

# Reducing global transport emissions

**Energy in Transition 'Reducing demand, increasing efficiency'  
Energy Institute conference,**

**Tuesday 8 July 2008 - Institute of Directors (IOD)**

**Greg Archer**

**Director, Low Carbon Vehicle Partnership**

# Low Carbon Vehicle Partnership

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

**Stimulating opportunities for UK businesses**



**LowCVP 'Low Carbon Road Transport Challenge'**

Proposals to reduce road transport CO<sub>2</sub> emissions in the UK to help mitigate climate change  
June 2006



**Fuel Economy**

<100 A		
101-120 B		
121-150 C		
151-180 D		
186-185 E		
186-225 F		
226+ G		

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

**Fuel cost (estimated) for 12,000 miles**  
£662

**VED for 12 months**  
£50

**Environmental Information**

Make/Model: Low Carbon Car	Engine Capacity (cc): 1399
Fuel Type: Diesel	Transmission: 5 speed manual

Drive cycle	Litres/100km	Mpg
Urban	5.4	52.3
Extra-urban	3.8	74.2
Combined	4.4	64.2

**Carbon dioxide emissions (g/km): 117 g/km**  
Important note: Some specifications of this make/model may have lower CO<sub>2</sub> emissions than this. Check with your dealer.

**LowCVP marketing challenge**

**CARS NOT CARBON**  
A competition to promote greener motoring marketing

**Event outline**

Winners to be announced at the LowCVP Annual Conference  
28th June 2007  
DTI Conference Centre, Westminster

Accelerating the shift to low carbon vehicles and fuels



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

**News** [View more](#)

**LowCVP Annual Conference** [View more](#)

**LowCVP Steering Group** [View more](#)

**LowCVP Members** [View more](#)

**LowCVP Events** [View more](#)

**LowCVP Resources** [View more](#)

**LowCVP Library** [View more](#)

**LowCVP Members' Area** [View more](#)

**LowCVP Contact** [View more](#)

**Sign up for our email bulletin**

**Search our news member directory**

**LowCVP Annual Conference 2007**  
The LowCVP Annual Conference 2007 will be held at the DTI Conference Centre, Westminster, London on 28th June 2007. The conference will focus on the latest developments in low carbon vehicles and fuels, and will feature a number of speakers, including the Prime Minister, the Secretary of State for Transport, and other senior government officials. The conference will also feature a number of exhibits, and a number of networking opportunities.

**LowCVP Steering Group**  
The LowCVP Steering Group is the body responsible for the overall management of the partnership. It is made up of representatives from the Department for Transport, the LowCVP members, and other stakeholders. The Steering Group meets regularly to discuss the progress of the partnership, and to make decisions on key issues.

**LowCVP Members**  
The LowCVP membership is open to any UK business that is involved in the production, distribution, or use of low carbon vehicles and fuels. There are a number of different membership categories, and each category has its own benefits. For more information on how to join the LowCVP, please visit our website.

**LowCVP Events**  
The LowCVP organizes a number of events throughout the year, including conferences, seminars, and workshops. These events provide an opportunity for members to network, share their experiences, and learn about the latest developments in low carbon vehicles and fuels. For more information on our events, please visit our website.

**LowCVP Resources**  
The LowCVP has a number of resources available to its members, including a website, a newsletter, and a library of publications. These resources provide members with the information and support they need to succeed in the low carbon vehicle and fuel market. For more information on our resources, please visit our website.

**LowCVP Members' Area**  
The LowCVP Members' Area is a secure online platform where members can access a range of services, including a member directory, a news and events calendar, and a forum. For more information on our Members' Area, please visit our website.

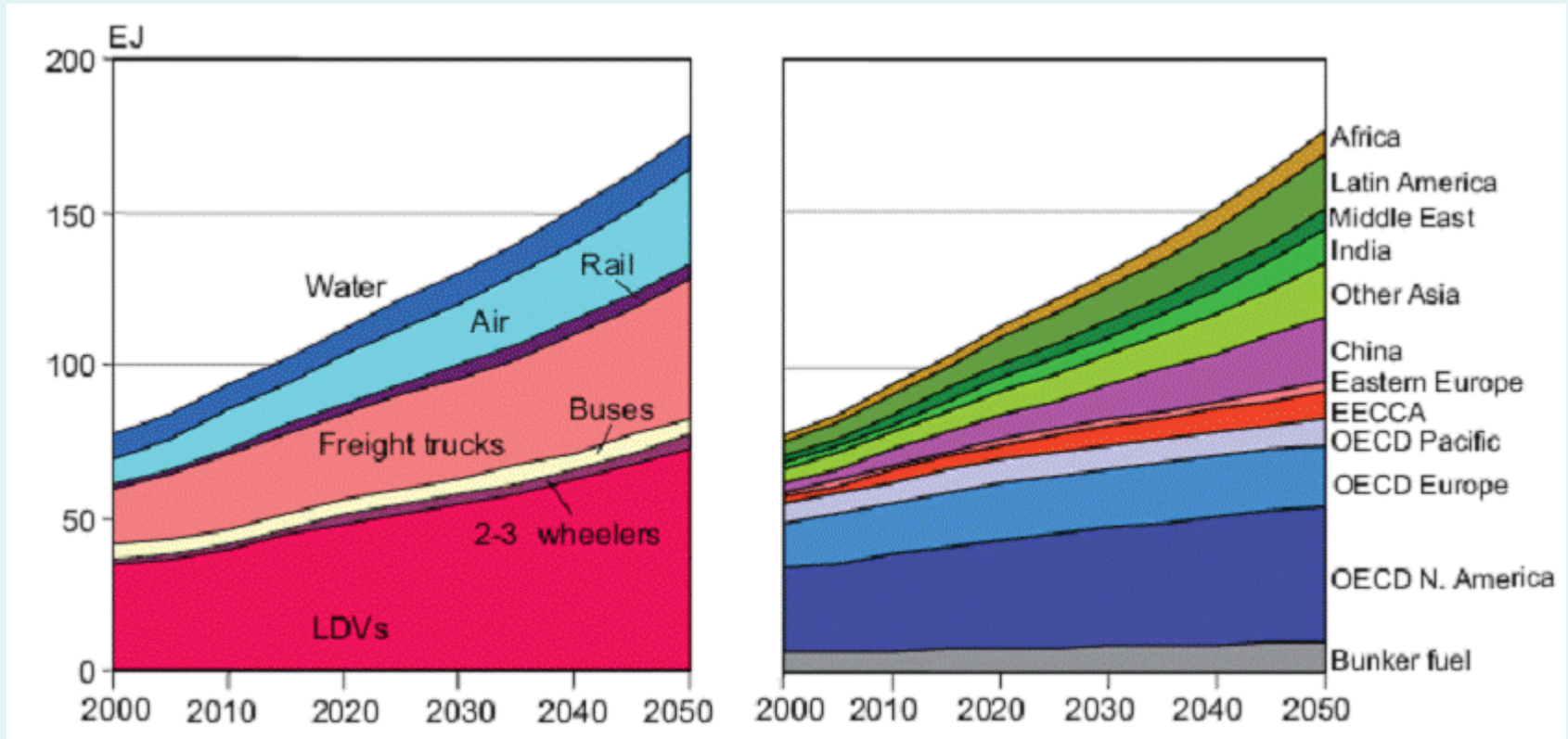
**LowCVP Contact**  
If you have any questions or queries, please contact our customer service team. You can reach us by phone, email, or through our website. For more information on how to contact us, please visit our website.

