LoTAG Group 2 & Smart Cities Conference

Electric Charging of vehicles from Lamp Columns

THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

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THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

Office for Low Emission Vehicles

Total Government investment is now nearly £1.5 billion until 2020/21

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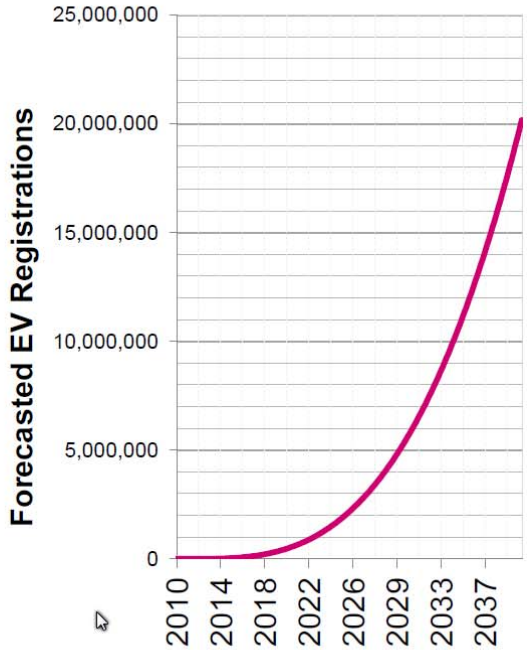
New diesel and petrol vehicles to be banned from 2040 in UK

