

# Presentation

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**Environment, Economy, Housing & Transport Board**

Thursday, 17 November 2022

11.00 am

18 Smith Square, London, SW1P 3HZ

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<b>2. National Grid Capacity</b>	1 - 14

Paul Jewell, System Development Manager for National Grid

**Date of Next Meeting:** Tuesday, 24 January 2023, 2.00 pm, 18 Smith Square, London, SW1P 3HZ



Electricity  
Distribution

# Local Government Association

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**Paul Jewell**

17<sup>th</sup> November 2022

national**grid**



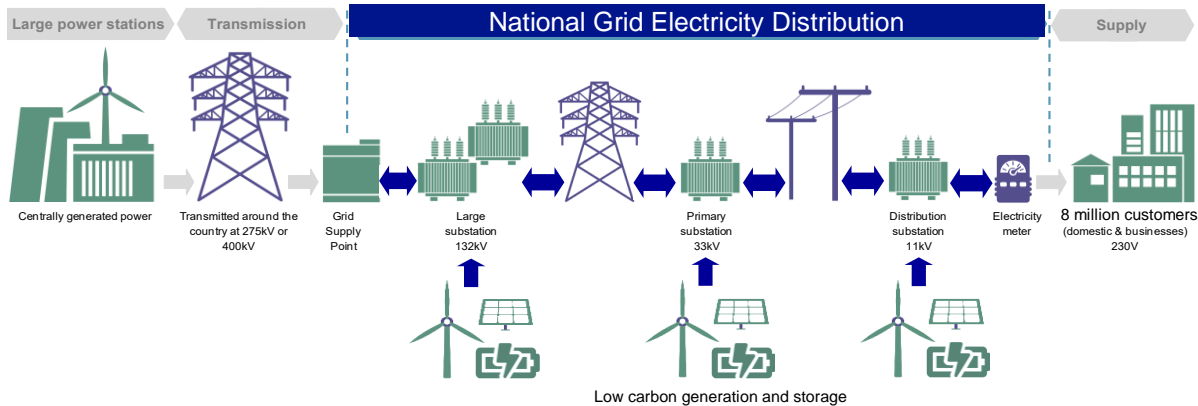
Agenda Item 2

# Who we are and what we do

- We operate the local electricity network, distributing power to 8 million homes & businesses
- Covering the East and West Midlands, South Wales and South West England



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## Network assets

Cables and overhead lines	225,000 km
Poles and towers	1,389,000
Transformers	188,000

# What we do

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## Keep the lights on

by operating our network assets effectively



## Maintain equipment

so that the network remains reliable



## Fix the network

if equipment gets damaged or is faulty



## Connect customers

by upgrading existing networks or building new ones



## Operate a smart system

by managing two-way power flows and flexibility services

# Ofgem

## Energy Policy and regulation

- Ofgem is the office of gas and electricity markets
- Ofgem are a non-ministerial government department and an independent national regulatory authority
- Ofgem's role is to protect consumers now and in the future by working to deliver a greener, fairer energy system



# Energy Networks Association

## Trade Association for Networks

- Regulation and the wider representation in UK, Ireland and the rest of Europe
- Cost-efficient engineering services and related businesses for the benefit of members
- Safety, health and environment across the gas and electricity industries
- The development and deployment of smart technology



# What does Net Zero mean?

## Net Zero/Climate Change/Environment Awareness.

- Net Zero comes from a Government announcement to reach “Net Zero carbon emissions by 2050”
- Carbon emissions affect Climate Change, reducing them slows the change.
- Governments “The Carbon Plan” (December 2011) set out a long term goal to decarbonise heating and transport
- Decarbonisation is achieved by switching petrol/gas use for heating and transport to electrical solutions. Electricity generation moves to renewable and low carbon production at the same time
- More energy will be supplied via our electricity network

The Carbon Plan:  
Delivering our  
low carbon future

December 2011

 HM Government

# Context for Low Carbon Technologies

## Volumes of LCT will grow rapidly

- Government ban on sale of ICE vehicles by 2030 will mean that all new vehicles require charge facility
- This will create over 1 million domestic EV chargers per year
- The Government Heat Pump target adds 600,000 per year
- We operate in approximately 1/3rd of the UK
- Our exposure would be roughly 500,000 low carbon connections per year
- .....or 2,000 for each working day

