

Consumers at the Heart of the Energy System – a DNO perspective

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WINNER
Utility of the Year



INVESTORS
IN PEOPLE | Gold
Until 2020



Purpose

- About UK Power Networks- Our Vision
- The changing energy system
- The services we provide are changing
- What the future means for our customers

About UK Power Networks

Measure	Data	% of industry
End customers	8.2m	28%
Population served	20m	28%
New metered connections	46,000	32%
Distributed generation connected	9GW	32%
ED1 totex allowance	£6,029m	25%
Energy distributed	85TWh	29%
Peak demand	16GW	28%



Delivering *our vision*

Our vision is informed by our employees, consumers and wider stakeholders

**AN EMPLOYER
OF CHOICE**

The safest
The best employer

**A RESPECTED
CORPORATE
CITIZEN**

The most reliable
The best service
The most innovative
The most Sociably responsible

**SUSTAINABLY
COST EFFICIENT**

The lowest cost

...and consistently best performing DNO 2015 – 2018/9



Old world

Centralised- few large Generators

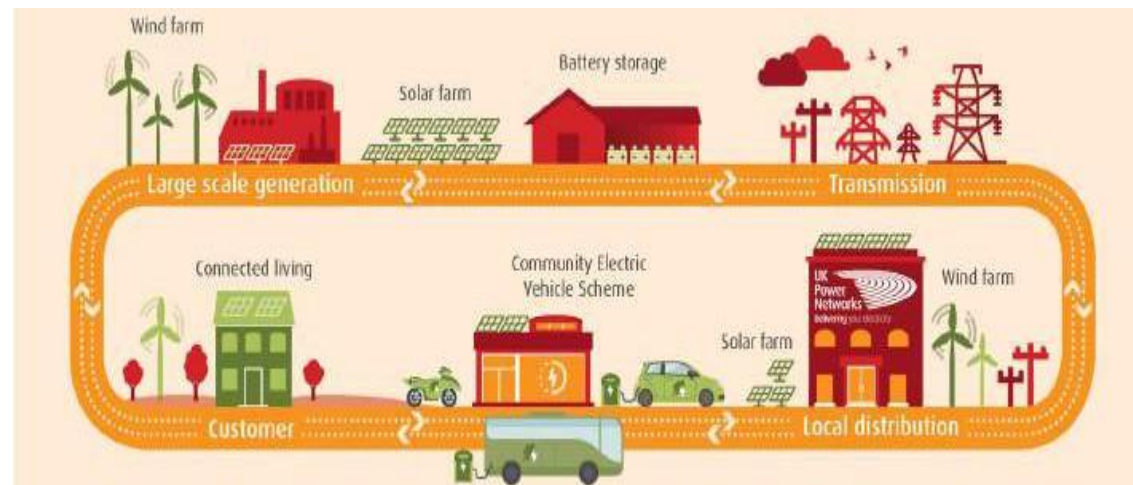
Predominantly fossil fuel based

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

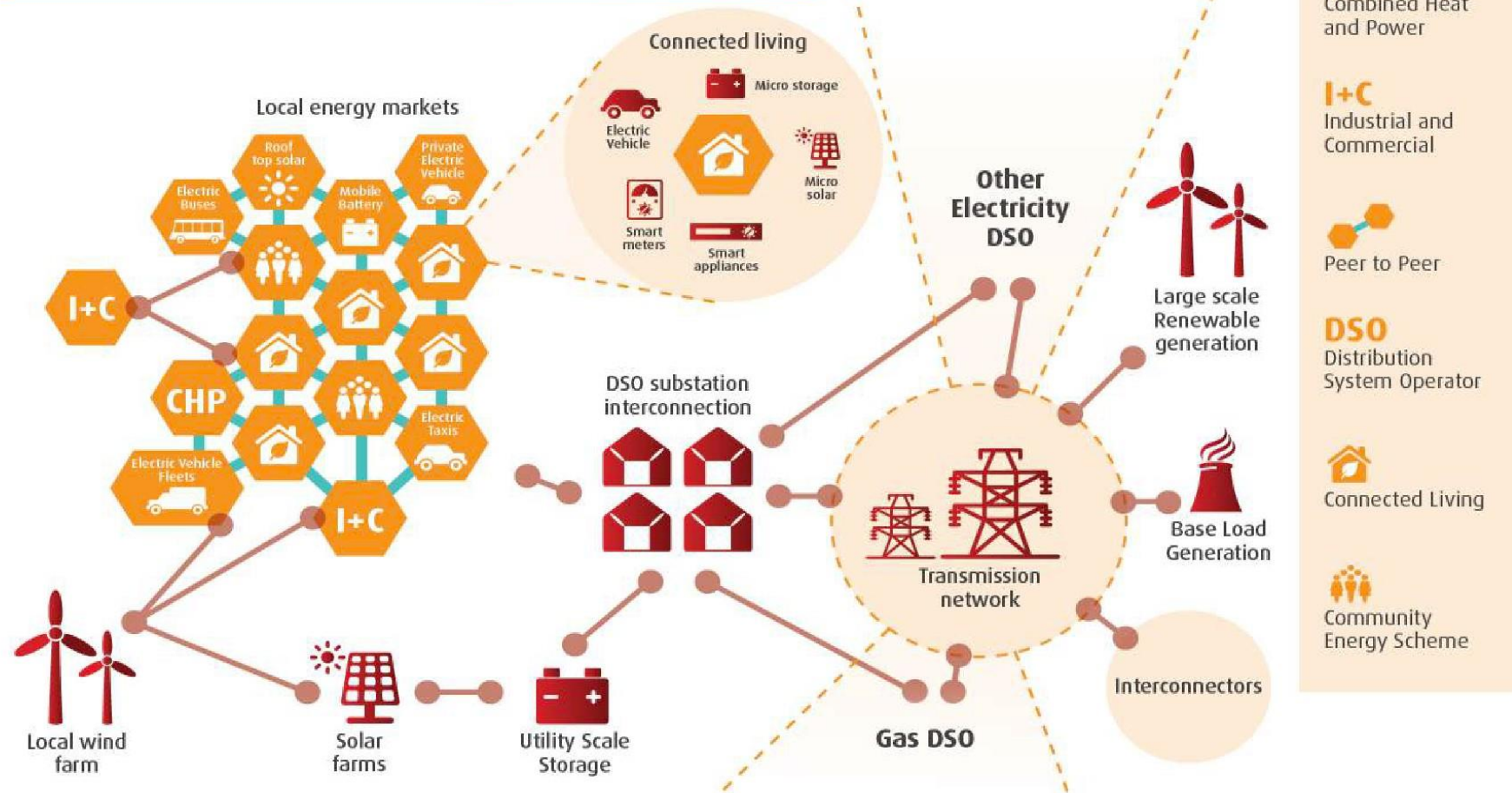
UK Power Networks Distribution System Operator (DSO)