26 July 2017 | UK Share



2020
3-7% new cars ULEVs

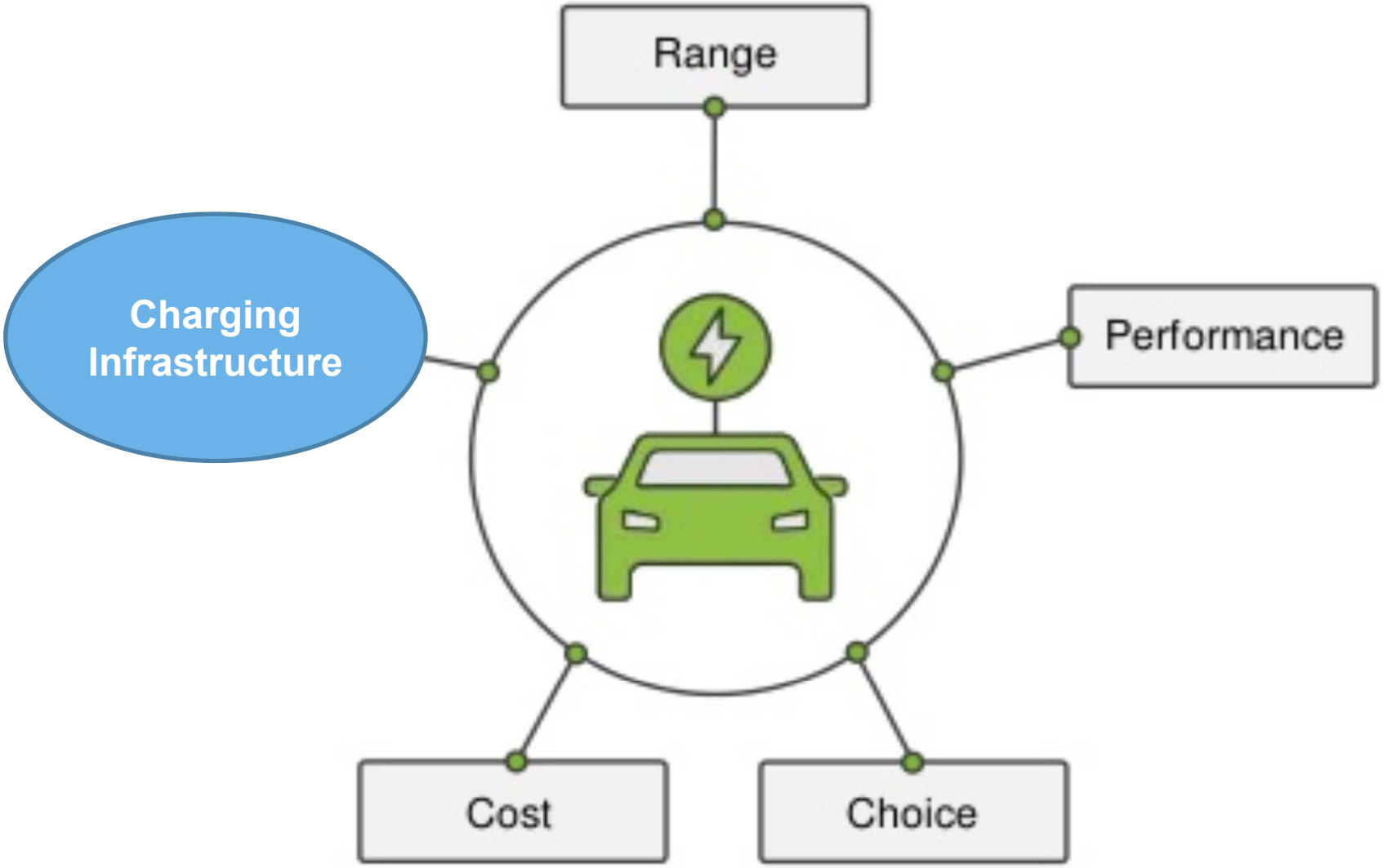
2040
100% new cars and vans ZEVs

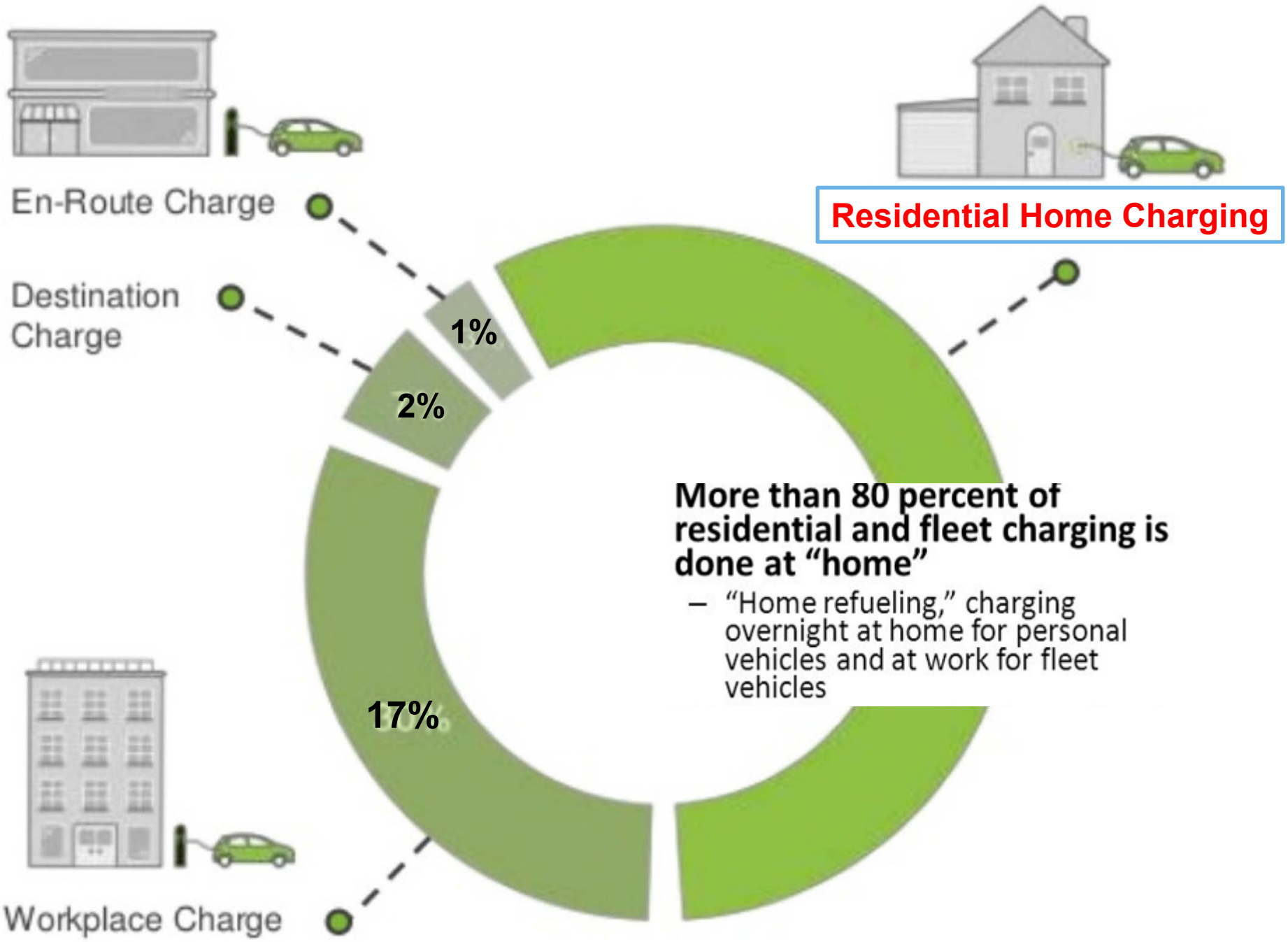
2050
Almost all cars and vans ZEVs

+ £100m Fiscal Incentives (HMT)

+ £500m Advanced Propulsion Centre (BEIS)

Barriers to EV




En-Route Charge
Destination Charge
Workplace Charge
Residential Home Charging
1%
2%
17%
More than 80 percent of residential and fleet charging is done at "home"
– "Home refueling," charging overnight at home for personal vehicles and at work for fleet vehicles


