



Serving the Midlands, South West and Wales

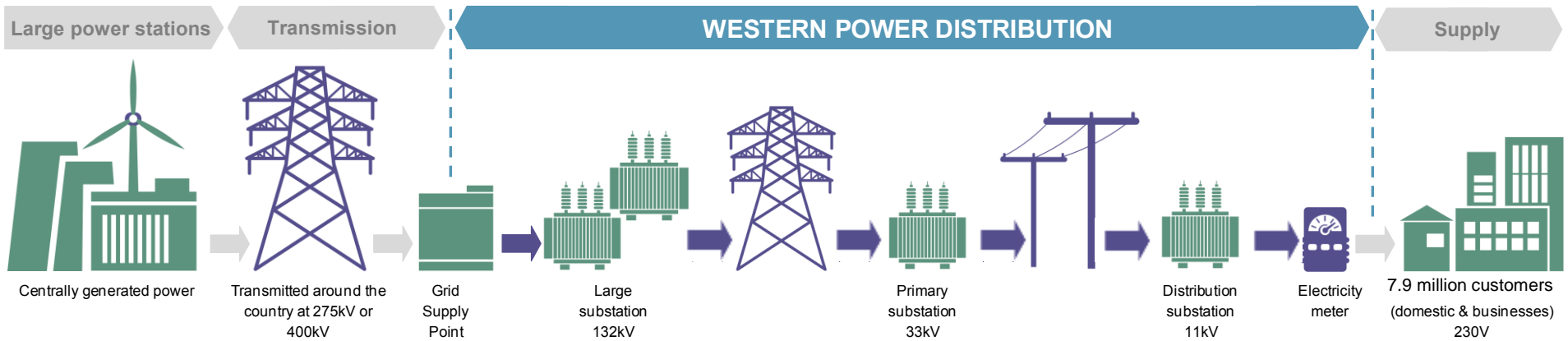
Local Electricity Networks transition to DSO

**DSO and Future Networks Manager
Nigel Turvey**

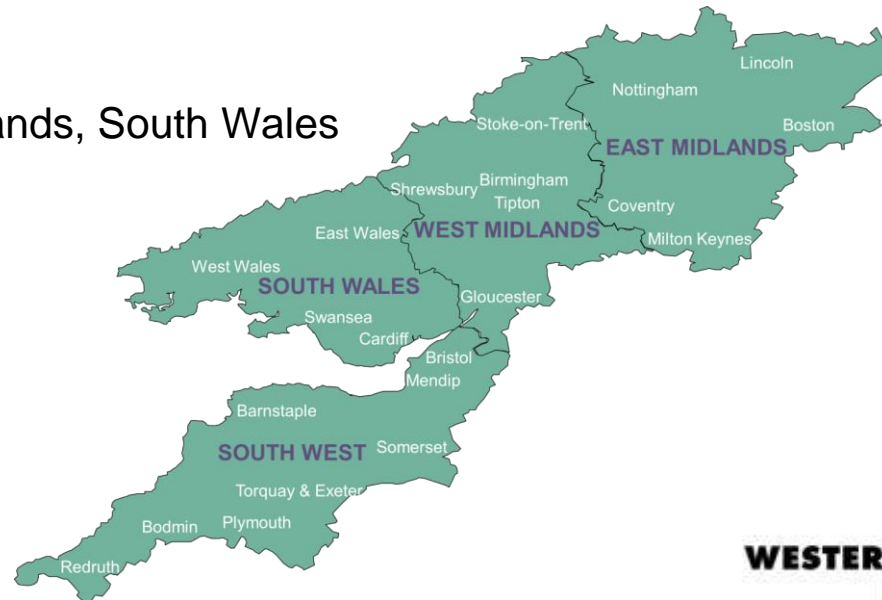
March 2019

Who we are

- Operate the local electricity network we distribute power to 7.9 million homes & businesses



- Covering the East and West Midlands, South Wales and South West England



Agenda for today

- Drivers of change
- Use of flexibility
- Electric vehicles
- Decarbonising heat

