTS WITH COMMUNITIES

Plugs and Sockets - Cornwall Local Energy Market

- The platform is now live!
 - WPD will be placing bids onto the platform in the following weeks and aggregators/businesses will be able to respond to them.
 - The aim is to enable the DNO to remove constraints from the distribution network through the flexibility services others can offer.
 - Participants can also access the platform as observers to see the requests for services and transactions.
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INNOVATION PROJECTS WITH COMMUNITIES

FREEDOM Project

Hybrid Heating System:
Smart switching between gas and electricity

Demonstrate benefits of such system: cost, carbon and system security

Gaining value from the flexibility it can offer: For consumers, suppliers and network operators

INNOVATION PROJECTS WITH COMMUNITIES

FREEDOM Project



- Gas distribution system operator



- Electricity distribution network operator



- Project management & controls development



- Consumer trust & technology adoption strategies

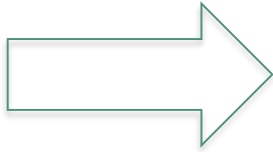


- Data analysis & gas and electricity network impact modelling

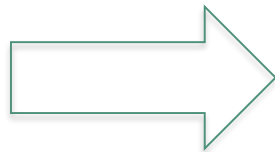


- Technology & market assessment, policy implications

Additionally...



We run 8 Community Energy Events every year at our key locations where community energy groups can come to find out what is happening in the industry and speak to us.



We have a dedicated Community Energy page with animations, guides, and podcasts on topics that Community Energy groups are interested in!

Click [here](#) for more information on our events and to access the material we have produced for Community Energy Groups!

Summary

- WPD – DNO of Midlands, South West and Wales.
 - We have a big portfolio of projects as part of our Innovation Strategy.
 - We are currently running innovation projects that involve communities.
 - The Open LV project is giving community energy groups access to LV data and the opportunity to run their own apps.
 - We are taking part in the Cornwall Local Energy market which is trialling the first DNO platform for flexibility services in the UK.
 - We are continuously supporting community energy through the events, animations, podcasts and guides we produce every year!
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THANKS FOR LISTENING



Serving the Midlands, South West and Wales

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