

Low Carbon Vehicles North East England

**Dr Colin Herron, Managing Director,
Zero Carbon Futures**

North East England
Leading the way for
Low Carbon Transport



**Zero Carbon
Futures**

Innovative Transport North East England

Contents of today's presentation

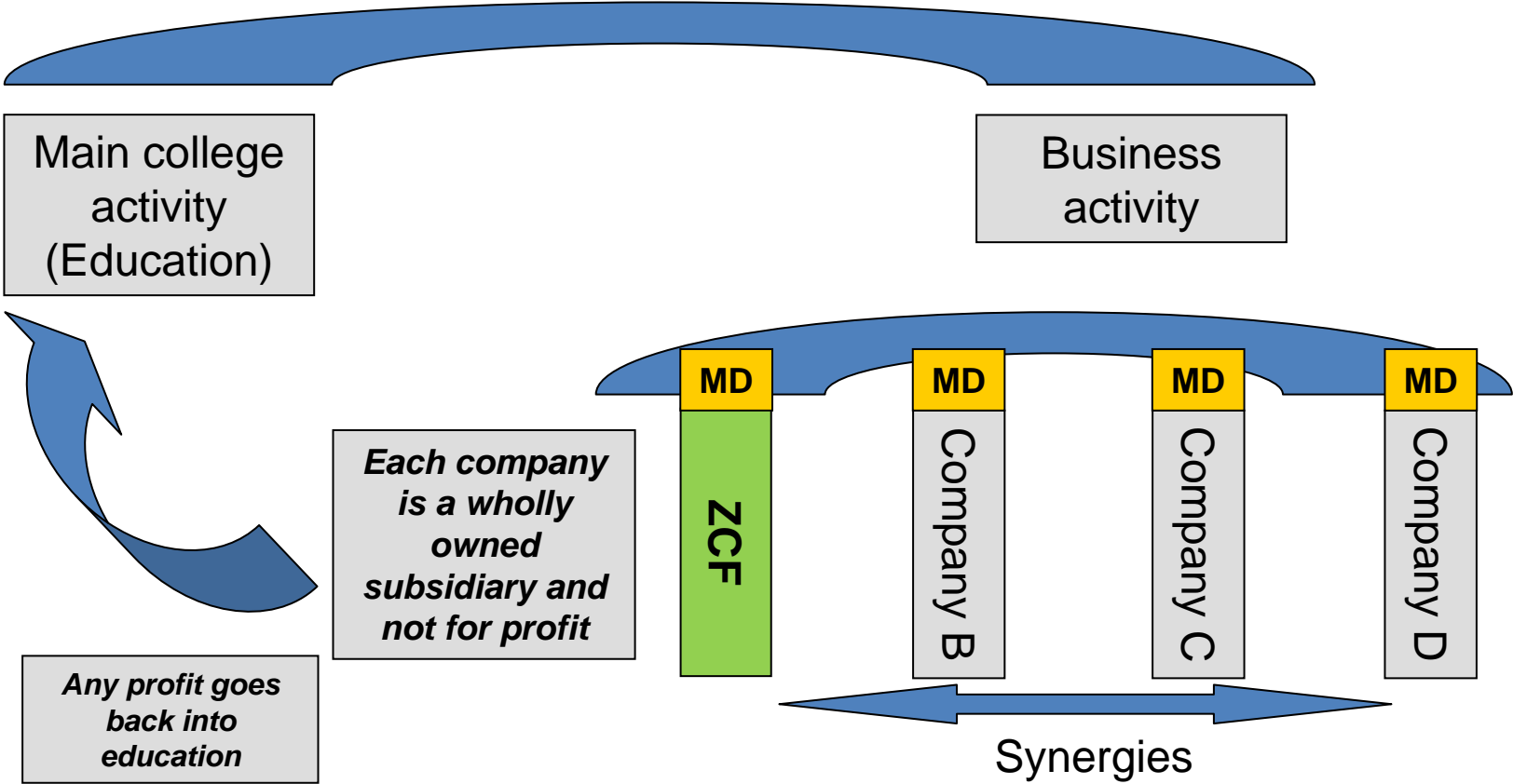
- Zero Carbon Futures
- Plugged in Places project to install infrastructure
- Outcome of a 3 year trial
- Sales of EV in the UK
- Multi charger status in Europe