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



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

The services we provide are changing



Stakeholder driven

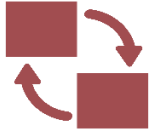


Visit: FutureSmart.ukpowernetworks.co.uk



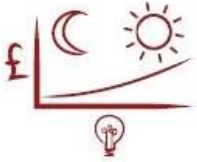
1

Facilitate cheaper and quicker connections using proven innovation



2

Use customer flexibility as an alternative to network upgrades



3

Develop enhanced System Operator capabilities



4

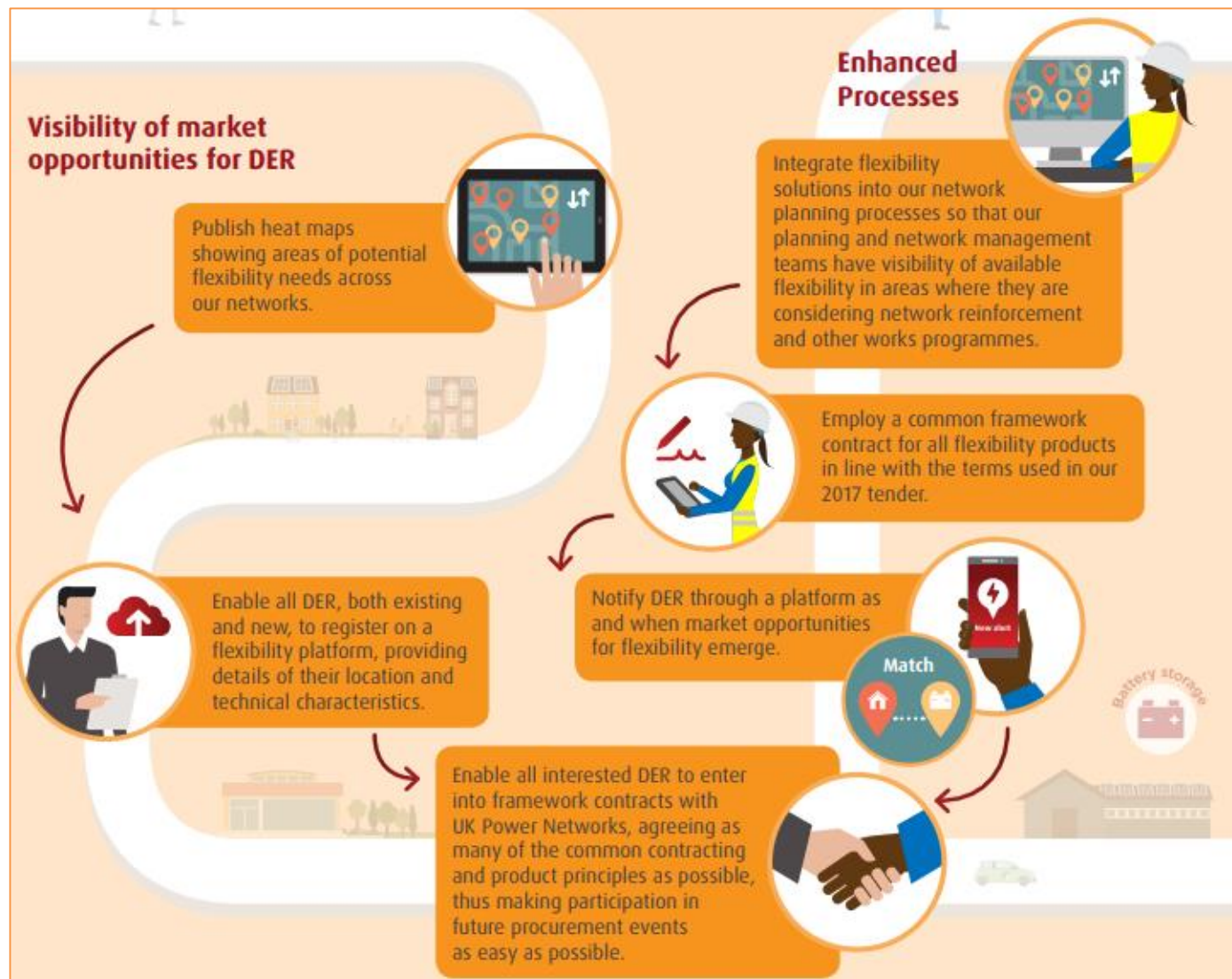