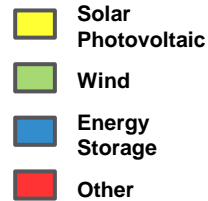
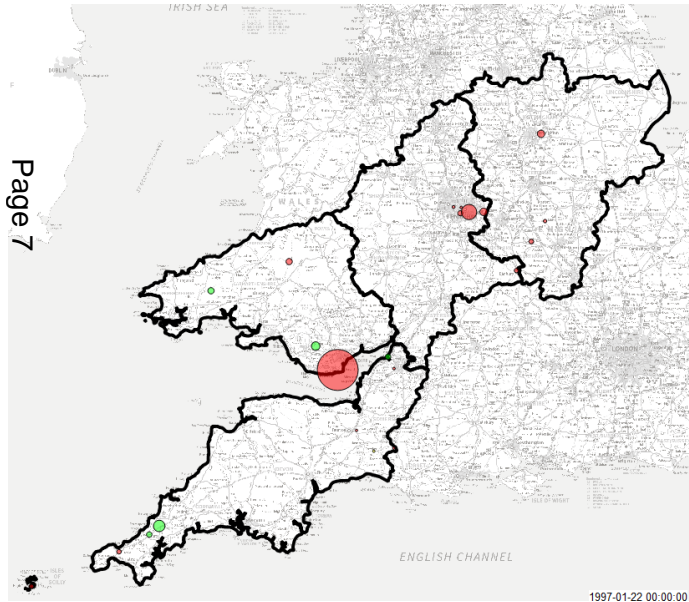




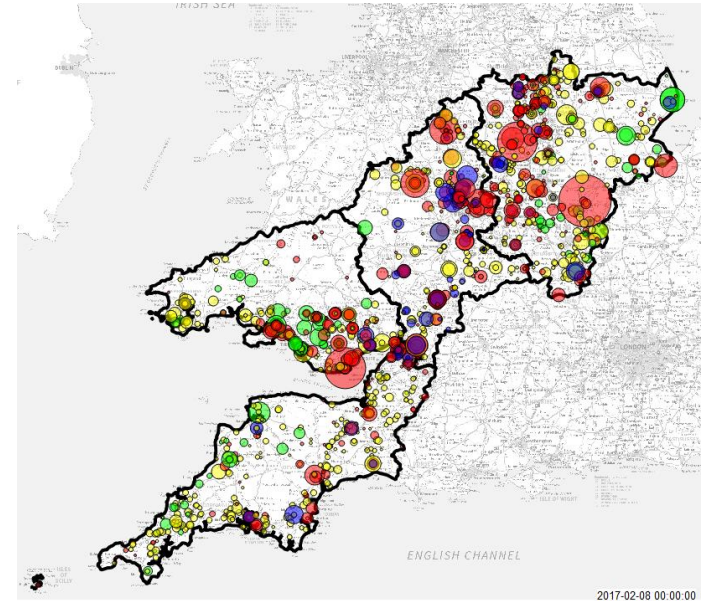
# Context for Low Carbon Technologies

## Generation Connections are already here

Connected Generation – 1997 data



Connected Generation – 2017 data



# Domestic Charging

- Electric Nation showed that EV drivers do not charge every night
- EV drivers will also react to price signals
- We expect tariff structures to move most charging away from peak times
- We have changed our network design models to reduce the overall impact of EV chargers
- We have changed connection policy to allow all domestic (7kW) EV chargers to be accepted for connection, with any network upgrades being completed at a later date



# Town Centre Hub Solutions

- Early stakeholder engagement with Local Authorities showed they were more likely to offer car park based charging than on-street solutions
- We are used to building substations to support housing demands
- We have developed a version of our local substation which is specifically wired for EV charger connections
- It will offer 1MW of charge capacity at each location
- It can be used at any car park and takes up two parking spaces



