



# Working together to achieve Greater Manchester's vision of zero carbon by 2038

## Energy System Overview

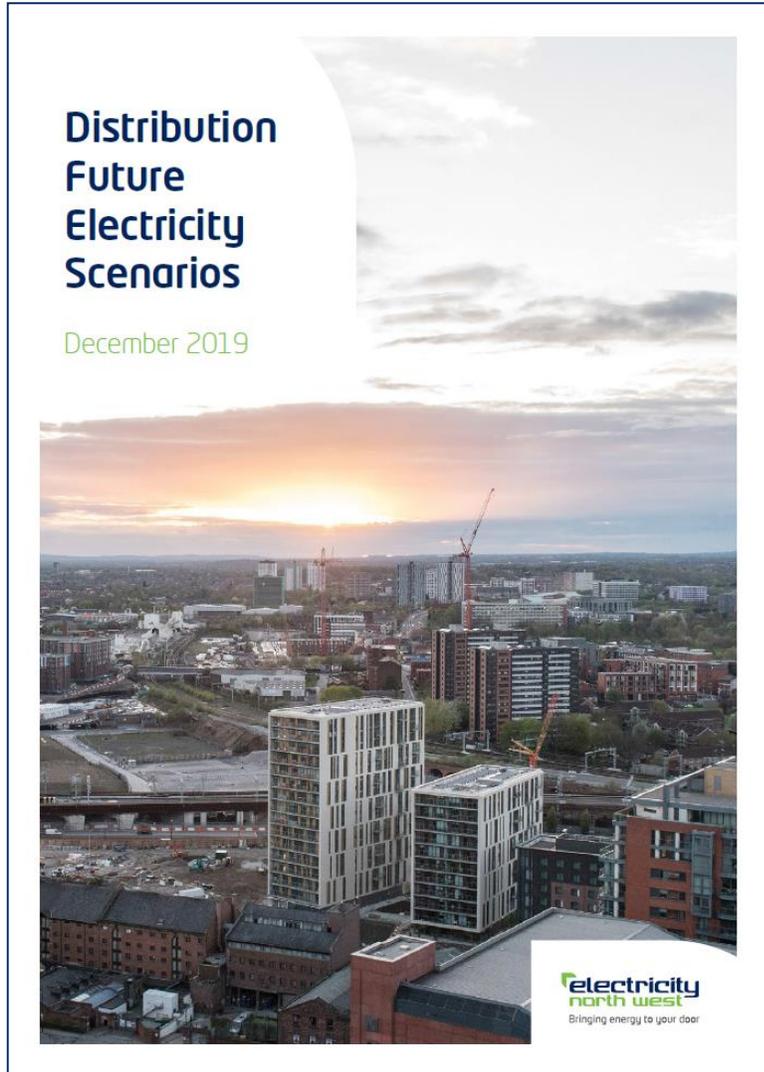
Paul Bircham

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**Latest forecasts to 2050, based on half hour analysis, down to Primary substation level for:-**

- Maximum and minimum demand
- Energy consumption
- DG capacity
- Reactive power
- Number of EVs and heat pumps

## **New for 2019**

- **Carbon compliant scenario**
- **Unique interactive workbook of detailed forecast data tables and charts allowing stakeholders to examine forecasts for specific areas**

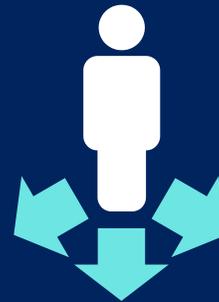
# What is the DFES? – Document Objectives



**Provide information**  
on our forecasts  
and share our  
insights into  
regional impacts



**Provide a deeper understanding**  
of network needs  
to engage and  
inspire customer  
involvement and  
new approaches



**Empower stakeholders**  
to target  
beneficial  
developments in  
appropriate  
locations



**Support whole system**  
co-ordination and  
collaboration



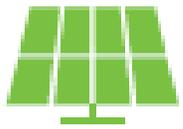
**Publicise the opportunities**  
to provide flexible  
services



