

# Creating the market for 21<sup>st</sup> Century Fuels

**21<sup>st</sup> Century Fuels**  
**Energy Institute, IP Week**

**18<sup>th</sup> February 2009**

**Greg Archer**  
**Director, Low Carbon Vehicle Partnership**

# Low Carbon Vehicle Partnership

**LowCVP 'Low Carbon Road Transport Challenge'**  
 Progress to reduce road transport CO2 emissions  
 is well on its way and getting even faster.  
 Learn more

**LowCVP**  
 THE UK'S FIRST CARBON PARTNERSHIP

**Fuel Economy**  
 Low Carbon Car  
 117 g/km  
**B**

4750	A
171-100	D
171-160	C
150-140	B
130-120	A
110-100	A
90-80	A
70-60	A
50-40	A
30-20	A
10-0	A

**Event outline**  
 Welcome to be announced at the LowCVP Annual Conference  
 18th July 2009  
 071 Conference Centre, Reading

**Accelerating the shift to low carbon vehicles and fuels**

**cenex**

**Zero-Emission Fuel-Cell Bus** H<sub>2</sub>O

**LowCVP**  
 THE UK'S FIRST CARBON PARTNERSHIP

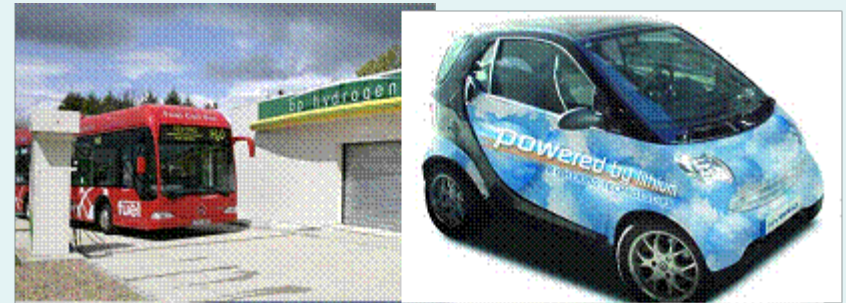
**Open doors for Transport**

**Accelerating a sustainable shift to low carbon vehicles and fuels in the UK**

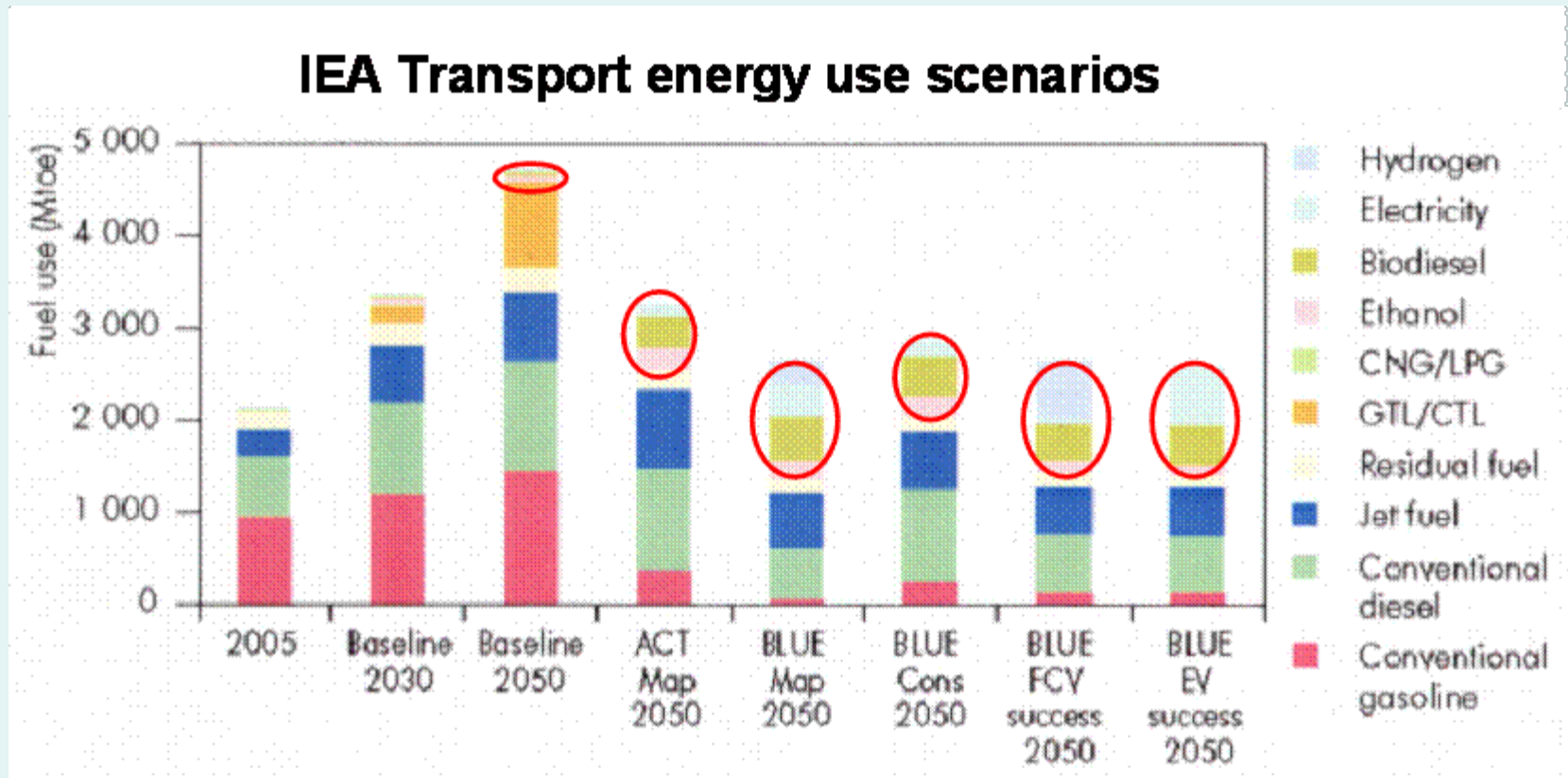
**Stimulating opportunities for UK businesses**