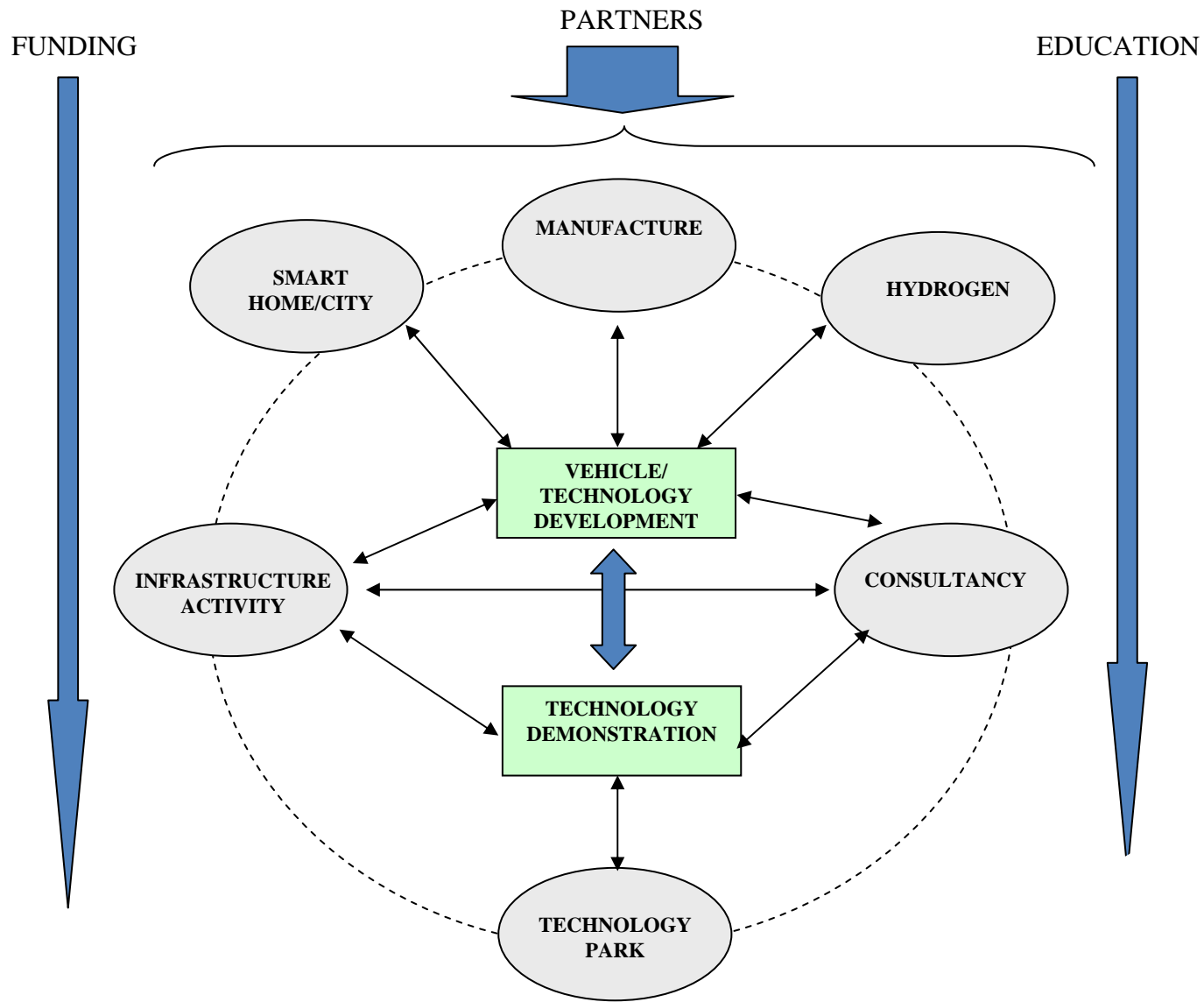
**Zero Carbon
Futures**

Innovative Transport North East England

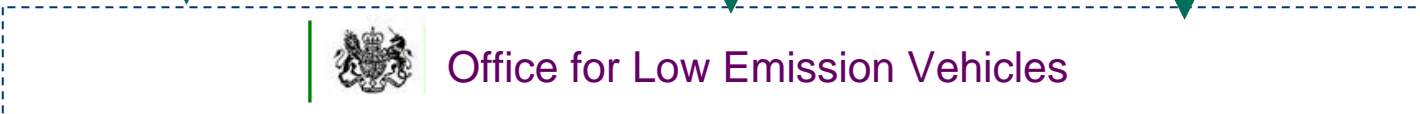
Gateshead College



Being a part of the low carbon vehicle revolution.



UK Government support



R&D



Incentives



Energy issues



Infrastructure



Supply Chain



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Plugged in Places



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- N.E is One of Eight trial regions
- N.Ireland
- Scotland
- Midlands
- East of England
- Milton Keynes
- London
- Manchester

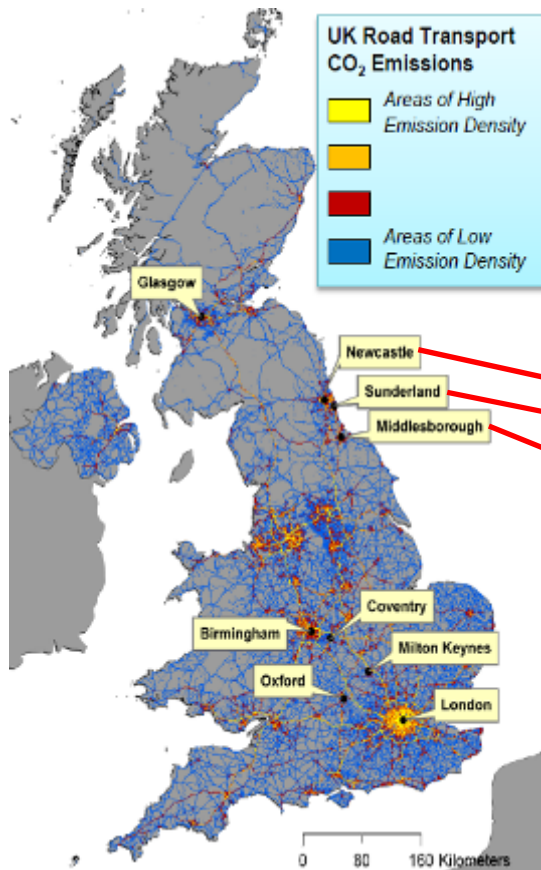


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Why in NE England ?