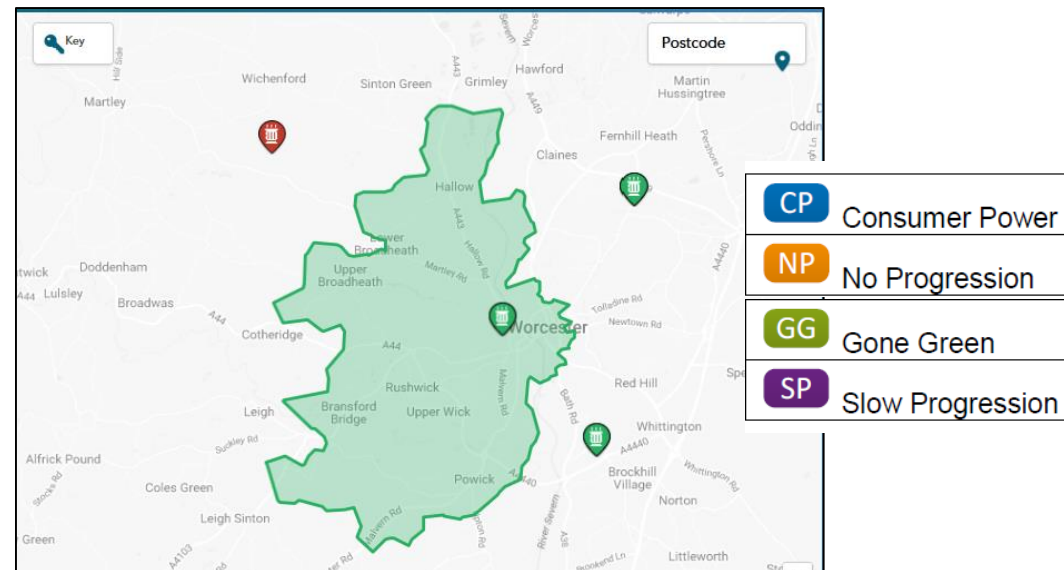
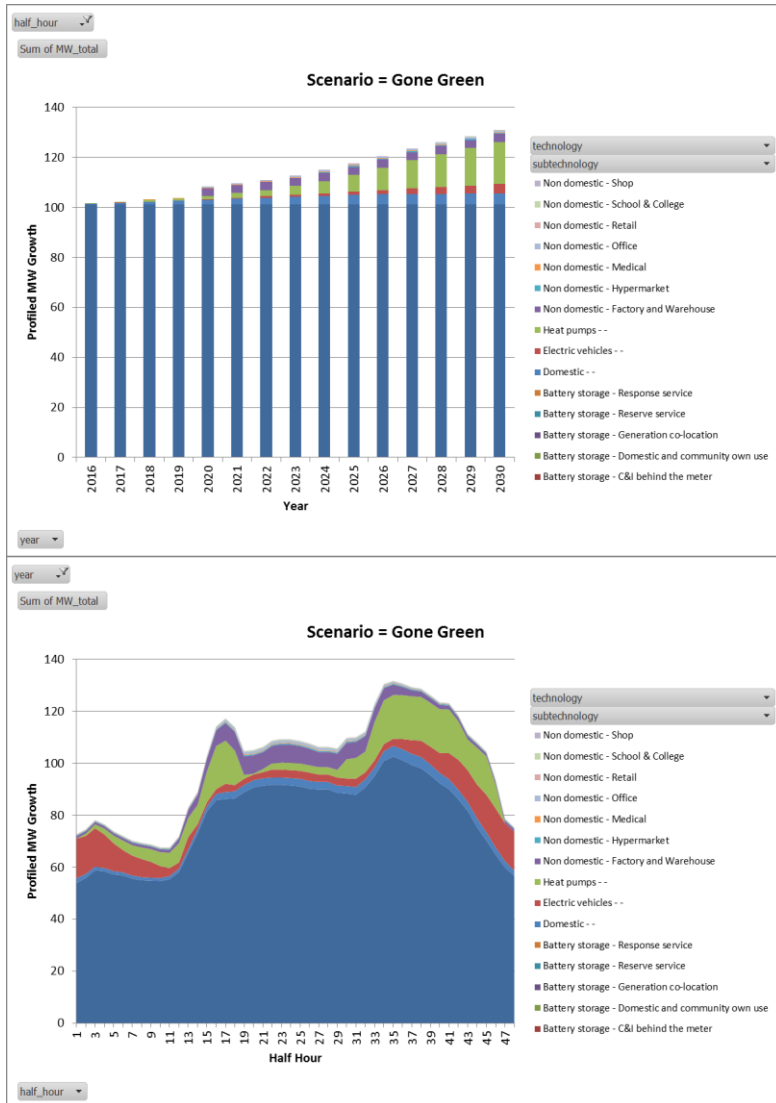
Drivers of change

