



Policies & Practices to Advance EV Ecosystems: UK & Global Perspective

Eco-Mobility 2012 | Vienna | Austria

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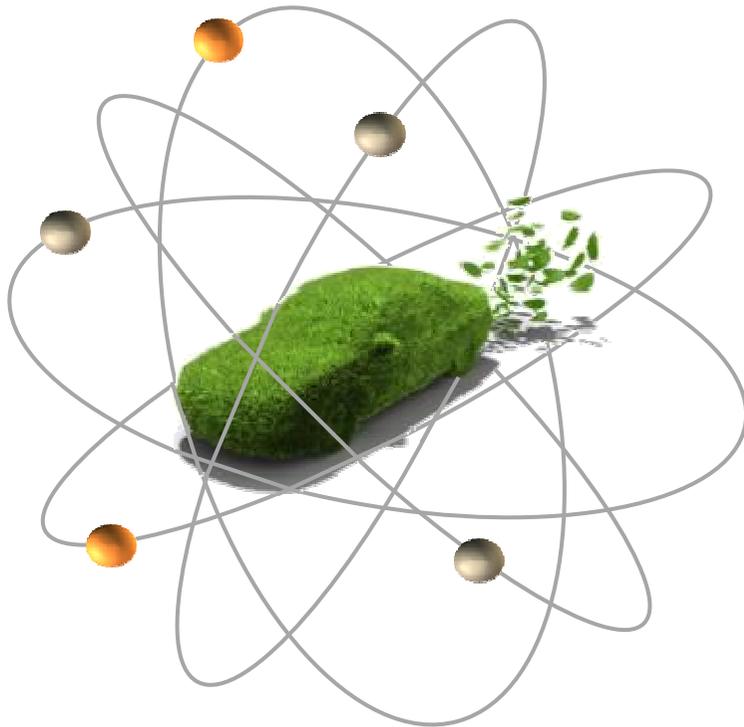