## Scope

- ❑ The scale of the challenge
- ❑ The technology options for road transport
  - Vehicle efficiency
  - Electric vehicles
  - Hydrogen
  - Biofuels
- ❑ Freight
- ❑ Aviation
- ❑ Conclusions and crystal balls



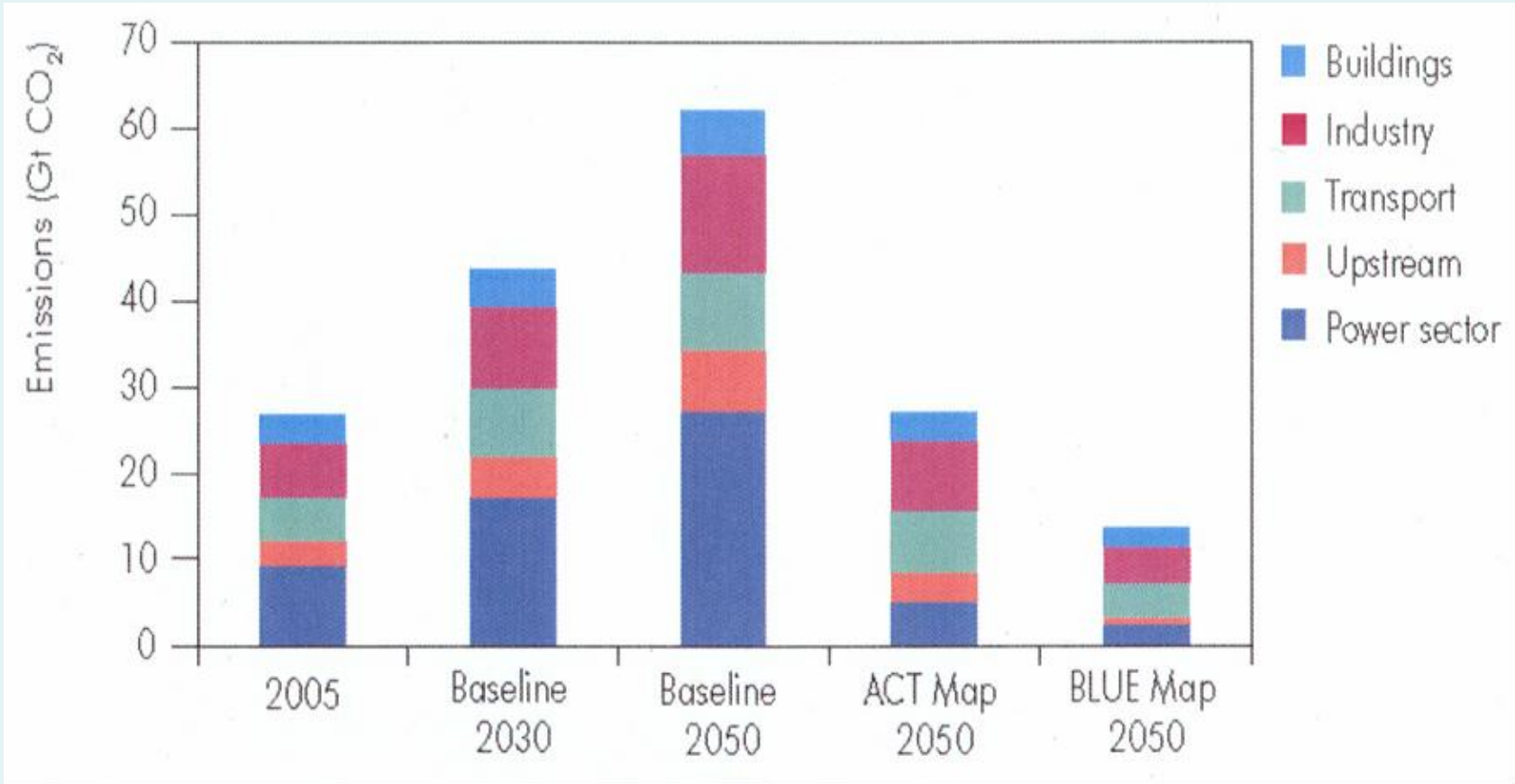
*Energy demand for transport is projected to more than double by 2050*