**Half of vehicles will need to be electric by the early 2030s and all vehicles will need to be low carbon by 2050**



**Sixty percent of buildings will be warmed by heat pumps by 2050, with one in six buildings adopting heat pumps within the next ten years**



**Over 4GW of additional solar and wind generation capacity to be connected to the Electricity North West network by 2050 (half by 2030)**

Presently, only approximately one in fifty of our customers have solar generation installed on their roofs, but a ten-fold increase is needed by 2050

- Meeting the carbon target will require all businesses and customers to change to alternative low carbon transport and heating before 2050
- Immediate action is required to start the changes necessary to meet the 2050 target



**Peak demand is forecast to increase by half by 2050 and in some places nearly double in our Green Ambition forecast**



**Distributed generation capacity is forecast to nearly double in our Central forecast**

- Our electricity network will need to accommodate EVs and heat pumps so we are assessing where and when to invest
- Doubling of peak demand and distributed generation even our Central scenario requires is driving our innovation to develop ways of using our network better to deliver an efficient and economic network



**25% more electrical energy by 2030 and 50% by 2050 (Central scenario) shows a greater reliance on electrical energy**

- Increasing reliance of our customers on electricity needs to be reflected in the resilience of our distribution network

# Enabling Electric Vehicle charging



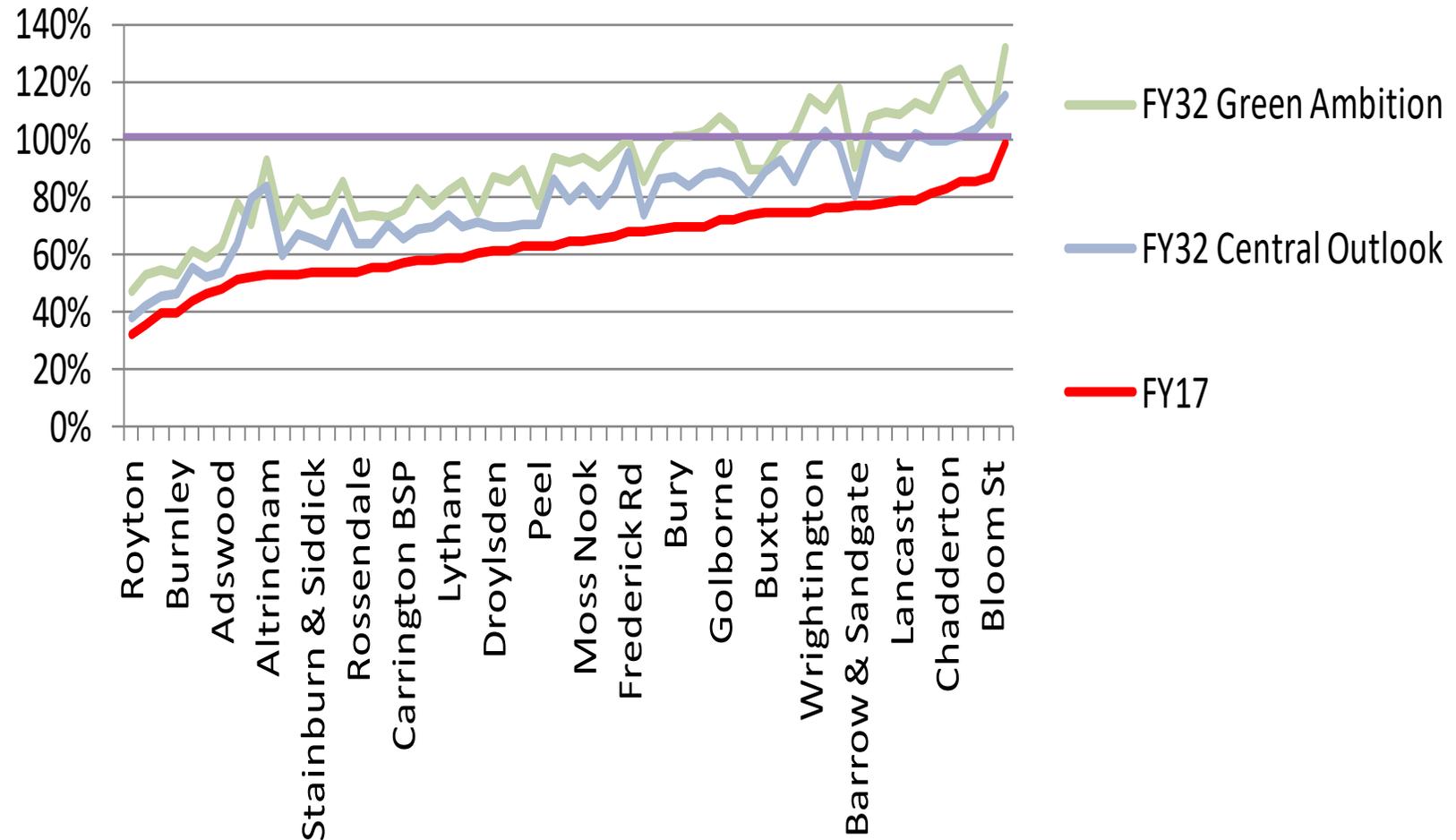
Capacity to connect Electric Vehicles exists now