A UK & Global Perspective



Electric Vehicle Ecosystems

‘Total environments’ to support mass operation of Electric Vehicles

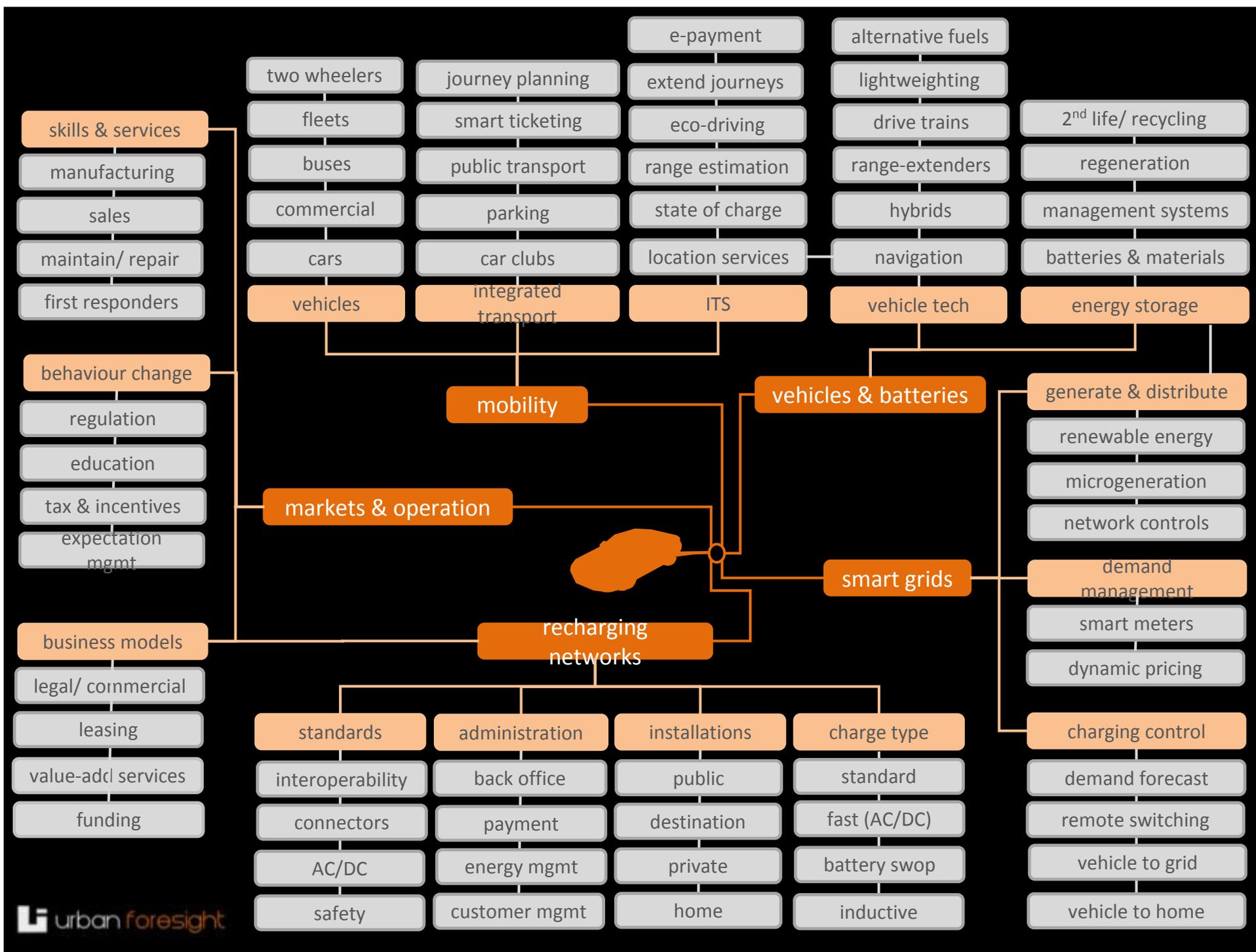


- **‘Hard Infrastructure’**

e.g. recharging points, smart grids,
buildings, transport systems

- **‘Soft Infrastructure’**

e.g. regulation, business models, incentives,
skills, community engagement

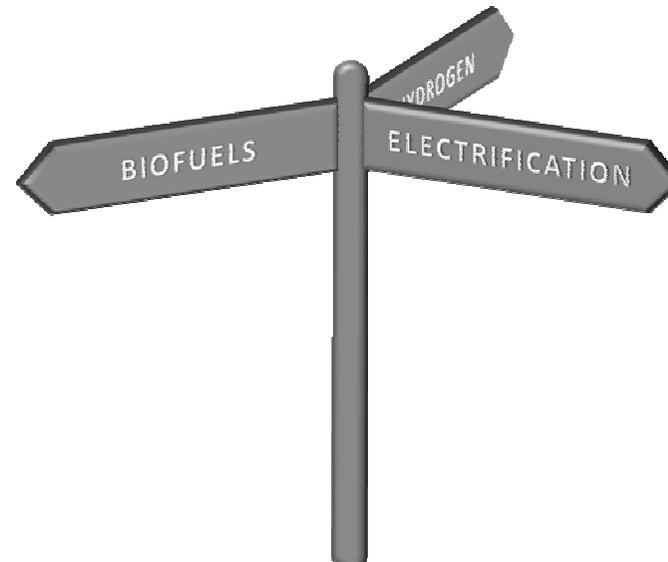


Structure of Presentation

WHERE ARE
WE TODAY...?



WHERE ARE
WE GOING...?

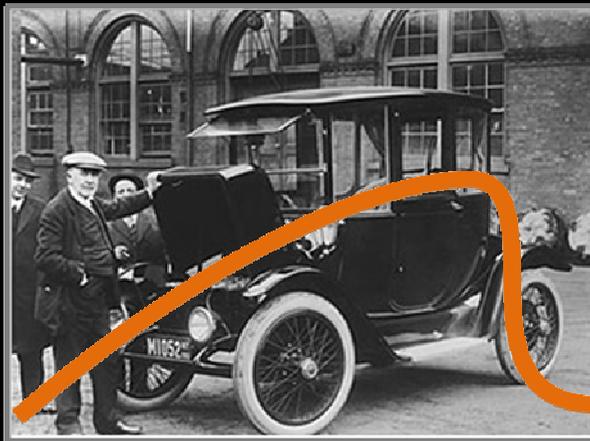


THE THIRD AGE OF ELECTRIC MOBILITY.

FIRST AGE

SECOND AGE

THIRD AGE



1840s to 1920s

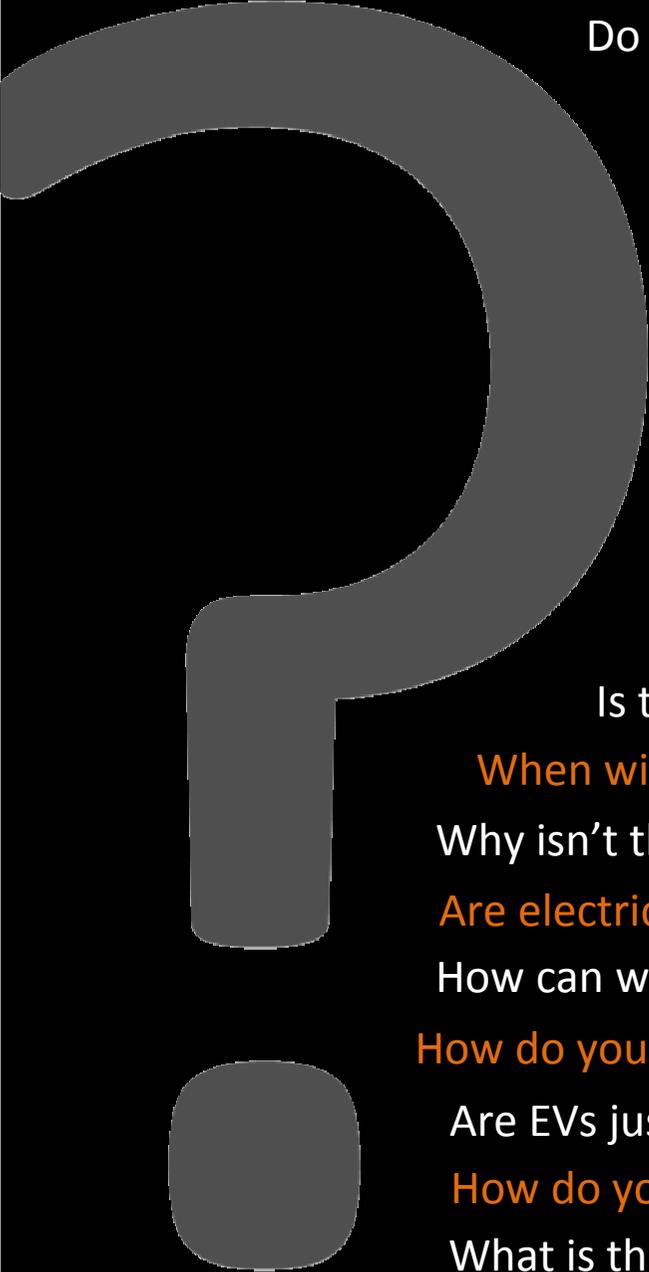


1990s



2008 onwards

	Year of...	Characterised by...
2007	HIBERNATION	EVs were only a minority activity for governments and automakers. Biofuels and hydrogen arguably enjoyed greater prominence and attention.
2008	IGNITION	The economic downturn hit automakers hard and encouraged the acceleration of electrification R&D as the closest-to-market technology to reinvent the fortunes of an ailing sector.
2009	PARTNERSHIPS	As the complexity of preparing for the introduction of EVs became clear, collaborative EV programmes were initiated to combine the expertise of governments, OEMs, utilities, cities, regions and technology suppliers.
2010	PILOTS	Data and findings from pilots emerged from major cities and pioneering regions around the world, informing both the development of vehicles and charging infrastructure systems.
2011	EXPECTATION	The anticipated arrival of cars culminated in global demand appearing to outstrip supply.
2012	QUESTIONS	The first full year when anyone could buy an EV encouraged questions about the prospects for the technology and a short-term focus on apparent limitations.



