Look – Signal - Manoeuvre
The shift to low carbon cars

Clean Moves - Changing Mobility Today

Expo Hannover

21st April 2009

Greg Archer

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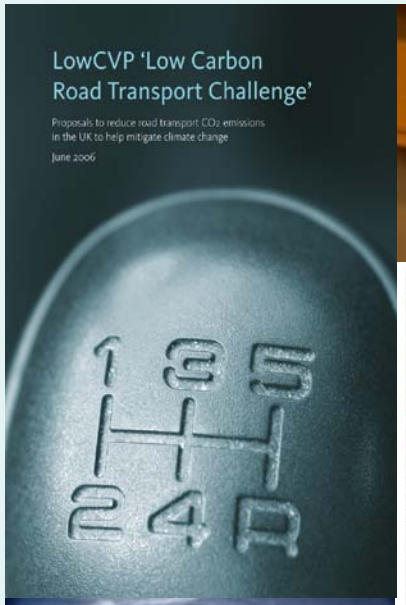
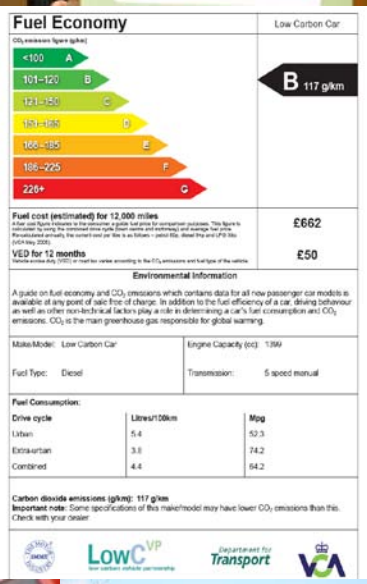
Accelerating a sustainable shift to low carbon vehicles and fuels in the UK

Stimulating opportunities for UK businesses





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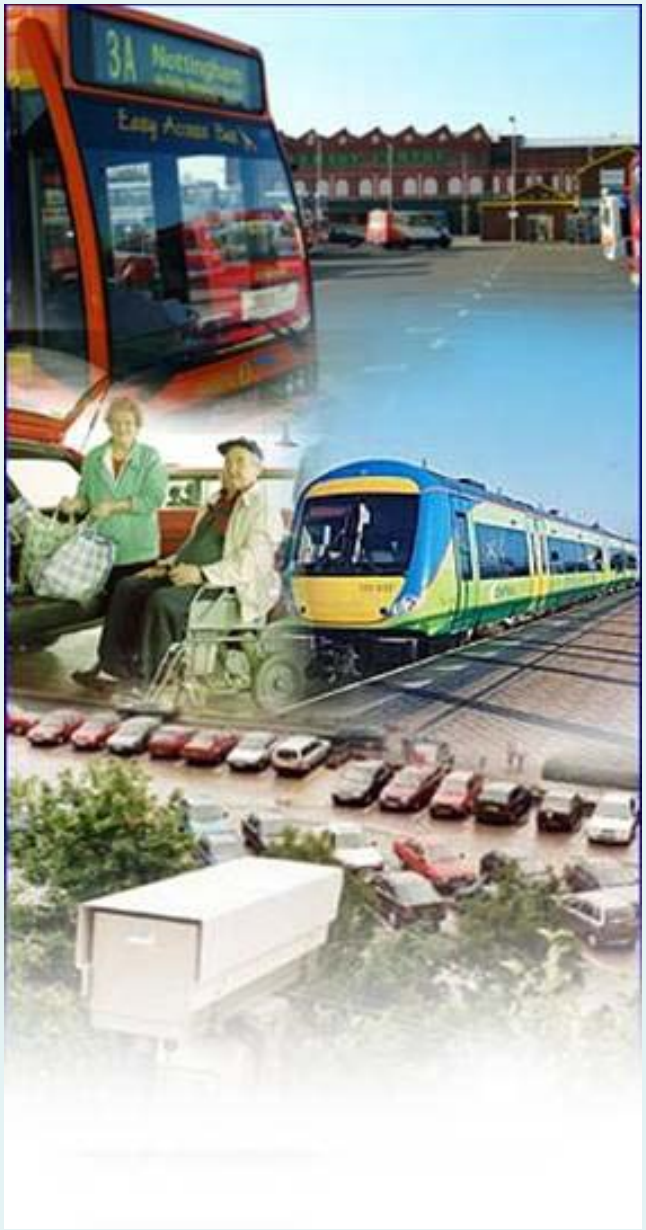
Outline

- The scale of the challenge
- Progress and challenges in improving vehicle efficiency
- Accelerating technology deployment
- Market leaders
- Beyond 2020 – the need for new energy sources
- What else is needed?



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“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level“

