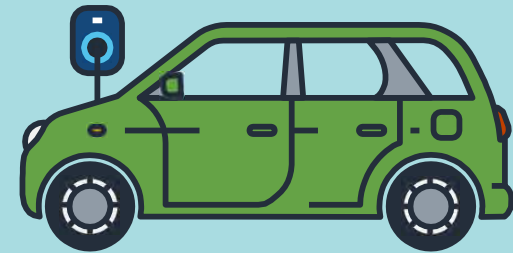


**energy
saving
trust**

Go Electric! Wolverhampton Council – Taxi Special

Have you considered switching to EV yet?

Richard Mallender 15.6.23



Agenda

- Welcome
- Why switch to an EV?
- What is an EV?
- Charging an EV
- Myth busting
- Routes to driving EVs
- Q&A



Energy Saving Trust

- We are an independent organisation, working to [address the climate emergency](#).
- We work with [individuals, businesses, communities and governments](#) to save energy and reduce carbon emissions.
- Offices in London, Cardiff, Edinburgh & Belfast
- Today is part of a [Department for Transport](#) funded programme offering advice on electric vehicles to you, local authorities and fleets.

Independent

Impartial

Pragmatic

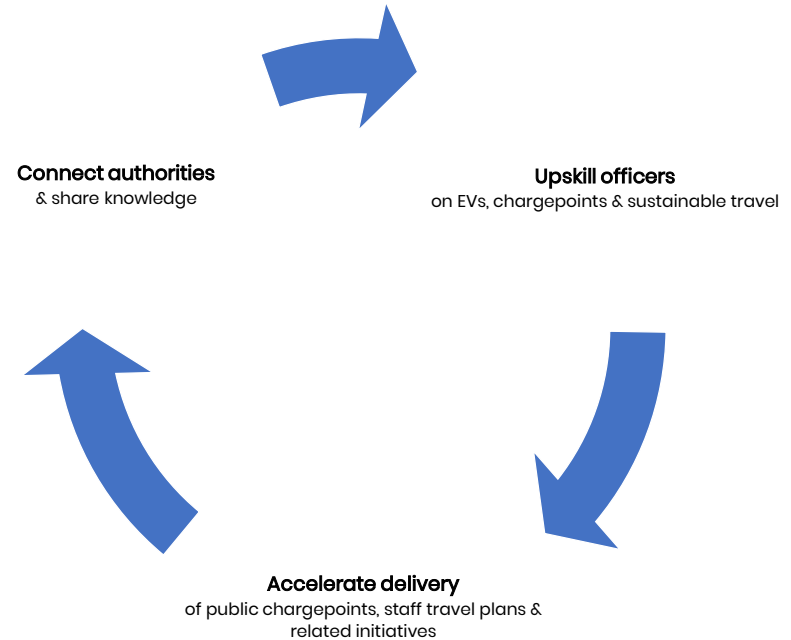


Department
for Transport

About the Local Government Support Programme

We're here to help you deliver your council's ambitions on decarbonising transport and cleaner air.

- Fully funded by the Department for Transport
- Our support is free and impartial
- Open to all English councils
- Regional Accounts Managers
- Specialise in EVs and sustainable staff travel
- Projects with 100+ authorities



Why switch to an electric vehicle?

Why the push for electric vehicles?

Government has decided that by law the UK's emissions must be net zero by 2050.

As part of this there will be a ban on sales of new petrol and diesel cars by 2030.

There will also be a ban on sales of new hybrids from 2035.

This is part of a move towards establishing a carbon-free transport network, combating climate change, reducing pollution and growing the green economy.



Why the push for electric vehicles?

