



# Energy Superhub Oxford (ESO): A Global Demonstrator of a Smart Energy System That Will Accelerate Electric Vehicle Adoption

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management by measurement

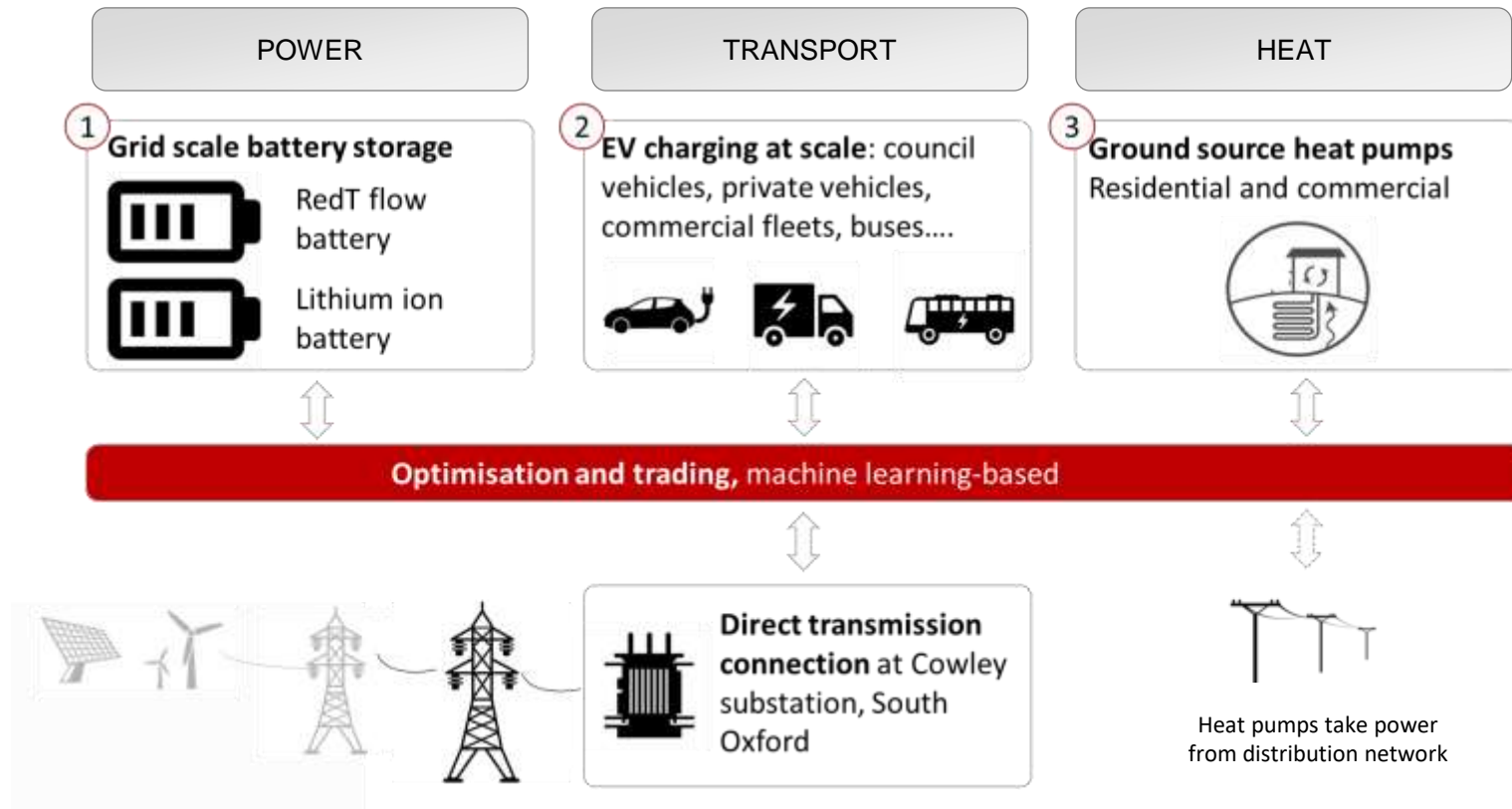
# Energy Superhub Oxford (ESO)

Cenex  
September 4<sup>th</sup> 2019



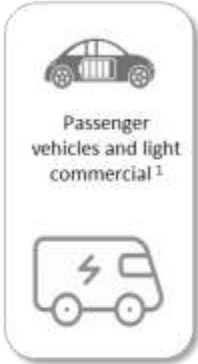


# Energy Superhub Oxford (ESO)

ESO brings innovation and scale to the decarbonisation of power, transport & heat...