IPCC 2007

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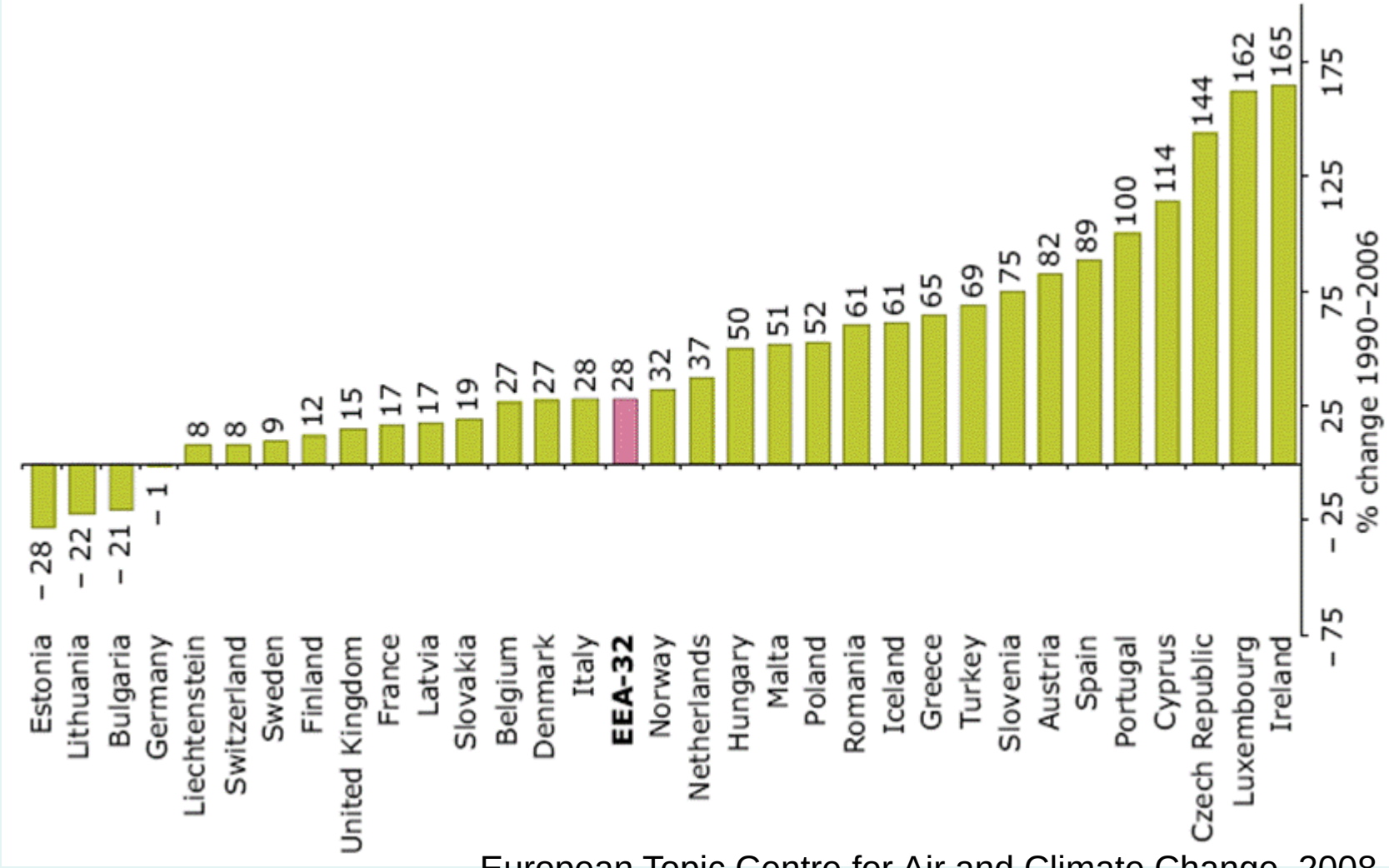
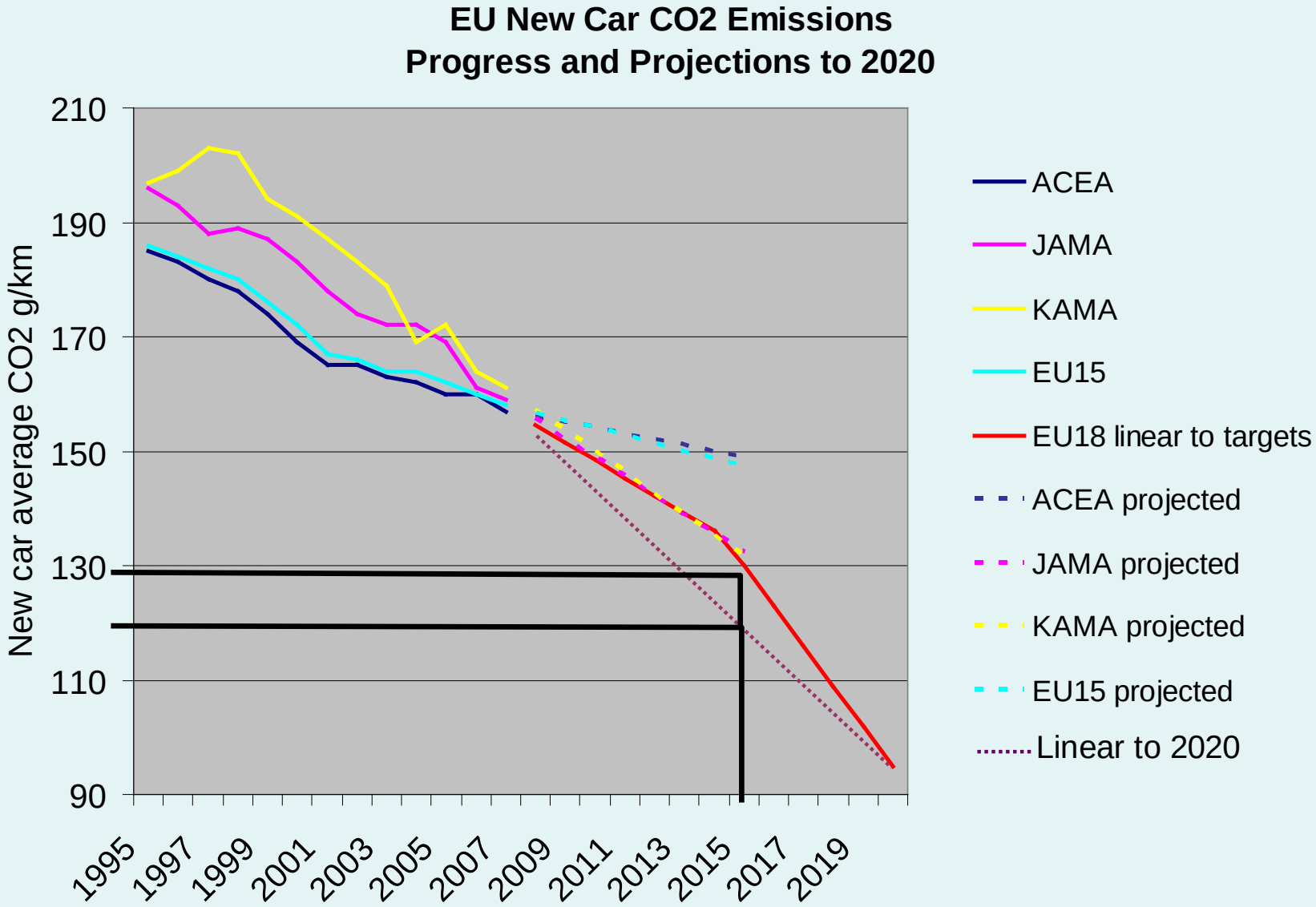
EU transport emissions have increased by 28% since 1990 – vehicles are the dominant source