WN54 NVJ


E
3228 HYP
Autoberón
i3

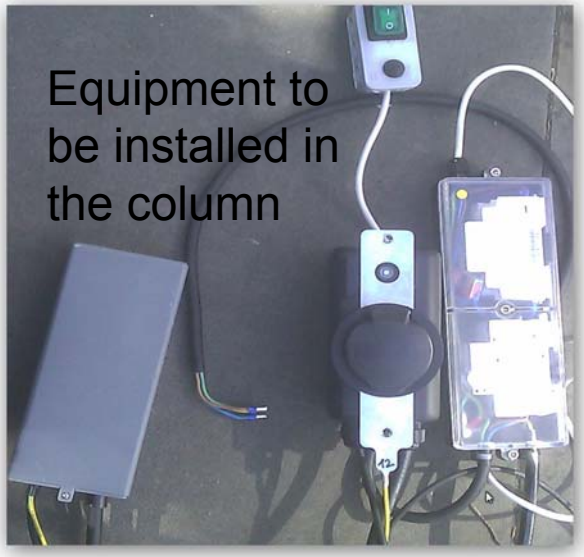
Opportunities for the borough

The RBKC has:

- Approx 280 electric vehicle owners with residents permits (and rising)
- Resident on street parking spaces approx. 28,000 but there are 37,000 parking permits
- Approximately 80% available to residents is on street
- Only one resident parking zone – allows residents to park anywhere in the borough
- Conclusion
  - There was a need to develop a new approach to EVCP without designating bays