# Motorway Service Area (MSA) Charging

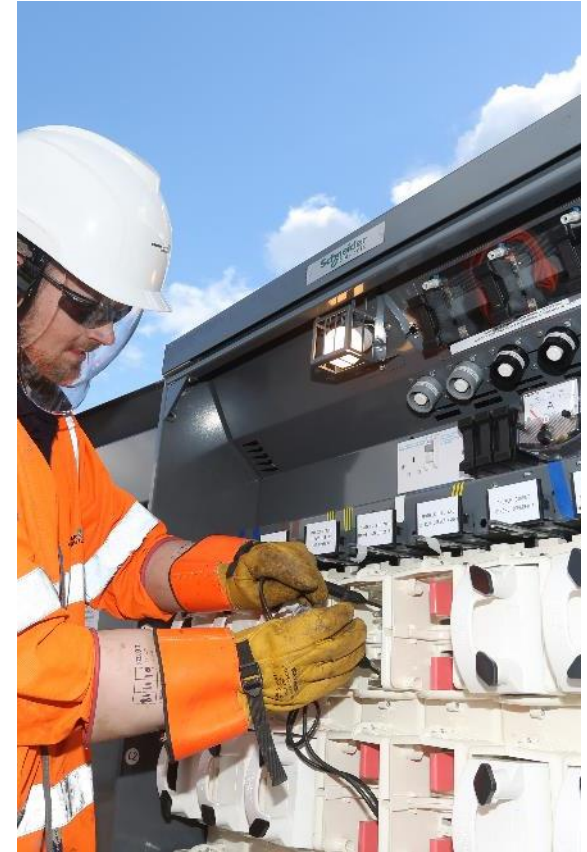
- The Government's Project Rapid predicts that MSAs will require multiple MegaWatts of charge capacity
- In many cases the demand will be the same as a small town
- Our "Take Charge" innovation project is developing a solution to the problem
- We have shrunk a version of our 33/11kV substation into two shipping containers for use at MSAs
- Our trial site at Moto Exeter is live Spring 2022 and has 12MW of capacity on site





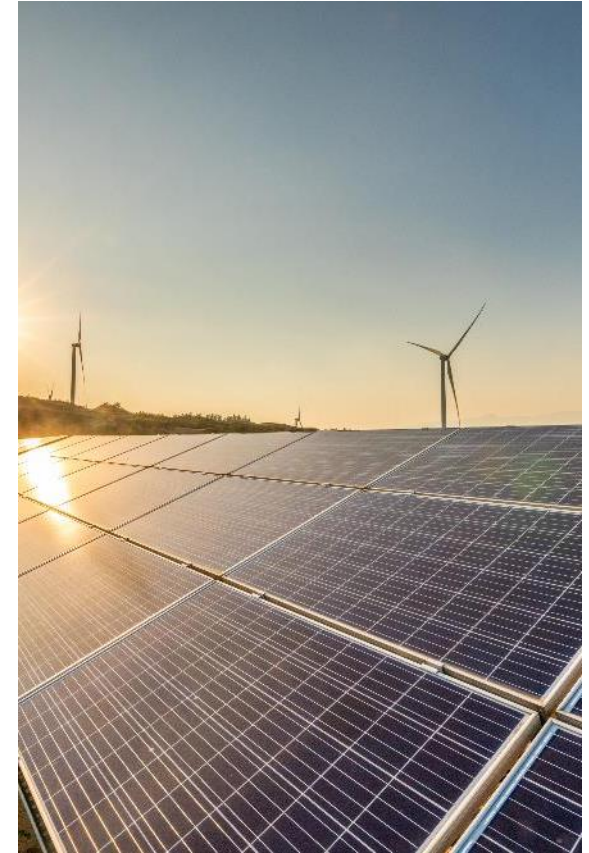
# Significant Code Review

- Ofgem are reviewing the way that customers pay for access to our network. One big area is how we treat reinforcement costs.
- The plan is that, from April 2023, connecting customers will not pay the reinforcement element of their connection charge. All reinforcement costs will be socialised as WPD funded reinforcement.
- For demand customers it applies to all reinforcement, for generation customers it applies to “one voltage level up” (subject to the high cost cap).
- Ofgem want this to open up the networks for connections – we will see increased applications and less customers put off by cost



# In Summary

- The drive to Net Zero is one of the biggest changes to electricity networks since rural electrification in the 1950s
- We are already working to make future capacity available, both on existing networks and for newly installed networks
- We want to make the process as simple as possible for all early adopters of EVs
- We have options at all capacity sizes to support charger demands
- Build the network now that we need for the future



# nationalgrid