Country trends in European transport emissions 1990- 2006

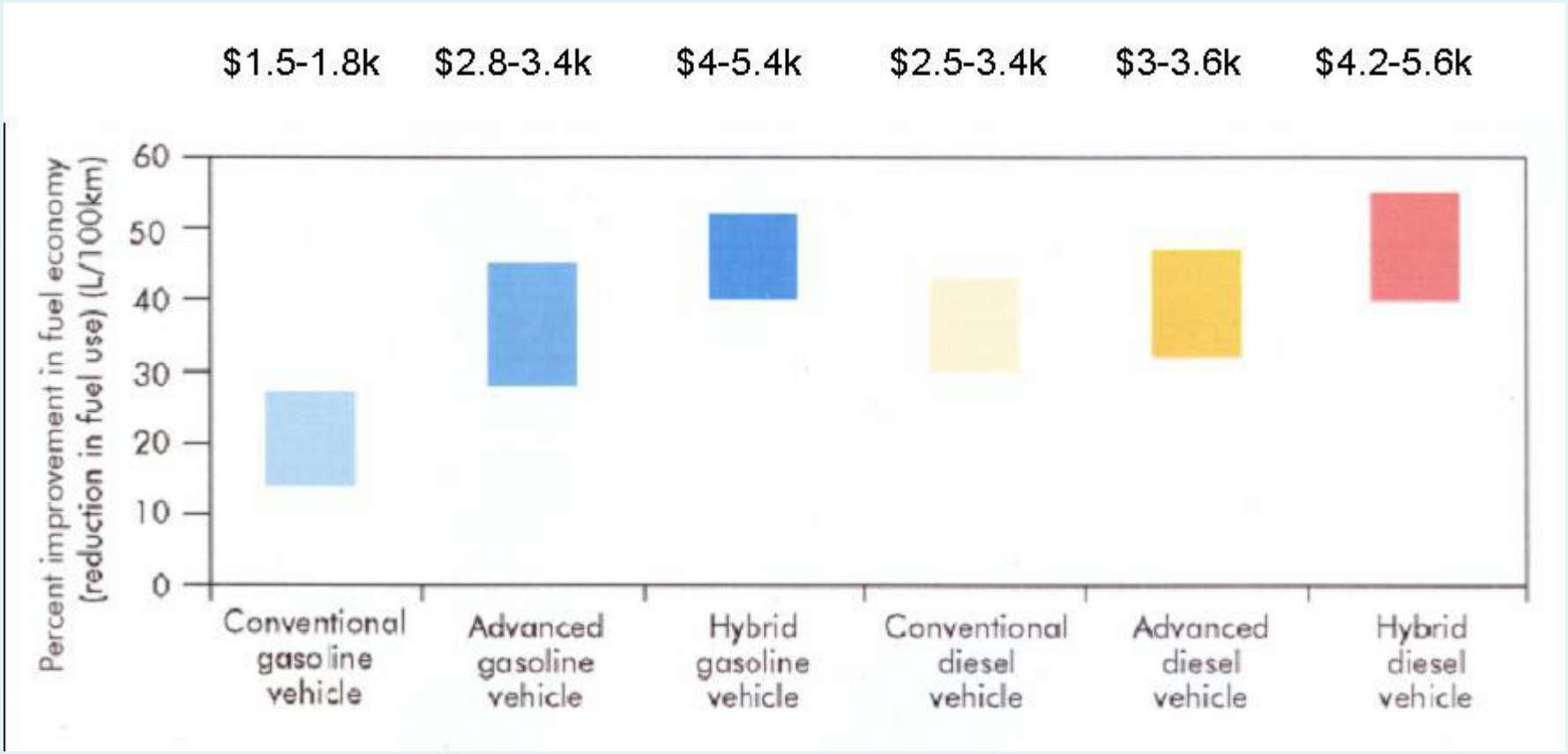


European Topic Centre for Air and Climate Change, 2008

New car CO2 emissions are falling – But the rate of progress must be accelerated to achieve targets



Existing and near market technologies can achieve 50% fuel economy savings by 2030 (at a cost)



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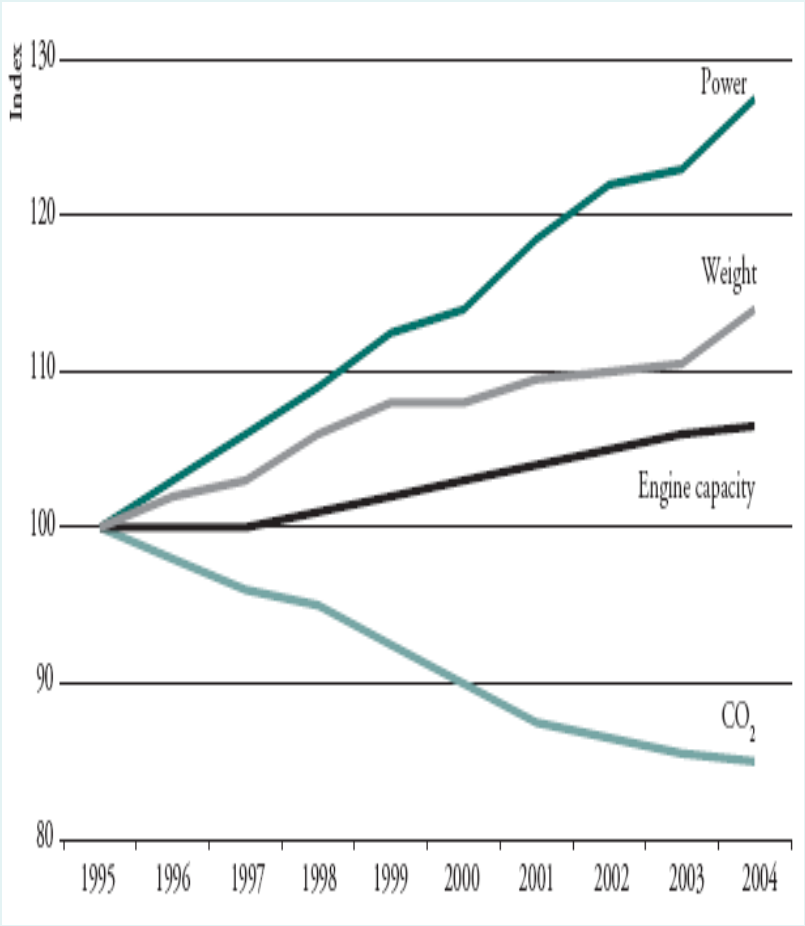
IEA 2008, Energy Technology Perspectives