# Scope

- ❑ The scale of the challenge
- ❑ Alternative fuel scenarios
- ❑ Efficiency improvements to 2020
- ❑ Renewable fuel options
- ❑ Preparing the market
- ❑ Policy priorities and conclusions

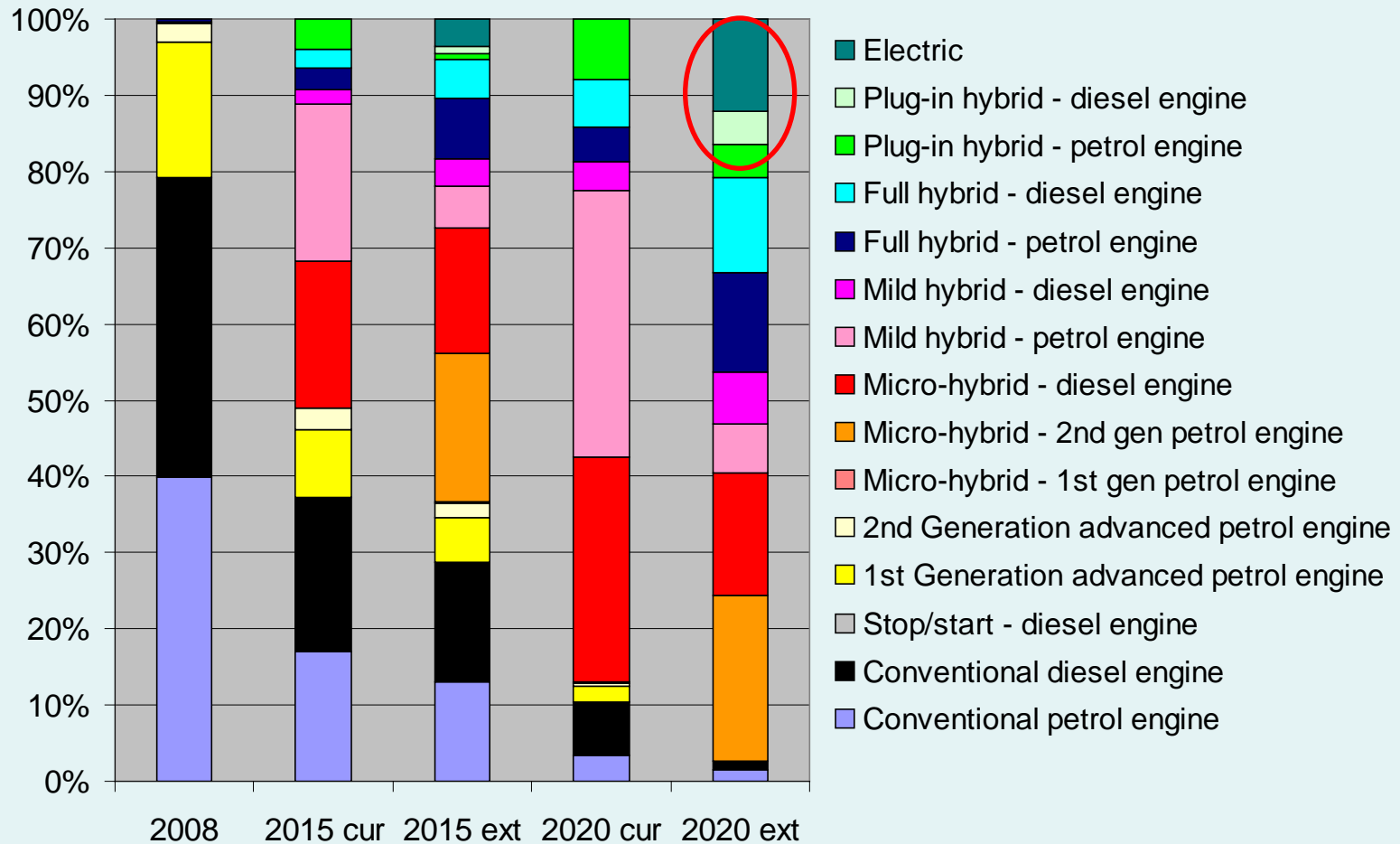


*BAU is for energy demand for transport to more than double by 2050 - supplied from increasing amounts of higher carbon intensity fossil fuels.*