- Climate change and international agreements on reducing carbon emissions
- EU and UK binding targets – delivered through renewable Distributed Generation (DG), Electric Vehicle and Renewable Heat Incentive
- Rapid changes in GB generation - Much greater levels of Distributed Generation and community energy
- Rapid changes in technology and consideration of whole system issues
- Significant uncertainty over the pace of change
- Often summarised as the 4 'D's – Decarbonisation, Decentralisation, Digitisation and Democratisation

Scenario Based Forecasting

Since 2016, WPD has been using scenario based forecasting to build a regional picture of demand, generation and storage uptake

We have built a bottom-up understanding of demand, generation and storage growth out to 2032 across 260 individual zones within our region and share this information.



Flexibility First

WPD has always used the flexibility inherent in its networks to provide an economic and secure supply ahead of undertaking conventional reinforcement.

We are now expanding this to include market-provided flexibility and will seek this in the areas triggering load related reinforcement within ED1.

126

Primary substations assessed for flexibility in 2019



Throughout the rest of ED1 we will assess 90% of our load related reinforcement investment for a more economic delivery by flexibility services.



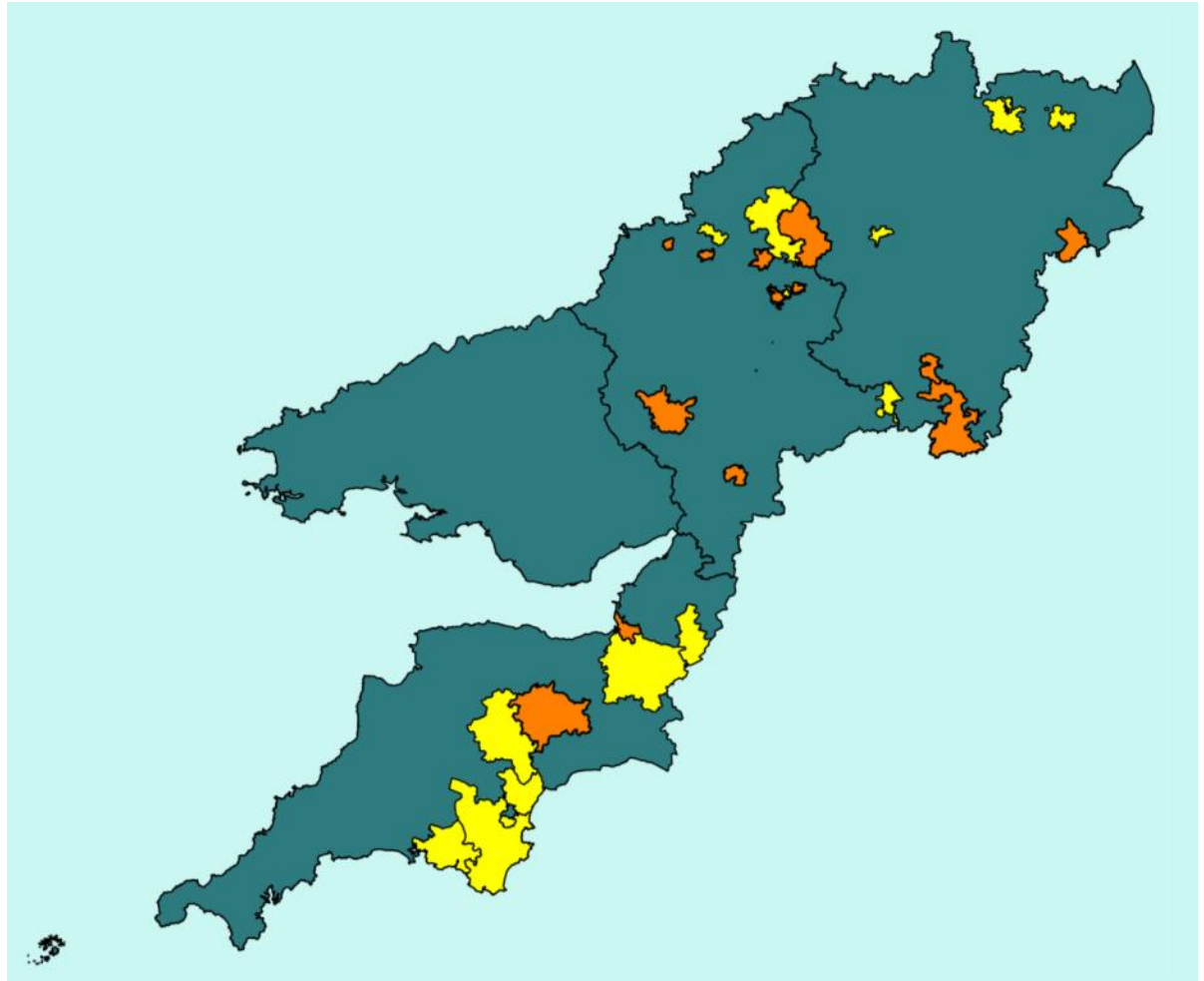
90%

LRR investment assessed against Flexibility

For the remaining 10%, which is predominately at LV, we will continue to develop, test and evaluate other markets.

Procurement in 2019

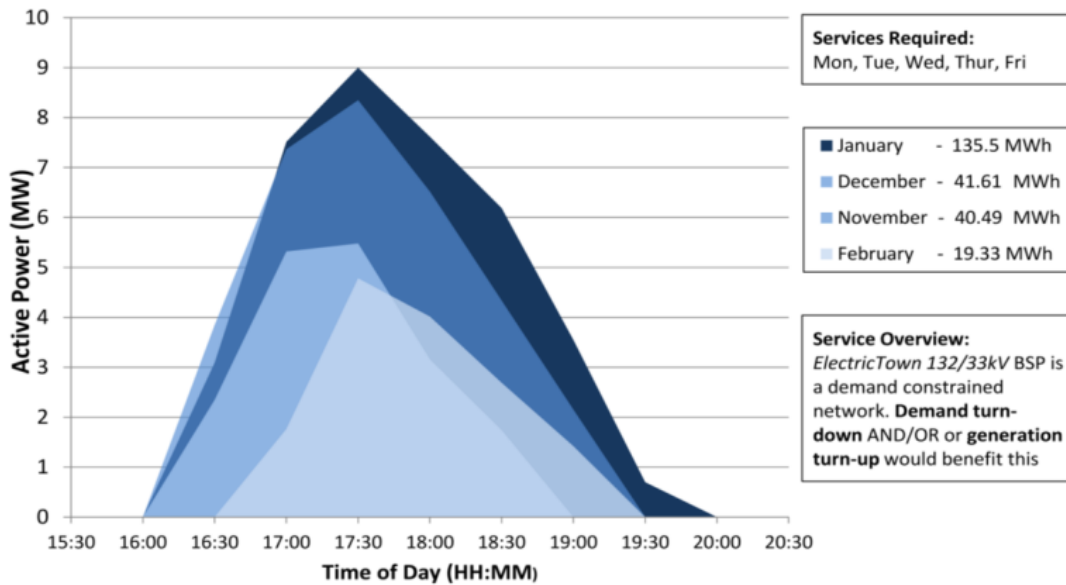
- 12 constraints across 80 primary substations
- 93.4MW required
- ITTs out for March
- To operate over the summer and winter of 2019
- Affects over £25m of reinforcement
- Second round in July/August
- **Additional zones** signposted with future requirements over 5 years



