Purpose

About UK Power Networks – Our Vision

The changing energy system

We are innovating to address these challenges

The services we provide are changing
About UK Power Networks

- Length of overhead network: 45,854 km
- Length of underground network: 142,154 km
- Peak Demand: 15,784 MW
- Number of people served: 18 million
- Energy distributed: 79,491 GWh
- Distributed generation: 9.07 GW
Delivering our vision

The safest
The most reliable
The lowest cost

The best employer
The best service
The most Sociably responsible

…and consistently best performing DNO 2015 – 2018/9
Our performance – A strong track record

The safest

The most reliable

The lowest cost

A good service provider
The Energy System is changing

**Old world**

- Centralised- few large Generators
- Predominantly fossil fuel based
- One way power flows
- Predictable - Planned
- Customers consume only
- Flexibility from large generators

**New world**

- Decentralised (Thousands of distributed generators)
- Hybrid – Vast volumes of renewables
- Bi-directional power and information flows
- Intermittent – Actively Managed
- Customers self-produce, consume and trade
- Flexibility from Demand, Storage and generation
The Energy System in 2030

The UKPN world in 2030

~13 GW of solar

~4 GW of storage

~1.8-3.5m Electric Vehicles

Distribution networks acting as a facilitator for a wide range of energy resources and market models

Enabled by:

- Smart meters
- Distributed Generation
- Storage
- Micro Grids
- Community Energy and peer-to-peer
- Electric Vehicles
- Smart appliances
- Market and regulatory reform
- Demand flexibility
Growth in DG
- 9.07GW of DG connected, doubled in the last 5 years
- First Solar / Storage schemes with no subsidy support
- Over 200,000 distribution connected generators

Storage Market
- Over 1.2GW of accepted storage offers
- 1574 (27.7GW) formal enquiries since July 2015
- 177MW of connected storage

Growth in Electric Vehicles
- Over 300 electric buses in London by 2020
- 169,000 Plug-in vehicles sold in the UK, 31% on our networks
- UKPN actual EV connected load 55% ahead of forecast
- Over 5,000 public charge points connected to our network

Pace and scale of change continues to increase
Our Innovation Strategy

Efficient and Effective

Delivering business value today through innovation and the benchmark for best practice

Low Carbon Ready

Consistently credited as an active facilitator of, and not an obstacle to, the low carbon transition

Future Ready

A future-ready Distribution System Operator providing new services, to meet the needs of tomorrow’s customers

Innovation@UKPowernetworks.co.uk
The Innovation Portfolio

- Air quality
- Electrification of transport
- Connecting more renewable energy
- Electrification of heat
- Optimise network capacity
- Low cost/value for money for customers
- Improve asset lifecycle management
- Safety

40+ live projects for an overall budget of ~£60m, over 22 solutions implemented into the business
1. Facilitate cheaper and quicker connections using proven innovation

2. Use customer flexibility as an alternative to network upgrades

Visit: FutureSmart.ukpowernetworks.co.uk
Use customer flexibility as an alternative to network upgrades

- What our current distribution network needs are.
- Why flexibility from DER can help us efficiently manage these system needs.
- What our proposed flexibility products and contracting principles are.
- How these DSO system needs might evolve in the future.
- How we will work with DER to facilitate efficient contracting and maximum participation of all DER types.
- How we will engage with DER over the coming years in a fair and transparent manner.

Visit: FutureSmart.ukpowernetworks.co.uk
Facilitate cheaper and quicker connections using proven innovation

Use customer flexibility as an alternative to network upgrades

Develop enhanced System Operator capabilities

Collaborate with Industry to enable whole system benefits

Prepare and facilitate the uptake of Electric Vehicles

Visit: FutureSmart.ukpowernetworks.co.uk
The path to Flexibility Services
The world of energy is changing fast, and we recognise that our role has to evolve.

We are committed to learning through doing to shape this exciting future.

Our transition to Distribution System Operator (DSO) has already started to enable a smart and flexible system.

Listening to our customers and stakeholders will continue to be a priority.

#futuresmart