Accelerated progress is dependant upon 4 inter-related factors:

- Reversing unsustainable trends in vehicle size, weight and power
- Consistently high oil prices (or value of C)
- Industry-wide action
  - legislation
- Increased consumer demand
  - Improved information
  - Increased incentives, appeal and model availability



King Review 2008 based upon ACEA data

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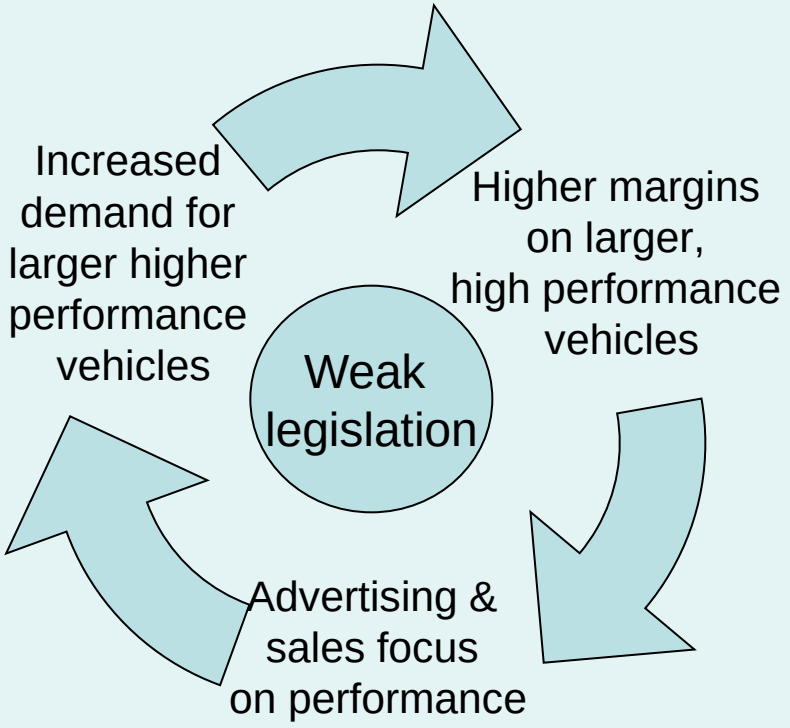
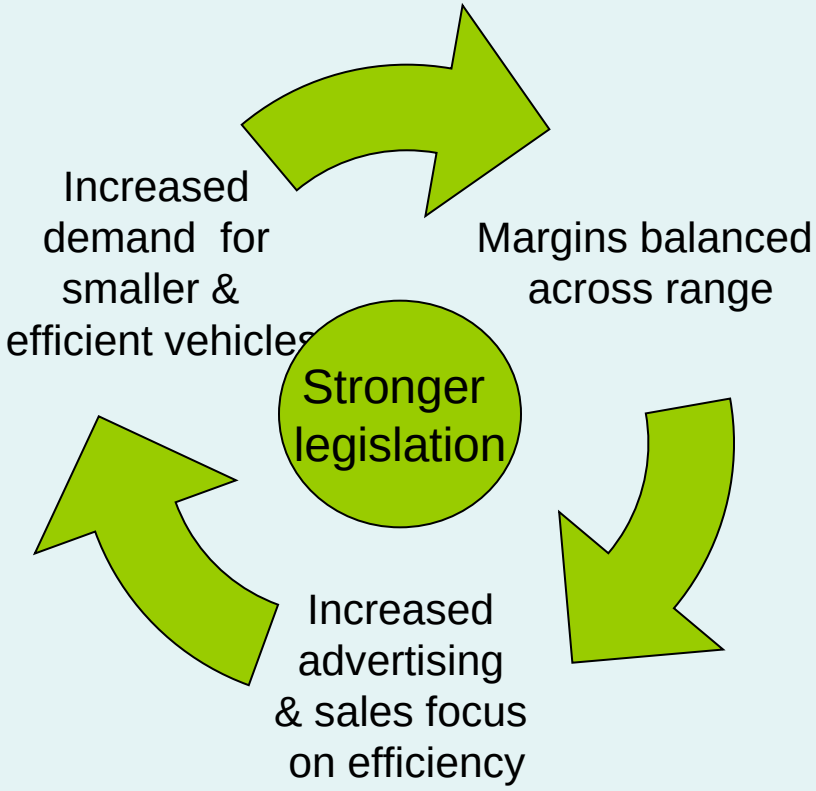
Legislation and Manufacturers can create demand for efficient vehicles – and some are doing this