Road transport accounts for over 26% of all CO2 emissions and is the only sector that continues to see an increase in emissions

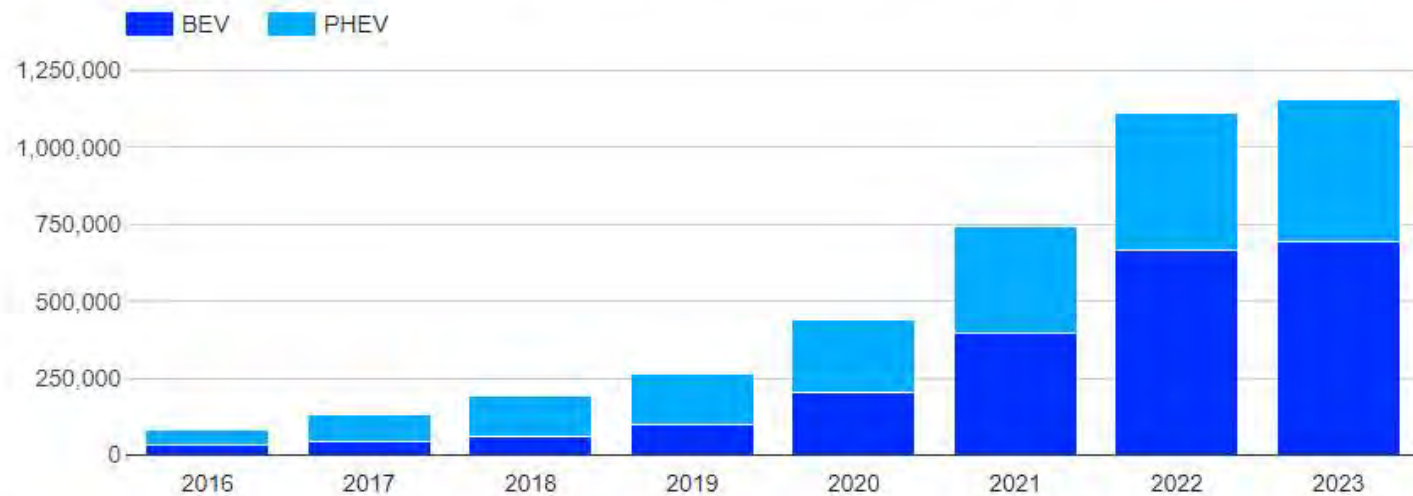
52% of emissions from road transport come from cars (including taxis)

Associated emissions impact public health, including TPH drivers exposed to poor air quality during their shifts



There are now over 1,000,000 plug-in electric vehicles in the UK, 590,000 BEVs registered by end of Oct 22
Nearly one in five new cars sold now has a plug

Cumulative number of plug-in cars registered in the UK (2016 to date)



Source: SMMT, February 2023



What is an electric vehicle?

There are several different types currently on sale

Conventional hybrid – EG Toyota Prius

- Internal combustion engine plus small battery
- Electric range – very short
- New sales banned from 2035



Plug in hybrid vehicle – EG Mitsubishi Outlander

- Internal combustion engine plus battery
- Electric range 20-50 miles
- 80+ models on the market
- New sales banned from 2035



Plug-in vehicles: BEV

Battery electric vehicle

- Also known as 100% or pure electric
- Range from 120–300+ miles
- Over 175 BEV models currently on the market
- Significant CO₂, NO_x and PM emission reductions
- Penalty free access to congestion, zero emission and clean air zones
- No age limit on EV private hire vehicles in Wolverhampton (12 years for petrol & diesel vehicles)



Polestar 2



Tesla Model Y

Plug-in vehicles: REEV

Range Extended Electric Vehicle

- Range from 300+ miles
- Small petrol engine just charges battery, doesn't drive the wheels
- Range about 80 miles purely on battery



Why choose an Electric Vehicle?

- Zero tailpipe emissions
- Quieter and smoother driving experience
- Higher upfront purchase cost but lower running costs
- Increasing choice of models at lower price points