Collaborate with Industry to enable whole system benefits



5

Prepare and facilitate the uptake of Electric Vehicles

What's in it?



What our current distribution network needs are.



How these DSO system needs might evolve in the future.



Why flexibility from DER can help us efficiently manage these system needs.



How we will work with DER to facilitate efficient contracting and maximum participation of all DER types.



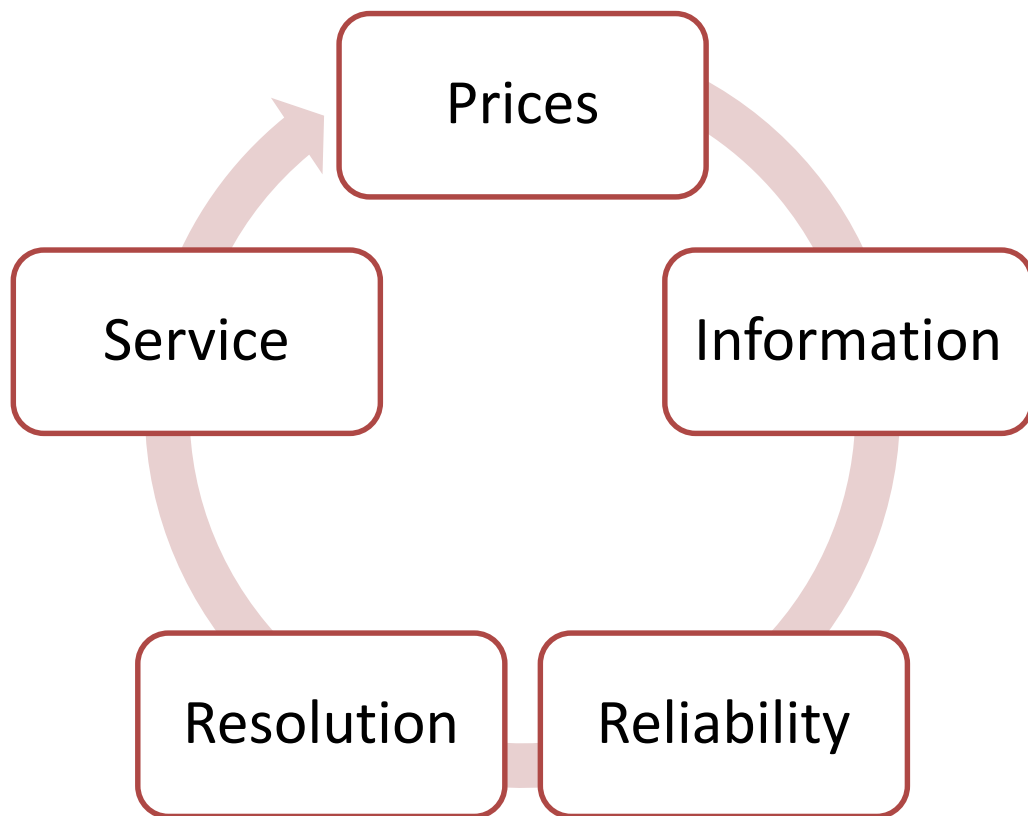
What our proposed flexibility products and contracting principles are.



