GO ULTRA LOW OXFORD

On-street electric vehicle charging points:

The Go Ultra Low Oxford Project

- **Oxford**: a city moving towards sustainable transport
- UK's first Low Emission Zone outside London
- High public and active transport
- Low Emission Strategy and Connecting Oxfordshire (LTP4)
- Focus on support for charging infrastructure
- ULEVs part of the jigsaw for a 'Cleaner, Greener Oxford'

The Oxford transport challenge

Nitrogen Dioxide (NO2) pollution from road traffic in the city

Growing economy and population, high congestion, in-commuting

OXFORDSHIRE COUNTY COUNCIL
www.oxfordshire.gov.uk
Working for you

www.oxford.gov.uk
OXFORD CITY COUNCIL

On street charging

- ULEV uptake still low
- Housing situation a barrier?
- Historic & densely populated urban centre
- 28% live in terraced houses
- Requests for help with on-street ULEV charging
- Market research:
  - 74% of respondents want to charge ‘at home’
  - 75% of respondents parked their car on the street

The Go Ultra Low Oxford Project

- Technology trials
- University of Oxford;
  - Transport Studies Unit
  - Centre on Innovation & Energy Demand
- Technology neutral
- Up to 6 solutions from high to low tech
- Volunteer users & car club data
- User experience, behaviour change, efficiency, performance, value for money

Project Vision:

Identify an effective solution to 'at home' charging for residents who do not have access to private off-street parking

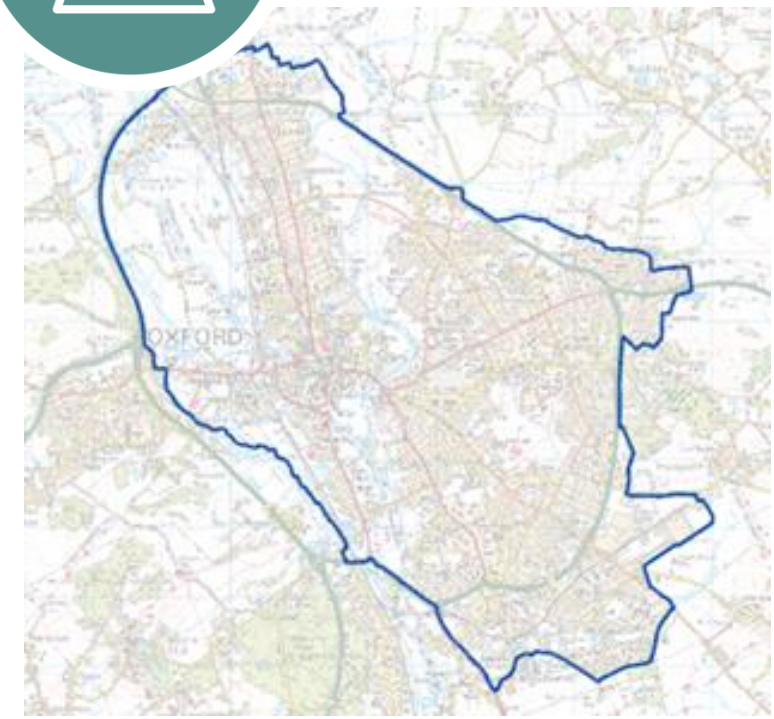
30 installations

20 volunteers

10 Co-wheels cars

Centre on Innovation and Energy Demand

TSU OXFORD

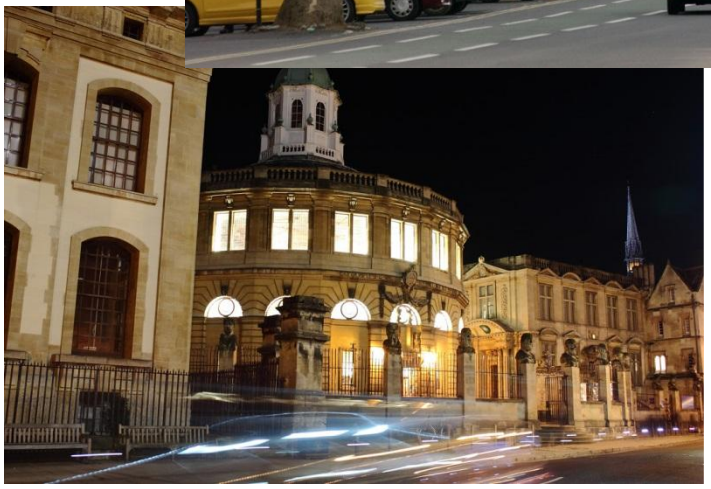


Next steps

- City-wide expansion
- Up to 100 new solutions across the city
- Trial evaluations inform choices for expansion
- Legacy & sustainability:
- Minimise resource needs
- Revenue generation
- City-wide policy
- Share learning

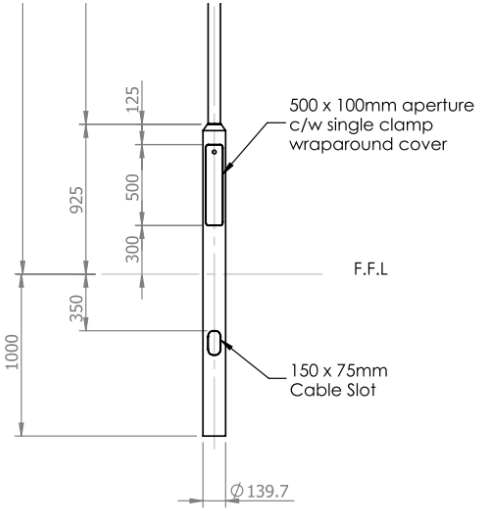
Complexity

- Accessibility & safety
- Street furniture policy
- Streetscape
- Heritage
- Parking pressure
- Electrical connections
- Grid demand and resilience
- User requirements
- Will one size fit all?