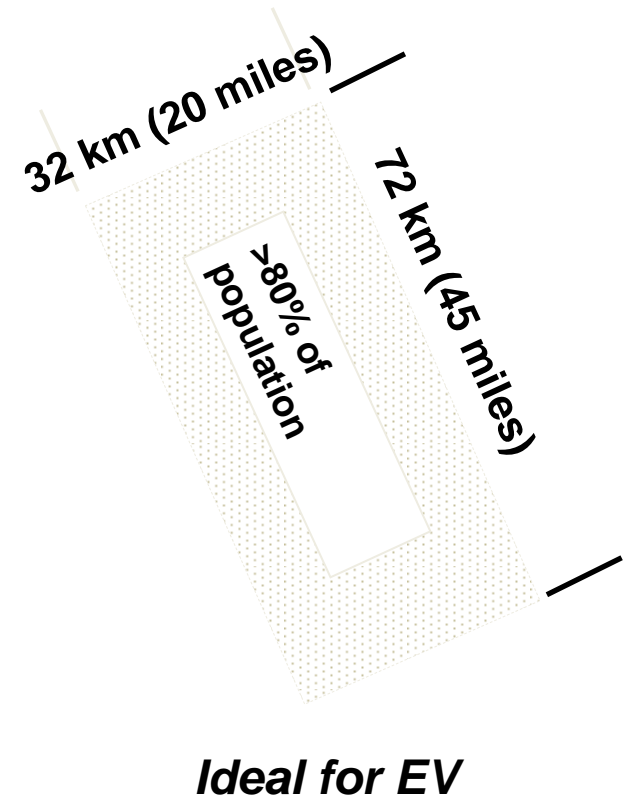
Carbon hot spots



Population density



Population = 2.5 million

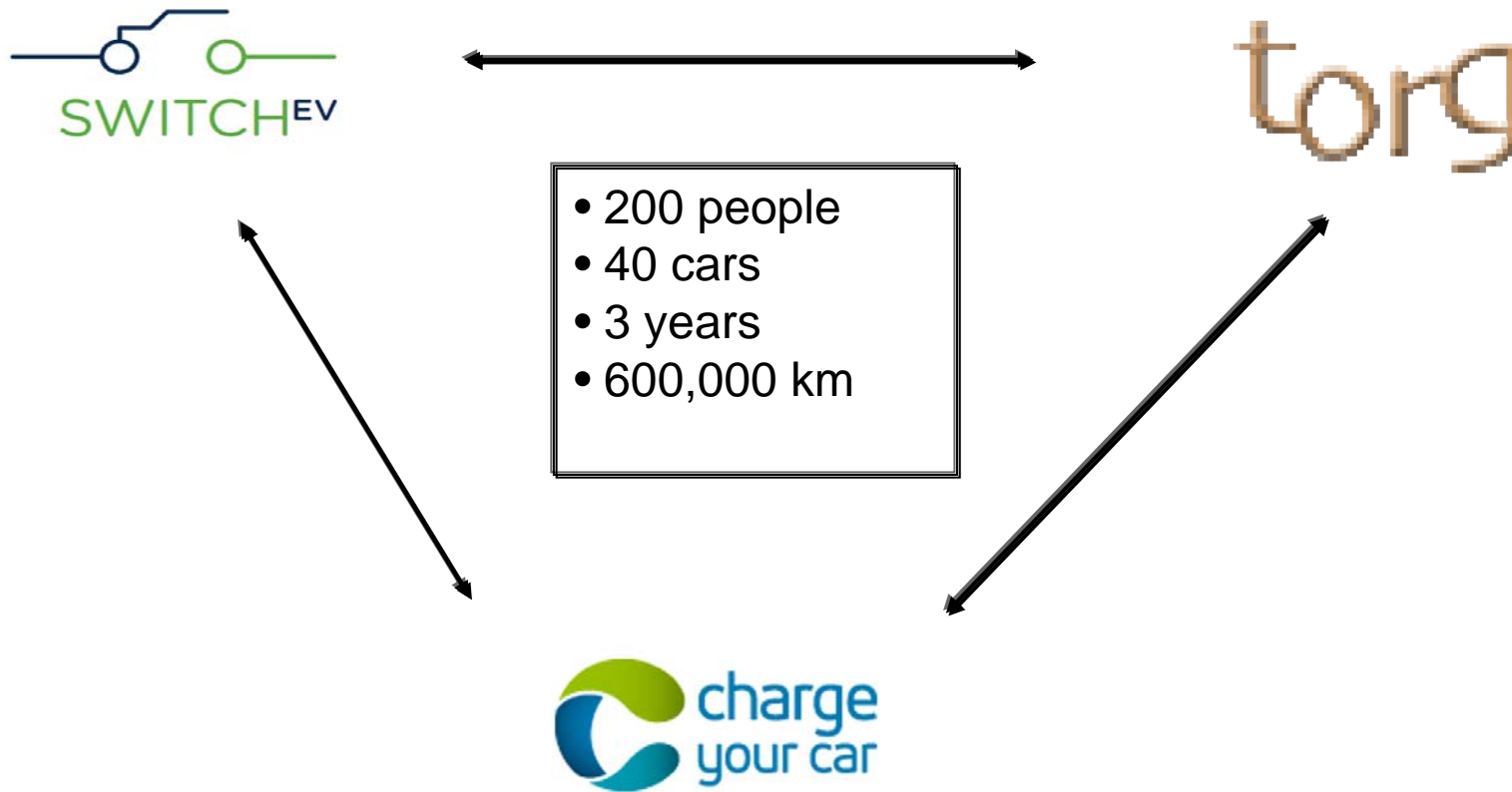


Operational NE Charging Points – Feb 2012

- Standard chargers (3/7 kW)
(1138 Installed)
- Quick Chargers (50 kW DC&22 kW AC)
(12 Installed)
- Domestic Chargers
(401 Installed)
- Back Office + EV User membership
“Charge Your Car”
- 830 Users
- Total energy supplied >178000kWh
- >26000 transactions