Do we really need public recharging infrastructure?

Should ownership of the battery be separate to the car?

How long does it take to charge an electric vehicle?

What is the potential for battery exchange models?

Does fast charging damage the battery?

What happens when an electric vehicle catches fire?

What happens when government subsidies end?

How can we best address range anxiety?

Are silent cars dangerous?

Is inductive charging safe?

Is there a business model for recharging infrastructure?

When will there be a single standard for EV recharging?

Why isn't there more public recharging infrastructure?

Are electric vehicles always going to be too expensive?

How can we make recharging infrastructure interoperable?

How do you charge at home without access to off street charging?

Are EVs just a stepping stone to hydrogen fuel cell vehicles?

How do you balance total cost of ownership against purchase price?

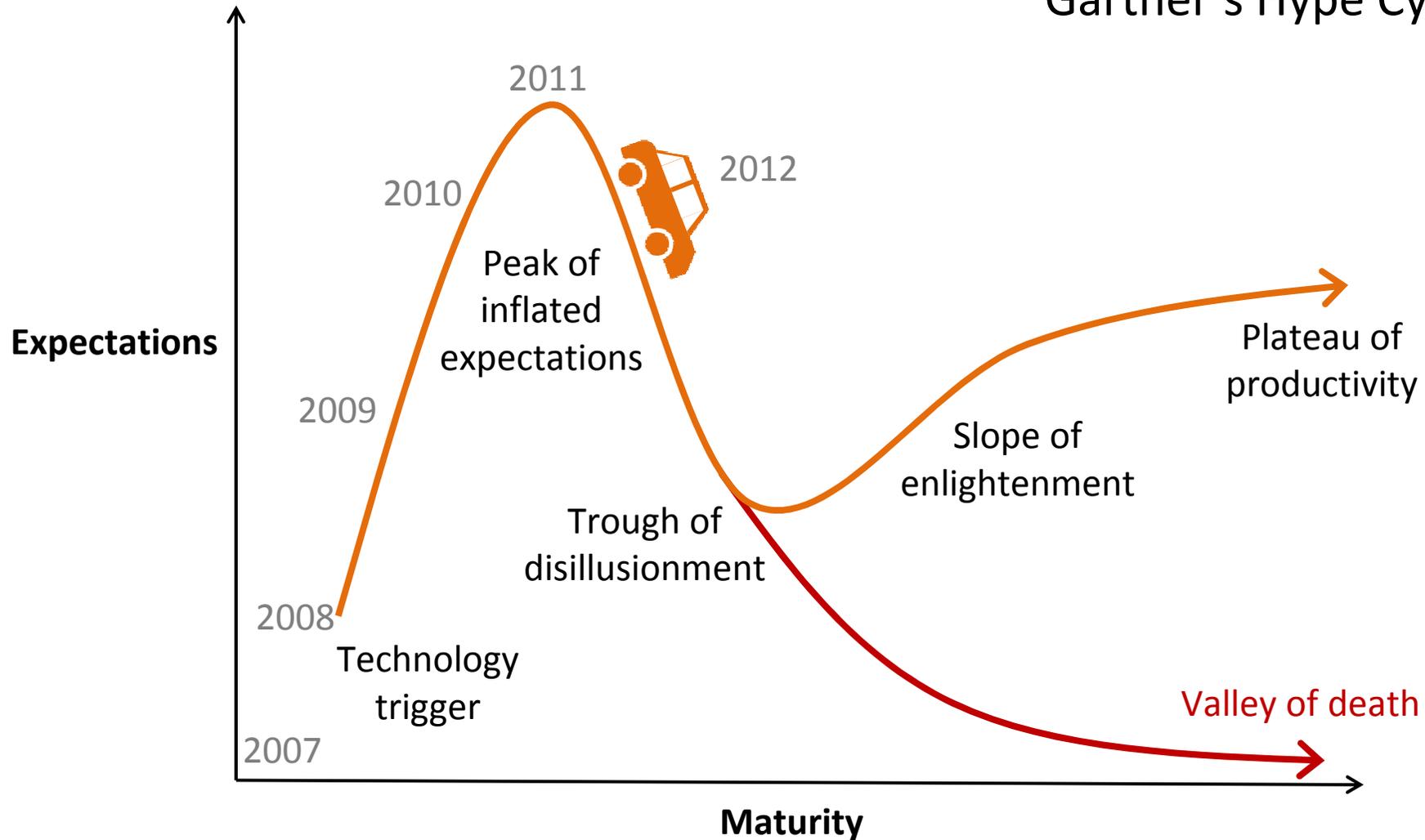
What is the expected lifetime of an electric vehicle battery?

Are EVs more polluting when you charge with high-carbon electricity?

How do you change people's behaviours?