Unsustainable (past) behaviour



Sustainable (emerging) behaviour



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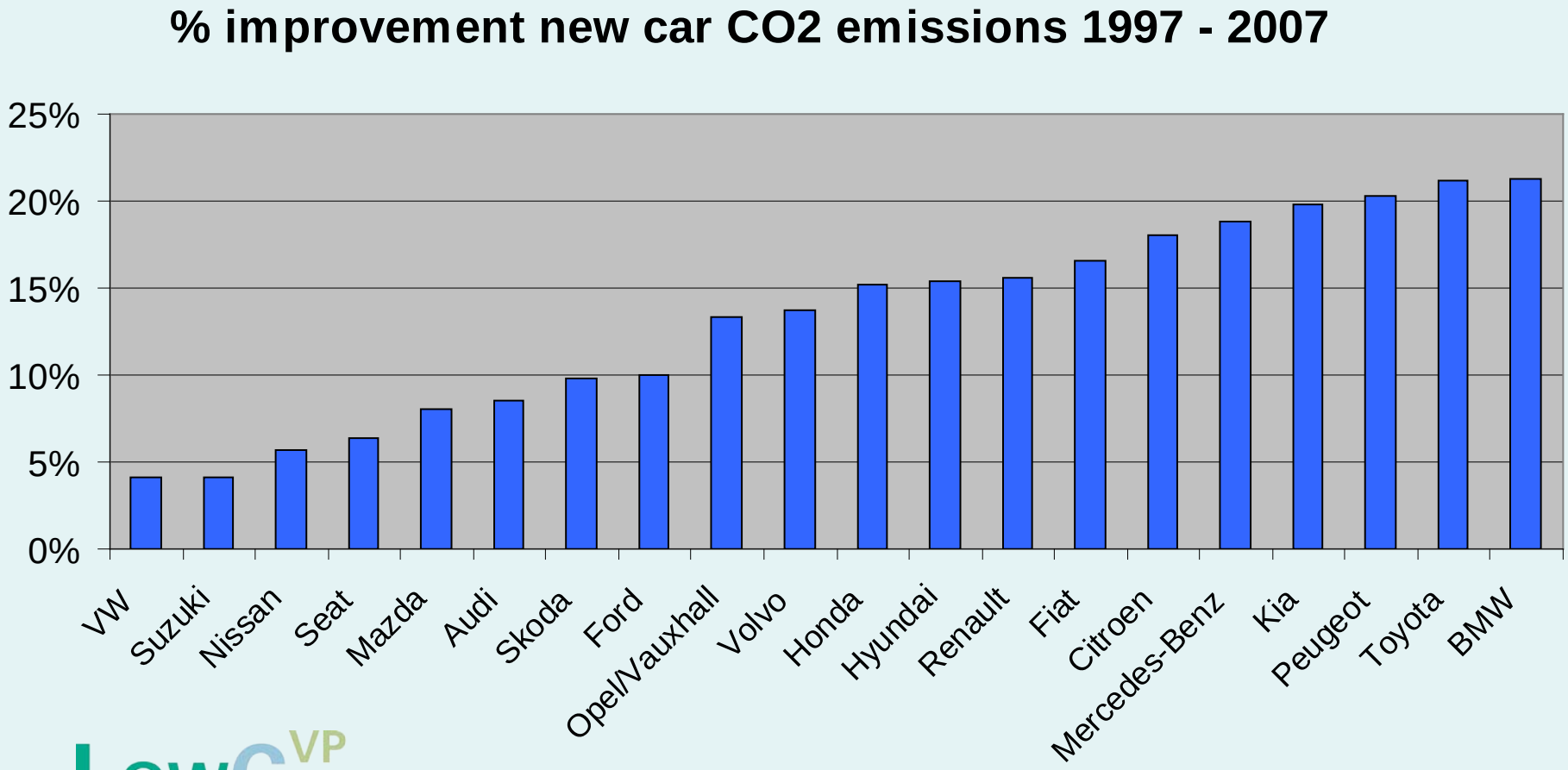
Rates of progress reducing CO2 emissions vary widely between brands



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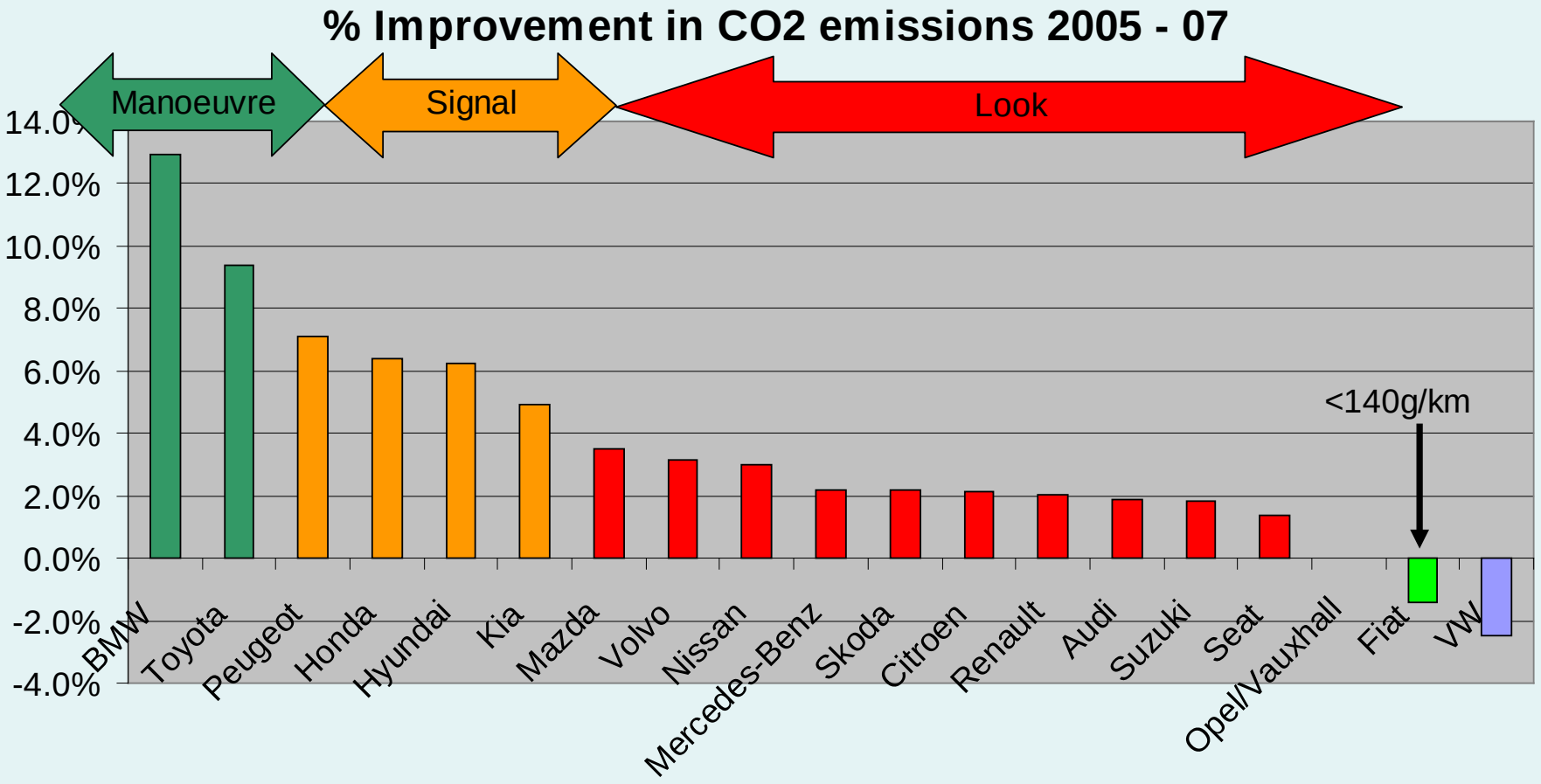
Based upon T&E 2007 & 2008

