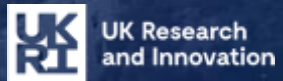




# Powering a zero carbon Oxford

Kristina Mould, Oxford City Council

Tim Rose, Pivot Power, Programme Manager, Energy Superhub Oxford



# Climate Emergency & Carbon



Climate Emergency Declaration  
Jan '19



Citizen's Assembly on Climate Change Autumn '19



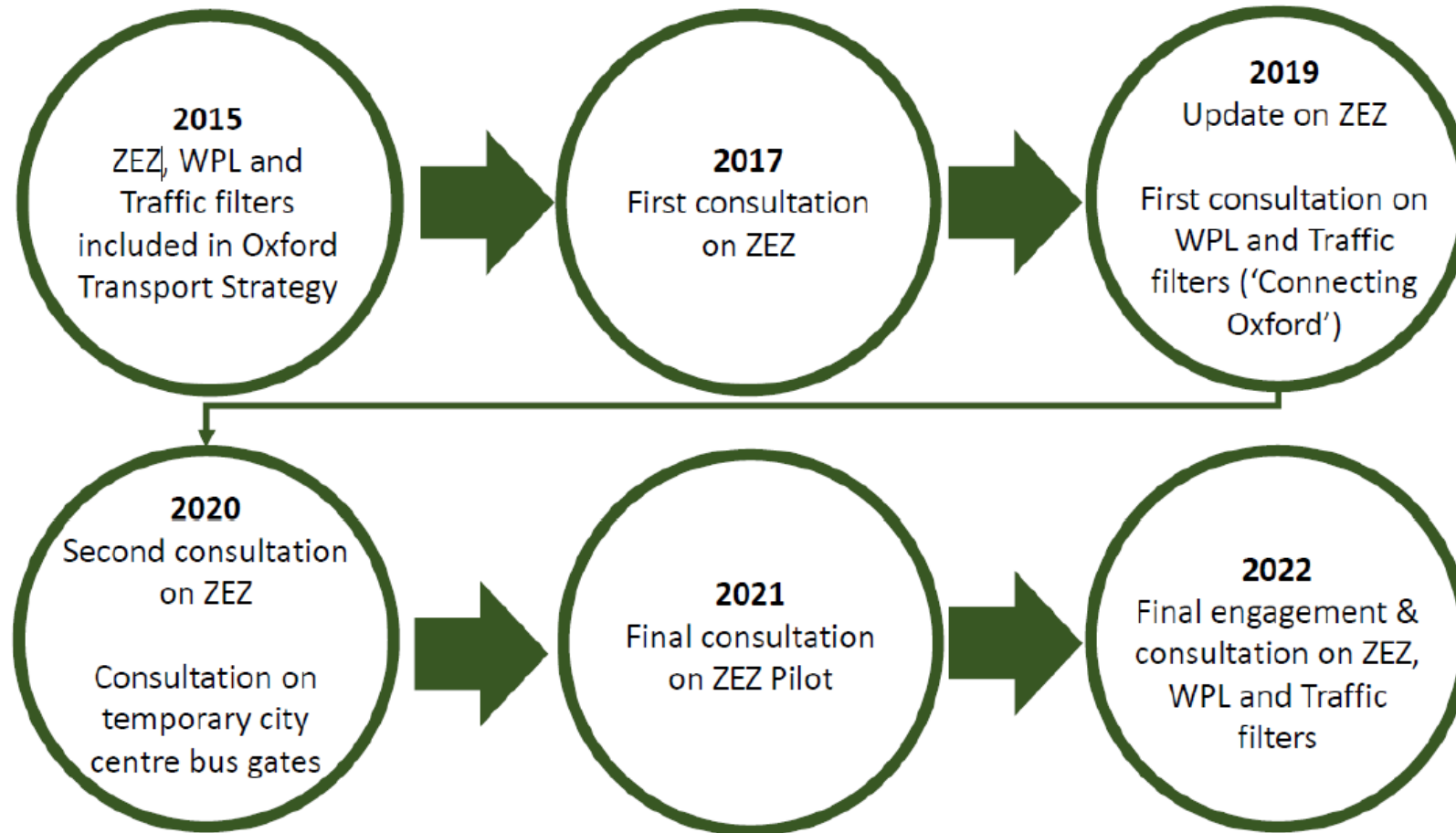
Zero Carbon Oxford Summit  
Feb '21.