IEA 2008, citing WBCSD 2004

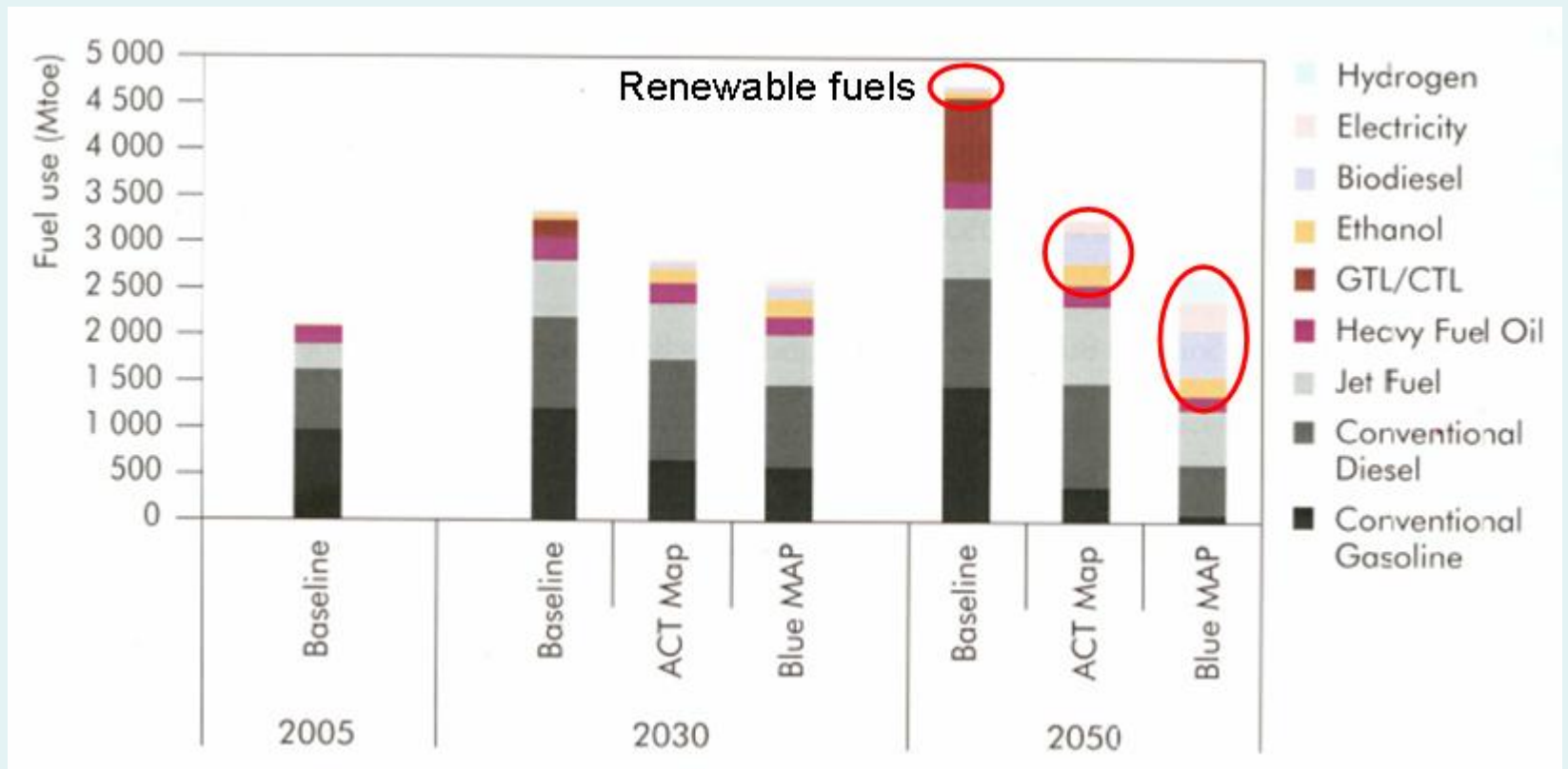
*IEA have produced technology scenarios - only the Blue scenario offer the potential to avoid dangerous climate change*