How we will engage with DER over the coming years in a fair and transparent manner.

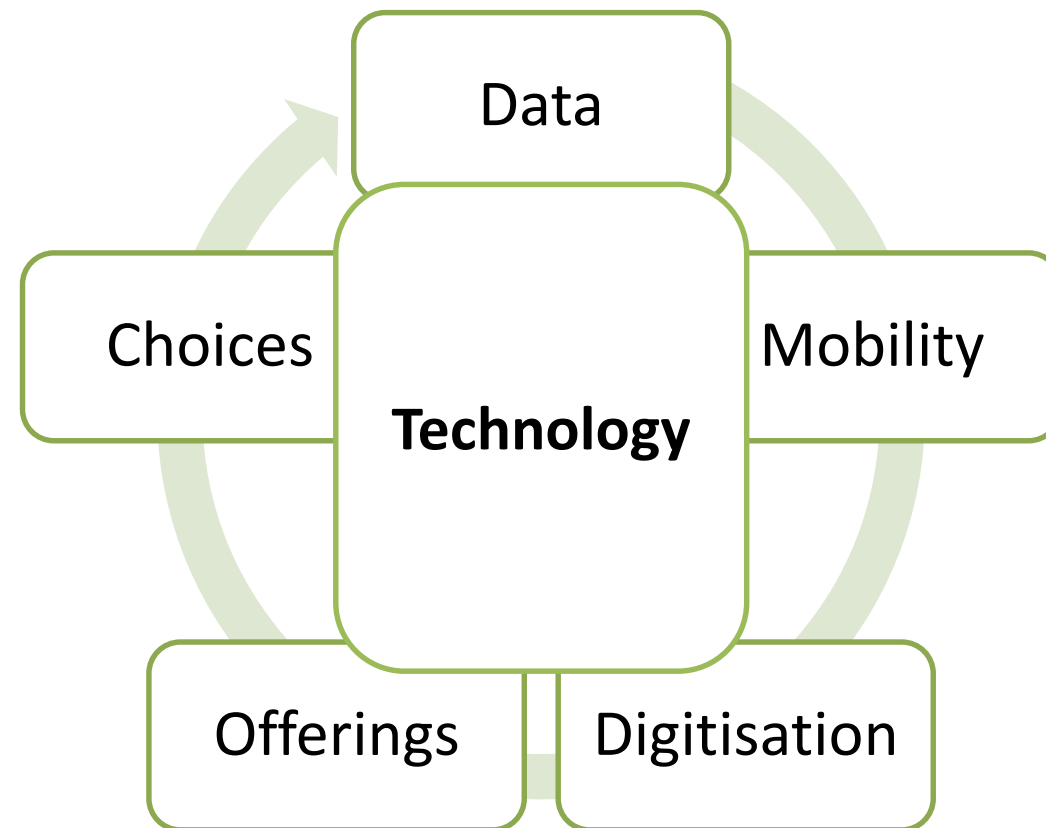
Today

Traditional customer focus is on performance-based satisfaction



Tomorrow

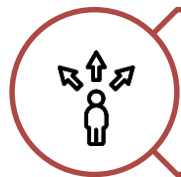
The Future customer will be focussed on enhanced engagement and solutions



The future customer....



Will be digital, Smartphone connected and social



Will demand greater choice



Will be empowered with data to self manage energy use



Will require a higher overall experience



Will demand and adopt new infrastructure technologies

The future Network....

- Social Media, Always contactable
- Constant refreshing products and offerings
- Green options as standard
- Self service as a minimum standard
- Provide access to information and data at customer fingertips
- Social Energy- gifting and Peer to Peer facilitation
- Local community energy solutions
- Electric Vehicle facilitation
- Electrified heating solutions
- Lifestyle choices, green credentials
- Simple to interact and understand offerings
- Balance demand and generation at a domestic level

- The world of energy is changing fast, and we recognise that our role has to evolve
- 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
- We are committed to *learning through doing* to shape this exciting future