Real world trial



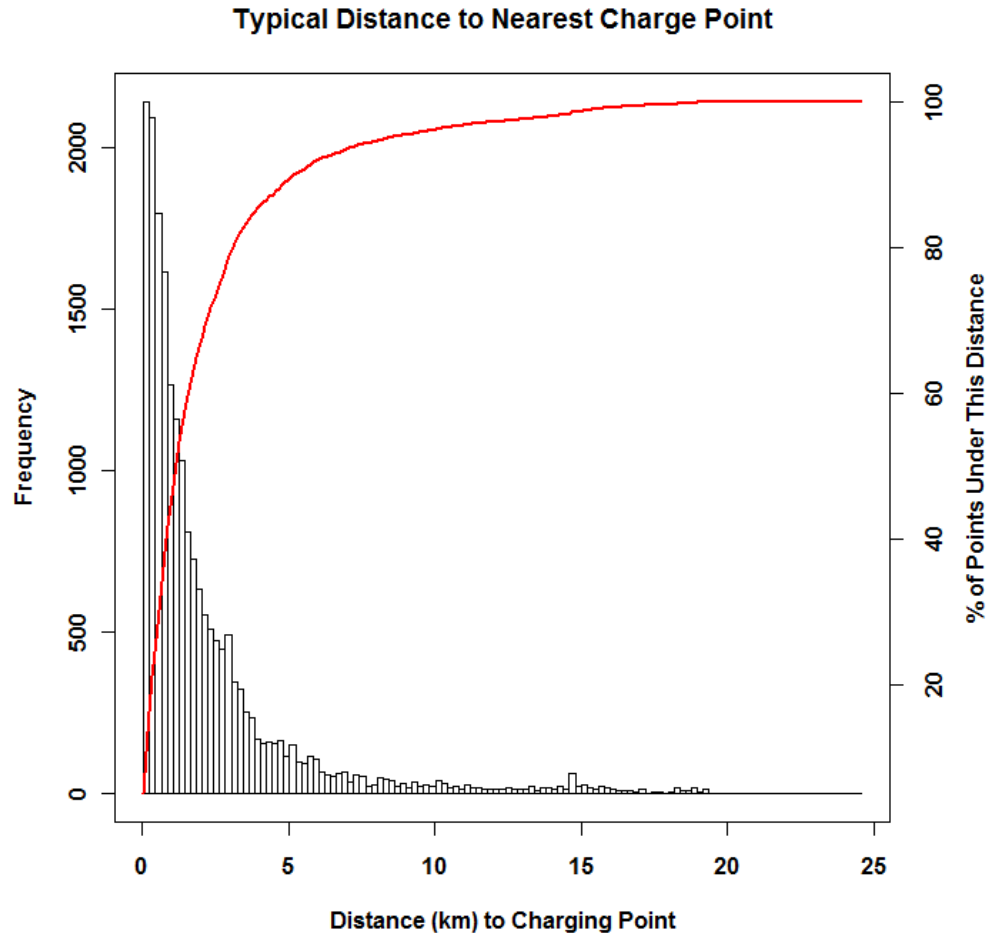
Base data

≡ Average journey length:	8.9 km
≡ Longest journey:	132 km
≡ Average journey duration:	14:30 min
≡ Total journey distance:	591,000 km
≡ Total number of journeys:	65,000
≡ Total number of charges:	17,000
≡ Total energy transferred:	105 MWh
≡ Total CO ₂ Saved:	65,000 kg CO ₂

Data from Dec 2010 to Jan 2013



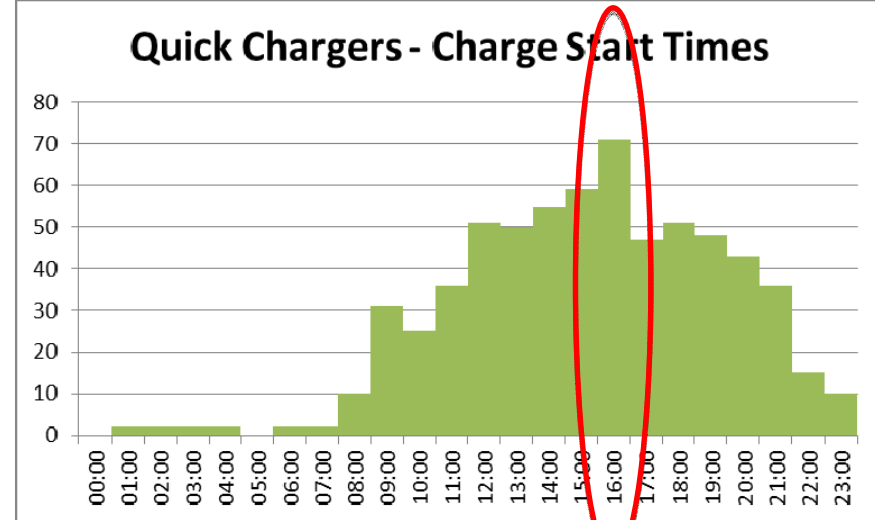
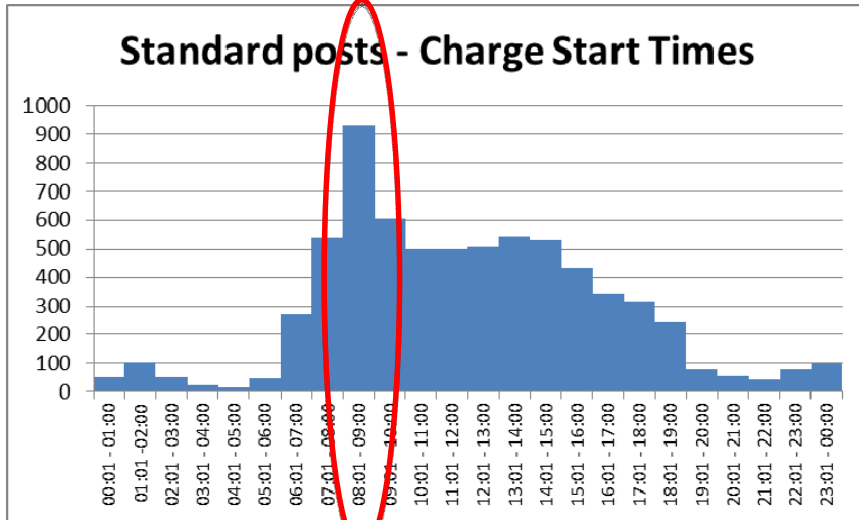
Availability of charging infrastructure



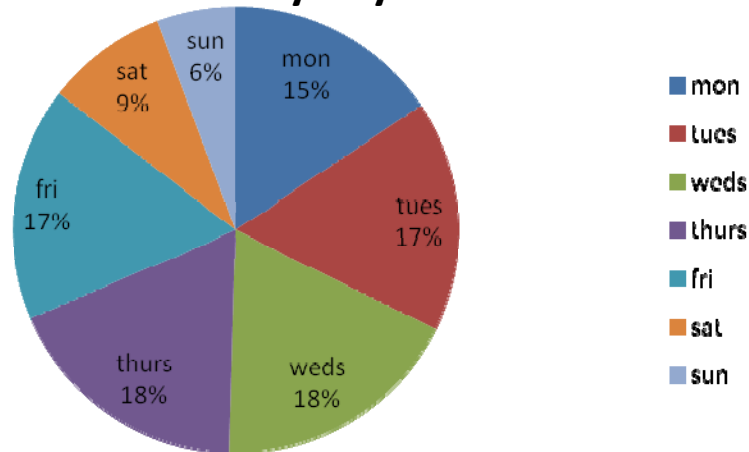
- What this graph shows is that for over 90% of the time driving in the North East, the EV is within 5km of a charging point.
- The EV is within 15 km of a charge point for more than 99% of the time spent driving