- Streetscape
  - Street clutter
- Loss of parking
  - Residential or P&D for dedicated EV bay
- Installation costs
- Local disruption during installation
- Traffic Orders required


ubitricity

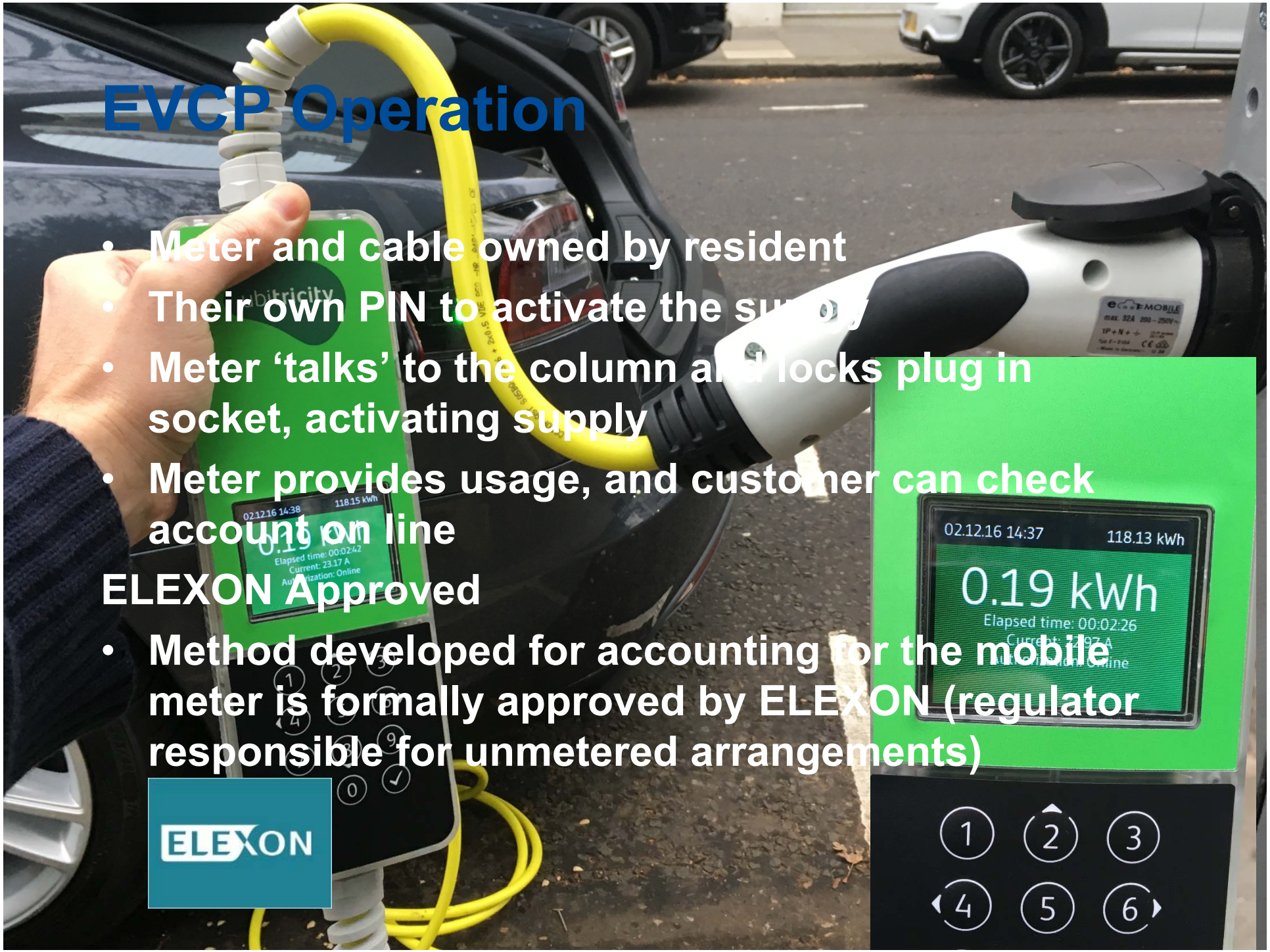

Equipment to
be installed in
the column

EVCP Operation

- Meter and cable owned by resident
- Their own PIN to activate the supply
- Meter 'talks' to the column and locks plug in socket, activating supply
- Meter provides usage, and customer can check account on line

ELEXON Approved

- Method developed for accounting for the mobile meter is formally approved by ELEXON (regulator responsible for unmetered arrangements)



Successful trial with EVCP on lamp posts

- RBKC Strategy
  - Installation where possible in P&D or single yellow line
    - Advantage - Locations available free outside controlled times, limit possible ‘hogging’ of resident bays
  - Install in groups of three along a road, as no designated bays
  - The Council remains in control of our street lighting assets
  - The cable and contract for the supply and charging will be between the resident and provider
  - The Council will require a charge to cover future maintenance and replacements costs
    - Plug-in charge and usage charge to deter ‘hogging’ the EVCP