The Case for EVs

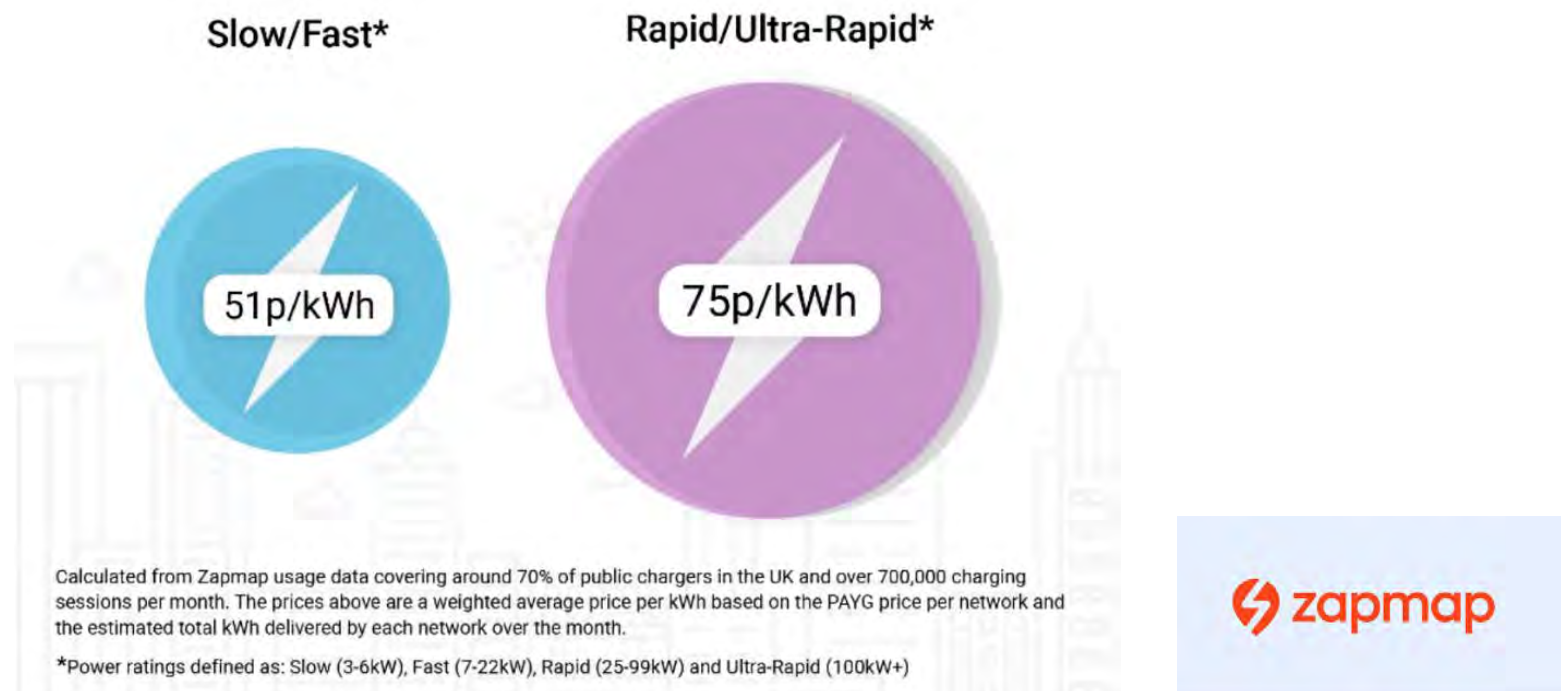
- **Penalty free access** to congestion zones, zero emission zones, low emission zones and clean air zones
- Likely that many more UK cities will **restrict** access to city centres
- Whole-life cost analysis shows that best in class EV are **cheaper to operate** than petrol or diesel equivalent
- **Grant support** is available for taxis and Wheelchair Accessible Vehicles
- Many councils have introduced **incentives** to favour ULEV and EV
- **Future proofing** – licensing rules may favour ULEV and EV as we move closer to the 2030 petrol and diesel ban



