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JOE ELLWOOD – PRODUCT MARKETING SPECIALIST

# EV charging considerations for Local Authorities

Why, what and where?



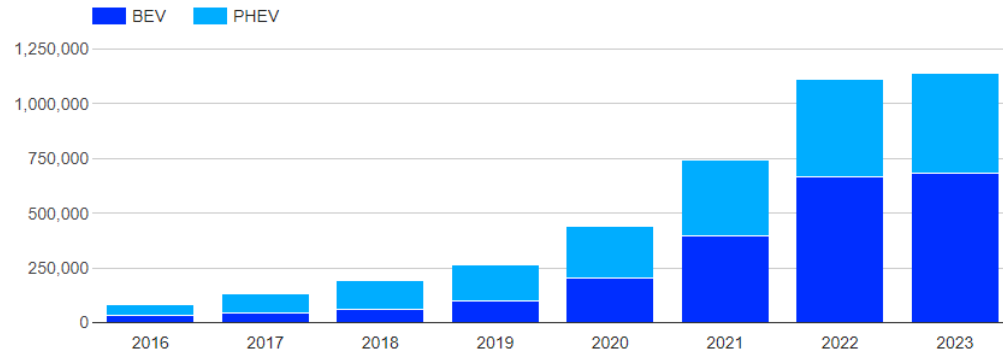
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# UK outlook – why?

# E Mobility – Where are we now and where are we headed?

## EV market

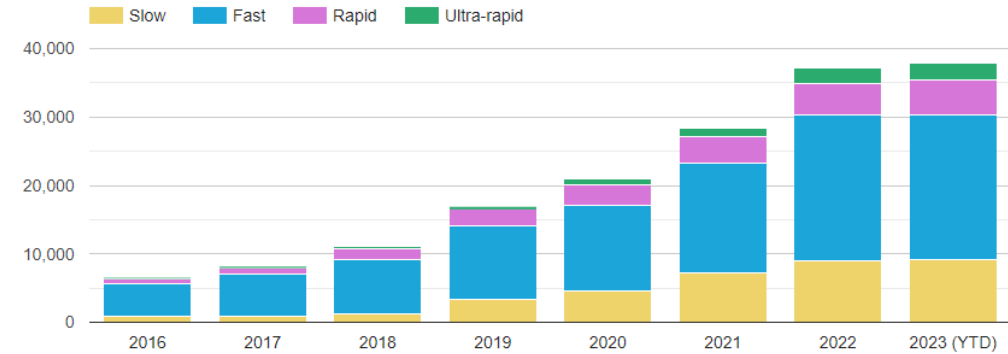
Cumulative number of plug-in cars registered in the UK (2016 to date)



Source: SMMT, January 2023



Number of public UK charging points by speed (2016 to date)



Source: Zap-Map database. Updated: 31st January 2023



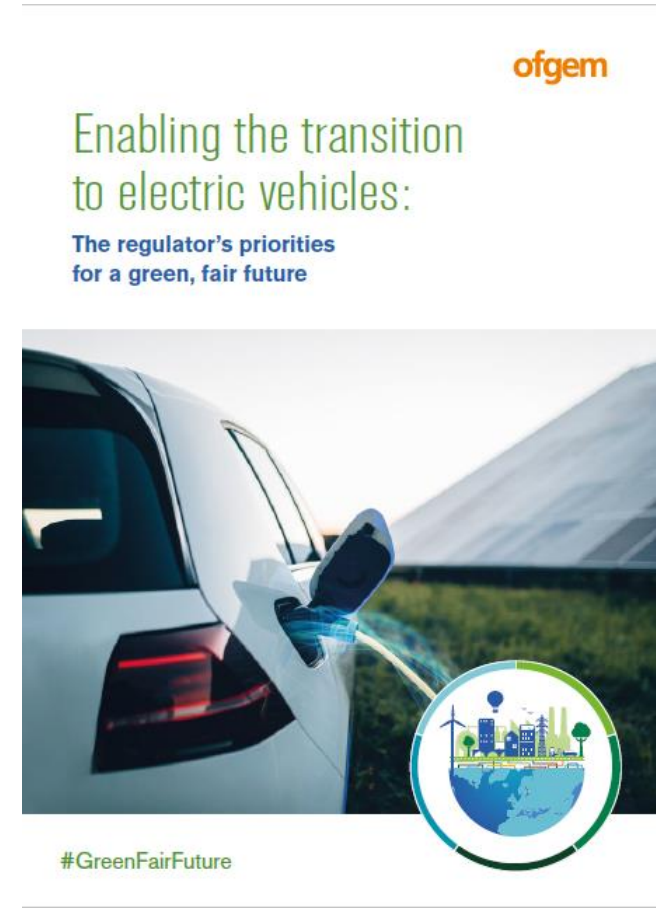
- 1,135,000 plug in cars on road in UK (680k BEVs and 455k PHEVs)
- 365,000 registrations in 2022 – market share of 22.9%
- 20% growth in 2022 compared with 2021
- 35,000 public charge points

# E Mobility – Where are we now and where are we headed?

Ofgem report

## Ofgem report

- Potentially 14 million EVs by 2030
- 19 million home chargers and 370,000 public chargers by 2035
- Need to spread demand
  - Smart charging tariffs
  - Vehicle to Grid (V2G), Vehicle to Home (V2H)



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# E Mobility – Where are we now and where are we headed?