*IEA Global CO2 Scenarios*

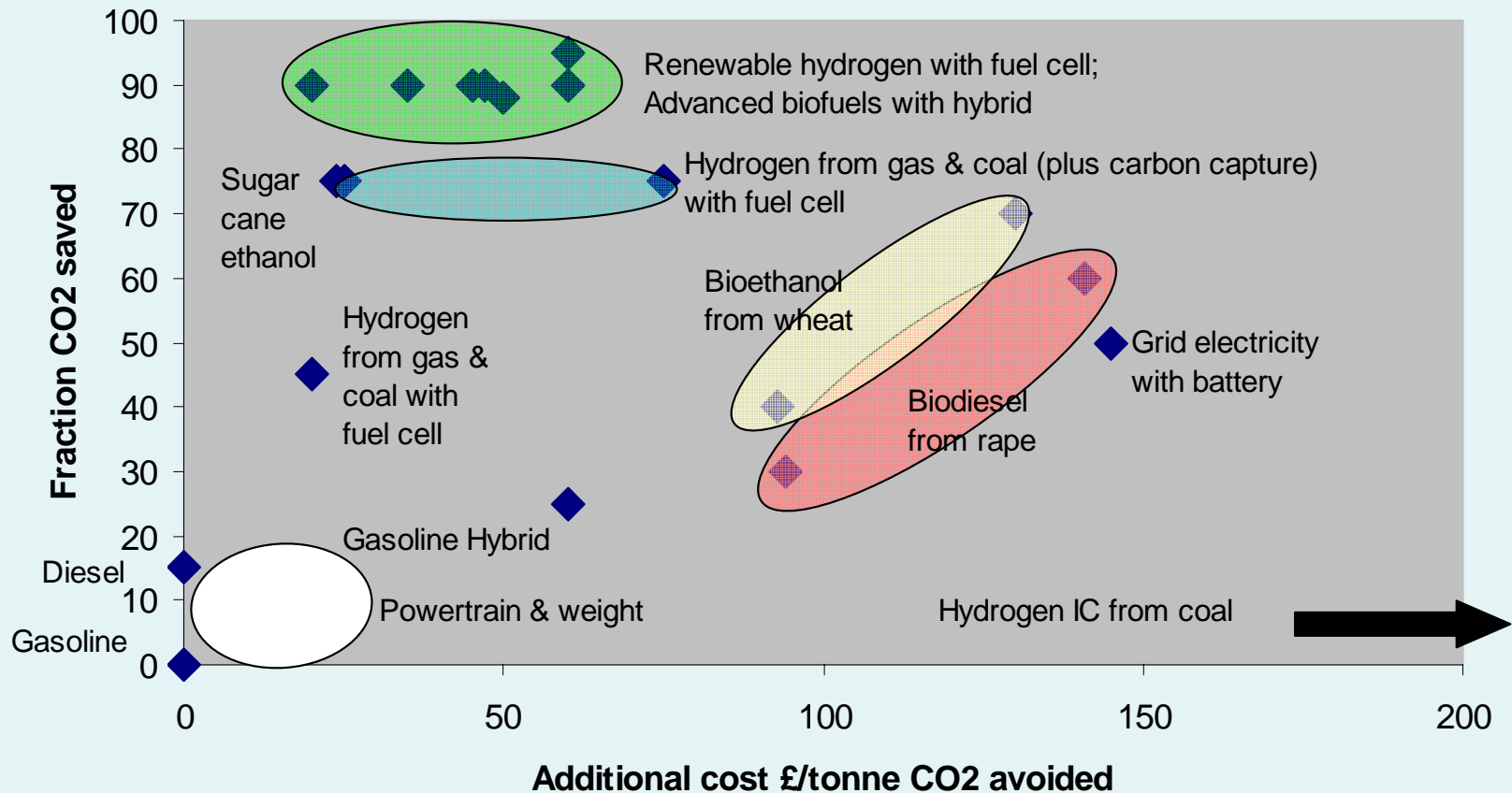


*BAU is for increasing amounts of higher carbon intensity fossil fuels for transport*