# EV Charging – The Importance of Scale

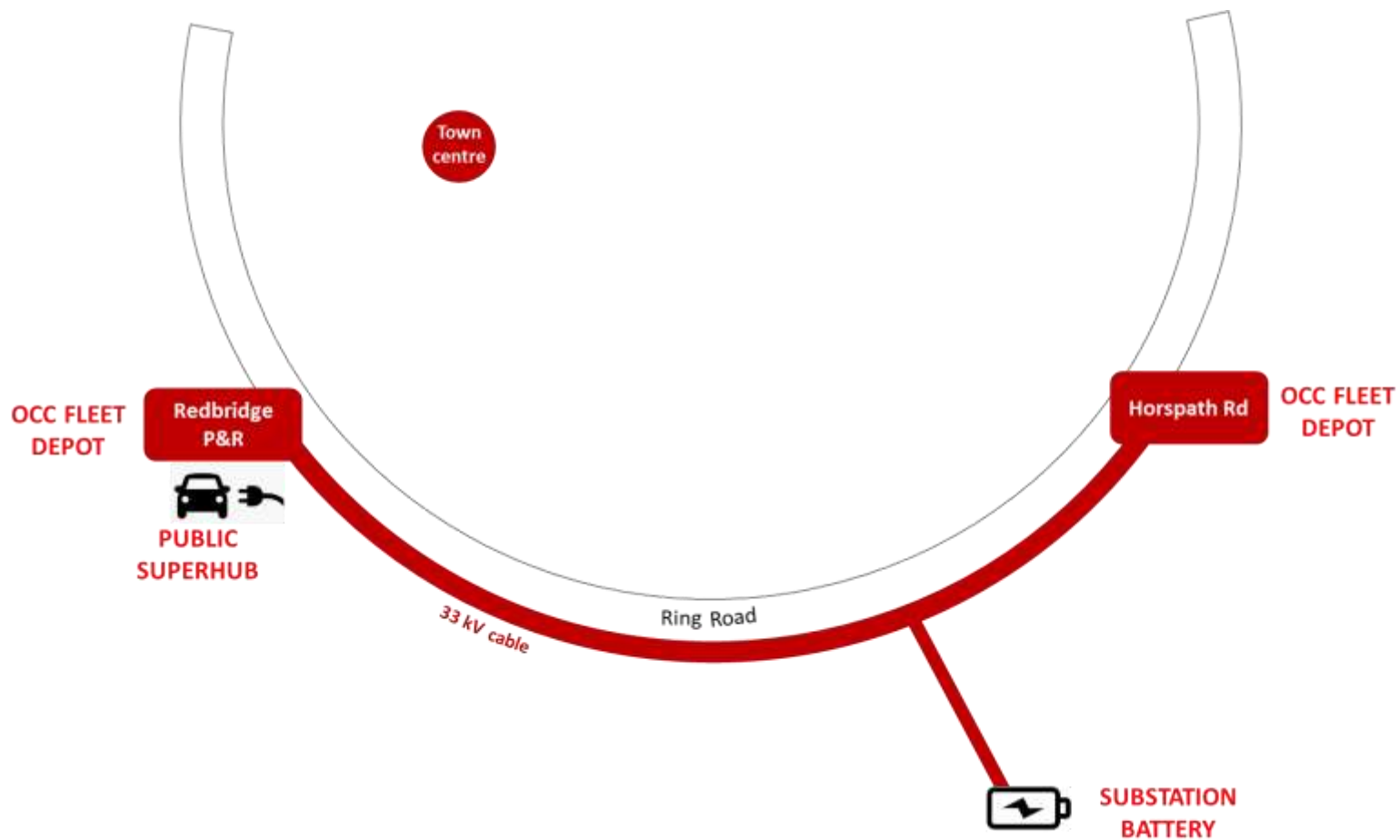
Rapid charging at public hubs and overnight charging at commercial fleet depots will require levels of power for which the distribution grid was not designed

	CHARGER TYPE	POWER	TIME TO CHARGE	AS MUCH POWER AS...
 <p>Passenger vehicles and light commercial <sup>1</sup></p>	Rapid charger	50 kW	90 mins	25 homes (average allowance)
	Tesla Supercharger	150 kW	30 mins	Petrol station
	Ultra-rapid	350 kW	8-10 mins	Supermarket
	eBus	80-100 kW	~4 hours	50% of an average bus depot
	eHGV charger	1,000+ kW	~1 hour	5 acres of solar panels

<sup>1</sup> Based on DC charging a 90kWh Battery Electric Vehicle (BEV) from 0% - 80%