Enabling 'easy' EV is central to clean air targets

Charging strategy – lots of low cost plug in points with the right mix of charging options for the location

For mass charging at work, even 13A plugs will be under utilised

## BSP peak loading as % of FY17 firm capacity



# How we can work together to achieve the transition?



## Local authorities in the NW

Joint leadership

One to one engagement

GMIP/climate emergency reps



**Consumption and generation**  
**Scale of opportunity**  
**Advice on where to target generation**  
**Share business case information on ENWL exemplars**

## NW large businesses

Exemplar to other businesses  
Starting the avalanche

Targeted engagement

Media campaign



**Case studies and business case information**  
**Online information hub**  
**Top five things to do now to decarbonise**  
**Online connections guides for low carbon technologies**

## SMEs and domestic customers

Respond to enabled environment  
Mass adoption of LCTs

High level media awareness campaign



**Consumer vision of a sustainable house in 2038**  
**Online information hub**  
**Online connections guides for low carbon technologies**

# Key Messages Example : MANUFACTURING & WAREHOUSE



Easiest



Replace lighting with LEDs and fit motion sensors



Replace space heaters with infrared heaters



Fit solar panels and charge equipment during day time



Electrify onsite transport and fit electric vehicle charging points

Most difficult

## TOP ENERGY USES

- Transport
- Lighting
- Space heating
- Manufacturing processes / refrigeration

## ADDITIONAL MESSAGE CONSIDERATIONS

- High energy users and already likely to be monitoring energy use and taking efficiency improvement actions
- Motivated by cost savings but also feel pressure from public / government / supply chain to reduce emissions
- Opportunities to share resources locally e.g. use excess heat from one factory to heat a nearby warehouse
- **Also consider:** Infra red heating, PVC curtains, power or voltage factor correction for equipment, electric forklifts

# Key Messages Example : OFFICE SPACE



Easiest



Fit solar panels (Landlord)



Replace lighting with LEDs and maximise natural light (both landlord and business owner)



Prioritise energy efficiency when replacing monitors, appliances and IT equipment (business owner)



Install electric vehicle charging points (landlord)



Adopt and embed energy reduction targets and behaviours

Most difficult

## TOP ENERGY USES

- HVAC (Heating, Ventilation and Cooling)
- Lighting
- Office equipment

## ADDITIONAL MESSAGE CONSIDERATIONS

- Relatively low energy users and so less aware / likely to have taken action
- Usually don't own their building therefore landlord engagement is key (encourage green leases?)
- **Also consider:** enabling energy saving features on existing office equipment, work with other tenants and landlord to install renewable energy generation, switch to a supplier that provides renewable energy, install showers and cycle storage