Recent progress in reducing CO2 emissions highlights the differential performance of brands



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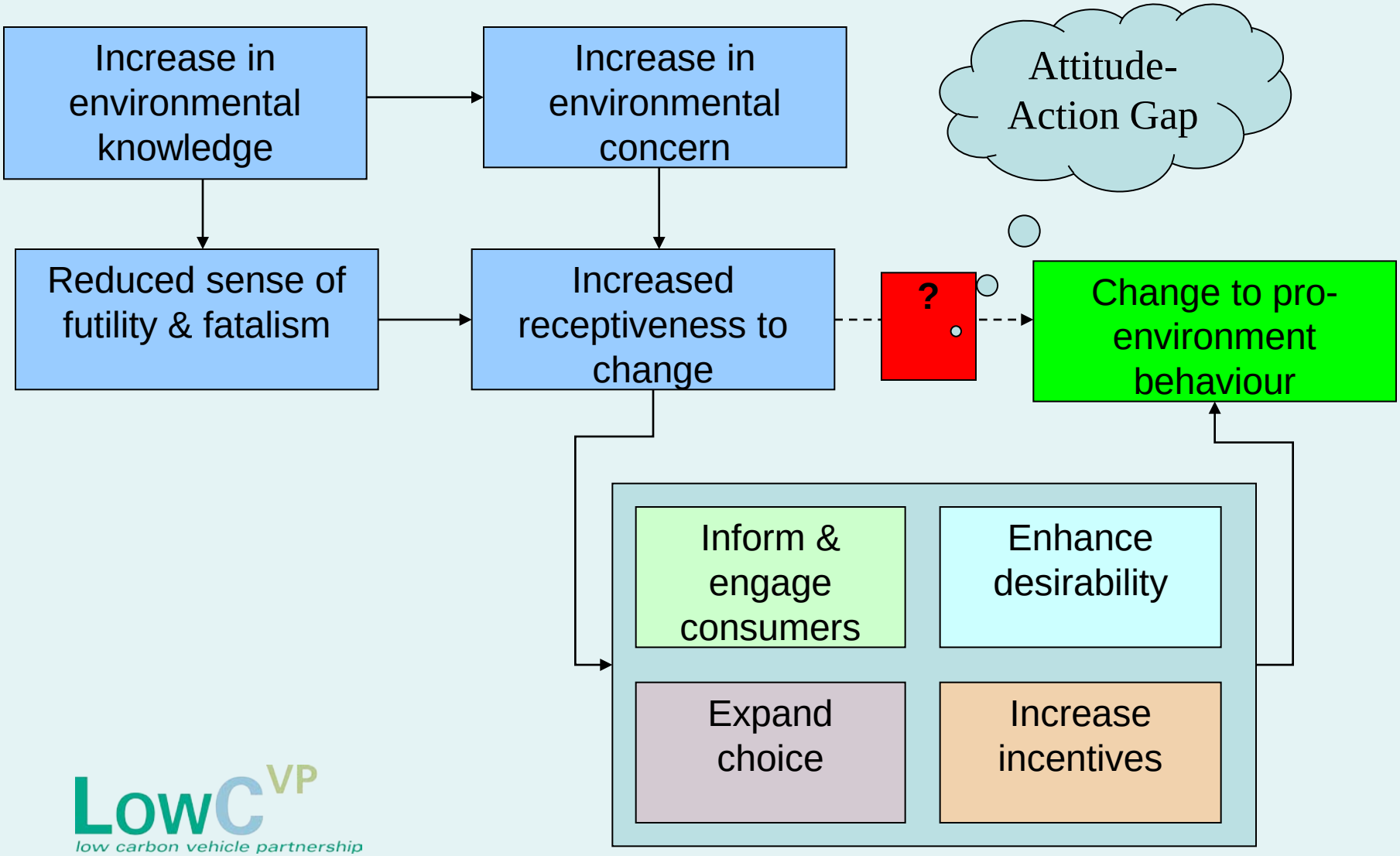
Increasing consumer demand for environmentally friendly vehicles requires bridging the attitude-action gap



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Adapted from Walton 2004

Market leaders are stimulating demand for low carbon technologies

Market leaders	Observers
❑ Low carbon technologies increasing adopted across the range	❑ Low carbon niche brands (e.g., Econetic) with limited range of vehicles
❑ Low carbon models in all sectors of the market (in which they operate)	❑ A low carbon model in some market sectors
❑ Several best in class models	❑ One or no best in class model
❑ Advertising promotes environmental performance & efficiency as desirable features	❑ Advertising claims environmental responsibility
❑ Sustainability increasing embedded in business practices	❑ Brand promotes its environmental credentials