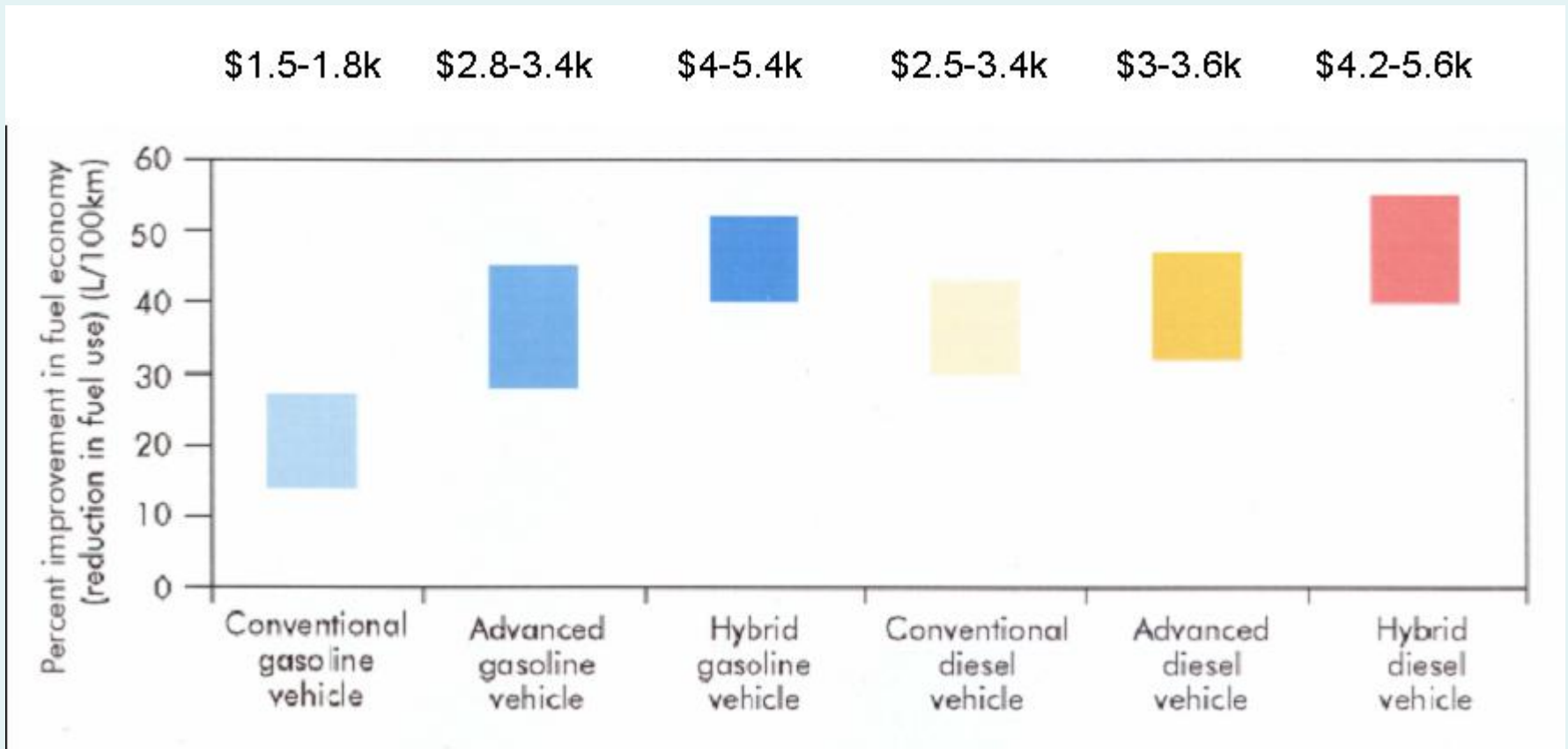
### Energy use by year and scenario



# Wide range of CO<sub>2</sub> savings & cost-effectiveness for alternative fuels and vehicle technology



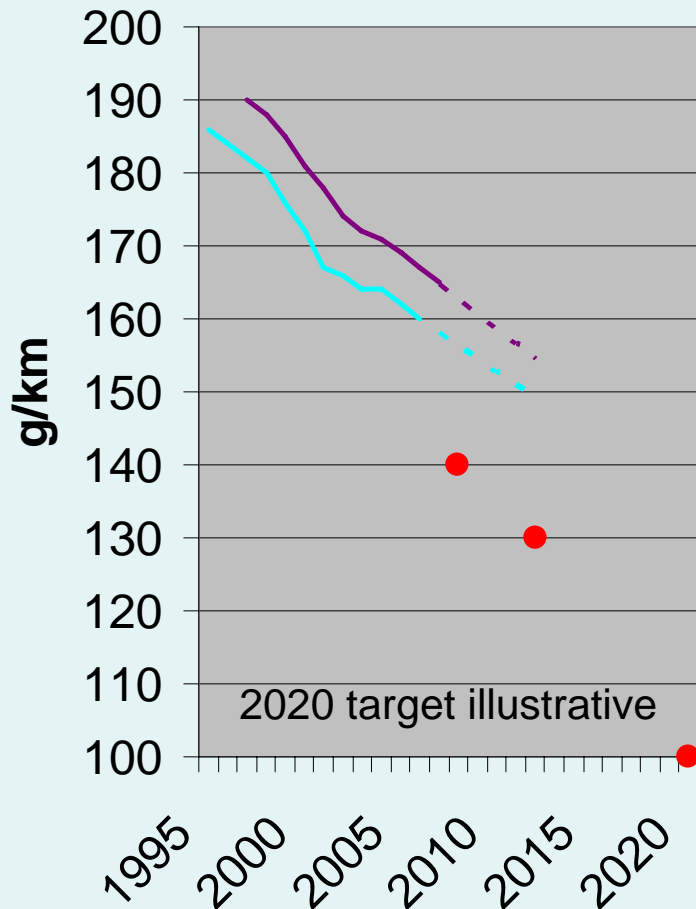
*Over 50% fuel economy savings are possible using existing technology - at a cost*





# Technology deployment remains a challenge

## EU and UK new car CO2 emissions



Current new car emissions and the progress to reduce these since 1990 is highly variable:

	Change	g/km
- EU	c -12%	160
- Japan	- 19%	145
- US	+ 4.5%	250
- Australia	-1.0%	-
- China	-	190

Progress constrained by:

- Increasing vehicle size
- Increasing vehicle power
- Increased equipment specification
- Low consumer demand
- Low oil prices
- Weak / ineffective legislation / voluntary agreements
- Low margins on small vehicles
- Higher capital costs

## *Consumer interest is tipping in favour of low carbon cars*



❑ Significant tips in consumer behaviour can result from social & environmental concerns

❑ For low carbon vehicles a tipping points is being reached driven by:

- High fuel prices
- Regulation in Europe & elsewhere  
Increased choice of vehicles Policy incentives
- Brand differentiation
- Media attention & public concern
- Increased frequency of severe weather events / evidence of climate change

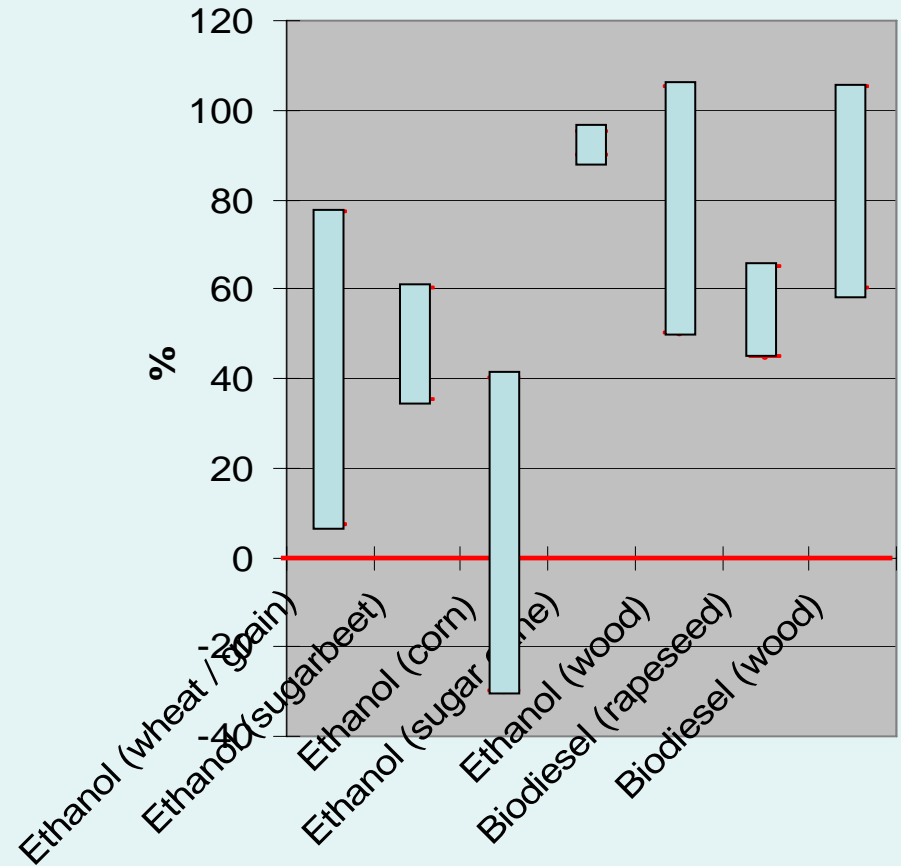
*There is considerable renewed interest in electric vehicles following advances in lithium-ion battery technology and ultra capacitors*