Electric vehicle charging

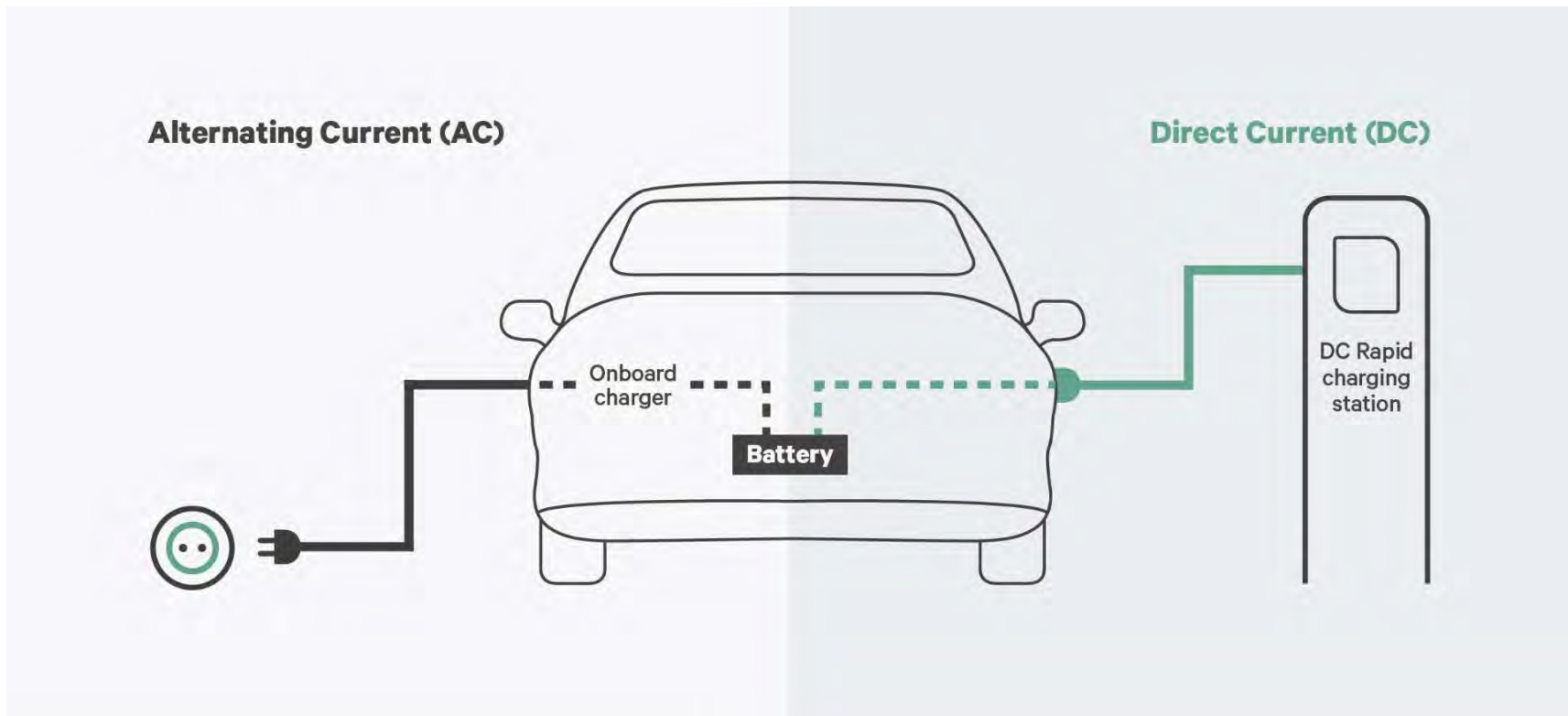
What is the average price of charging an EV?

- Charging at home will cost around 34p/kWh – based on the March 2023 price cap – utility companies are still offering EV specific tariffs so may work out cheaper! This equates to **11p per mile**
- The weighted average price* to charge an electric car on the public charging network in April 2023 is 51p/kWh on slow/fast chargers and 75p/kWh for the rapid/ultra-rapid chargers.
- Using an average efficiency EV* this equates to **14 pence per mile** and **20 pence per mile** respectively.



Jargon-busting

- **AC – alternating current** the standard power supply for UK households
- **DC – direct current** – required for charging batteries