The Royal Borough of Kensington and Chelsea

Electric Vehicles Map

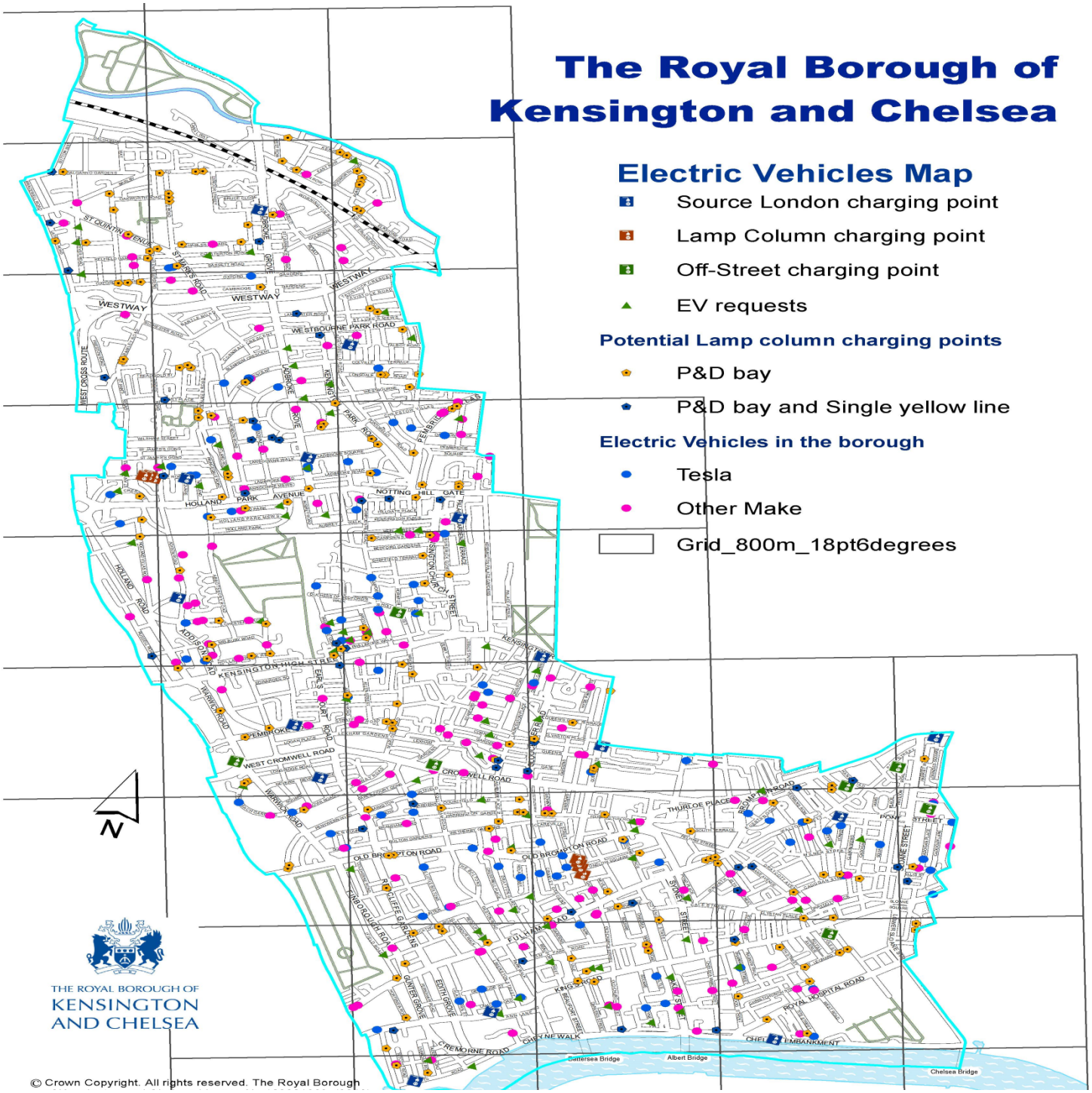
- Source London charging point
- Lamp Column charging point
- Off-Street charging point
- EV requests

Potential Lamp column charging points

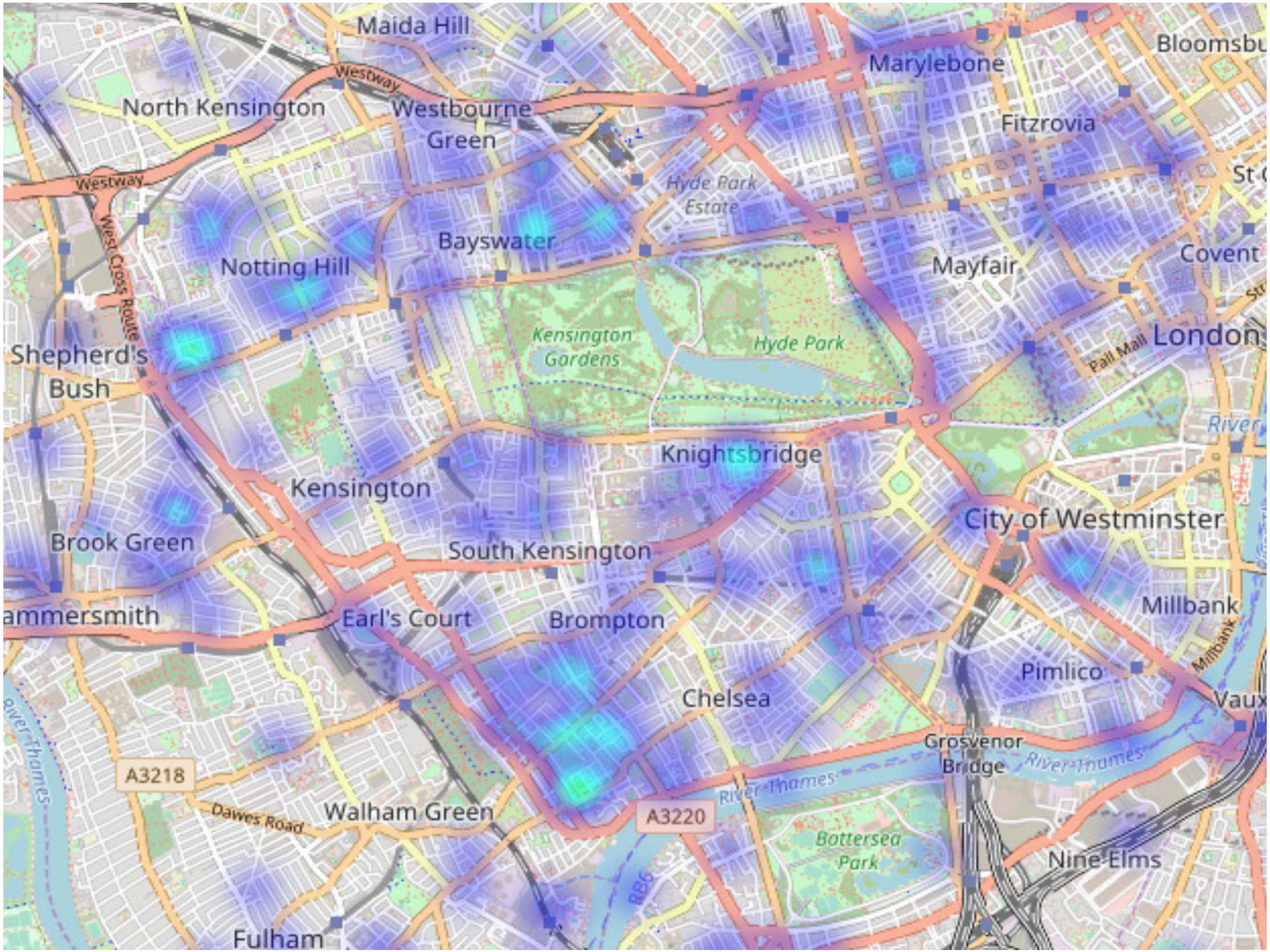
- P&D bay
- P&D bay and Single yellow line