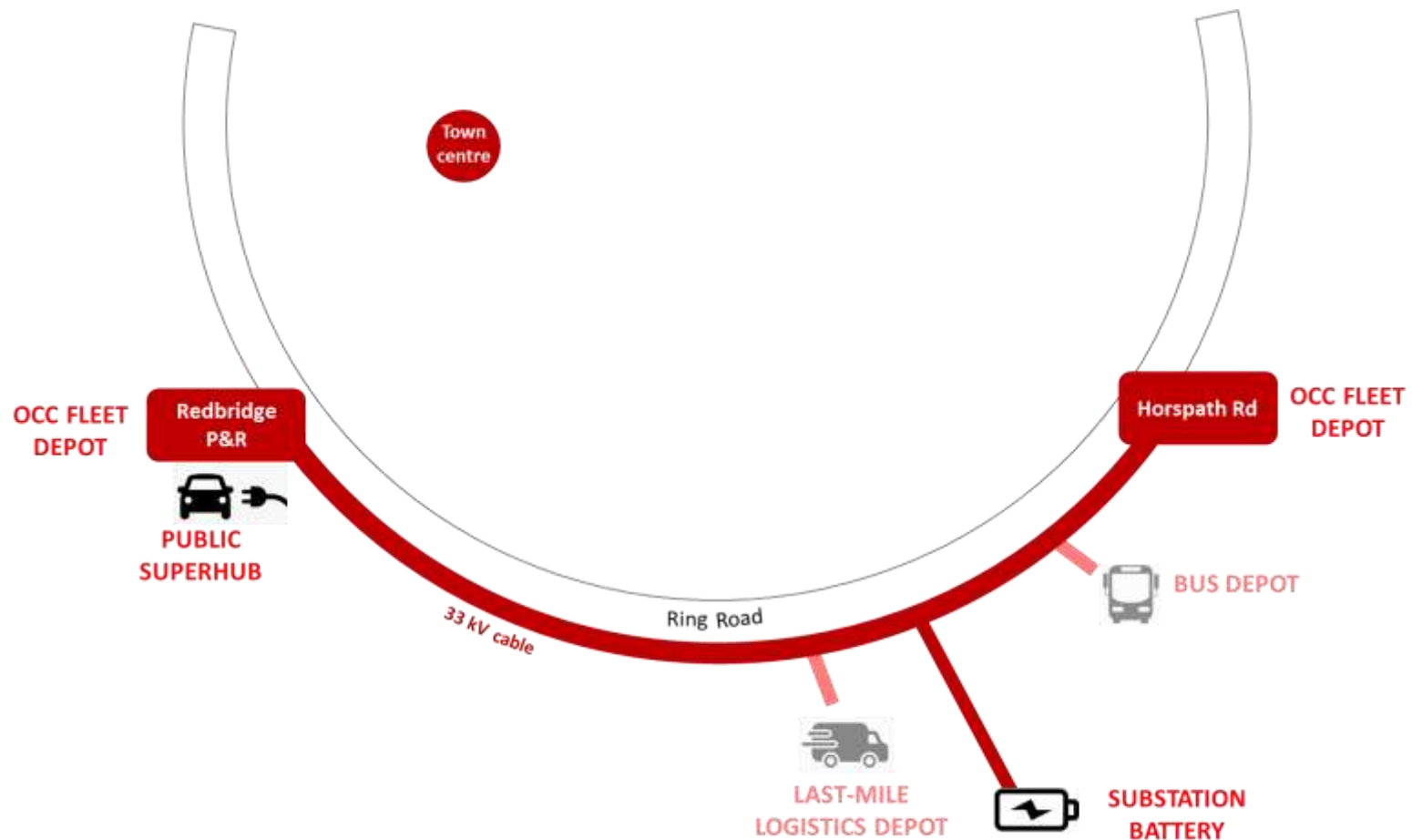
## EV Network - Initial Scope

ESO will install a new 33 kV cable around Oxford's southern ring road, between 2 key council vehicle depots, with 20 MW of capacity for EV charging