CYC Estate Usage characteristics



Transactions by day of week



Standard Charging stats (WP/PP etc :

- >90% of charging 06:00 – 19:00
- >90% of users on post for <4hrs
- Only 10% of charging at weekends
- Average energy del'd per trans = 6 kWh

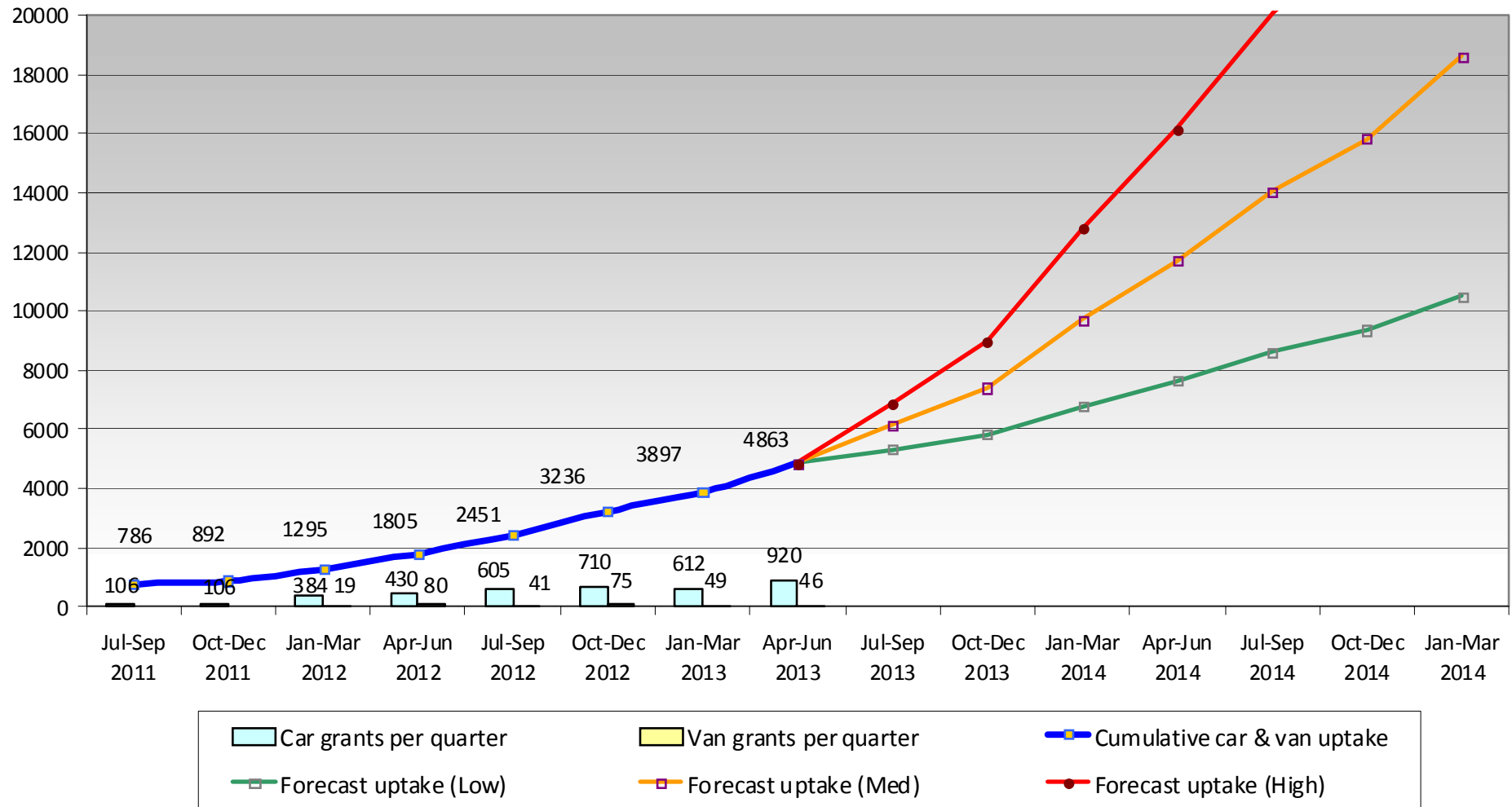
Quick Charging stats :

- > 90% of usage between 09:00 – 21:00
- No drop in usage at weekends
- Average energy del'd per trans = 8 kWh

