Our transition to Distribution System Operator
Future Smart
14 September 2017
Objectives for today’s session

1. Provide an introduction to UK Power Networks and our Distribution System Operator strategy

2. Share our transition to Distribution System Operator and get your feedback

3. Listen and understand if there are further key issues to be addressed to support the transition to Distribution System Operator
Changing Energy Landscape
Future Smart
The energy system is going through a fundamental change

**Old world**
- Centralised (Few, large generators)
- Predominantly fossil fuel based
- One way power flows
- Predictable - Planned
- Customers consume
- Flexibility from generators

**New world**
- Decentralised (Thousands of distributed generators)
- Hybrid - much more renewables
- Bi-directional power and information flows
- Intermittent - Managed
- Customer self-produce and consume
- Flexibility from Demand, Storage and generation
What is driving change?

Transition to a low carbon economy
- Mandated carbon budgets
- Air quality regulations
- Vehicle emission standards

Changing regulatory environment
- Outputs focused
- Promoting innovation and competition
- Facilitate low carbon transition

Technology revolution
- Rapid cost reduction in renewable tech
- Digitisation
- Connected homes
- Smart meters
- Block chain technology

Societal changes
- Population growth/urbanisation
- 'Local is best'
- Affordability
- Increasing expectations - choice, transparency, value
The future is already here

### Growth in Electric Vehicles
- Over 300 electric buses in London by 2020
- 100k Plug-in vehicles sold in the UK (56% YoY growth)
- 12k charge points

### Storage Market Boom
- Almost 1GW of accepted storage offers
- Nearly 16GW of enquiries

### Growth in DG
- 8.5GW of DG connected, doubled in the last 5 years
- First Solar / Storage schemes with no subsidy support

Pace and scale of change is increasing
The distributed energy world in 2030
Distribution networks acting as a facilitator for a wide range of energy resources and market models
The UK could save £17-40bn across the electricity system from now to 2050 by deploying flexibility technologies

Imperial College London, November 2016

Value to energy customers

How?

• Giving consumers choice and control of their energy
• Incentivising behaviours through price signals
• Maximising the utilisation of the network through ‘smart’ technologies
• Displacing unnecessary generation investment

Ensuring affordability

DSOs are critical in delivering cost effective decarbonisation
Collaboration is key
The Role of the DSO
Future Smart
Transitioning to a Distribution System Operator

Emergent DSO

Enhanced roles

- Keeping the lights on
  - Secure and reliable supplies taking into account two way flows and greater intermittency
-Providing great customer service
  - Facilitating cheaper and quicker connections using proven innovation
-Lowering our costs
  - Optimising network investment decisions using alternative flexible solutions

Full DSO

New roles

- Support whole system optimisation
  - Collaborating with the GB SO to deliver ‘whole system’ outcomes that are best for customers
- Enabling markets
  - Enabling market solutions for DER to provide flexibility to local and wider system
Vote

Do you agree with the R&R that we see a DSO will need to perform?
Transitioning to a Distribution System Operator

Emergent DSO

**Enhanced roles**
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**Key themes**
- Facilitating the low carbon transition
- Educating and supporting customers through the journey
- Working with the regulator and policy makers to enable the low carbon transition

Full DSO

**New roles**
- Support whole system optimisation
  - Collaborating with the GB SO to deliver ‘whole system’ outcomes that are best for customers
- Enabling markets
  - Enabling market solutions for DER to provide flexibility to local and wider system

24
Vote

We have identified a number of key themes customers want us to take into account under the DSO roles and responsibilities, do you agree?
The transition to a DSO
Future Smart
# Our DSO Strategy – 5 key areas for 2017 - 2018

1. **Facilitate cheaper and quicker connections using proven innovation**  
   Continue rollout of Flexible DG that uses Active Network Management

2. **Use customer flexibility as an alternative to network upgrades**  
   Run market tenders for flexibility services such as Demand Side Response

3. **Develop enhanced System Operator capabilities**  
   Develop TSO – DSO Commercial Framework, DER Dispatch capability and readiness for smart meters

4. **Collaborate with industry to enable GB wide benefits**  
   Actively participate in industry forums to make this transition a reality

5. **Prepare and facilitate the uptake of Electric Vehicles**  
   Enable connections using smart solutions and ensure business readiness
Vote

Do you agree with our DSO strategy for the next two years?
Vote

Which of the priorities is most important to you?
Help us Shape ‘A Smart Grid for all’

We have published our FutureSmart Paper that describes UK Power Networks’ transition to a Distribution System Operator to deliver ‘a smart grid for all’.

Your opinion matters to us
Our consultation will run until 15 September 2017, and we would like to invite you to take part

Please visit us at FutureSmart.ukpowernetworks.co.uk
Or get in touch at FutureSmart@ukpowernetworks.co.uk
Thank You

#futuresmart

Help us shape a smart grid for all
Visit FutureSmart.ukpowernetworks.co.uk and respond by the 15th September