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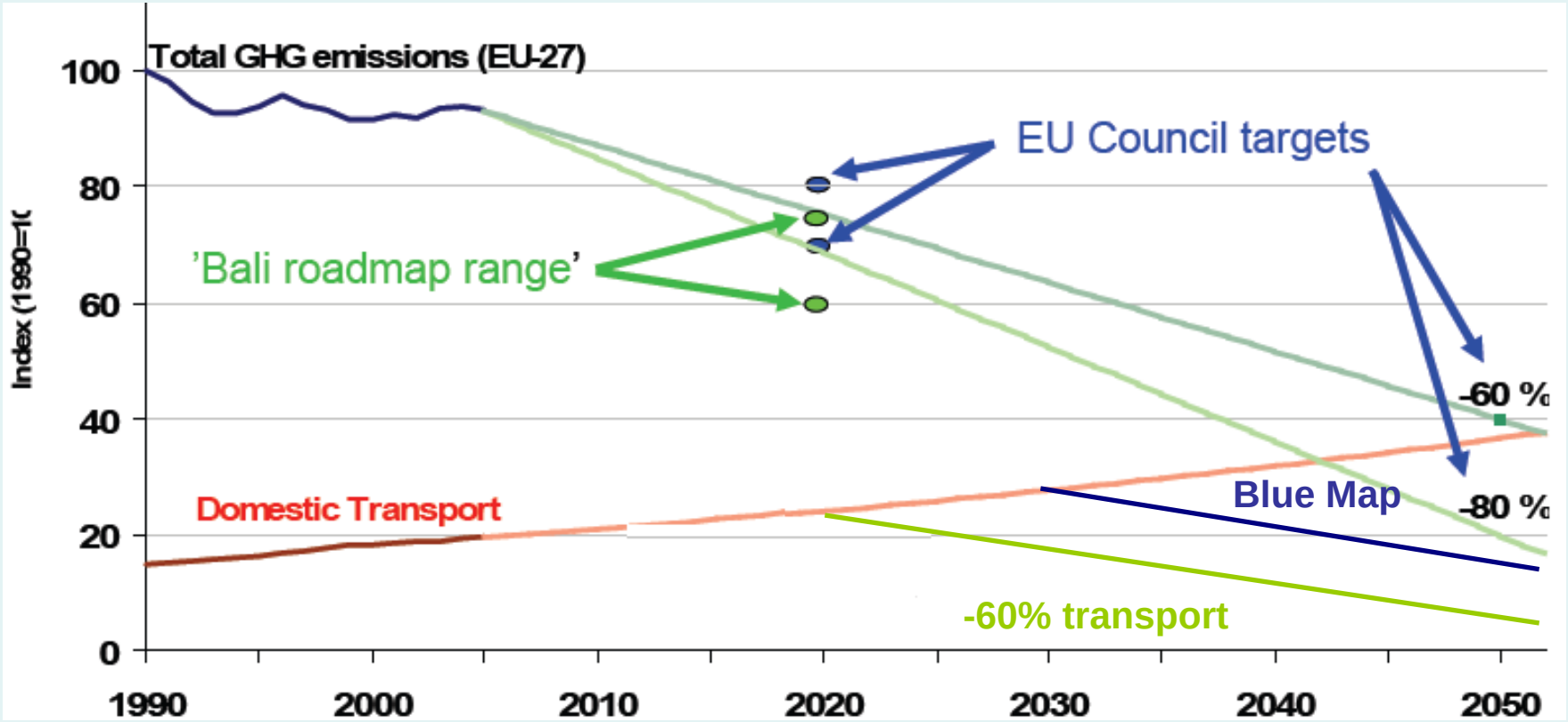
EU domestic transport emissions will consume the CO2 budget on current trends –

Even ambitious IEA Blue Map scenarios will not leave sufficient headroom for other sectors



Adapted from EEA 2009 & TNO 2009

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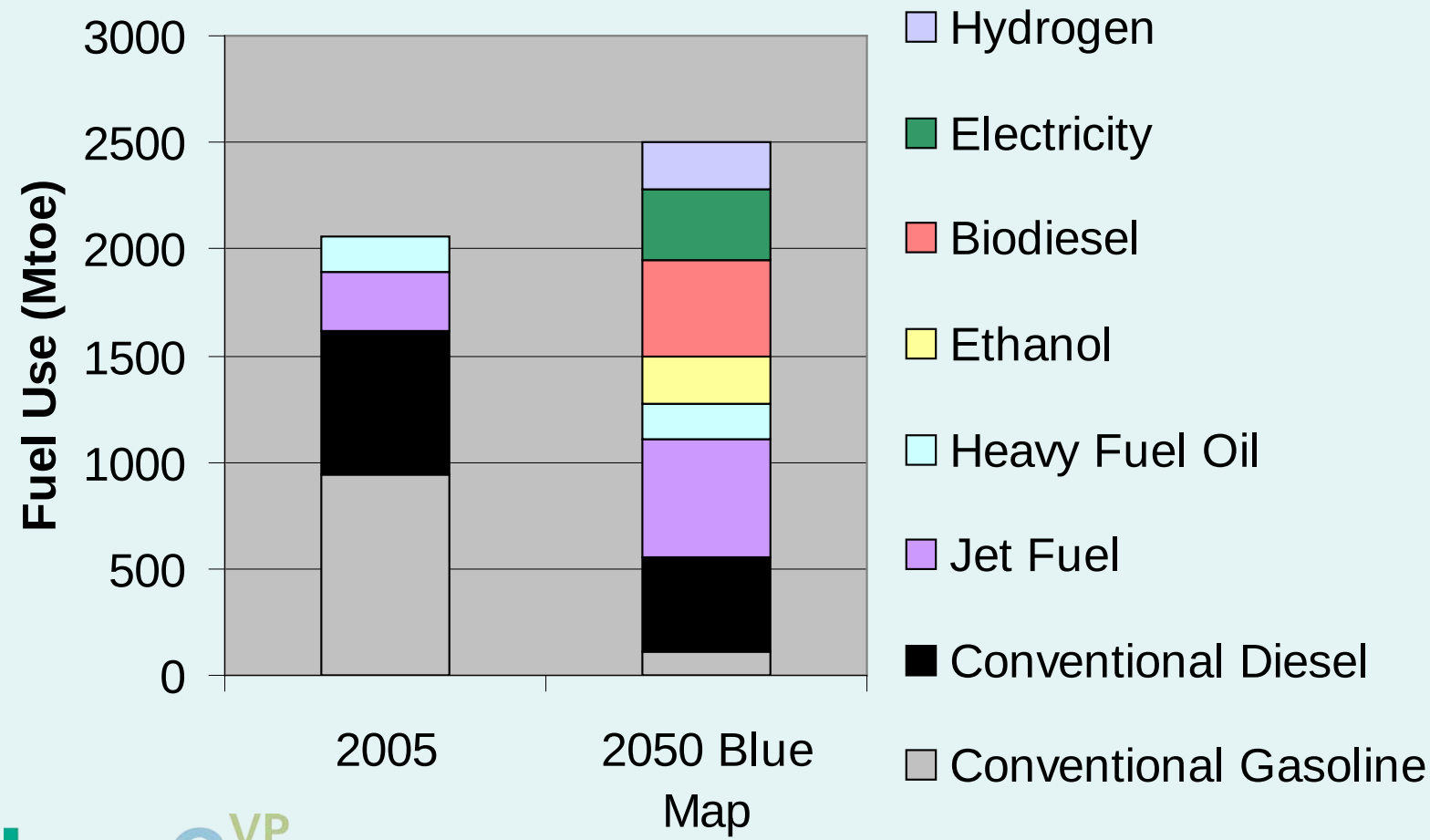
Beyond 2020 further decarbonisation of transport will be achieved through significant penetration of renewable fuels