Plug-In Grants – Progress So Far

Plug-in Car and Van Grant Uptake / Forecast

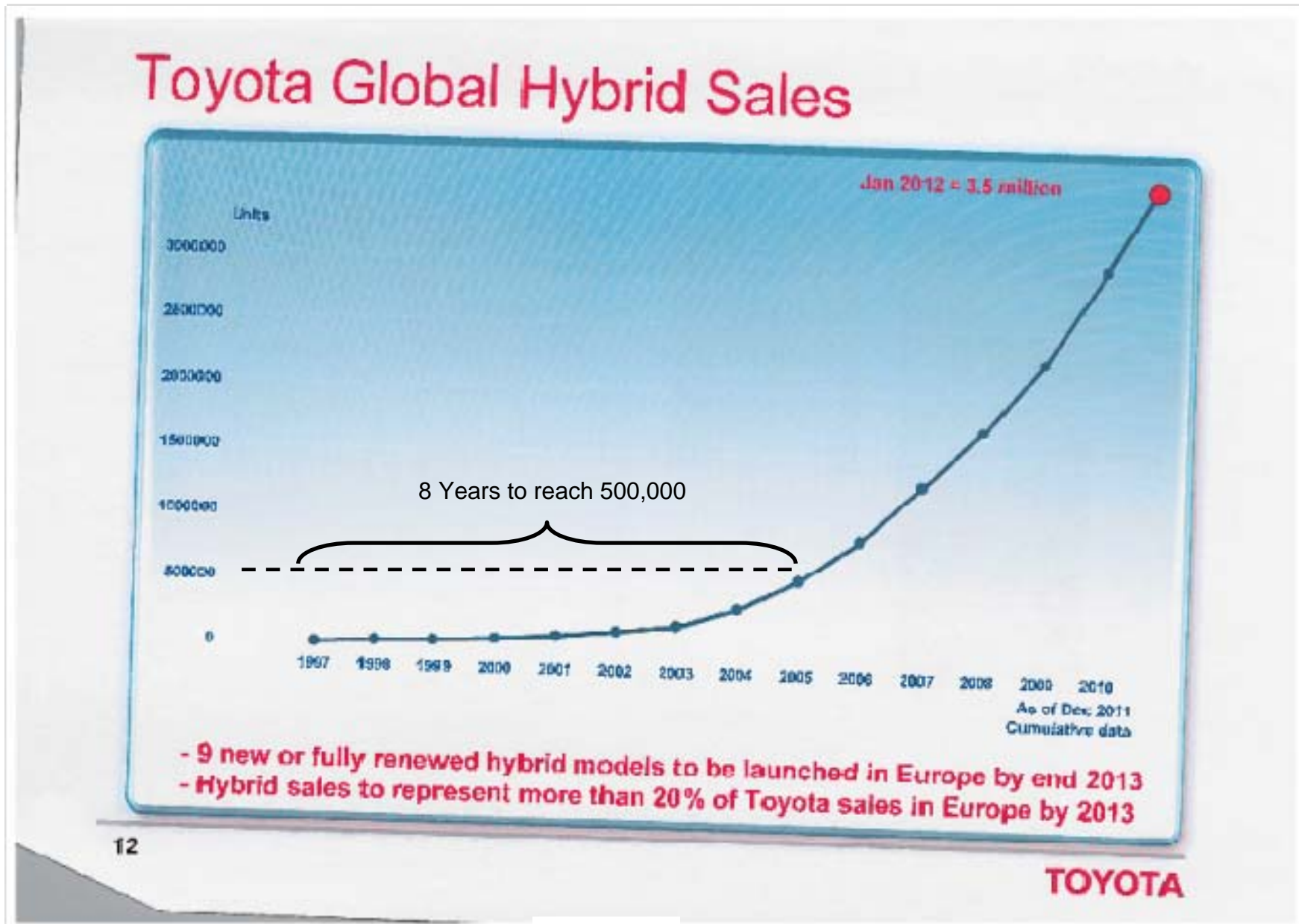
(at July 2013)