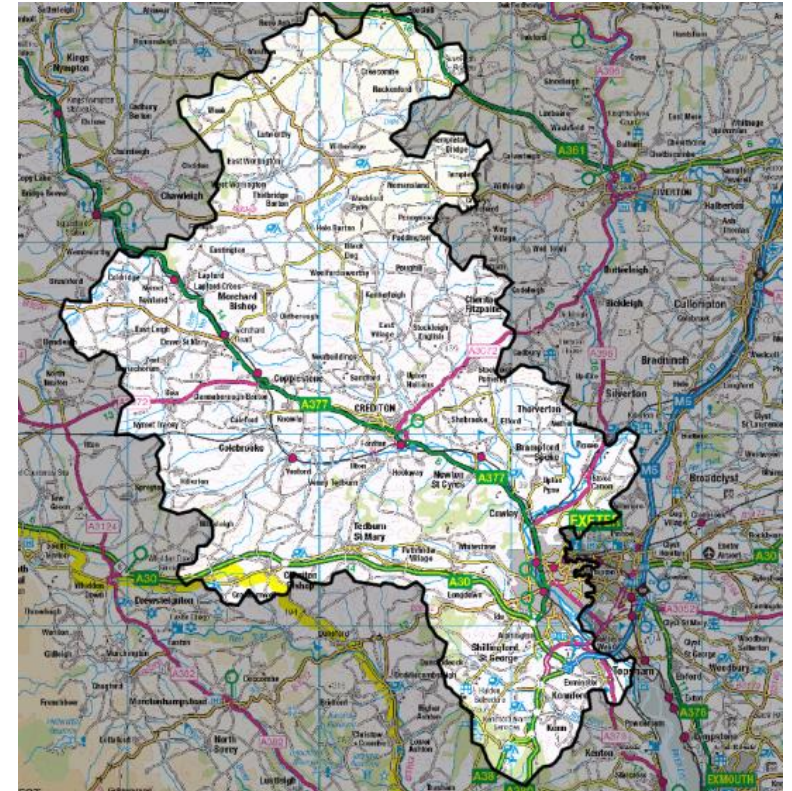
Signposting for flexibility

To build sustainable markets for distribution flexibility, providers and operators of flexibility need advance notification of future needs.