Jargon-busting

• kWh – kilowatt hour

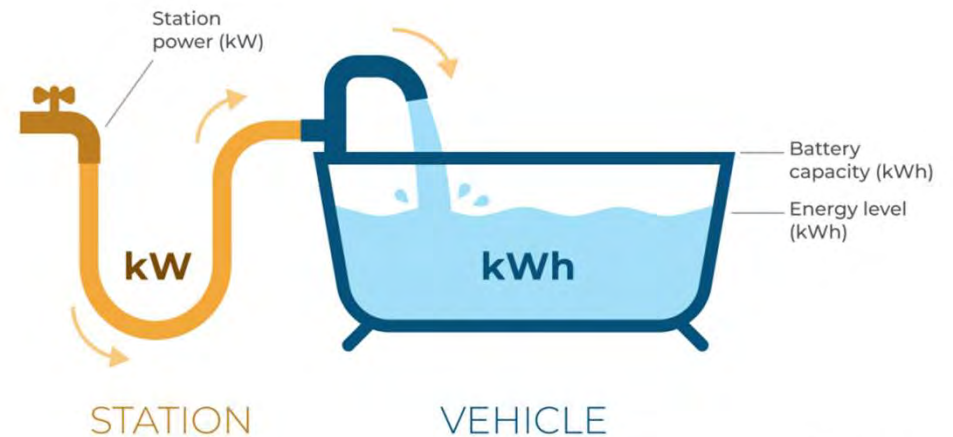
Measure of energy

- EV batteries are usually quoted in kWh
- the amount of energy that a battery can store
- the bigger the kWh, the longer the car's range
- comparable to fuel tank size of a petrol or diesel car

kW – kilowatt

Measure of power

- chargepoints are always rated in kW
- higher kW = faster charge



Chargepoint types

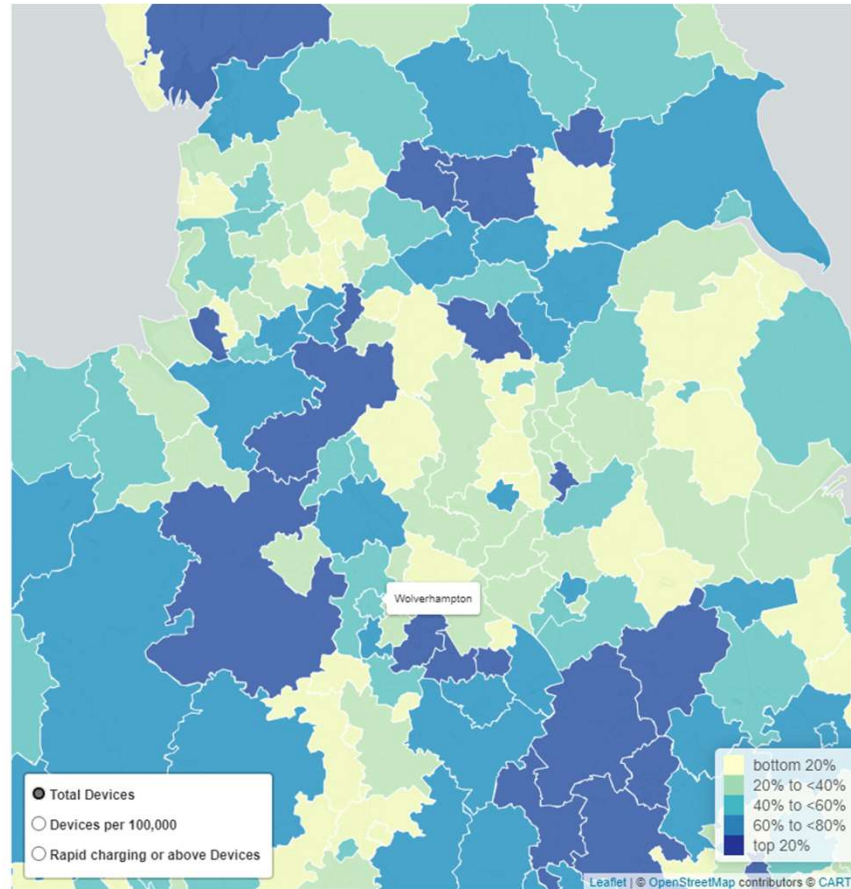
Home charging 3.7/7 kW	Destination 7/22 kW	En route 50 kW	Charging hub 150 kW
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Lamp column 3/5 kW	On-street residential 7/22kW	Destination 50 kW	'Electric forecourt' 350 kW
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Speed of charge	Slow (10-12hr)	Fast (4-6hr)	Rapid (<1hr)	Ultra Rapid (15mins)
Power rating	2.3 – 3.7 kW	7 – 22 kW	Up to 50 kW	120-350 kW