# By 2020 there is limited penetration of renewably fuelled vehicles - even with Extended Ambition

**Car Technology Uptake Rates**  
(Current and Extended Ambition)

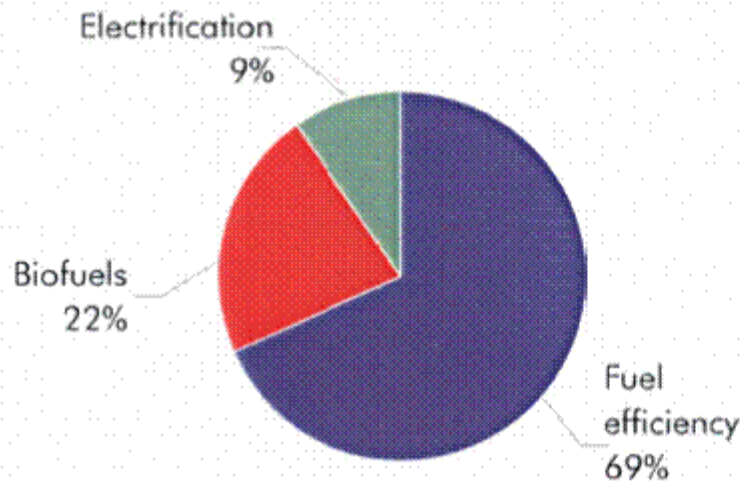




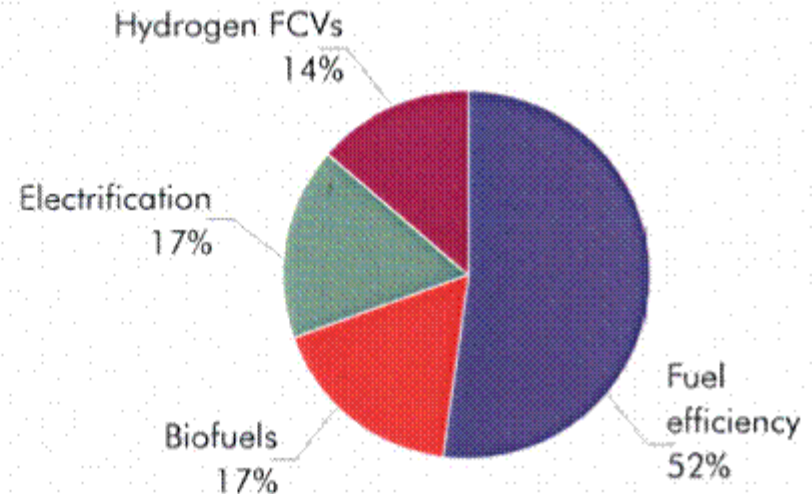
*Beyond 2020 further decarbonisation of transport will require significant penetration of renewable fuels*