Zero Carbon Oxford Partnership  
net zero by 2040

# Air Quality

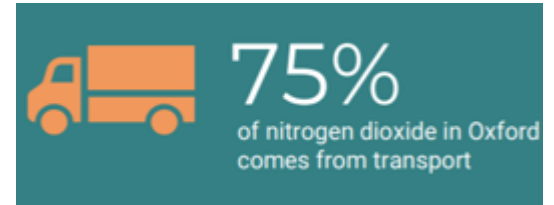
## Transport in Oxford – story so far



# Decarbonising Transport & Improving Air Quality in Oxford

## Impact of Transport Emissions - Health & Climate

- 75% of NO<sub>x</sub> (Air Quality)
- 33% of CO<sub>2</sub> emissions UK/17% in Oxford



## Net Zero National Targets

- Zero net greenhouse gas emissions = UK Zero Carbon by 2050
- Ban on Fossil Fuelled vehicles from 2030



## Local Net Zero Targets

- City Council net zero by 2030
- Oxfordshire net zero by 2040
- Zero Emissions Zone pilot 2022
- 25% fleet electrification by 2023



# Core Transport Schemes

## Traffic filters

Points on a road through which only certain types of traffic are allowed to pass.

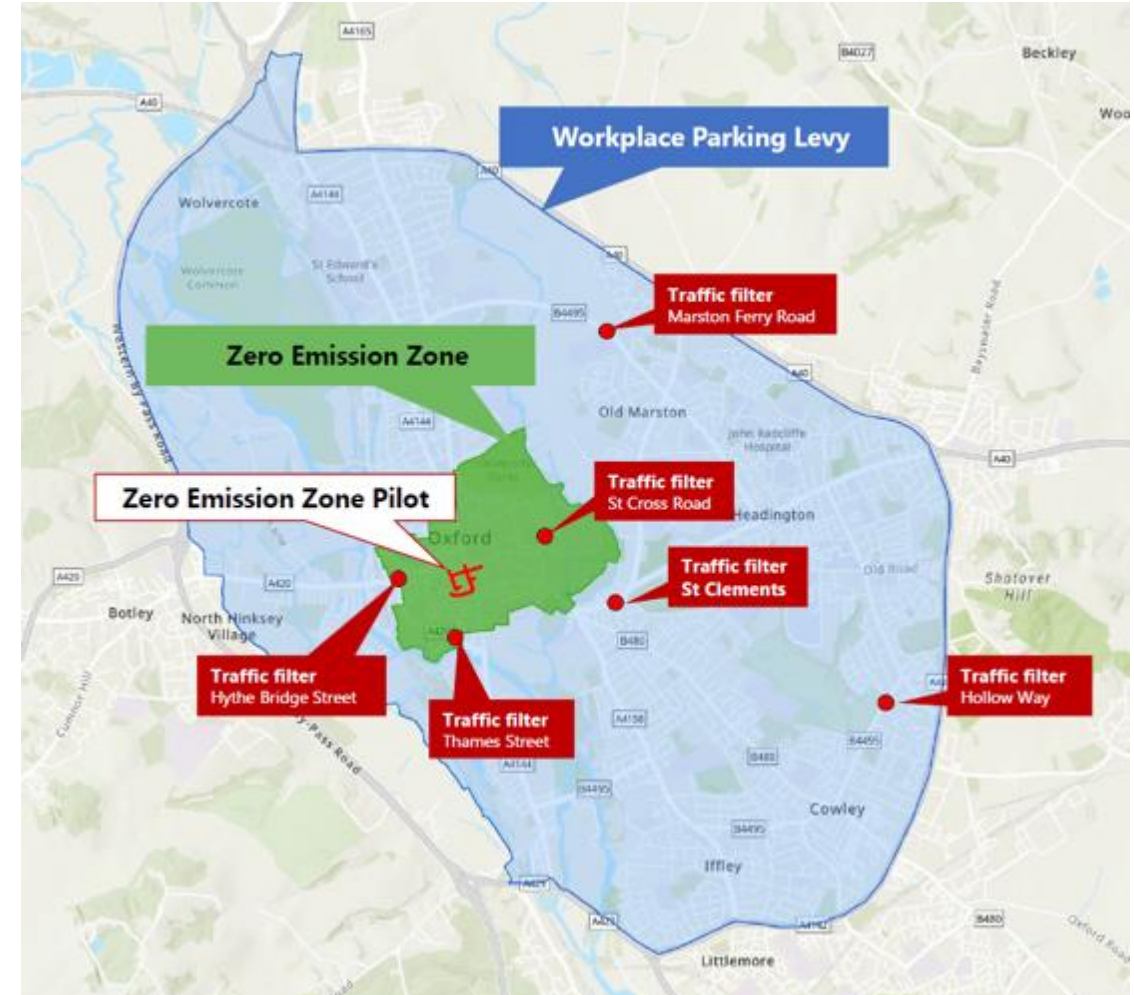
Enforced by signs and automatic number plate recognition cameras; will allow exemption or permitted vehicles to pass (e.g. cyclists, buses).