*There are good and bad biofuels that assurance schemes can distinguish between*



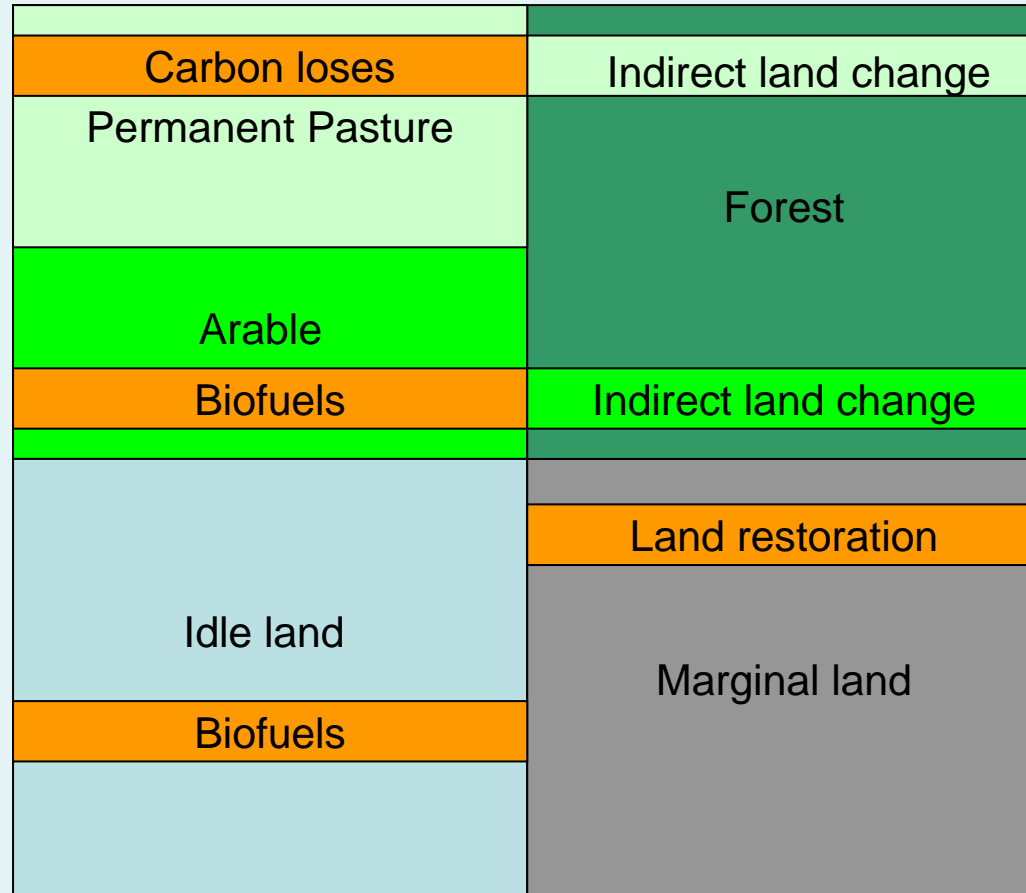
**% WTW GHG savings compared to petrol or diesel**



Derived from Concawe 2006

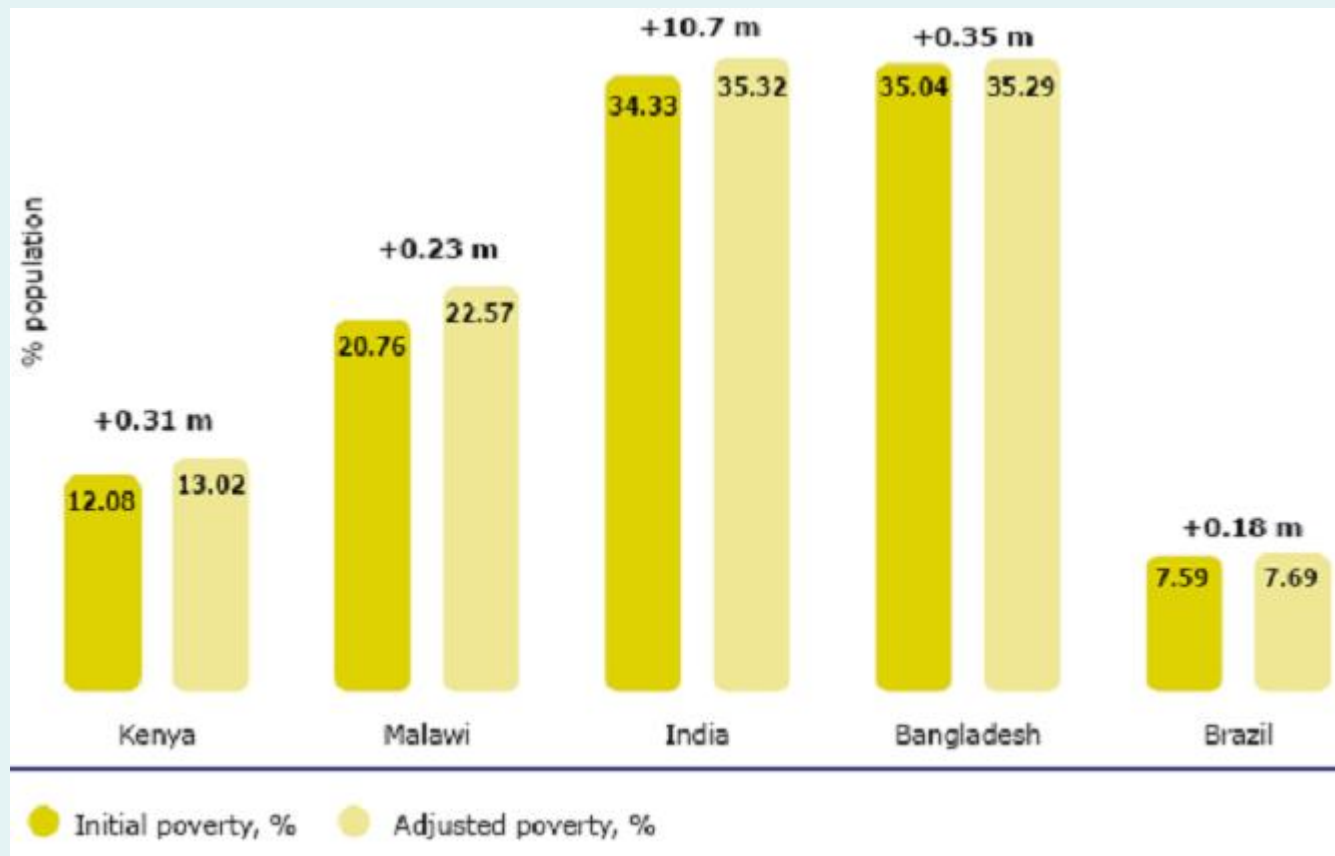
*Production of biofuel feedstock can displace existing agricultural production causing land use change and GHG-emissions. Production on idle or marginal land has lower risks*