Chargepoints around the country



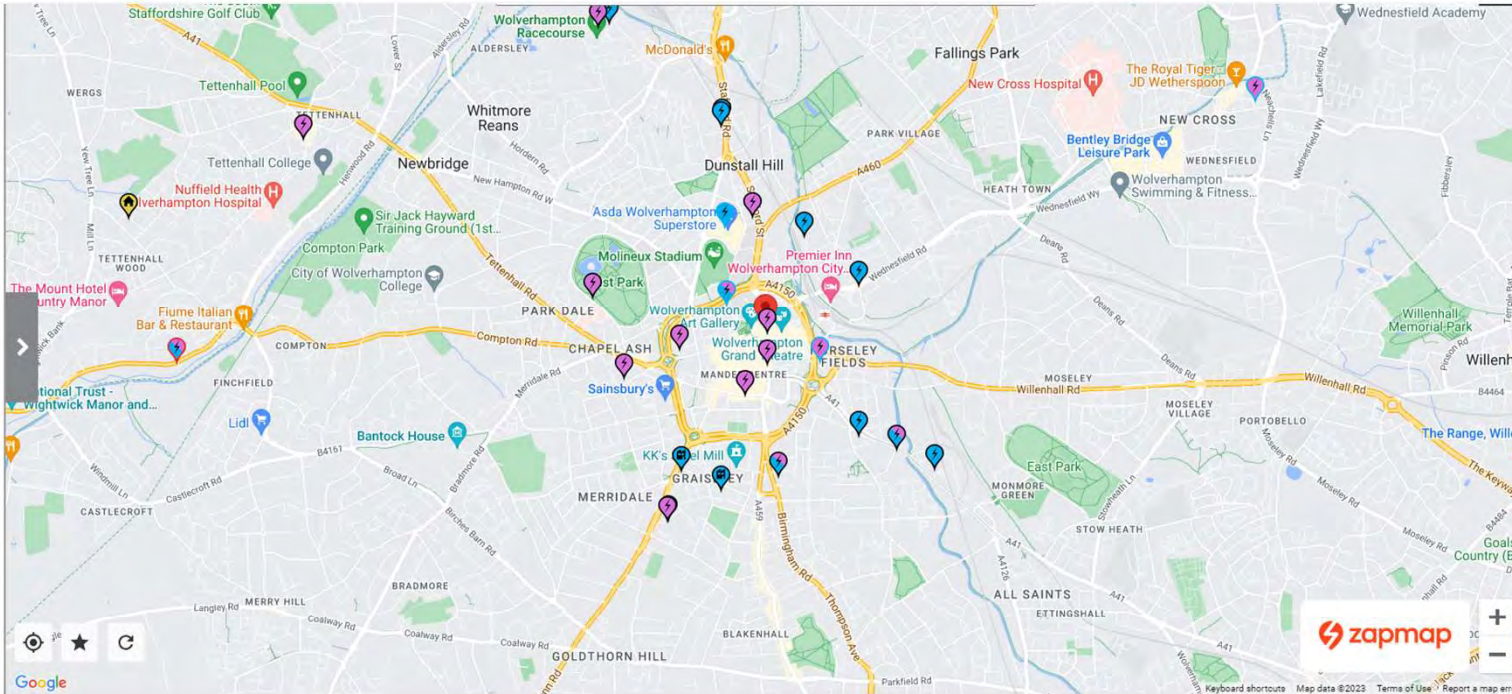
Case studies – EV taxi support and trials

Brighton & Hove City Council – taxi rapid charging hubs

- 3 rapid hubs installed – OLEV/OZEV taxi charging funded
- 2 vehicles can be rapid charged at each hub
- Locations delivered in consultation with taxi trade
 - Safe and accessible
 - Close to TPH driver rest areas
- Initially partially open to the public until demand meets current provision
 - TROs in place and enforceable once demand requires



Wolverhampton



- 18 locations close to city centre with EV chargepoints
- Approx 11 rapid charge points (50kW DC) – some (eg Mitre retail park) have multiple rapid chargepoints
- Princes St – chargepoint located next to taxi rank