## Emissions reductions in transportation 2050

ACT Map 8.2 Gt CO<sub>2</sub> reduction


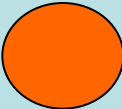
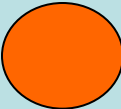
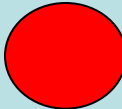

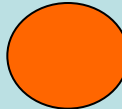

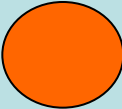
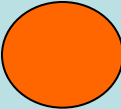
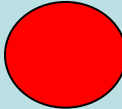
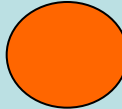
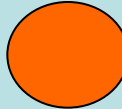


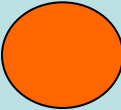
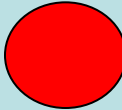
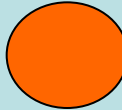
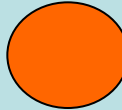


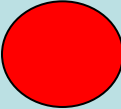
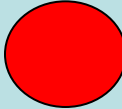
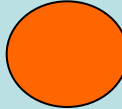
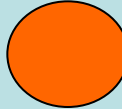


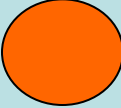
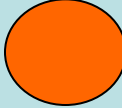

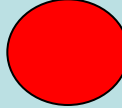
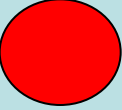
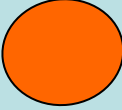
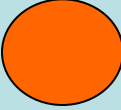





BLUE Map 12.5 Gt CO<sub>2</sub> reduction

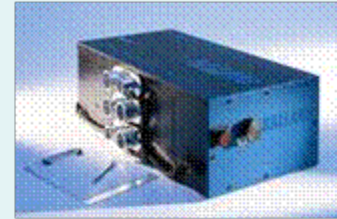
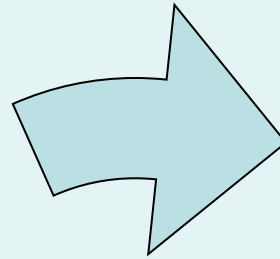
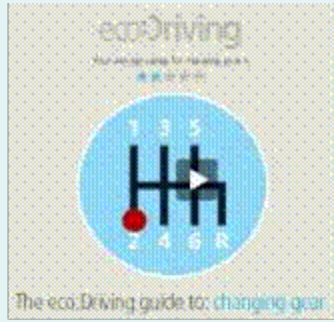


IEA 2008, Energy Technology Status and Outlook

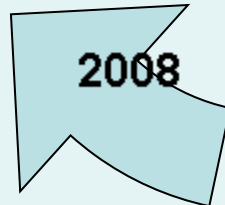
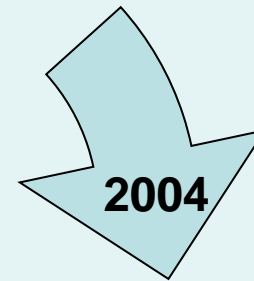
*To 2020 the challenge is to ready the market for renewable fuels – but which option?*

	<b>1<sup>st</sup> G Bio</b>	<b>2<sup>nd</sup> G Bio</b>	<b>H2-IC</b>	<b>H2-FCV</b>	<b>Bio- CH4</b>	<b>EV</b>
<b>Technology readiness</b>						
<b>Cost competitiveness</b>						
<b>Vehicle availability</b>						
<b>Infrastructure deployment</b>						
<b>Driver acceptability</b>						
<b>Sustainability</b>						