Introducing New Technologies

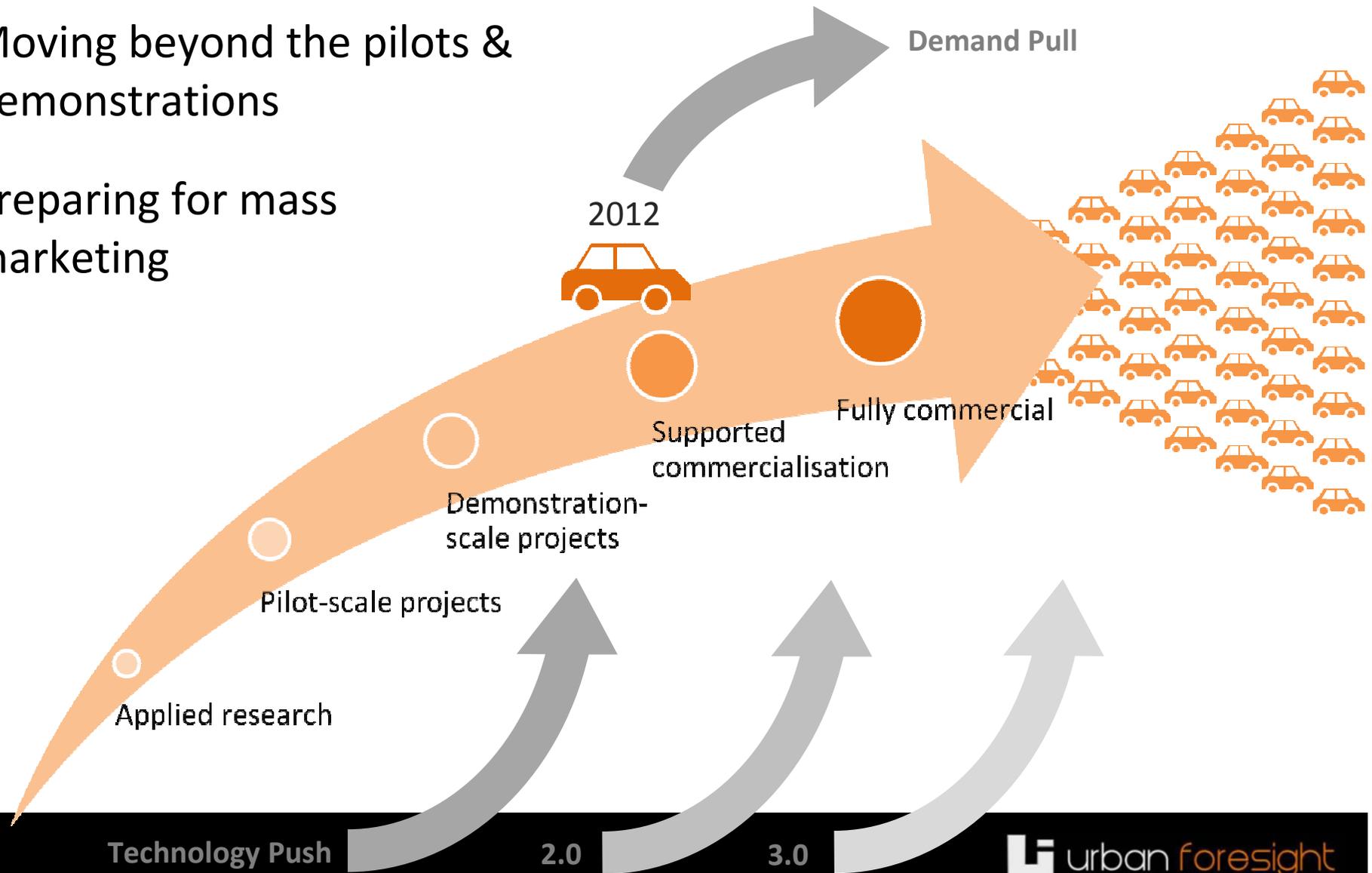
Gartner's Hype Cycle



Where Are We Today?

Moving beyond the pilots & demonstrations

Preparing for mass marketing



Technology Push

2.0

3.0

The background of the slide is a stylized Union Jack flag. It features a large red cross on a white background, with blue and red diagonal stripes in the four quadrants. The text 'UK PERSPECTIVE' is centered over the red cross.

UK PERSPECTIVE



Office for Low Emission Vehicles

Department for
Transport



BIS | Department for Business
Innovation & Skills

“Placing the UK at the global forefront of ultra-low carbon vehicle development, demonstration, manufacture and use.”

And...

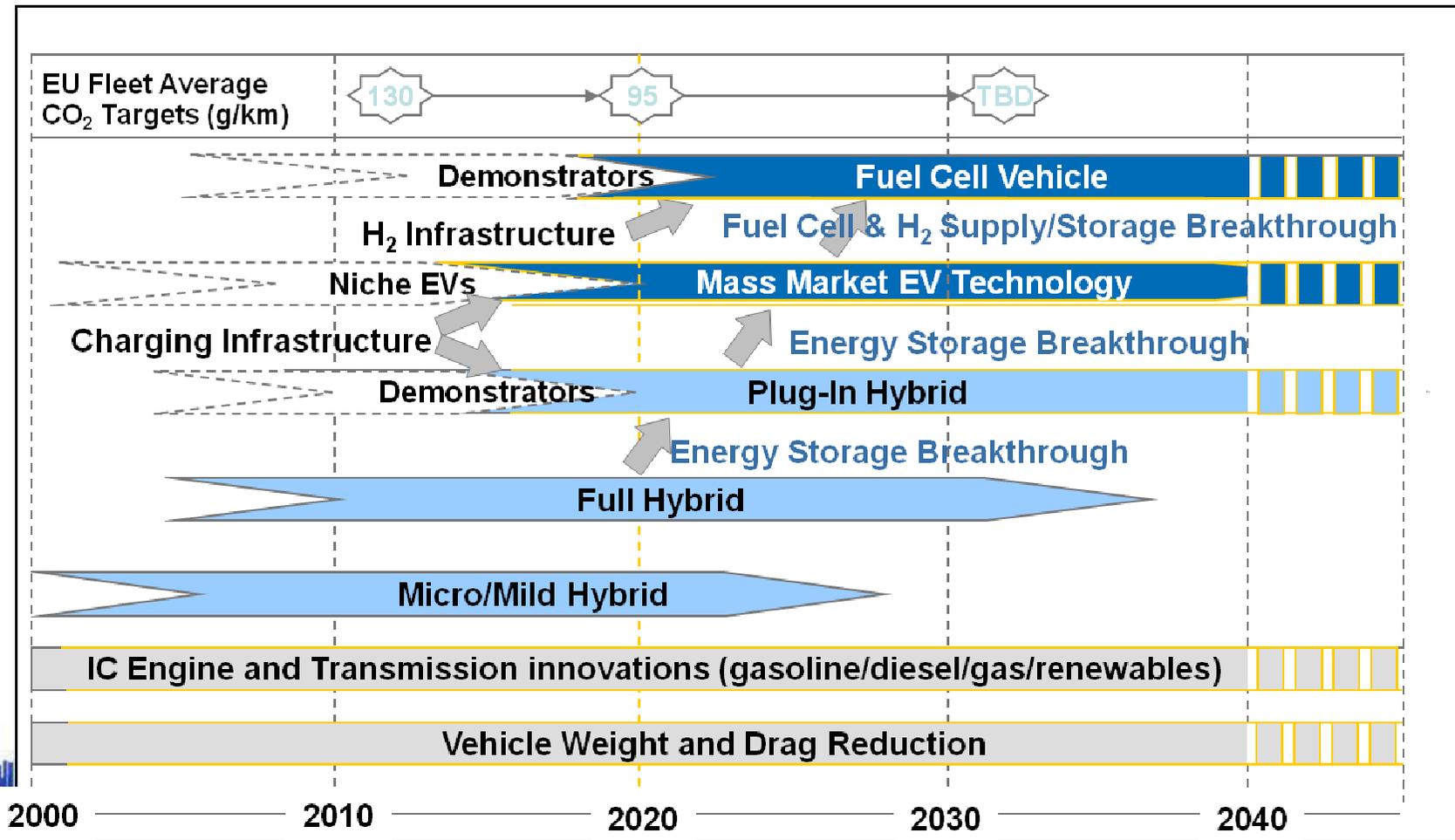
“To support the early market for ultra low emission vehicles in the UK.”