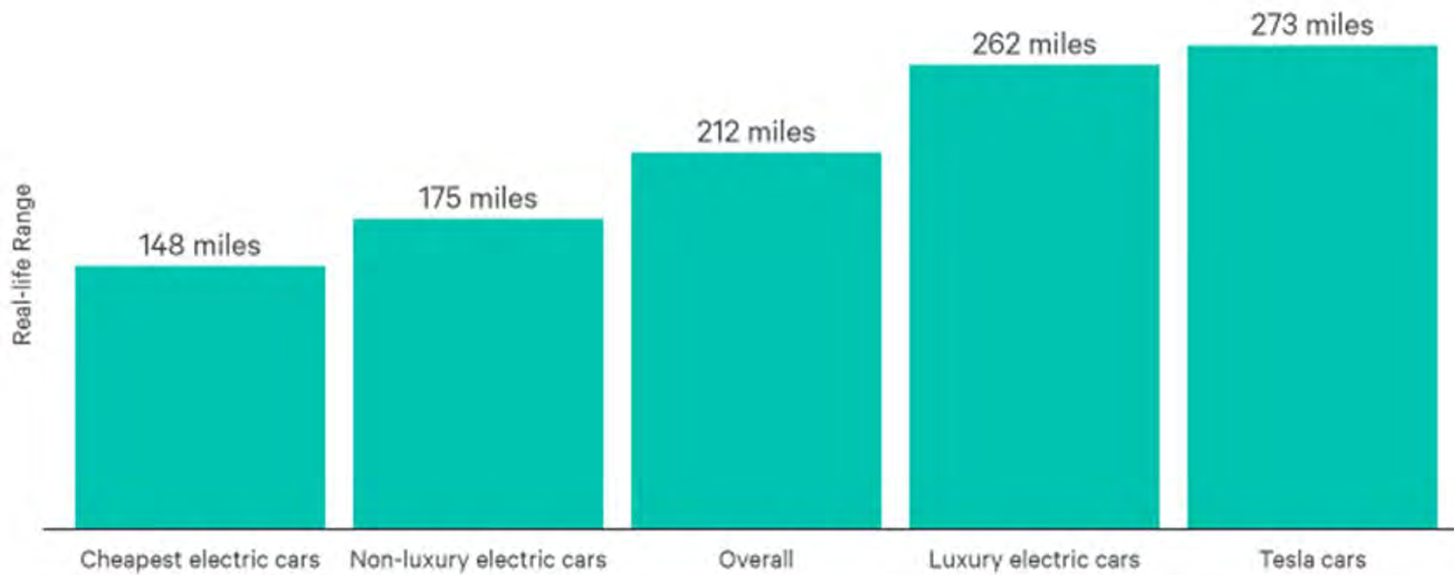


Myth busting

EV Range – Is it an issue?

Average Electric Car Range in the UK

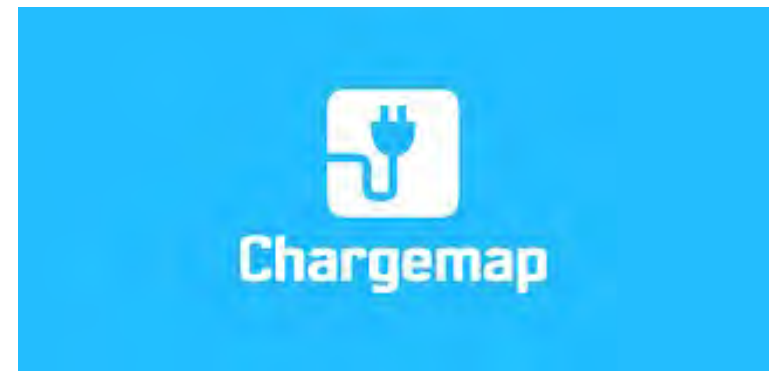
Luxury cars typically have larger batteries, providing longer range



 NimbleFins

The average electric car range in the UK is around 193 miles.

Where can I charge?