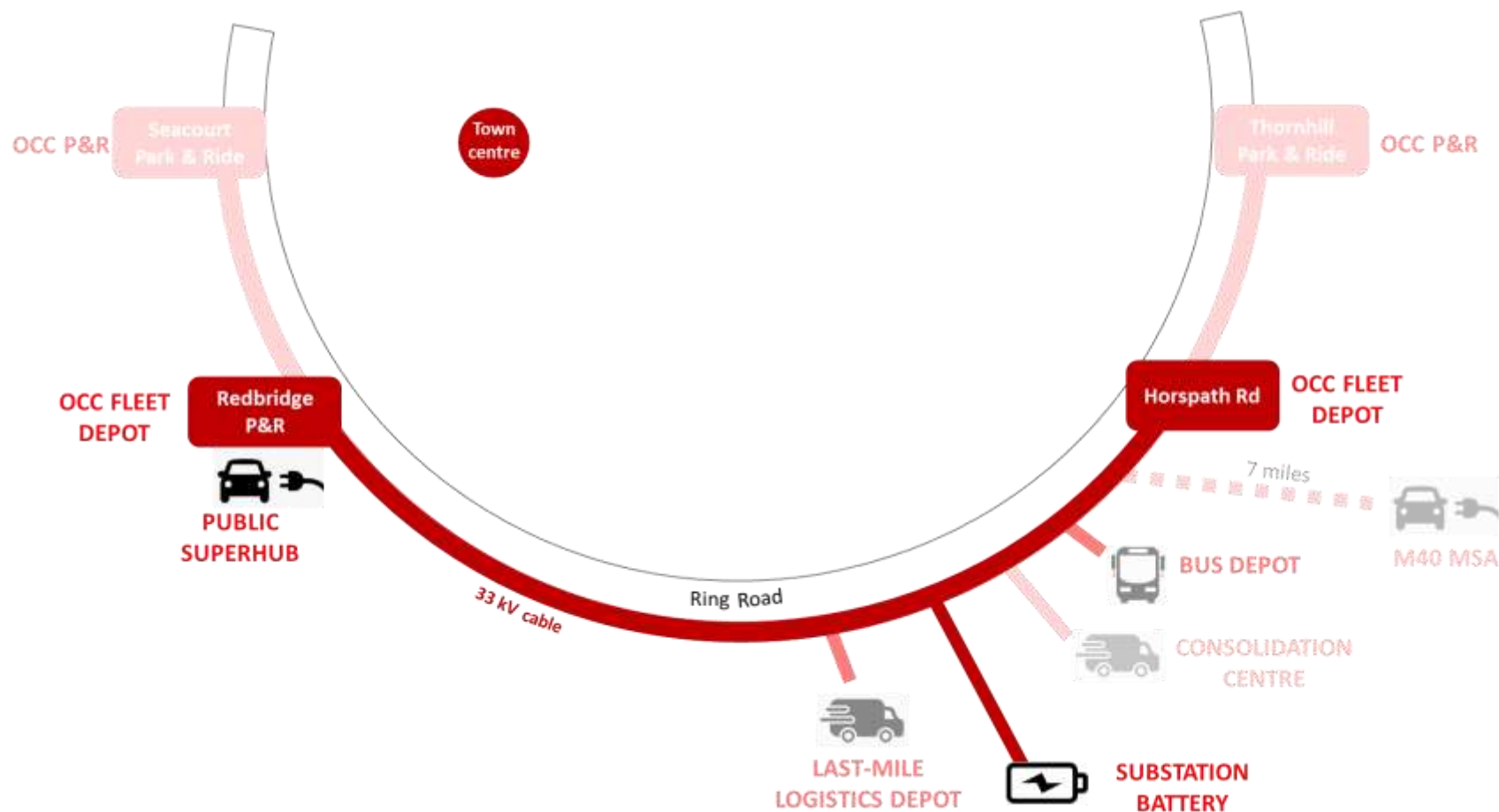
## EV Network - Targeted Extensions

The intention is to use this EV charging backbone to electrify bus depots and logistics hubs which lie along the route



## EV Network - Possible Evolution

The ambition is to extend this further, to reach two more of the city's Park & Rides, to create a new consolidation centre on the edge of town, and even to extend out to the Motorway Service Area on the M40...to make Oxford a world-leading flagship for EVs



## Why Oxford?

- A small city with big ideas
- The economic heart of Oxfordshire with 46,000 commuters on weekdays and over £9m visitors each year
- This brings challenges: some of our streets have illegal levels of air pollution





# Oxford City Council's approach to accelerating EV adoption

- Implementing a Zero Emissions Zone policy with Oxfordshire County Council
- Targeting specific barriers to adoption
- Targeting specific sectors of the 'city fleet'



## Public service delivery in Oxford



- Oxford Direct Services was established in 2012 and spun-out in 2018 as a wholly-owned company of Oxford City Council
- A commercially-minded approach rooted in public service values
- Delivering and developing services with a focus on outcomes for local economic, environmental and social sustainability



# ESO & Electrifying Oxford Direct Services

- |  |  |   |  |   |
|--|--|---|--|---|
| <ul style="list-style-type: none"><li>The first step towards a Paris Agreement compliant fleet which requires 80% of our vehicles to be electric by March 2023</li></ul> |  | <ul style="list-style-type: none"><li>Testing vehicles across our service needs: from street cleaning to operatives' vans to waste collection tippers</li></ul> |  | <ul style="list-style-type: none"><li>Accelerating our learning both on the technologies and staff engagement</li></ul> |
|--|--|---|--|---|



# ESO & Electrifying Oxford

- ESO will fund a try before you buy scheme for Oxford's Hackney Carriage trade
- Rapid public charging infrastructure, to keep them on the road
- Fleet analysis for Oxford's businesses and other organisations
- Building capacity at the Council and ODS to support others
- Developing new e-mobility business services