## Workplace parking levy

An annual charge paid by employers for each commuter parking space they provide for their staff. Visitor, customer and blue badge holder parking are not included. Employers can choose whether to pass the charge on to staff.

## Zero emission zone

A zone in which drivers must pay a road user charge linked to vehicle emissions. Unless exempt, only 100% zero emission vehicles can be driven in the zone free of charge.



# What is Energy Superhub Oxford?

Energy Superhub Oxford (ESO) is a world-first project pioneering an integrated approach to decarbonising power, transport and heat to accelerate Oxford's journey to zero carbon.

It will showcase a powerful network of:

- hybrid battery energy storage
- rapid electric vehicle charging
- low carbon heating, and
- smart energy management

providing a model for cities around the world to cut carbon emissions and improve air quality.



## Our consortium



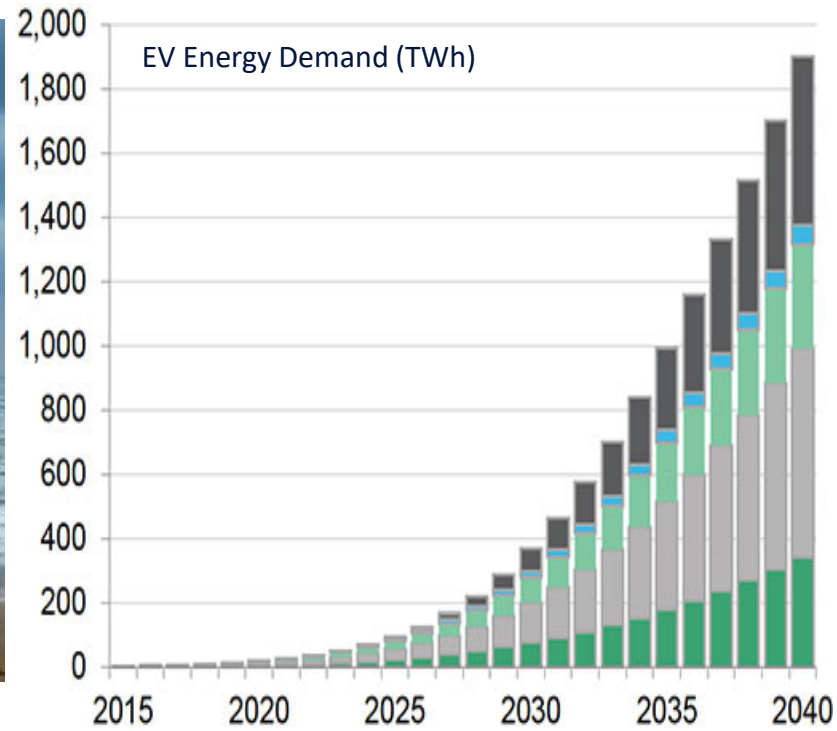
# *Grid Stability*



# Grid Stability



# EV Infrastructure



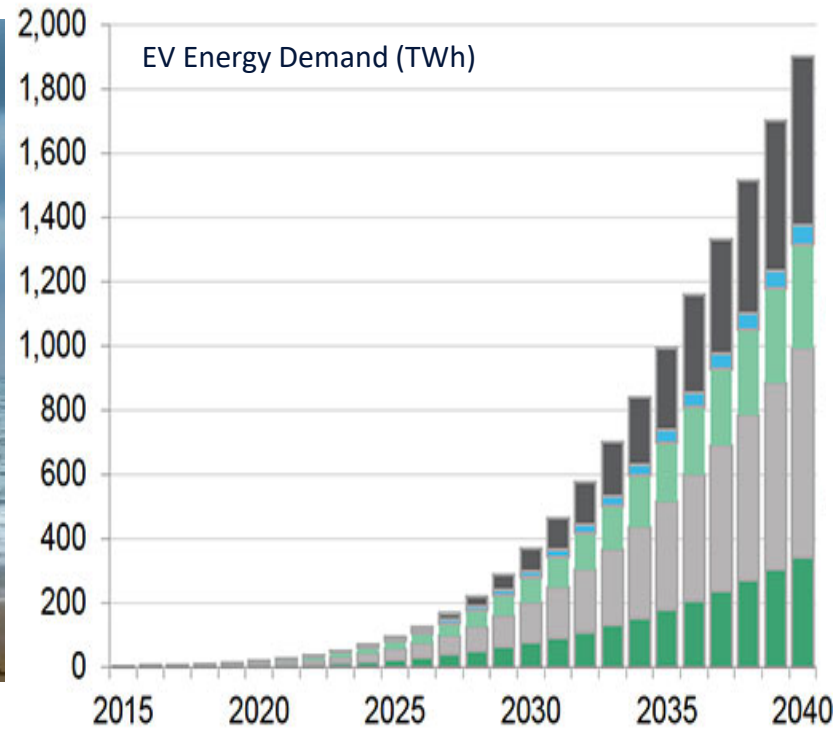
Source: BNEF



## Grid Stability



## EV Infrastructure



Source: BNEF

## Inefficient Heating



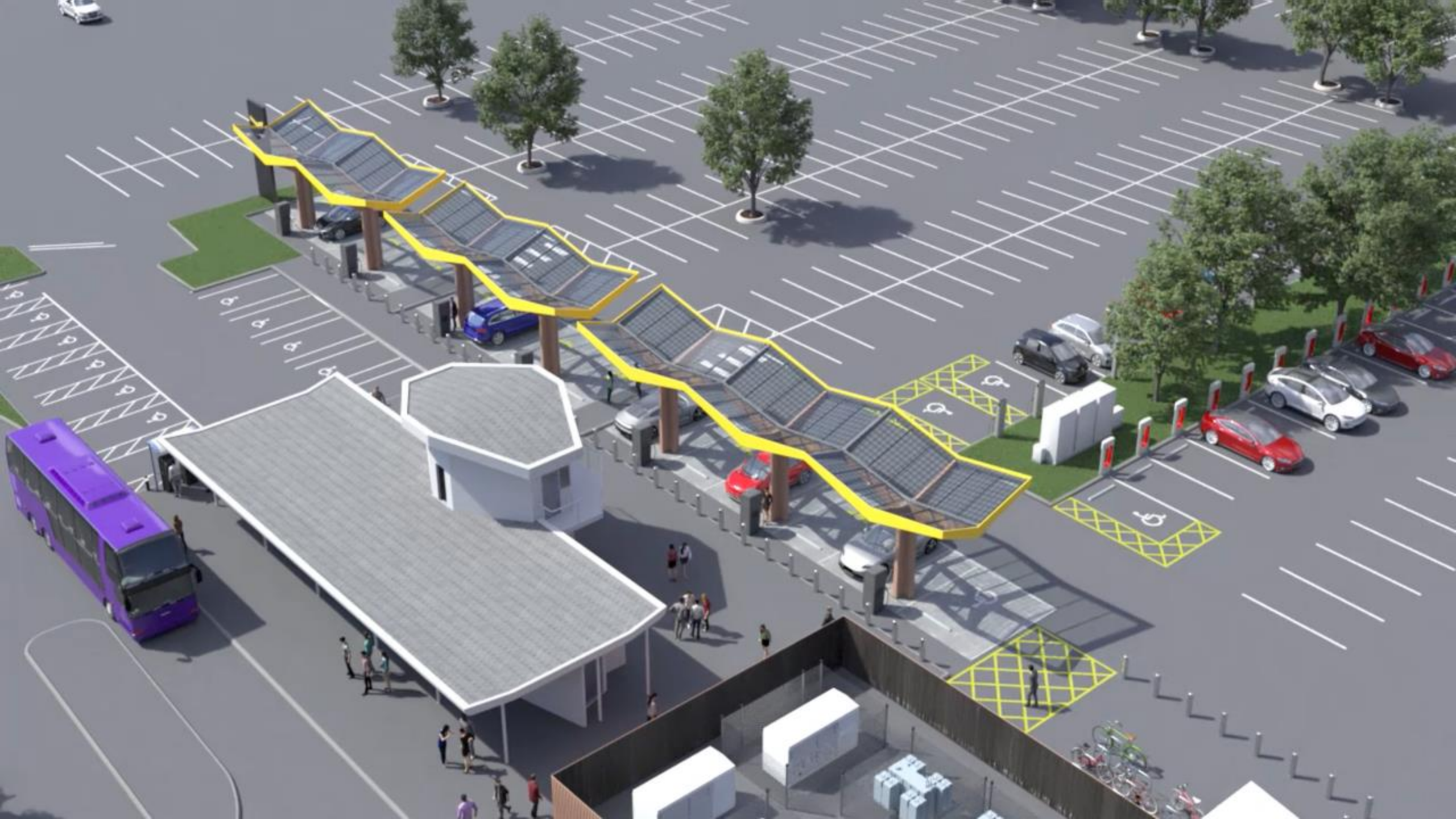
# Hybrid Battery

- 50MW/1hr Lithium Ion + 2MW/2.5hr Vanadium Flow
- Transmission-Connected
- Grid services to NG ESO + market trading
- New Optimisation Engine developed