Batteries for Electric Vehicles



- Rarely need to replace a whole battery
- **Warranties** available to cover battery performance
- End of life EV batteries can be used for **energy storage**
- Growing industry focused on battery **repurposing** and **recycling**
- Manufacturers are increasingly cautious about their **supply chains**
- Reducing manufacturing emissions, mainly through **streamlining processes**

Routes to EVs

UK Government plug-in vehicle grants

Purpose built taxis – max 20% discount up to £7,500

- LEVC only model currently available

Wheelchair accessible vehicles – max 35% discount up to £2,500

- Zero tailpipe CO2 emissions
- At least 70 mile zero emission range
- Cost < £35,000
- 7 vehicles currently available

UK Government chargepoint grants

Electric vehicle chargepoint for flat owners and tenants

- £350 or 75% off the cost to buy and install a chargepoint

Electric vehicle chargepoint and infrastructure grants for landlords

- Chargepoint grants – £350 or 75% off the cost to buy and install a chargepoint, max 200 grants for residential properties, 100 for commercial properties
- Infrastructure grants – £30,000 or 75% off the cost of building and installation work for car parks with at least 5 spaces
- 30 infrastructure grants per landlord per FY

EV infrastructure grant for staff and fleets

- Support for SMEs to install charging infrastructure in car parks with at least 5 spaces
- £15,000 or 75% of the cost – up to to £350 per chargepoint socket installed, £500 per parking space enabled with supporting infrastructure
- Each SME can receive up to 5 grants

Buying a new electric vehicle

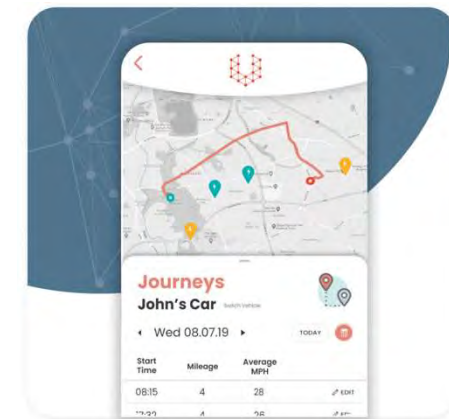


Get researching

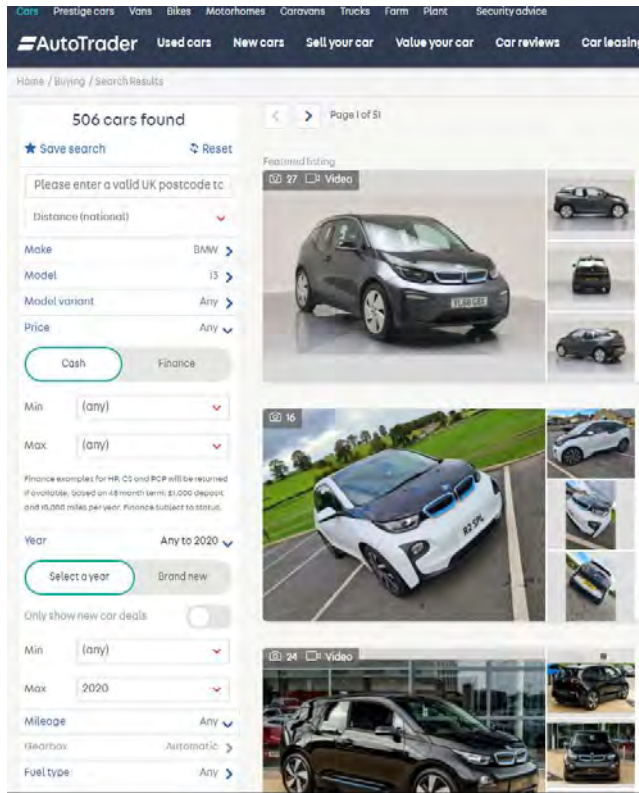
Look for an EV Approved retailer

- Sales and aftersales staff will be properly trained in all things EV
- Provide accurate info on details such as warranties
- Correct facilities and equipment to service EVs
- On-site charging provision
- Opportunity to test drive EVs (extended test-drives often available)

love my **EV**



Alternative routes to driving an electric vehicle



Lease

- All new EVs available on finance
- A number of taxi focussed leasing companies specialising/offering EV including LEVC
- Islamic financing options [What is Islamic finance? | Bank of England](#)

Buying a used EV

- 515,000+ plug-in vehicles on the road in the UK, 100,000 EV sales in 2021 = growing used market
- Check specification and consider the range you need/battery size – charging cables included?
- Check battery lease
- Increasing knowledge and number EV specialist dealerships

Q & A

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Thank you