Lamp column charging

- Evolt Opticharge
- Low cost for installation
- Paired with EV charging bays
- Fits to lamp column door
- RFID access or PAYG with app
- 3.5kW without disrupting lamp
- Higher power may require new supply
- Things to consider:
  - column position: must be kerb-side,
  - column diameter,
  - power capacity,
  - earthing

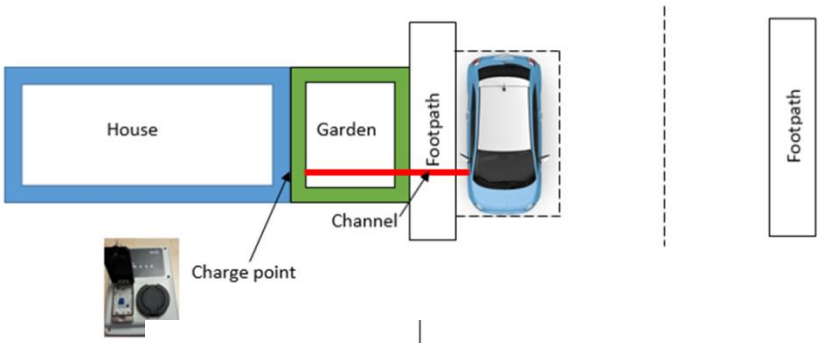


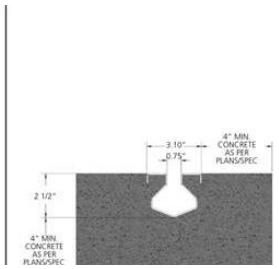
Lamp column charging

- Ubitricity
- Very low cost; 3 x sockets vs cost of a single standard lamp column charger or charging pillar
- Simple socket fitted to column door
- Data comms in ‘smart cable’
- Multiple sockets per street mean no EV charging bay is needed
- Socket activated using smart cable
- 3.5kW Standard Charging without disrupting lamp function

Cable channels

- Evolt eHome charger with pavement channel
- 7.5 kW ‘Fast’ charging (4 hours) using home electrical supply
- No dedicated EV charging space
- Access to charging is not public; only homeowner can use
- Narrow drainage channel opening
- Low cost
- Limited future revenue - no tariff
- Low future resource requirements





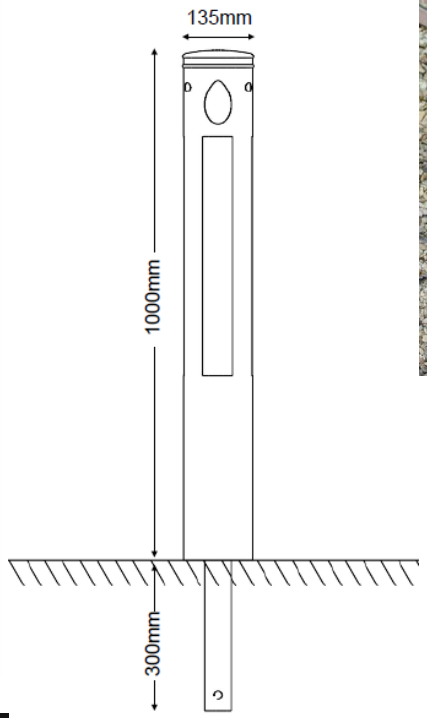
evolt

Charging pillars

- Evolt, Franklin Energy (Chago) & Zeta
- Free standing columns
- Access to charging is public
  - RFID card or app
- Dedicated EV charging space
- Higher power 7.5 kW fast charging
- Full vehicle charge in approx. 4 hours

Charging pillars

- DNO connections required
- Highest costs for hardware and installation
- Separate metred electrical supply
- Excavations and power supply connections require permissions and licences



FRANKLIN ENERGY

zeta

Procurement

- Open OJEU procurement - Supply & Installation of charging equipment:
  - Specific technologies of interest and encouragement of innovation
  - 3 categories: Lamp column charging, connection to home supply, ‘other infrastructure’
  - OCPP 1.5 compliance critical
- Concession Charge Point Network Operator :
  - Responsible for back office, maintenance, revenue collection, energy contracts
  - Experience of integrating OCPP 1.5 hardware critical

Business Model

- Capital funding only
- Resource demands: minimise on-going revenue costs and staff resource
- Revenue sharing: income stream opportunity
- Ownership: Retain ownership until project end in 2021
- Concession: ‘Charge Point Network Operator’ controls network including: Back office, maintenance, revenue collection, energy contracts.
- Public access supports business case –not restricted to residents only
- Variable tariffs for different user groups provide best value for residents

EV charging bays

- Traffic Regulation Orders
- Engagement with volunteers and stakeholders
- Residential use case: overnight charging at slower speeds
- 8am to 6pm
  - 3hrs maximum stay
  - cars must be plugged in
  - public access
- 6pm to 8am
  - no time restriction
  - cars must be plugged in
  - resident permit only (in permit areas)

GO ULTRA LOW OXFORD

THANK YOU