Policy Context

- The UK Climate Change Act: Greenhouse gas emissions targets: 34% reduction by 2022 and 80% by 2050
- Passenger cars account for 58% of total UK domestic transport carbon emissions
- Over £400m public funds allocated to measures designed to promote uptake of the next-generation of ultra-low emission vehicle technologies
- In 2010, 99% of car journeys were under 100 miles and the average car trip was 8.4 miles long, making plug-in vehicles a good solution for most journeys
- The average cost of 'fuel' for plug-in vehicles is approximately £0.03 per mile.



Industry Consensus



Incentives: Plug-In Car Grant

- £300m available to 2015
- Reducing the cost for business & consumers – 25% up to £5,000 for eligible cars
- Technology neutral approach – any car that meets the criteria (including tailpipe emissions of 75 g/km or less) can apply to join scheme
- Ten eligible cars – including eight battery electric vehicles (range of 70-100 miles) and three plug-in hybrid or range extended vehicles (with no range limitations).



Incentives: Plug-In Van Grant

- Launched on 21 February
- Available to both business and private buyers
- Reducing the cost for consumers – 20% up to £8,000 grant
- Technology neutral approach – as long as vans meet the criteria
- Seven vehicles initially eligible



Infrastructure: Plugged in Places

- Providing up to £30m match-funding to consortia of businesses and public sector partners to install plug-in vehicle recharging infrastructure in lead places across the UK.
- >1,000 chargepoints installed through scheme and 1,500 by the private sector.
- Private sector committed to deliver approximately a further 4,000 points across the UK by end 2012.
- National Chargepoint Registry (NCR) - a centralised register of charging point locations.



Research & Development

- Supporting the ongoing research, development and demonstration of low and ultra-low emission vehicles.
- Budget of £82m, £65m of which will be delivered through the Technology Strategy Board (TSB).



Supply Chain

- Supporting the development and strengthening of UK-based supply chains for ultra-low emission vehicles
- Maximising business opportunities for the UK automotive sector
- Maintaining competitiveness in the transition to a green economy
- Ensuring the sector is recognised as a key sector in the drive for balanced green growth.