Changes to building regs (published December 2021)



HM Government



INDUSTRIAL  
STRATEGY

## Electric Vehicle Charging in Residential and Non-Residential Buildings

### **New residential buildings**

- Charge point to be required for every dwelling with off-street parking
- Multi-dwelling buildings with more than 10 spaces to include cable routes for all spaces

### **New non-residential**

- Every new non-residential building and every non-residential building undergoing major renovation with more than 10 car parking spaces to have one charge point and cable routes for a charger for one in five spaces. (In Scotland, this will be a chargepoint in 10% of spaces and cable routes in 50% of spaces)

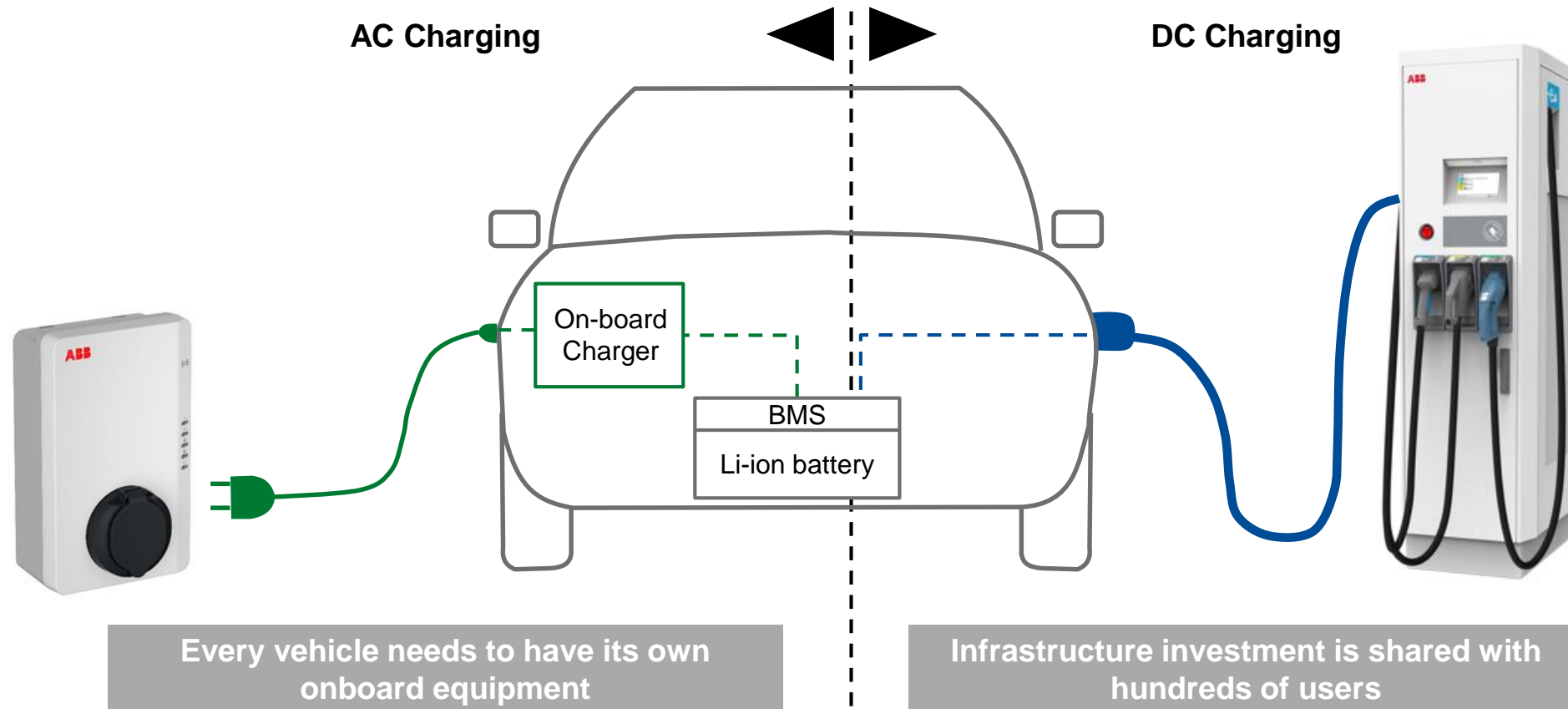
### **Smart charging (effective 30<sup>th</sup> June 2022)**