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Reference point

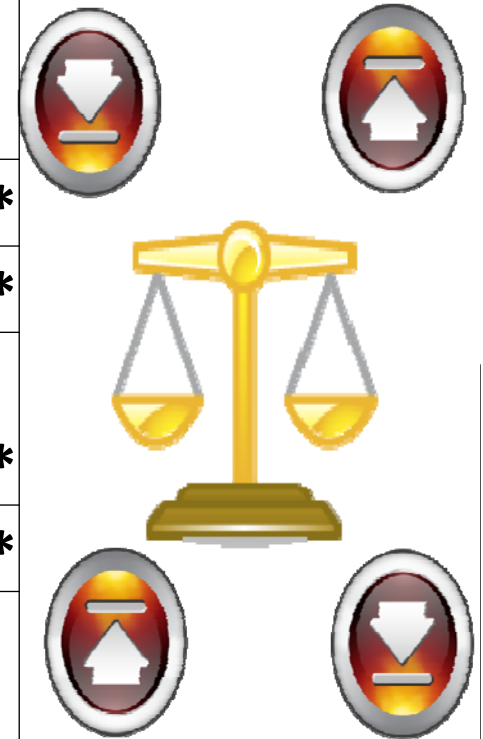


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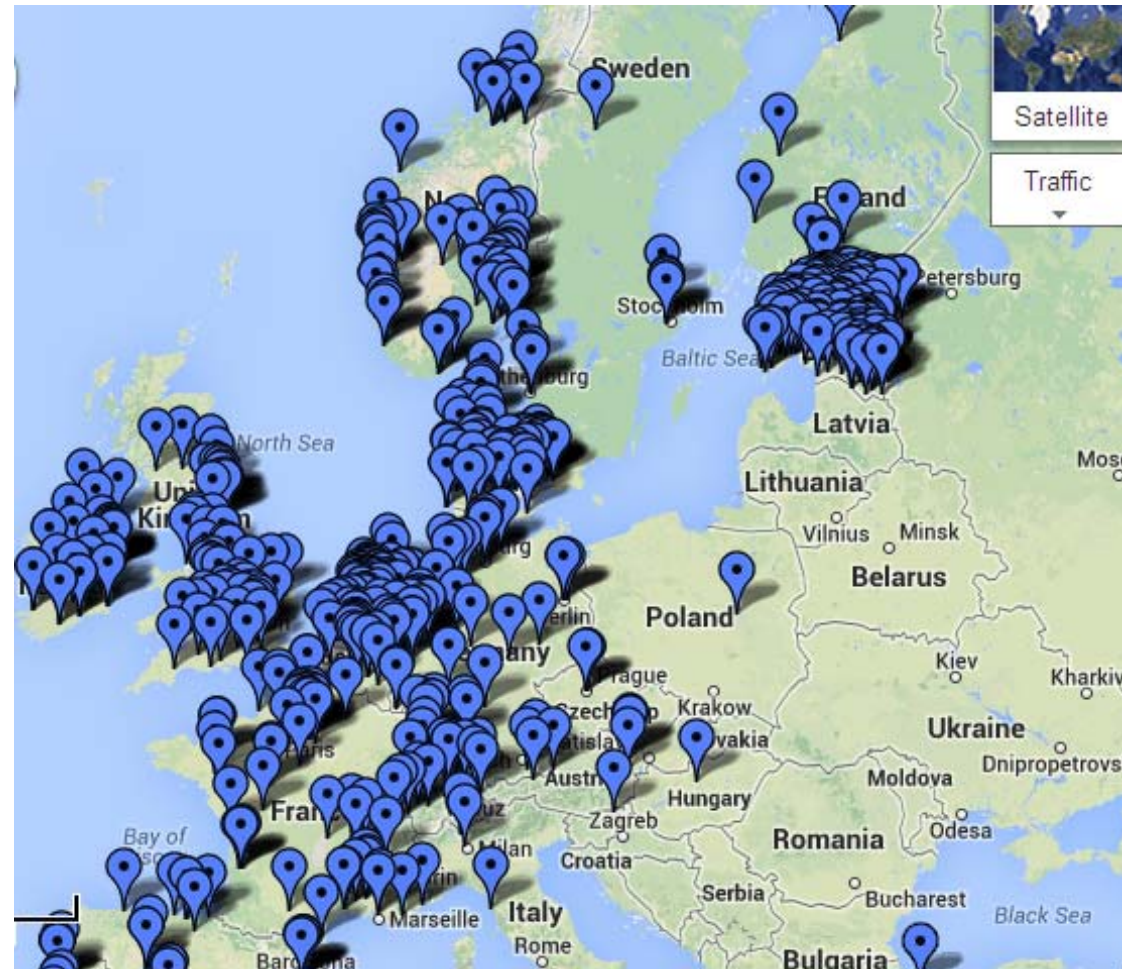
What the differing power levels offer ?

Power Level	Time to Charge (24kWh)	Cost of Charger **	Cost of Installation	Cost of Charge
3kW	8 Hrs	£2.5K	£3K	£3.00***
7kW	<4 hrs	£3K	£3K	£3.00***
22/43kW	50 / 30 min*	£4.5k	£5k - £20K	£3.00***
50kW	30min*	£10 -20K	£10 – 20K	£3.00***
	* 80% charge	** - Not Domestic		*** 20kWh@ 15p / kWh



CHAdEMO –

CHAdEMO DC Quick chargers installed = **2703**.
-- (Japan 1716 Europe 85 USA 160 Others 12)



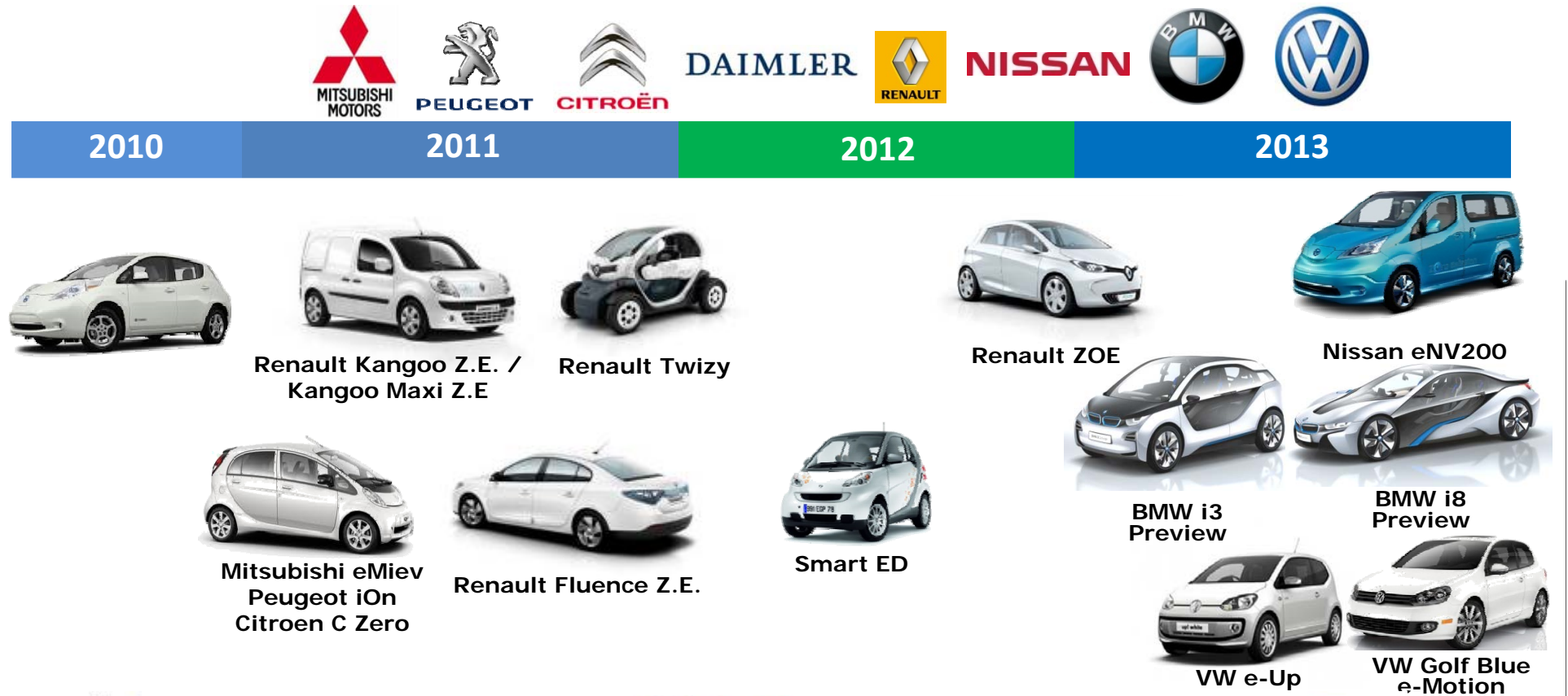
Challenges

Market (passenger cars)

In 2011 about 11,000 EVs sold in Europe (0.1% market penetration)

□ In 2012 about 20,000 units (0.2% market penetration)

□ Estimate for 2013 over 40,000 units sold in Europe.