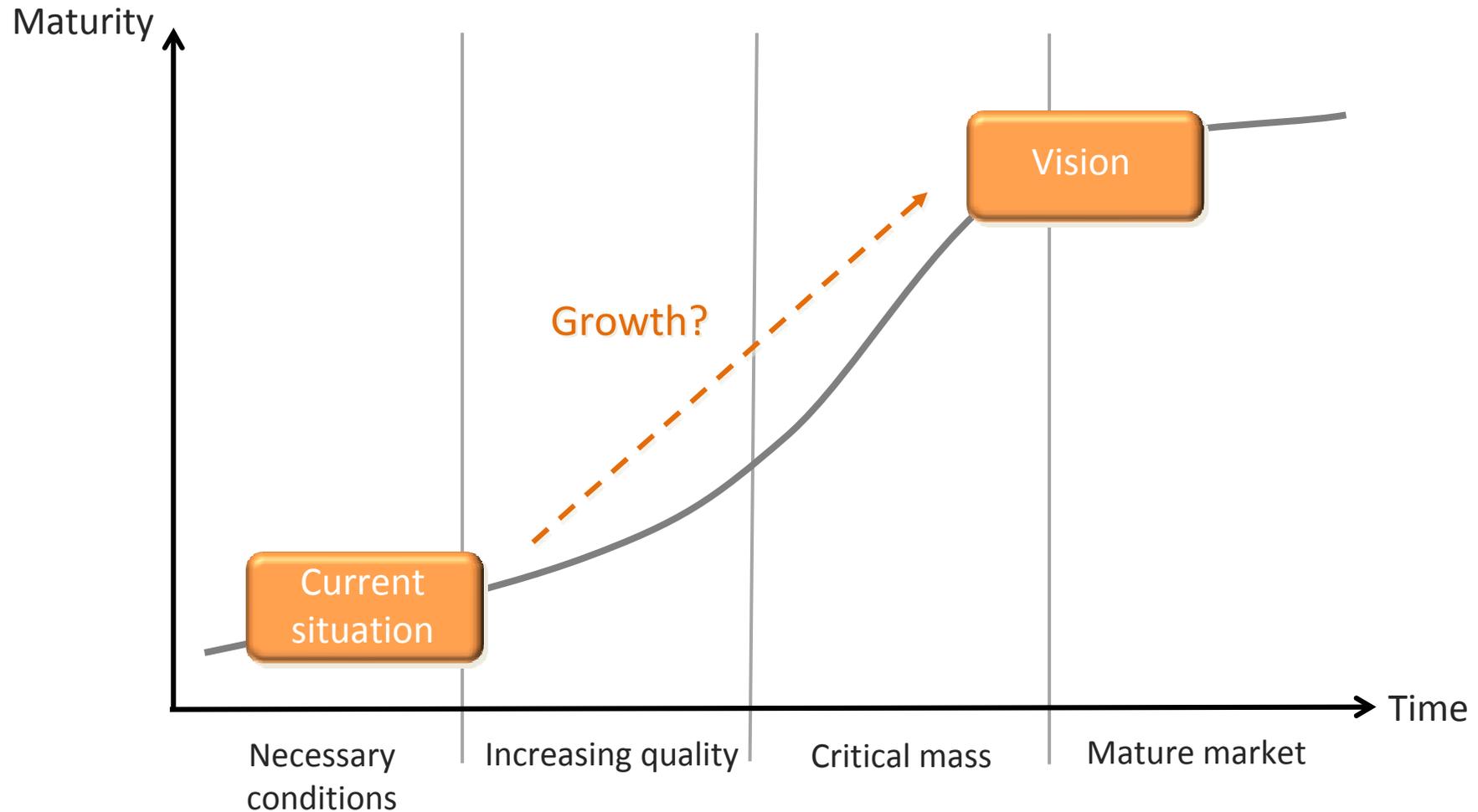


Even More Happening at Local Level

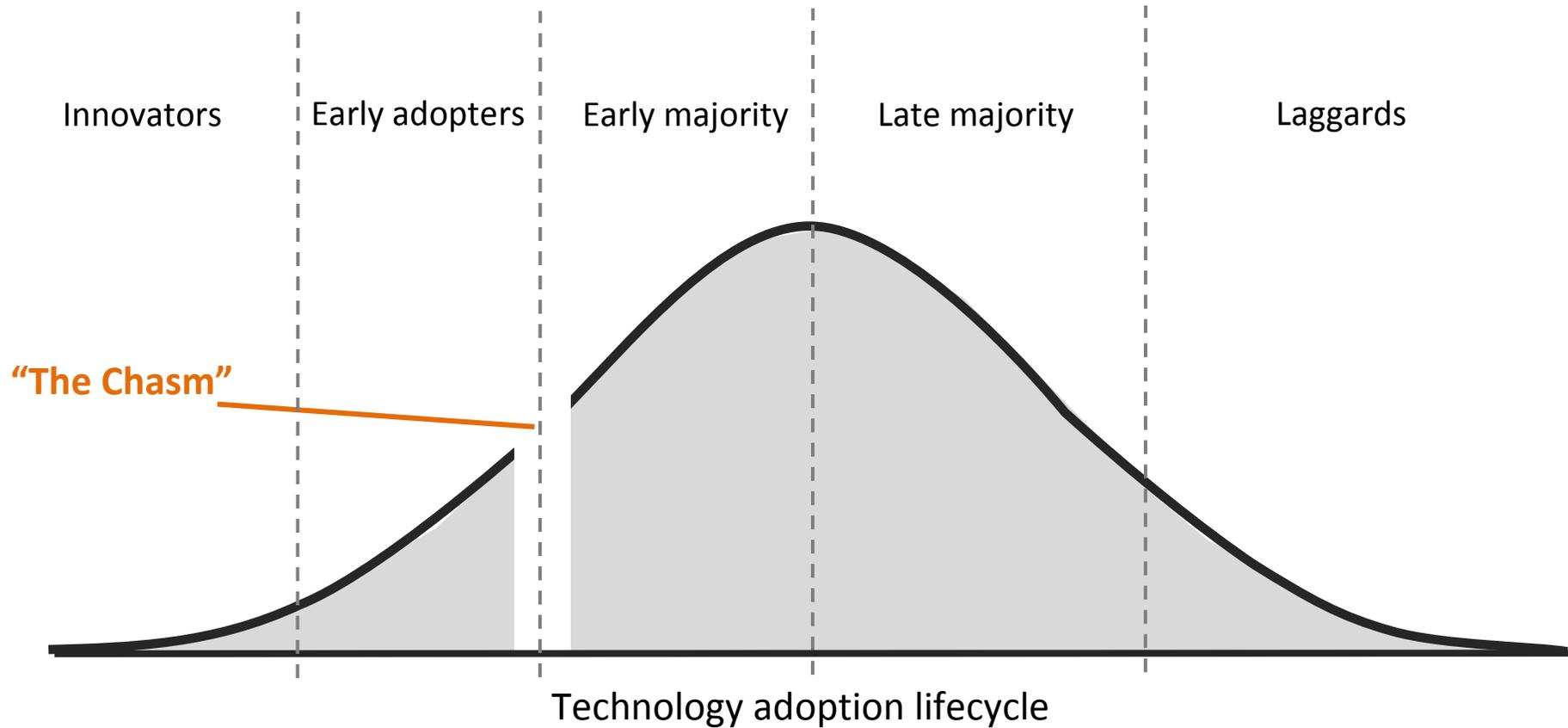


www.e-cosse.net

Creating Conditions for Mass Adoption



We Have a Chasm to Cross



Why This is Important

2DS

a vision of a **sustainable** energy system of reduced Greenhouse Gas (GHG) and CO₂ emissions