ElectricTown 132/33kV BSP - MW Service Availability Windows

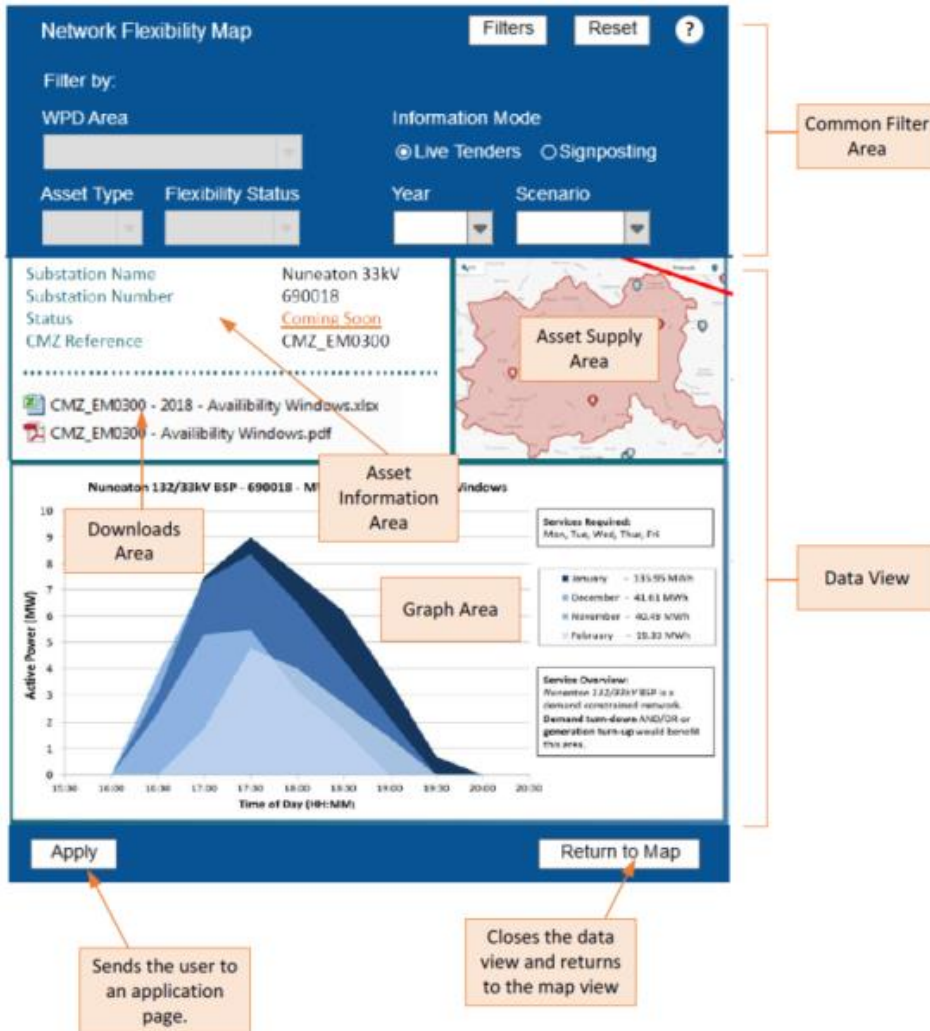


Signposting information will be provided for a 5 year window and cover the four future energy scenarios used within WPD Strategic Investment Options reports.



For each area on our network with forecasted constraints, we will provide signposting information ahead of those networks becoming constrained.

Where is this information published?



Using a similar functionality to our network capacity map, our network flexibility map is publically available on our website:

www.westernpower.co.uk/network-flexibility-map

- This displays information on:
- Geographic supply area
- MW peak and length for availability
- Estimated MWh utilisation
- Months applicable
- Days applicable
- Raw data downloads

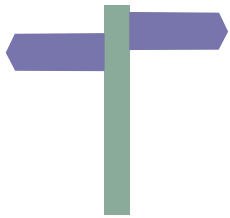
Procurement Timelines



www.flexiblepower.co.uk

One Year initial term forming into rolling contracts

Signposting



Early February 2019

PQQ



February 2019

Procure



March to May 2019

Integrate/Test



May 2019

Operate



June 2019 to May 2021

We will follow a 6 monthly procurement cycle, bringing on new flexibility zones and ensuring we meet all our system needs

Electric Vehicle Forecasts and the changing horizon

- Our forecasts for Electric Vehicle adoption predict around 37,000 across our region now rising to 3,064,000 in 2030.
- In simple terms, each Electric Vehicle uses the same kWhs of energy per year as a standard domestic home.
- The What Car “Car of the Year” for 2019 being the Kia e-Niro and it being described as “sensibly priced” and will “fit into most people’s lives”.
- We also predict price parity in 2021 or 2022 and a step change in car ownership.

EV Engagement with Local Authorities

- During 2018 we saw an increase in interest from Local Authorities who were planning to support Electric Vehicle deployment. Government grants have become available to help them with infrastructure.
- We held two Local Authority stakeholder Electric Vehicle events (Bristol & Birmingham) in November with 130 participants.
- Since the Electric Vehicle event we have revised our guidance to LAs based on their feedback and comments.
 - <https://www.westernpower.co.uk/downloads/15766>
- We are planning innovation projects which will help LAs deliver charge points in an efficient way

EV and LCT projects with Local Authorities

- Working with Sero Homes, Pobl (Welsh Housing Association) and Welsh Assembly Government we are delivering a project related to service cables. On the project a development of 250 new houses will be provided with larger three phase service cables to mitigate future load growth
- In another project with Sero Homes, we are also investigating the effect of domestic storage and solar panels on our network. The project will help us understand the impact of customers generating and using demand in a more flexible way.
- We are also working alongside a local authority refurbishment project to assess the potential of replacing service cables in existing housing stock

EV and LCT projects with Local Authorities

- Working with Wales and West Utilities we delivered a cross vector project using hybrid heating systems.
- The Freedom Project installed heat pumps and gas systems into 75 homes in South Wales. A PassivSystems controller scheduled home heating using either gas or electricity depending on local network constraints
- The project showed that a flexible solution could reduce the level of electricity network reinforcement required by the efficient use of mixed fuels

Summary

- Period of rapid change (Decarbonisation, Decentralisation, Digitisation and Democratisation)
- Use of flexibility in both the network and from customers can help with uncertainty, lower costs and allow us to react more quickly to customer requirements
- We are planning for the rapid adoption of EVs
- Decarbonising heat is a significant challenge that must be addressed to decarbonise the economy