Biofuels



*Biofuels have a sharp short-term effect on oil seed prices and a smaller long term effect on a range of food commodities that increase poverty*

### Impact of projected price rises on poverty in selected developing countries



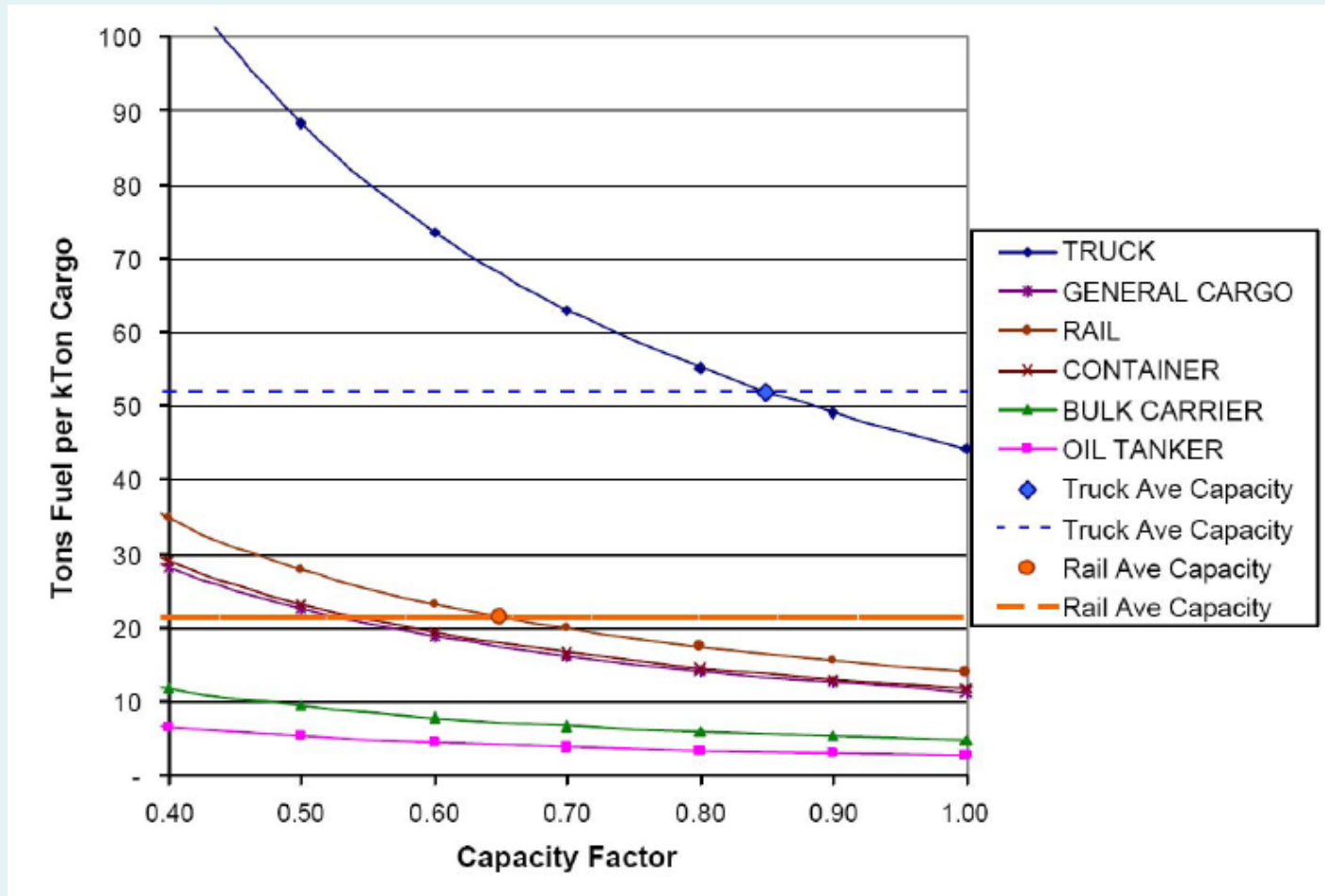
# *Hydrogen fuel cell vehicles offer significant but still distant prospects*