The 2°C Scenario

4DS

reflecting pledges by countries to cut emissions and boost energy efficiency

The 4°C Scenario

6DS

where the world is now heading with potentially **devastating** results

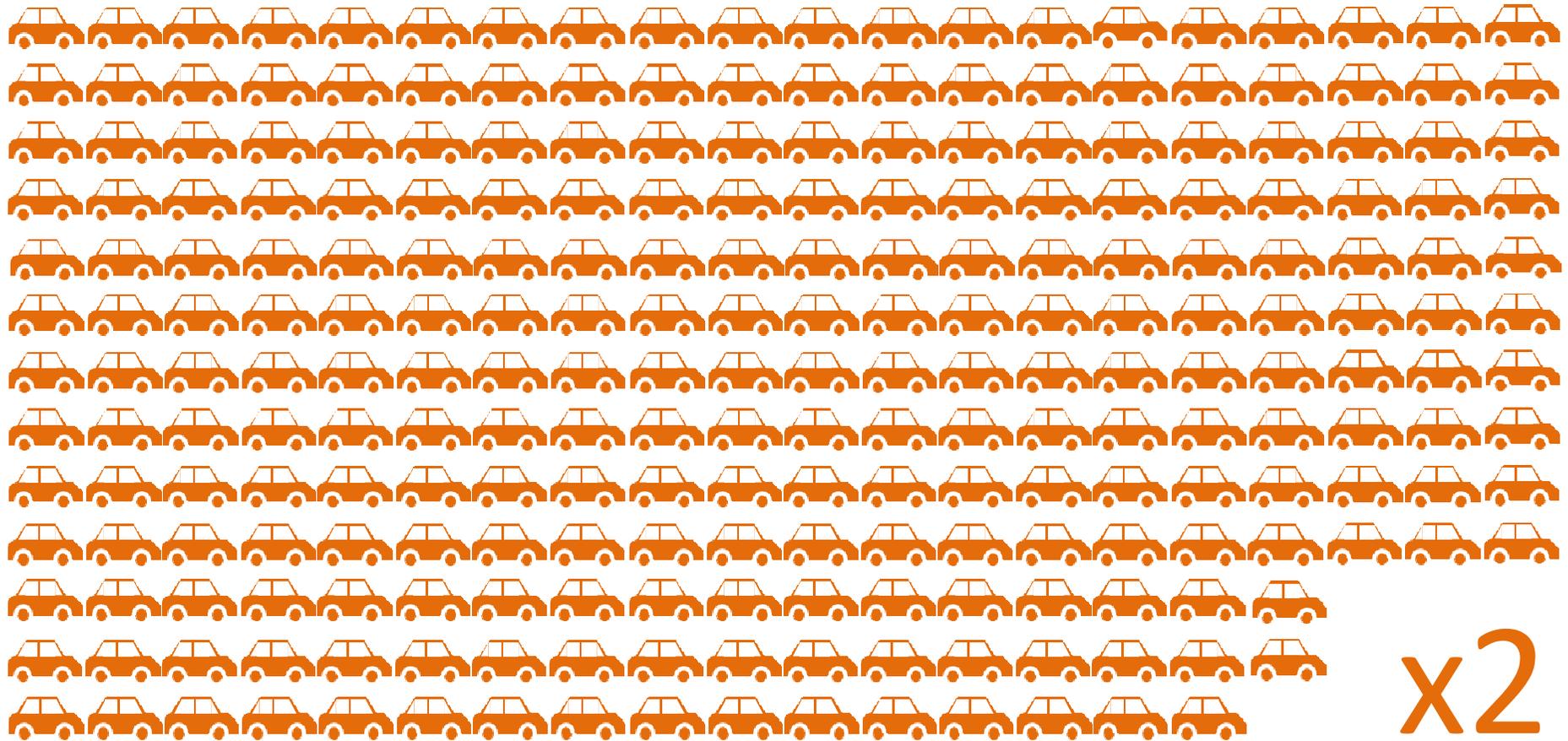
The 6°C Scenario

Growth in Global EV Stock

 40,000 at start of 2012 (IEA, 2012)

2020

20 million required by 2020 (IEA, 2012)



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12 June 2012 Last updated at 22:08

4.5K Share

Diesel exhausts do cause cancer, says WHO

By James Gallagher

Health and science reporter, BBC News

Exhaust fumes from diesel engines do cause cancer, a panel of experts working for the World Health Organization says.

It concluded that the exhausts **were definitely a cause of lung cancer** and may also cause tumours in the bladder.

It based the findings on research in high-risk workers such as miners, railway workers and



PHASE OUT **ALL**
CONVENTIONALLY FUELLED
VEHICLES **FROM** URBAN
ENVIRONMENTS **BY** 2050
& **HALF** **BY** 2030.