- Chargers must require users to set a schedule during initial set up
- Default is to only charge at off-peak times

# — DC versus AC charging – what?





# AC charging vs DC charging

On-board vs Off-board equipment



# Public and commercial car charging – Use cases





Charging service should match charging application and demand

Public and commercial EV Charging			
AC destination	DC destination	DC Fast	DC High Power
7-22 kW	20-25 kW	50-150 kW	150 to 350 kW+
4-16 hours	1-3 hours	20-90 min	10-20 min
			
<ul style="list-style-type: none"><li>– Office, workplace</li><li>– Home</li><li>– Multi family housing</li><li>– Hotel and hospitality</li><li>– Overnight fleet</li><li>– Supplement at DC charging sites for PHEVs</li></ul>	<ul style="list-style-type: none"><li>– Office, workplace</li><li>– Hotel and hospitality</li><li>– Parking structures</li><li>– Dealerships</li><li>– Urban fleets</li><li>– Public or private campus</li><li>– Sensitive grid applications</li></ul>	<ul style="list-style-type: none"><li>– Retail, grocery, mall, big box, restaurant</li><li>– High turnover parking</li><li>– Convenience fueling stations</li><li>– Highway truck stops and travel plazas</li><li>– OEM R&amp;D</li></ul>	<ul style="list-style-type: none"><li>– Highway corridor travel</li><li>– Metro ‘charge and go’</li><li>– Highway rest stops</li><li>– Petrol station area’s</li><li>– City ring service stations</li><li>– OEM R&amp;D</li></ul>



# Public and commercial car charging – Use cases

Charging service should match charging application and demand

Public and commercial EV Charging			
AC destination	DC destination	DC Fast	DC High Power
7-22 kW	20-25 kW	50 to 150 kW	150 to 350 kW+
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Terra AC	DC Wallbox 24	Terra 54, Terra 94, Terra 124, Terra 184	Terra HP

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# Connection to back-office & payment systems