## **Key challenges:**

- Higher costs per unit of energy
  - Adequate price of carbon mitigation
- Supply of renewable hydrogen
- Development of refuelling infrastructure and practical storage
  - Chicken and egg supply problem
- Supply of a range of affordable vehicles
  - Fuel cell costs, durability and reliability
- Improving public acceptability
- Alternative LC-options
- RD&D funding



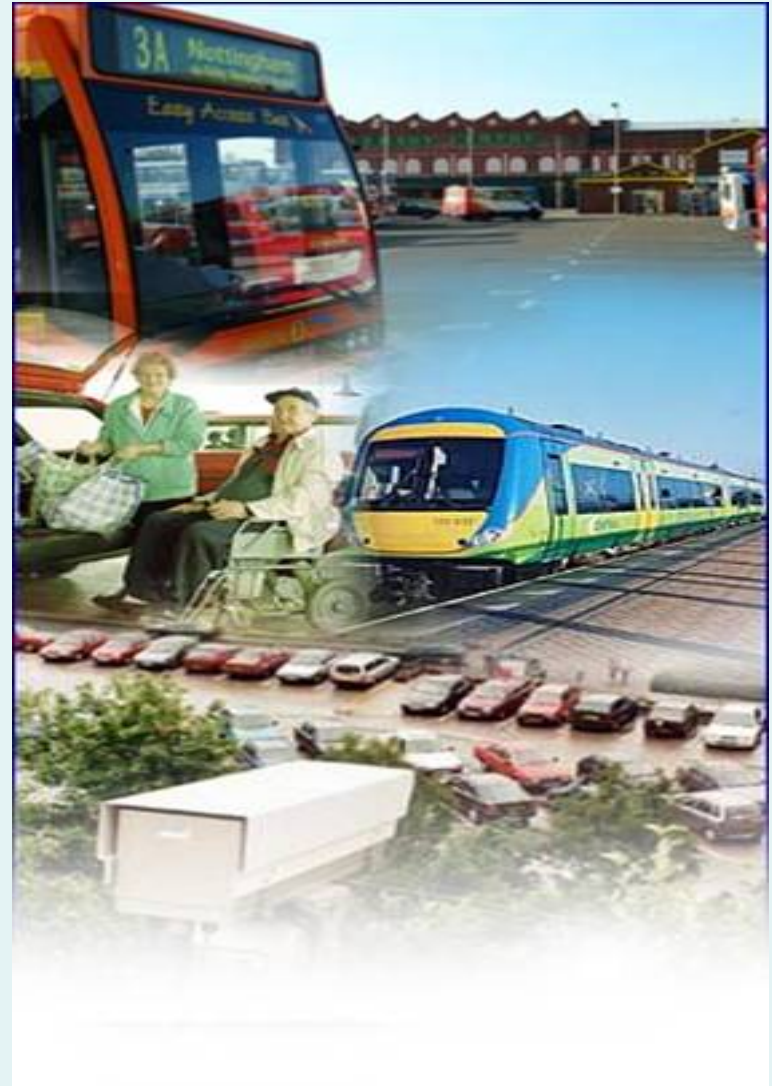
*Road haulage is the much more carbon intensive than rail – but could be significantly more efficient*





# *Vehicle technology is only part of the solution*

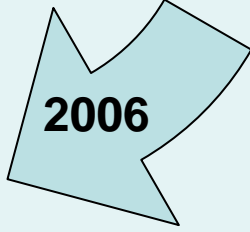
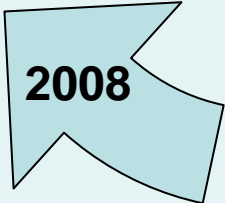
- Improved vehicle efficiency
- Low carbon / alternative fuels
- Smarter driving Improved driver behaviour
- Reduced vehicle use
- Better freight distribution
- Modal shift
- Land-use planning
- Tele-working



# *Aviation growth is outstripping efficiency improvements*



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



## *Future trends?*



Small, light-weight,  
efficient cheap vehicles  
e.g., TATA Nano



Diesel hybrid  
e.g., Citroen C4



Efficient family cars  
e.g., Ford Econetic



Electric vans and gas  
trucks  
e.g., Modec



An end to predict and  
provide for aviation?



A European network of  
HST – ending at St  
Pancras International?

## Conclusions

- ❑ BAU is for transport energy demand to more than double by 2050
- ❑ Faster technology deployment requires stronger consumer incentives and regulation
- ❑ A halving of transport emissions is possible but hugely challenging requiring
  - An achievable a 50%+ improvement in vehicle efficiency
  - Successful introduction of advanced biofuels avoiding indirect land use change
  - Significant market share for electric / hybrid vehicles and possibly FCVs
- ❑ Near-term trends are likely to be for:
  - Small efficient cheap vehicles in non-OECD countries
  - Increased demand for fuel economy in OECD countries with higher penetration of hybrids
  - Further development of public transport infrastructure
- ❑ Technology is only part of the solution – demand management and building public transport infrastructure to encourage modal shift will be key

# Any Questions?

**The Low Carbon Vehicle  
Partnership**

**[secretariat@lowcvp.org.uk](mailto:secretariat@lowcvp.org.uk)**

**[www.lowcvp.org.uk](http://www.lowcvp.org.uk)**



*Questions – on balance, do you agree or disagree with the statements -*

- “Technology can deliver most of the required reductions in GHG emissions from transport (avoiding the need for significant demand management)?”
  
- “There will be a significant role for biofuels in a low carbon transport future?”
  
- “By 2050 a majority of cars will be powered by hydrogen using fuel cells?”

*The growth in biofuels should be slowed until adequate controls to avoid displacement and food price increases are established*