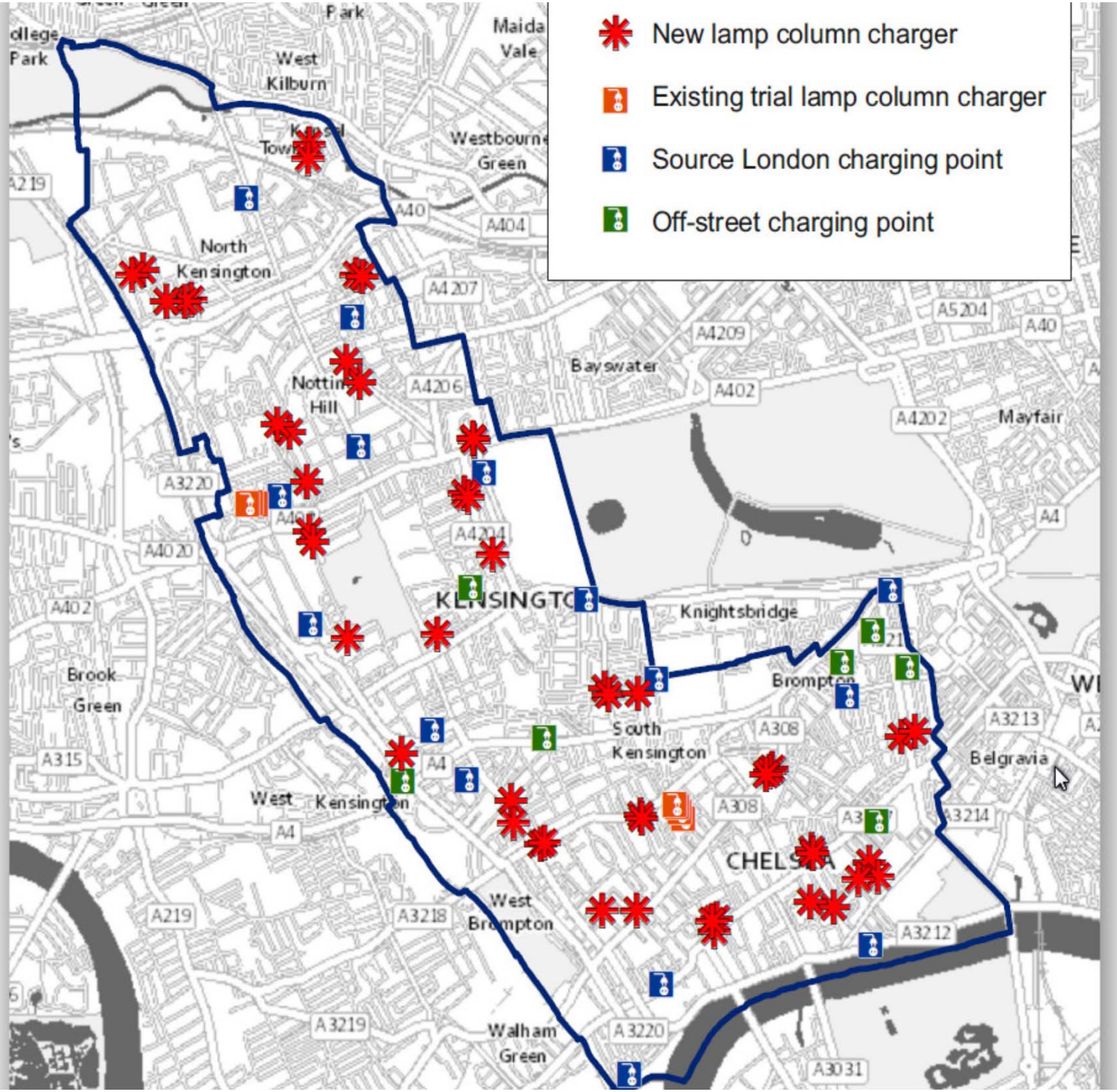
Electric Vehicles in the borough

- Tesla
- Other Make
- Grid_800m_18pt6degrees



THE ROYAL BOROUGH OF KENSINGTON AND CHELSEA

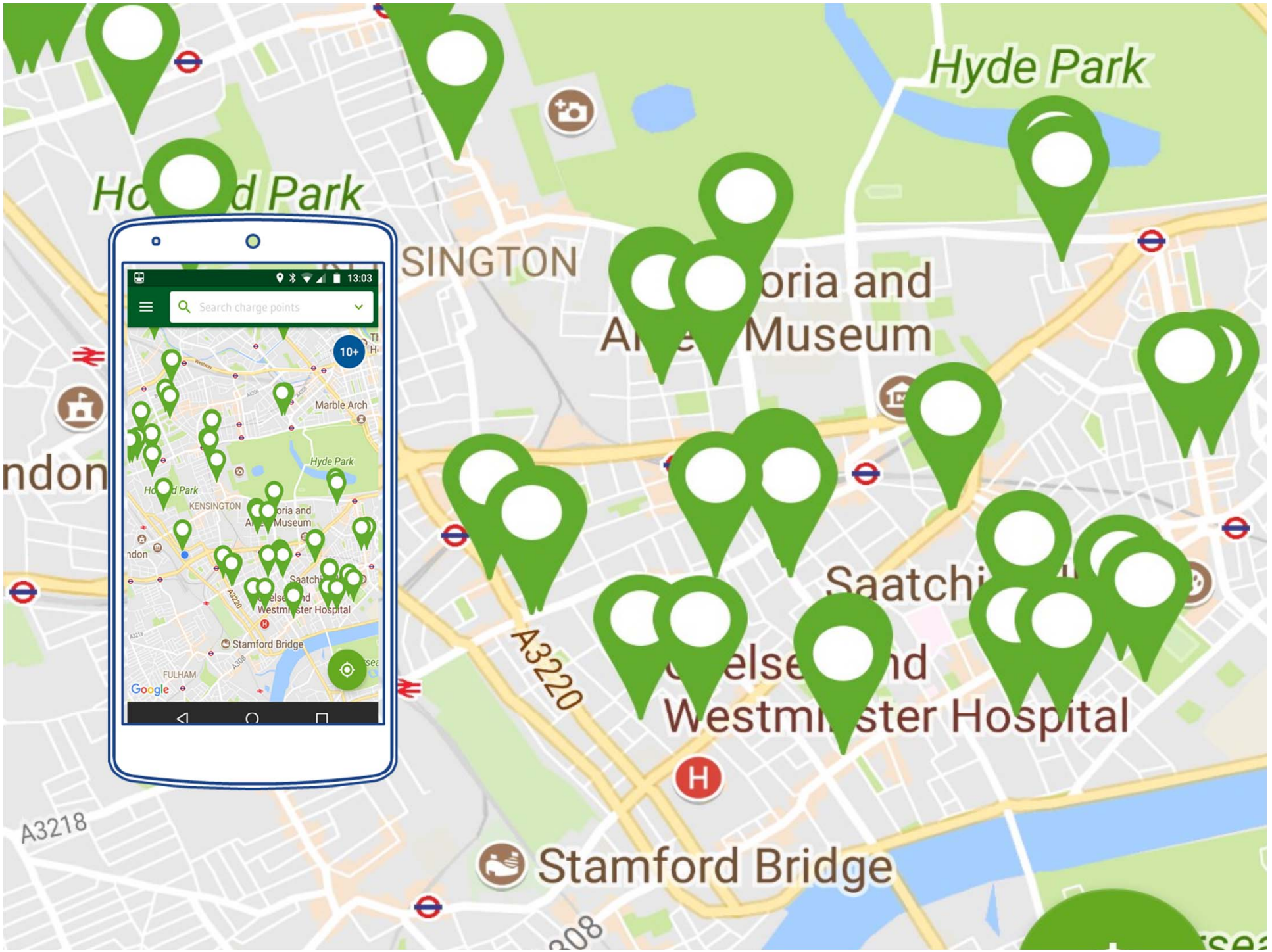

Maida Hill
Westway
North Kensington
Westbourne Green
Marylebone
Fitzrovia
Bloomsbu
Hyde Park Estate
Bayswater
Notting Hill
Mayfair
Covent
West Cross Route
Kensington Gardens
Hyde Park
Pall Mall
London
Shepherd's Bush
River
Knightsbridge
Kensington
City of Westminster
Brook Green
South Kensington
Millbank
ammersmith
Earl's Court
Brompton
Pimlico
Chelsea
Vaux
Grosvenor Bridge
River Thames
A3218
Dawes Road
Walham Green
A3220
Battersea Park
Nine Elms
Fulham


New lamp column charger
Existing trial lamp column charger
Source London charging point
Off-street charging point
Park
West Kilburn
Maida Vale
Westbourne Green
North Kensington
Notting Hill
Bayswater
Mayfair
Knightsbridge
Brompton
South Kensington
Belgravia
Brook Green
West Kensington
West Brompton
Walham Green
A219
A40
A404
A4207
A4209
A5204
A4206
A402
A4202
A3220
A4204
A4020
A4
A315
A308
A3213
A3214
A3218
A3212
A3219
A3220
A3031

Choice of energy supplier

- November 2017, OVO Energy became the first green electricity supplier to offer Kensington & Chelsea residents its energy through a branded ubitricity SmartCable
- In future other suppliers will also offer this service allowing residents a truly competitive choice of energy providers
- Suppliers will benefit from being able to offer customers a home + EV car offering, as well as future smart charging capabilities (vehicle to grid, etc