Manage, monitor and connect to your business

# Positioning connected services

## Electric cars



DAIMLER



RENAULT

## Charging infrastructure

CCS  
CHAdeMO  
GB  
AC



Connected Services



ABB Ability™

## Solutions to run a charger network



NTT DATA

GRIDPOINT



CGI

has-to-be  
eMobility

chargecloud

pod POINT



MOBIE  
MOBILIDADE ELÉCTRICA

greenlots®

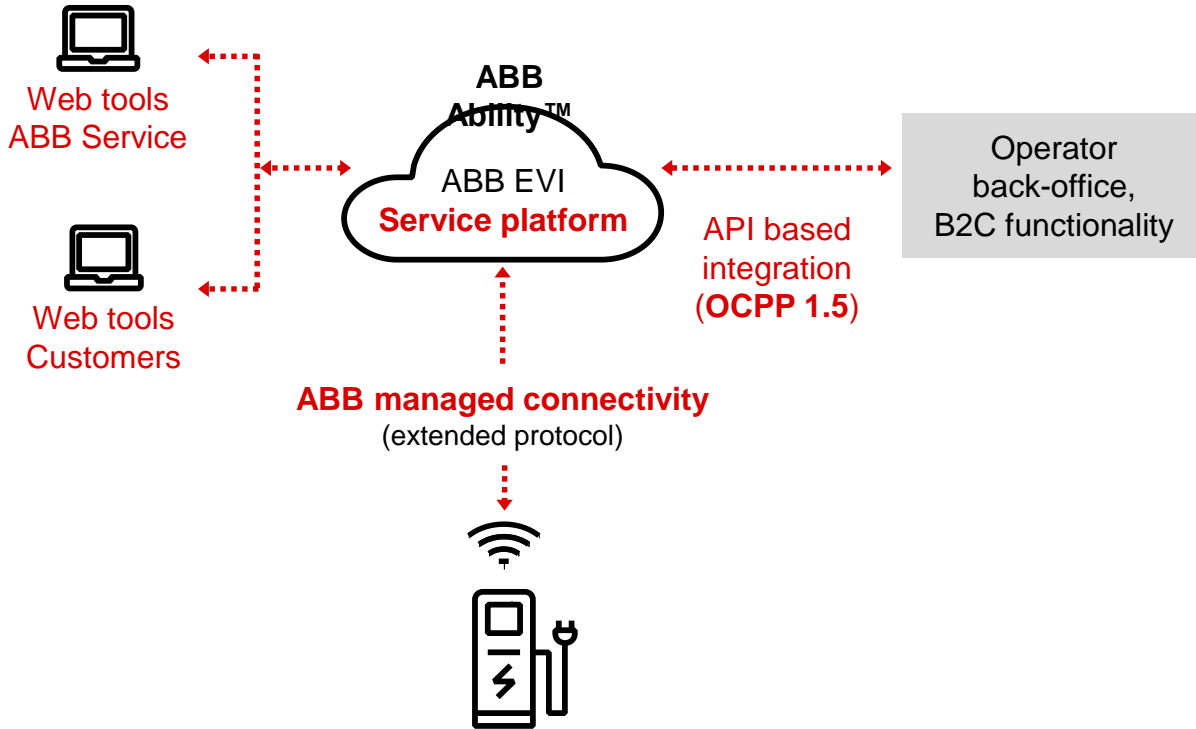


ABB does **not** have exclusive cooperation with any of the solutions

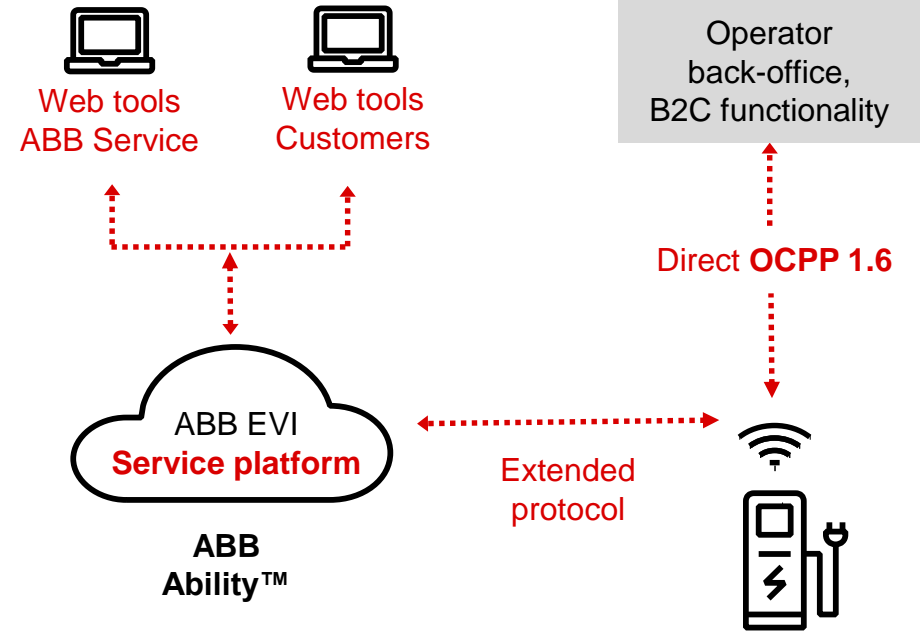
# Digital integration of an ABB EV charger

OCPP 1.5 API compared to Direct OCPP 1.6

## OCPP 1.5 API



## Direct OCPP 1.6 via Dual Uplink



# — Local authority case studies – where?

# Northumberland County Council

Terra 53 / 54 – 24 units

- Early adopter of public EV charging
- 37 x ABB 50 kW units deployed around the county
- 198 public chargers in total (June 2021)
- 61 chargers per 100,000 people compared with average of 31
- Initially on free vend, but payment terminals recently activated to raise funds to expand network – 62ppkWh (was 32p)

## News

3rd March

## Northumberland leading way on EV charging points



By Rebecca Curry | [@CourantRebeccaC](#)  
Reporter



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# Sheffield City Council

Terra 54 – 24 units

- New network of 18 x 50 kW units for public use in 7 locations across Sheffield
- Additional chargers installed for exclusive use by taxi drivers
- 30p per kWh – contactless or app
- Overstay charges after one hour to encourage drivers to move their car for others to use



# City of York Council

Terra High Power, Terra 54HV and Terra AC



- Dual pricing (25p and 20p on launch, now 46p and 35p)



## York's electric car charging 'hyperhubs' will be the largest in the North

Friday 19 February, 2021 by [Chloe Laversuch](#) - Local Democracy Reporter in Transport





# Electric buses

## 300 kW pantograph bus chargers

- Three at Harrogate Bus Stations were first “opportunity” bus chargers installed in UK
- Two in Kilmarnock – one at the bus station, one at the depot
- Bexleyheath – first panto installed for double-decker bus in UK



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# A role for local authorities – what next?

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# A role for local authorities

Geospatial commission report



## Four challenges

1. Modelling future demand
2. Finding suitable sites
3. Creating a seamless consumer experience
4. Tracking rollout

**ABB**