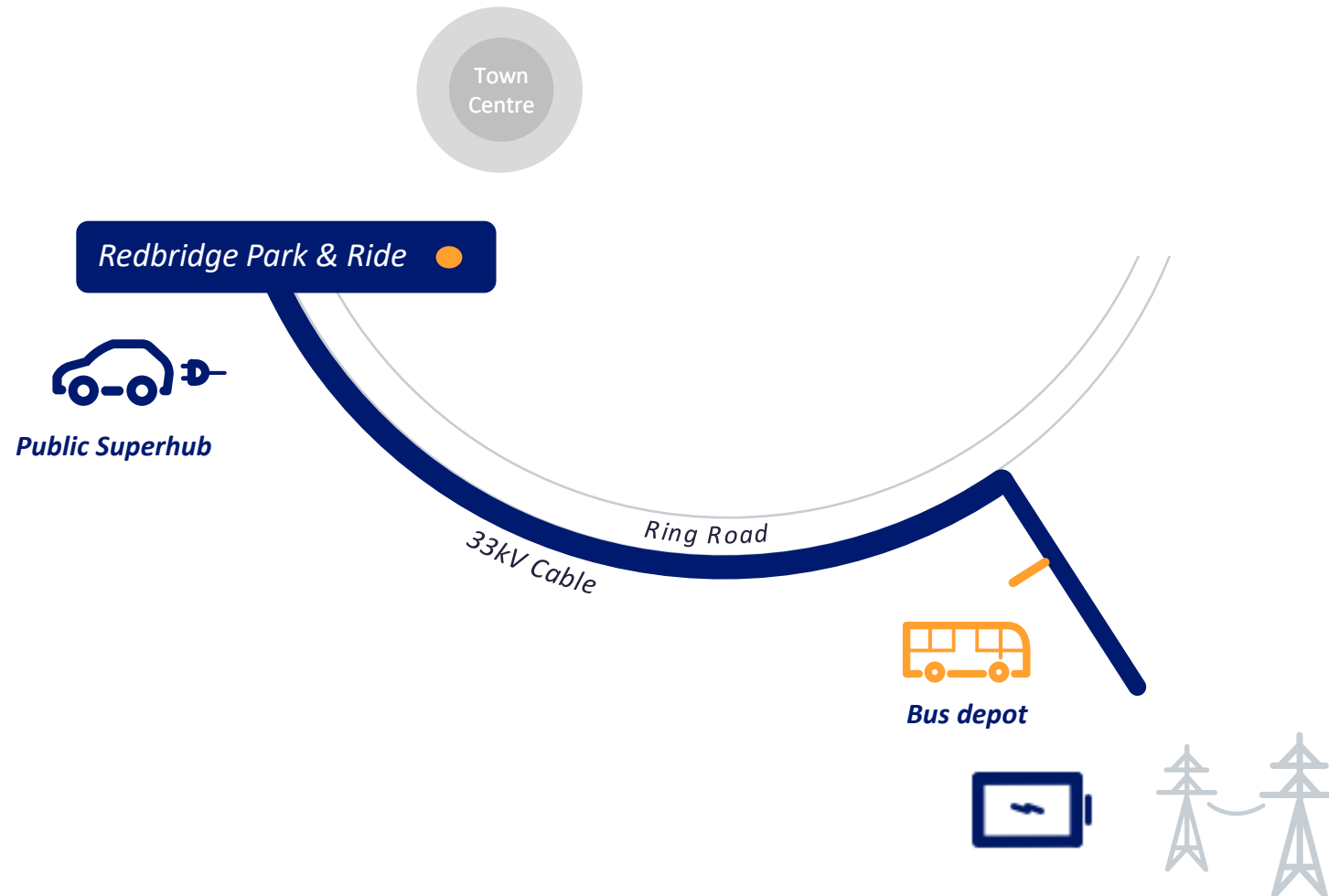


# Private EV network, 7km, transmission-connected

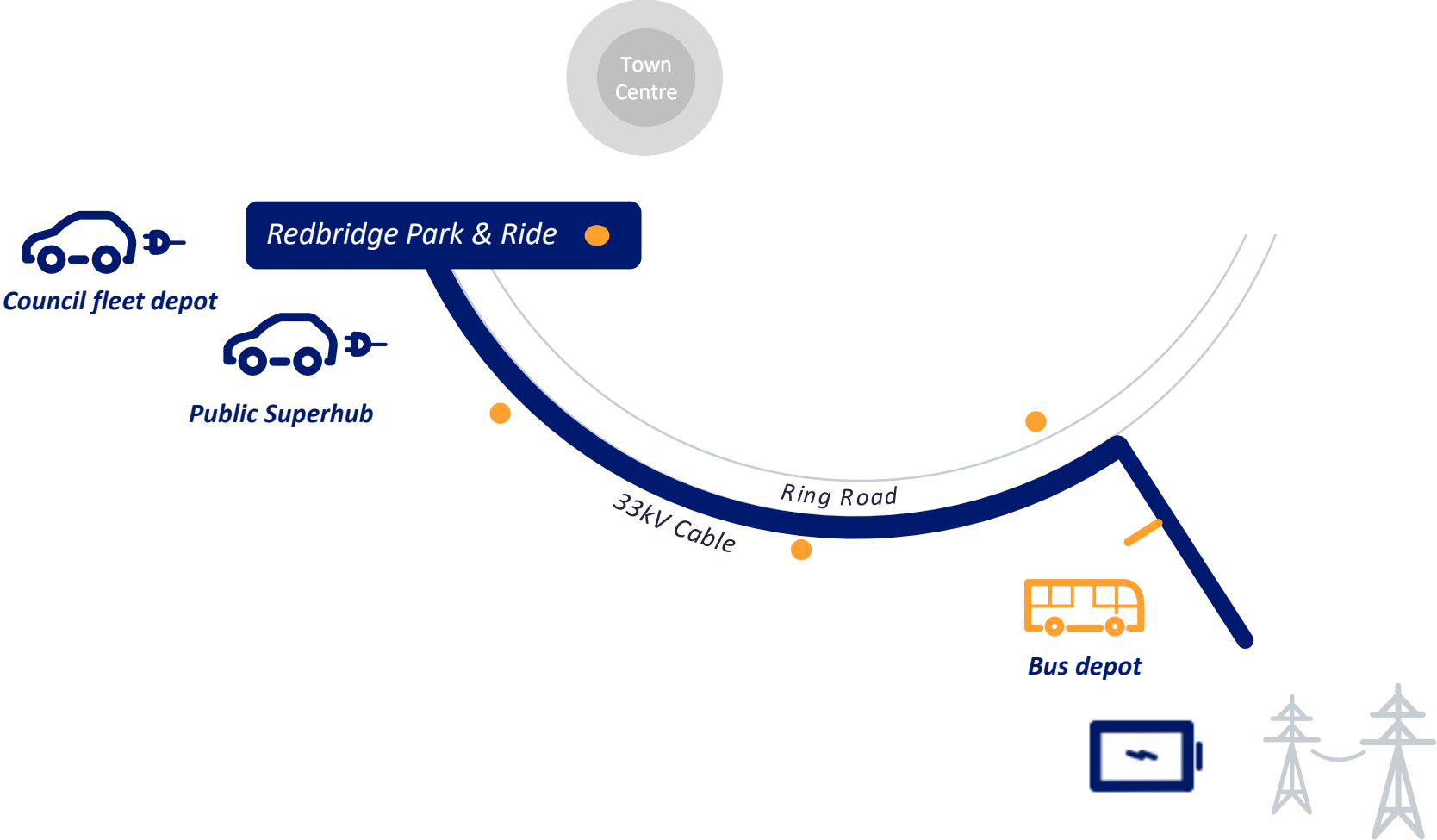