Not About Competing Technologies



EFFICIENT ICE

ELECTRIC

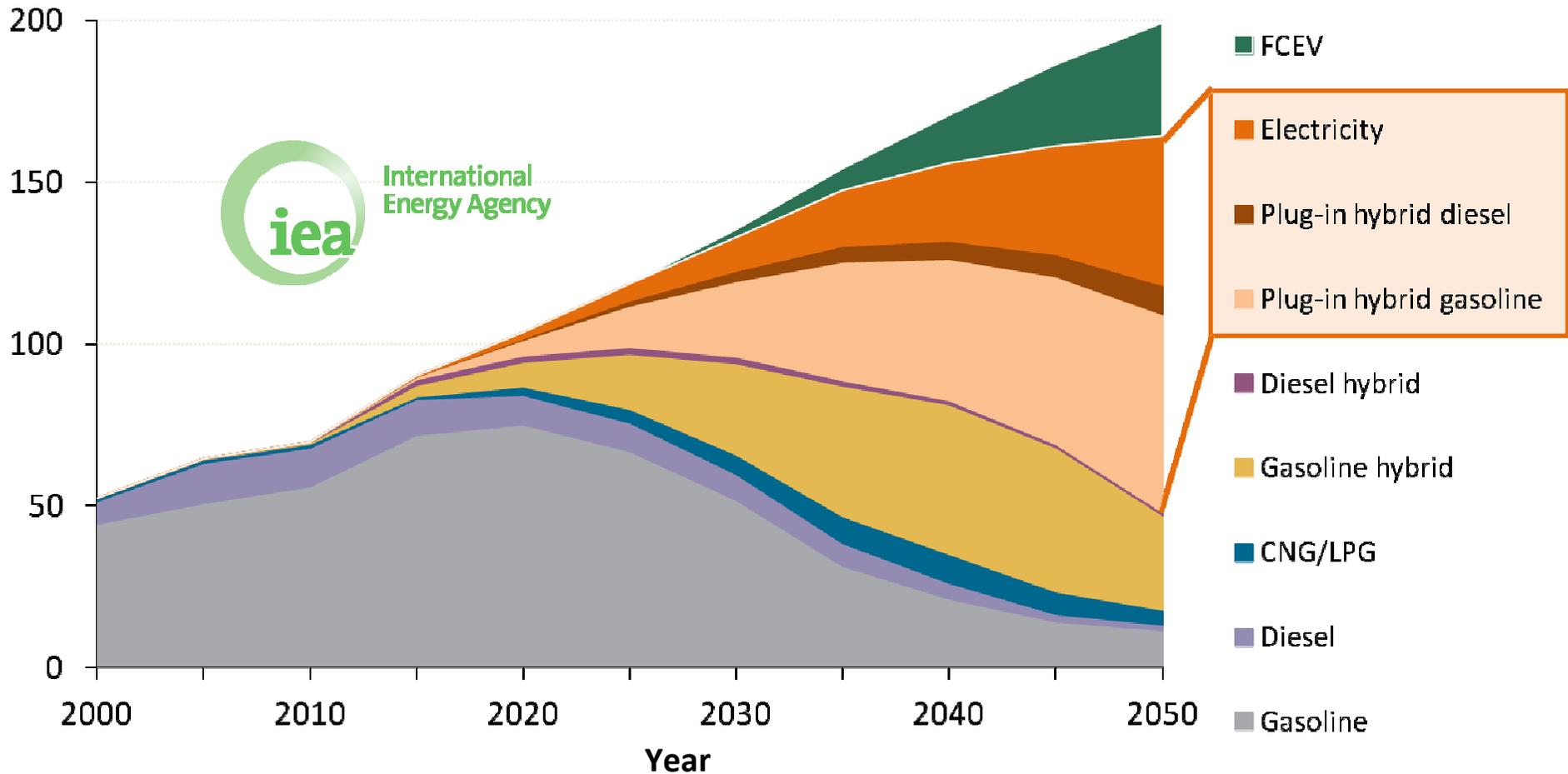
HYDROGEN

BIOFUELS

Need to Be Realistic About Timescales

Passenger Light Duty
Vehicle sales (million)

IEA (2012)



HOW WILL WE HIT
THESE TARGETS...?



Shaping a Future Vision

Task 18 members:

Austria		 AIT AUSTRIAN INSTITUTE OF TECHNOLOGY	
Germany		 eNOVA Energieinnovation	
Portugal		 invel	 MOBIE
Spain		 IDAE INSTITUTO DE ENERGIA SUSTENTABLE	 Ajuntament de Barcelona
UK		 urban foresight	
USA		 UC DAVIS UNIVERSITY OF CALIFORNIA	
International partners		 Electric Vehicles Initiative	 Project Get Ready

ev ecosystems

IEA IA-HEV Task XVIII



Electric Vehicles Make Cities Smarter



Reduce environmental impact

Sustainable economic growth

Improved living conditions

Home Energy Storage Units in Japan



Autolib': Point-to-Point EV Car Club

1,700 EVs IN AUTOLIB' TODAY



EV HOROSCOPE

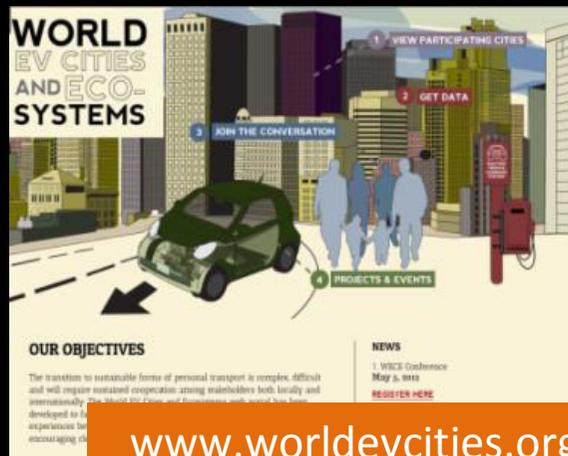


	Year of...	Characterised by...
2013	CHOICE	The first year when multiple OEMs will be mass producing a range of different EV models that are manufactured specifically for different global markets.
2014	NORMALISATION	It will no longer be a novelty to have driven or indeed own an EV.
2015	TARGETS	The first year for which interim targets have been set, providing an opportunity to compare expected and actual progress.
2016	2 ND GENERATION	Sales are boosted by redesigned and reinvented EV models.
2017	INDEPENDENCE	EVs will need to survive in a world with fewer public subsidies and incentives.
2018	FUNCTIONALITY	Common standards, innovative technologies and ancillary services make using an EV fun and aspirational.
2019	VALUE	Developments in EV technologies and consumer awareness make total cost of ownership of EVs an attractive proposition to many more fleet managers and new car buyers.
2020	BENCHMARK	The point at which the trajectory of EVs becomes clear.

3

CLOSING
THOUGHTS.

WE'VE MADE SUBSTANTIAL PROGRESS.



www.worldevcities.org

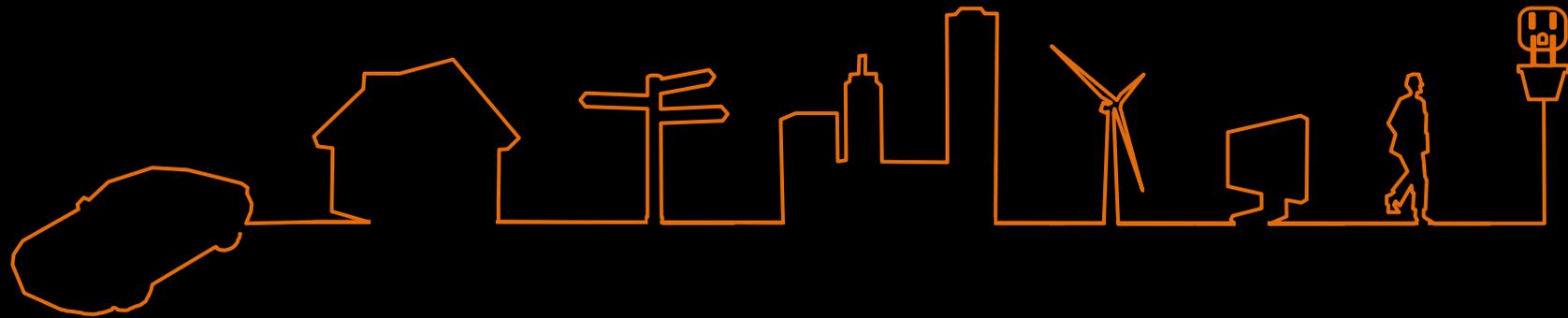


www.ieahev.org

NO TIME TO BE
COMPLACENT.



EVs MAKE CITIES SMARTER.



thank you

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