*Recent history shows there are no "silver bullets"*



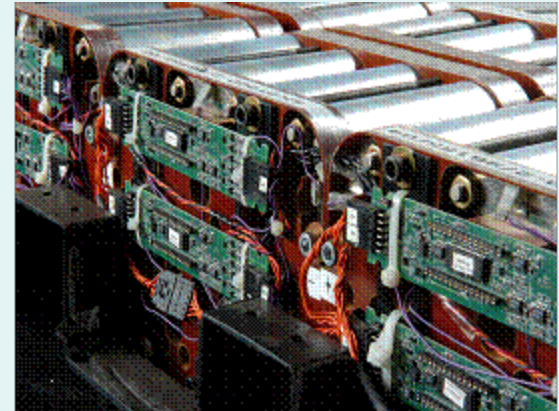
**Recent  
fashions in low  
carbon vehicle  
technologies**





# *What is needed to prepare the market?*

- ❑ Coordinate support throughout the innovation chain
- ❑ Address market failures & support niche applications
- ❑ Make long-term commitments to promising alternatives & mobilise key stakeholders
- ❑ Provide adequate incentives to reward low carbon
- ❑ Bridge the customer attitude-action gap
- ❑ Prepare for the rebound effect and changes to transport fuel tax revenues

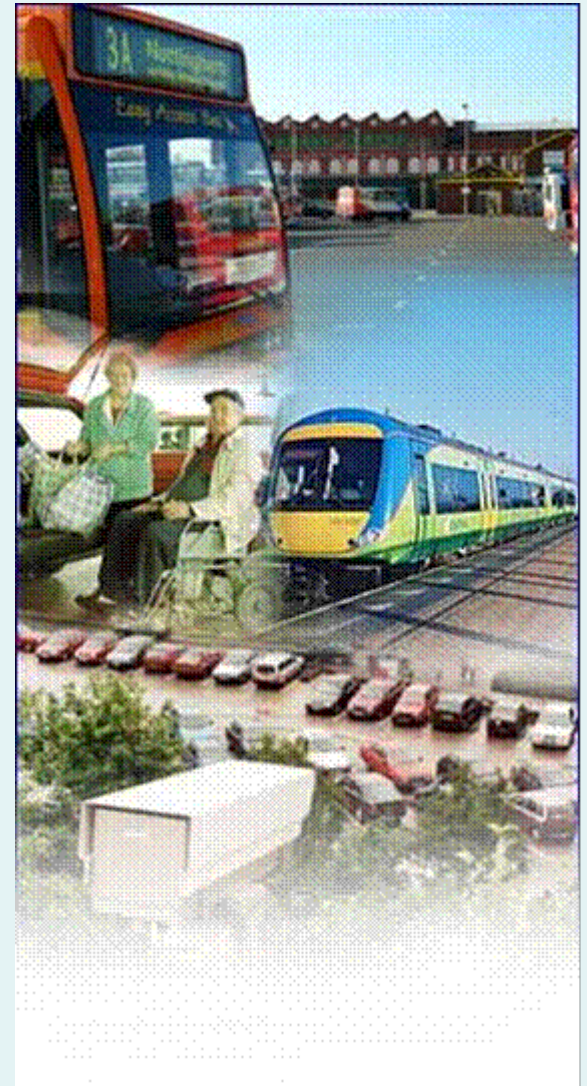


# *Fuel duty revenues*



# *Demand management and mode shift are also needed – in part to manage rebound effects*

- Improved vehicle efficiency
- Low carbon / alternative fuels
- Smarter driving Improved driver behaviour
- Reduced vehicle use
- Better freight distribution
- Modal shift
- Land-use planning
- Tele-working



## Conclusions

- ❑ Transport energy demand is projected to more than double by 2050
- ❑ A halving of transport emissions necessary by 2050 to avoid dangerous climate change but requires:
  - An achievable a 50%+ improvement in vehicle efficiency
  - 40-50% share of renewable fuels
- ❑ To 2020 emissions reductions will largely originate from efficiency improvements and 1<sup>st</sup> generation biofuels
  - Faster technology deployment requires stronger consumer incentives and regulation
- ❑ Sustained investment & initiatives are needed now to ready the market for a rapid growth in renewable transport fuels in the period 2020-40
- ❑ Technology is only part of the solution

# Any Questions?

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The Low Carbon Vehicle Partnership

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