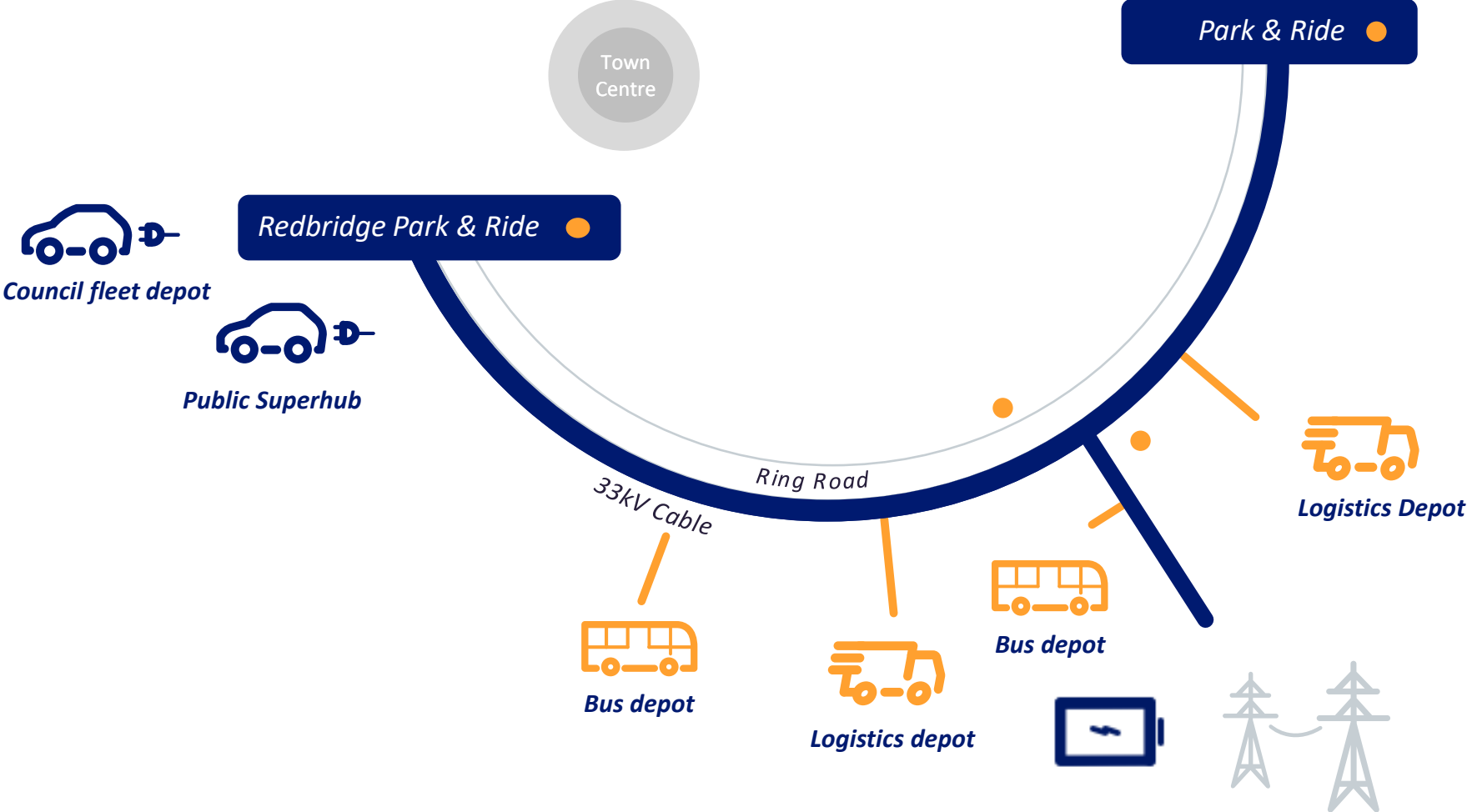
# EV Network



# EV Network



# EV Network





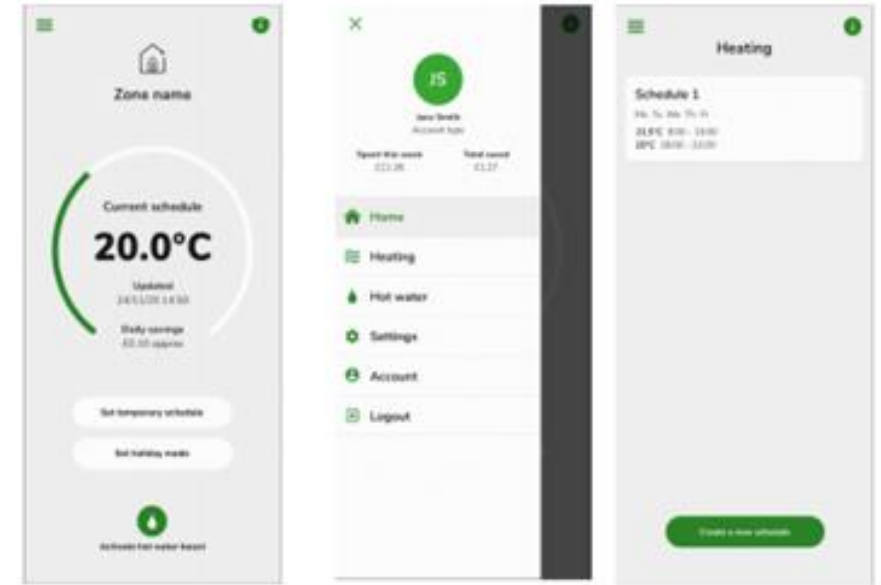
- *Fleet Electrification of 40 Vehicles*
- *Taxi EV Scheme*
- *Optimisation Engine will also manage fleet charging*