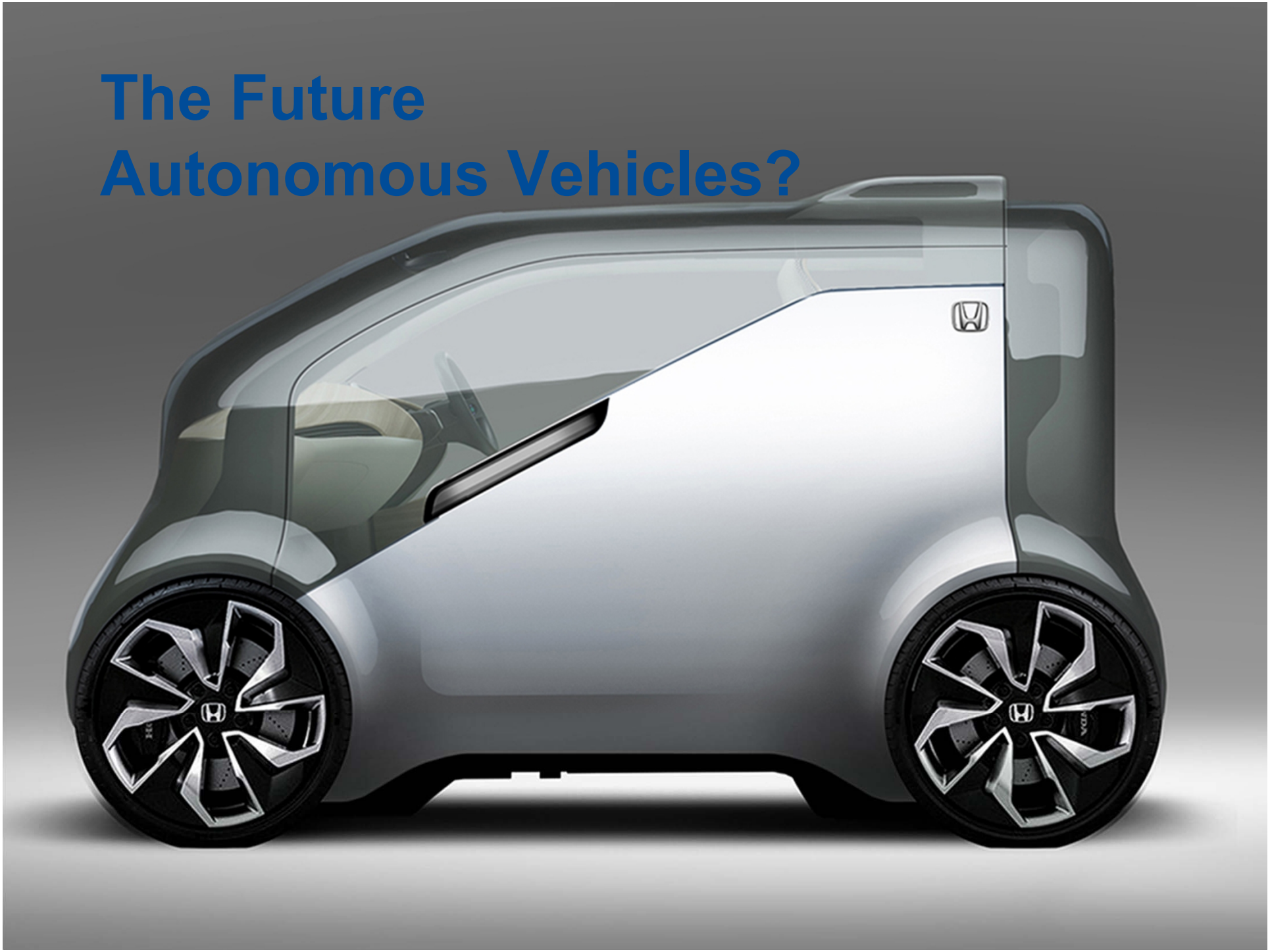

Free
Standing
Solution

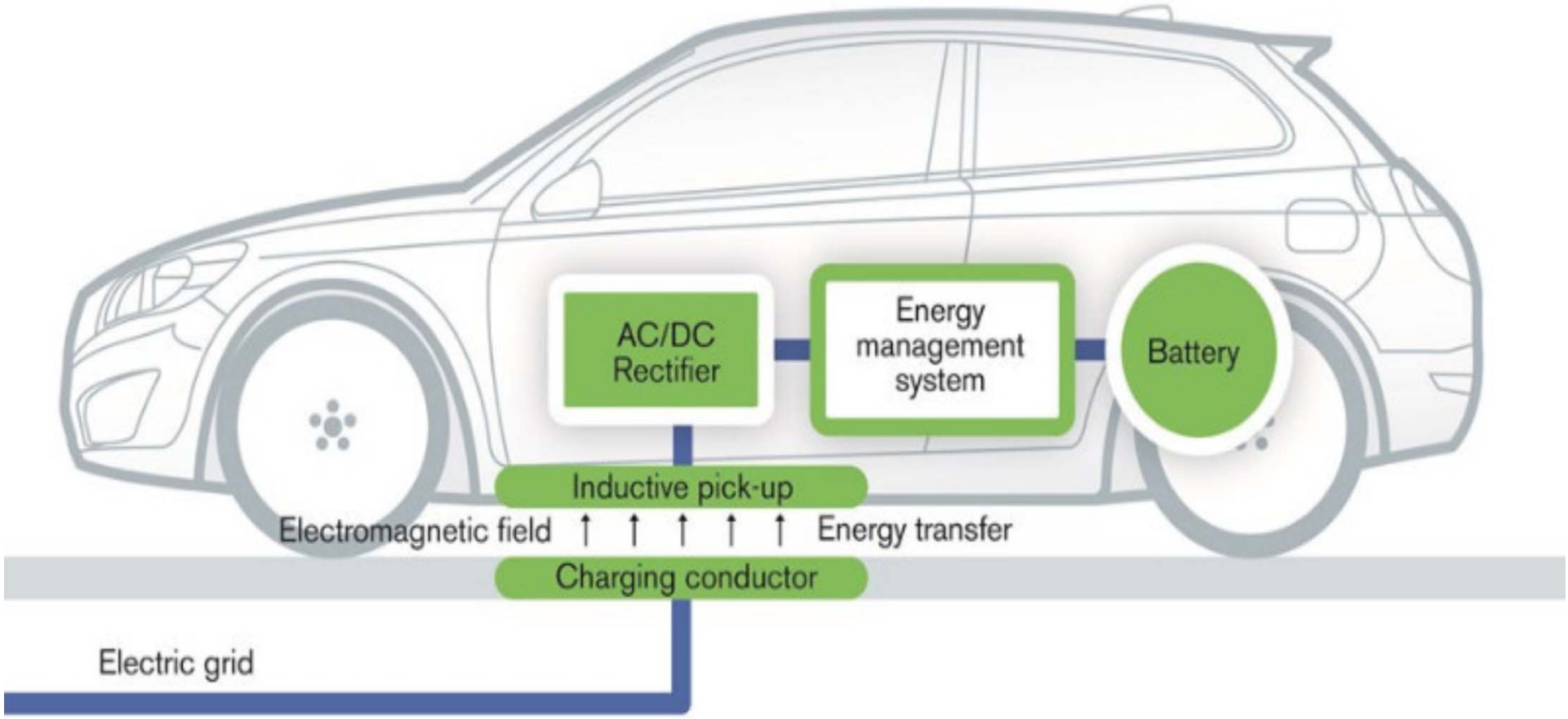

Hyde Park
SINGTON
Museum
Saatchi
A3220
Westmi ster Hospital
A3218
Stamford Bridge
13:03
Search charge points
10+
Marble Arch
Hyde Park
KENSINGTON
Saatchi
Westminster Hospital
Stamford Bridge
FULHAM
Google