Vehicle to Quick Charger



CHAdeMO



DAIMLER



AC



Combo2



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Quick Charge options

CHAdeMO (50kW)



DC
Chademo



AC/ DC
Type 2
Chademo



AC/ DC Type 2
Chademo/
Combo2

AC (43 kW)



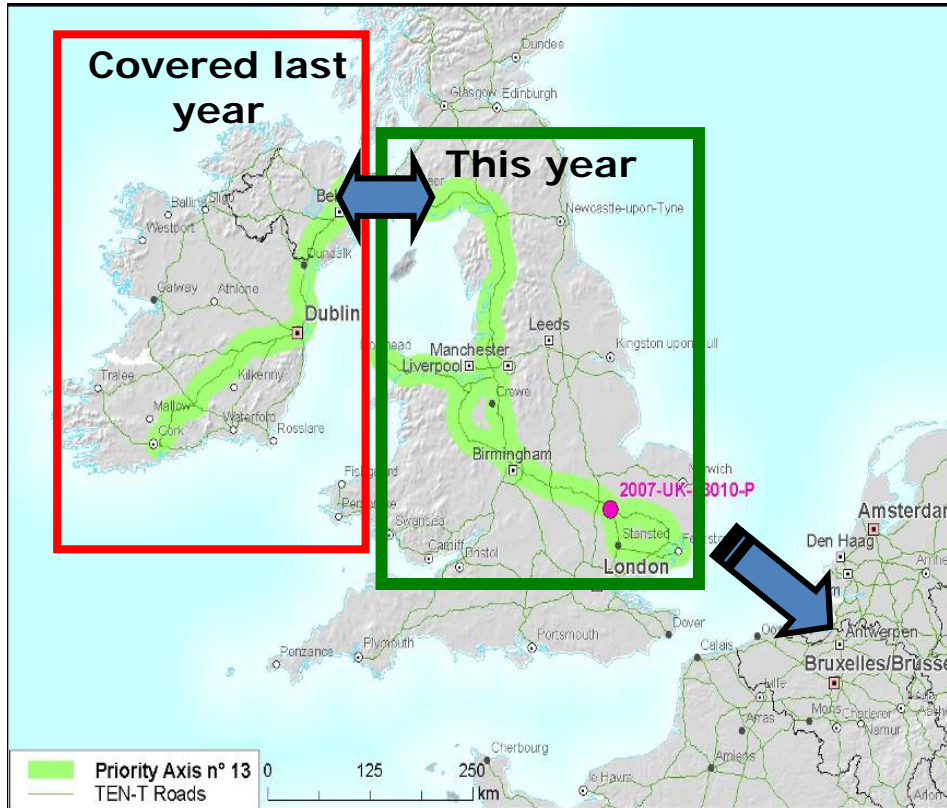
Combo2 (50kW)



→ Multi-standard charger Type2/ Chademo/ Combo2 is supported by the 7 OEMs with EVs in the market by 2013.



Transnational projects



Distance 900+ km (560+ miles)

Motorway

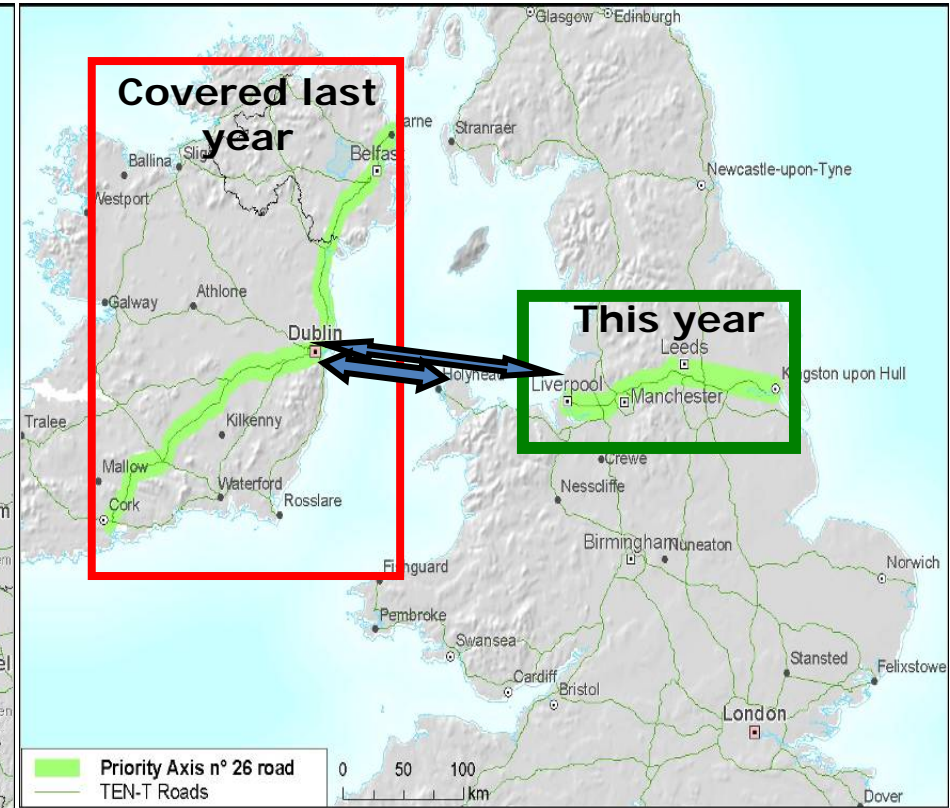
- 22 service stations

Airports

- Birmingham airport
- Stansted airport

Ports

- Port of Stranraer
- Port of Felixstowe
- Port of Holyhead



Distance 204 km (128 miles))

Motorway

- 4 service stations

Airports

- Liverpool airport
- Manchester airport
- Leeds airport

Ports

- Port of Liverpool and
- Port of Hull



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