# *Renewable Heat*



# Renewable Heat



- *Smart controls +*
  - *Load shifting +*
  - *Time of Use Tariffs*
- ➔ *Reduced network loads*

# Renewable Heat

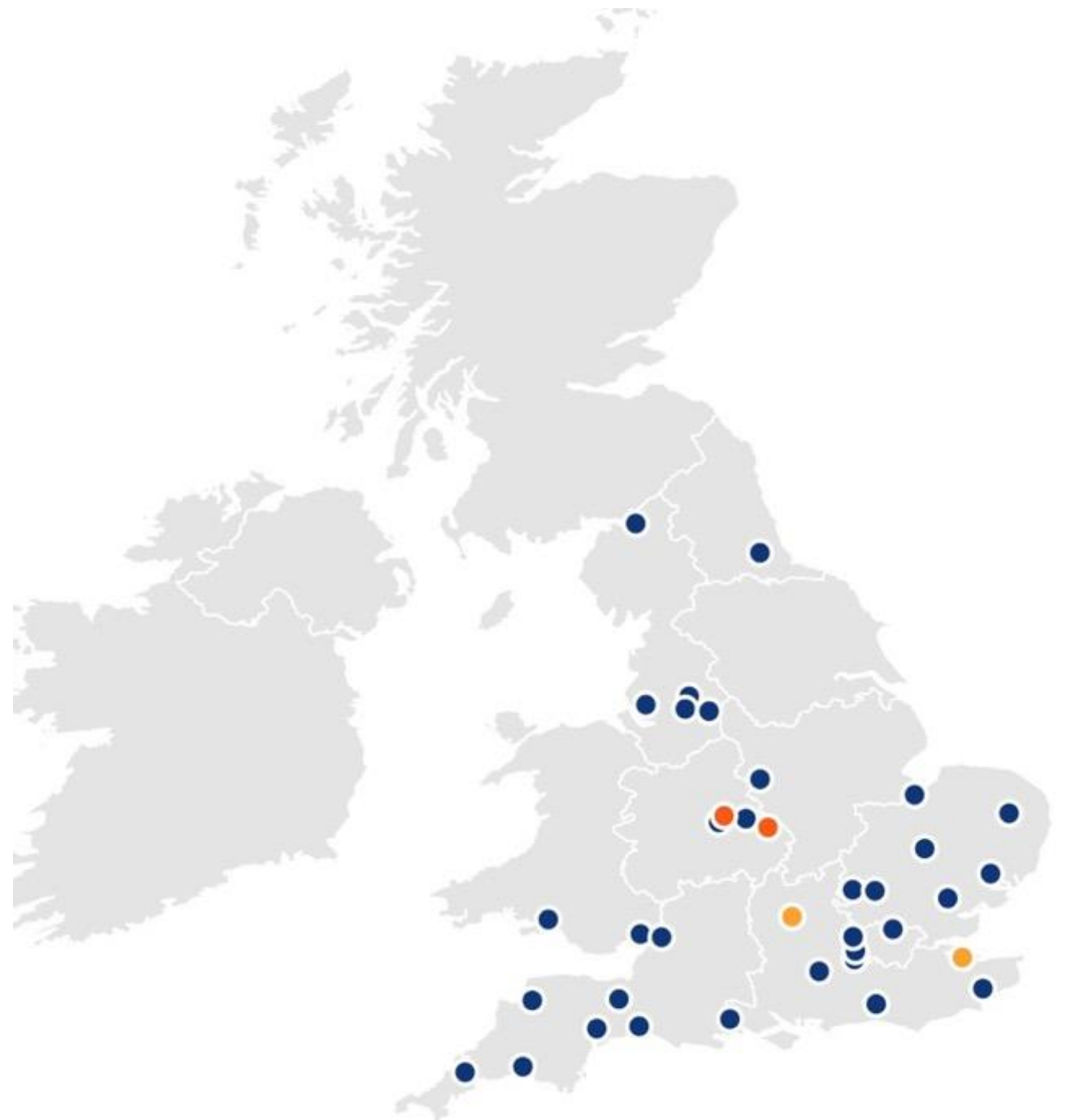


- *57 social housing properties installed & commissioned*



# *Beyond Oxford...*

- Up to 40 sites
- All direct National Grid connections
- Coventry & Birmingham batteries under construction
- Flexible Superhub structure





# Thank you

Tim Rose, Programme Manager, Energy Superhub Oxford

[trose@pivot-power.co.uk](mailto:trose@pivot-power.co.uk)