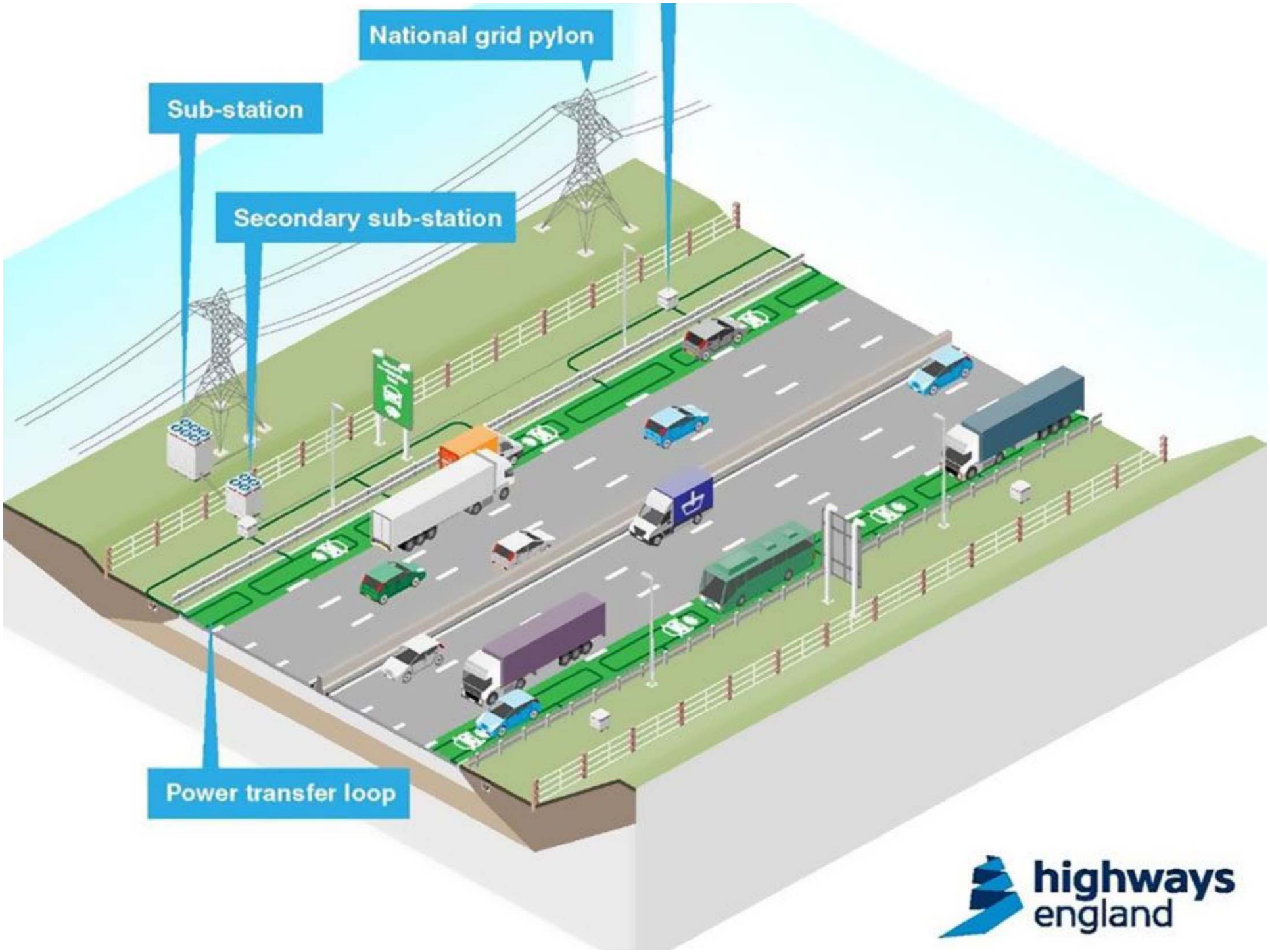
Conclusion

- EVCP in lamp columns provides more flexibility
- It has been well received by those using them, ‘good charging experience’
- Easy enough to install and redeploy if required
- Our strategy is:
  - The Council will continue to; manage, maintain its own assets and the equipment including the EVCP within the columns
  - The responsibility for the cable, meter, billing and usage will be the responsibility of the user and provider of the service
- The units installed will:
  - Increase our knowledge of usage
  - Test our strategies
  - Test demand

The Future
Autonomous Vehicles?

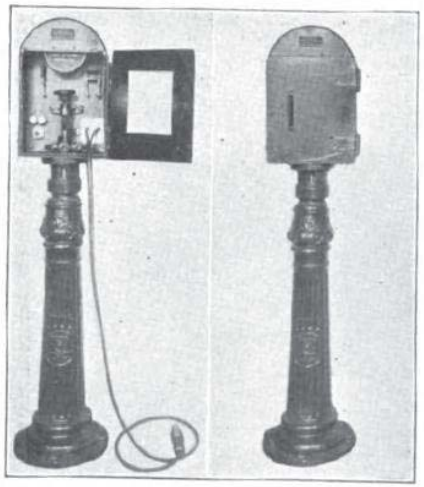



AC/DC
Rectifier
Energy
management
system
Battery
Inductive pick-up
Electromagnetic field
Energy transfer
Charging conductor
Electric grid


National grid pylon
Sub-station
Secondary sub-station
Power transfer loop
highways england

Public Electric-Vehicle-Charging Station

A compact charging station for electric automobiles, which is inclosed in a weatherproof box and is mounted on a pedestal so that it can be placed near the curb, is shown in the accompanying illustration. A charging cable and plug are provided, and while the battery is being charged the door can be closed and locked. A



FIGS. 1 AND 2—CURB CHARGING STATION FOR ELECTRIC AUTOMOBILES

regulating rheostat, ammeter, polarity indicator, lamp, switches, etc., are mounted on a slate panel as shown in Fig. 1. The box is of sheet steel and is electrically welded. The pedestal is of cast iron. Connection with the direct-current supply is made through conduit passing underneath the sidewalk. A prepayment meter may be used if desired, but on account of the numerous sizes and kinds of batteries and varying conditions an attendant is usually required.

This device for charging electric cars at the curb is made in two sizes with ratings of 100 amp and 150 amp and is being placed on the market by Clarence E. Ogden, 514 Mercantile Library Building, Cincinnati, Ohio.