Fuel use comparison 2005 & 2050 (IEA Blue Map)



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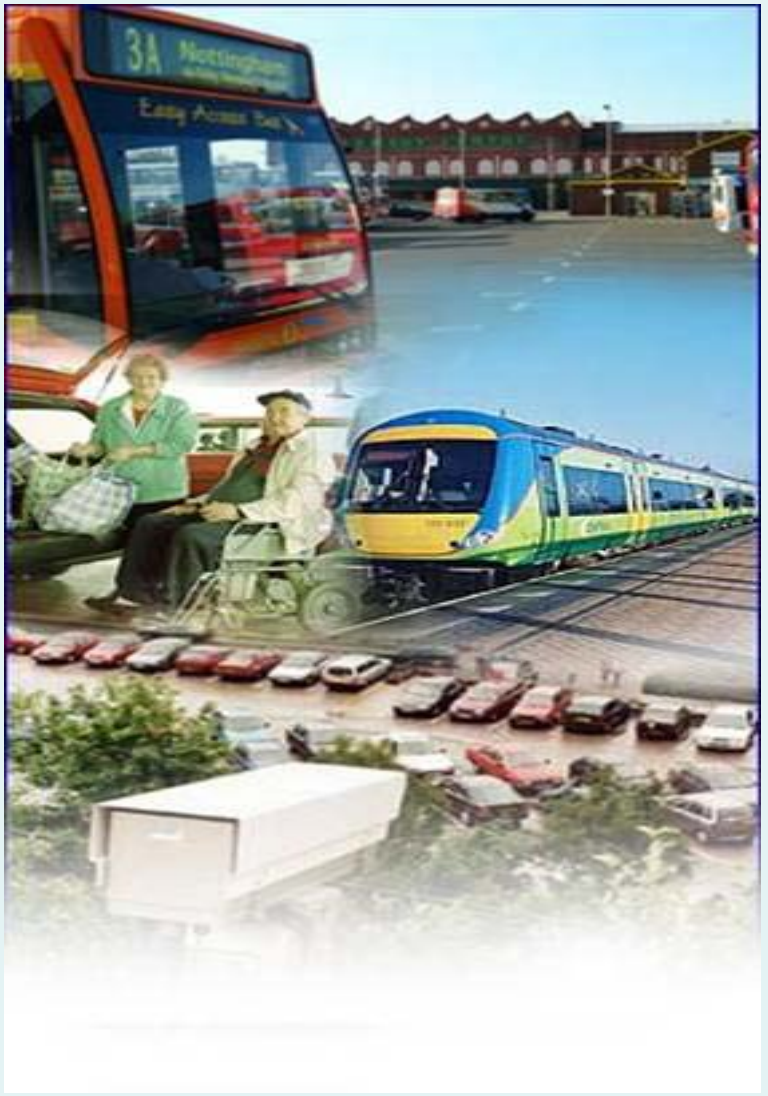
IEA 2008, Energy Technology Perspectives

Technology can only be part of the solution - demand management and mode shift are also needed – in part to manage rebound effects

- Smarter driving improved driver behaviour
- Reduced vehicle use
- Better freight distribution
- Modal shift
- Land-use planning
- Tele-working



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Messages

- The transport sector has failed to adequately respond to the challenge presented by climate change
- Current progress in improving vehicle efficiency must be accelerated to achieve future target, requiring :
  - Reversing unsustainable vehicle characteristics trends; consistently high oil prices; legislation; and, increased consumer demand
- Technology deployment, not availability is the key issue, requireing:
  - Stronger consumer incentives; increased vehicle availability; enhanced desirability; and improved consumer engagement and information
- BMW, Toyota and Peugeot are showing market leadership by stimulating consumer demand and deploying technology across their ranges
- On current trends transport will occupy the entire EU CO2 cap by 2050
  - The most ambitious scenarios for technology deployment and renewable energy still fail to adequately reduce emissions
- Renewable fuels will play an increasingly important role in reducing emissions beyond 2020
- Technology is only part of the solution – demand management and building public transport infrastructure to encourage modal shift will be key

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Danke!

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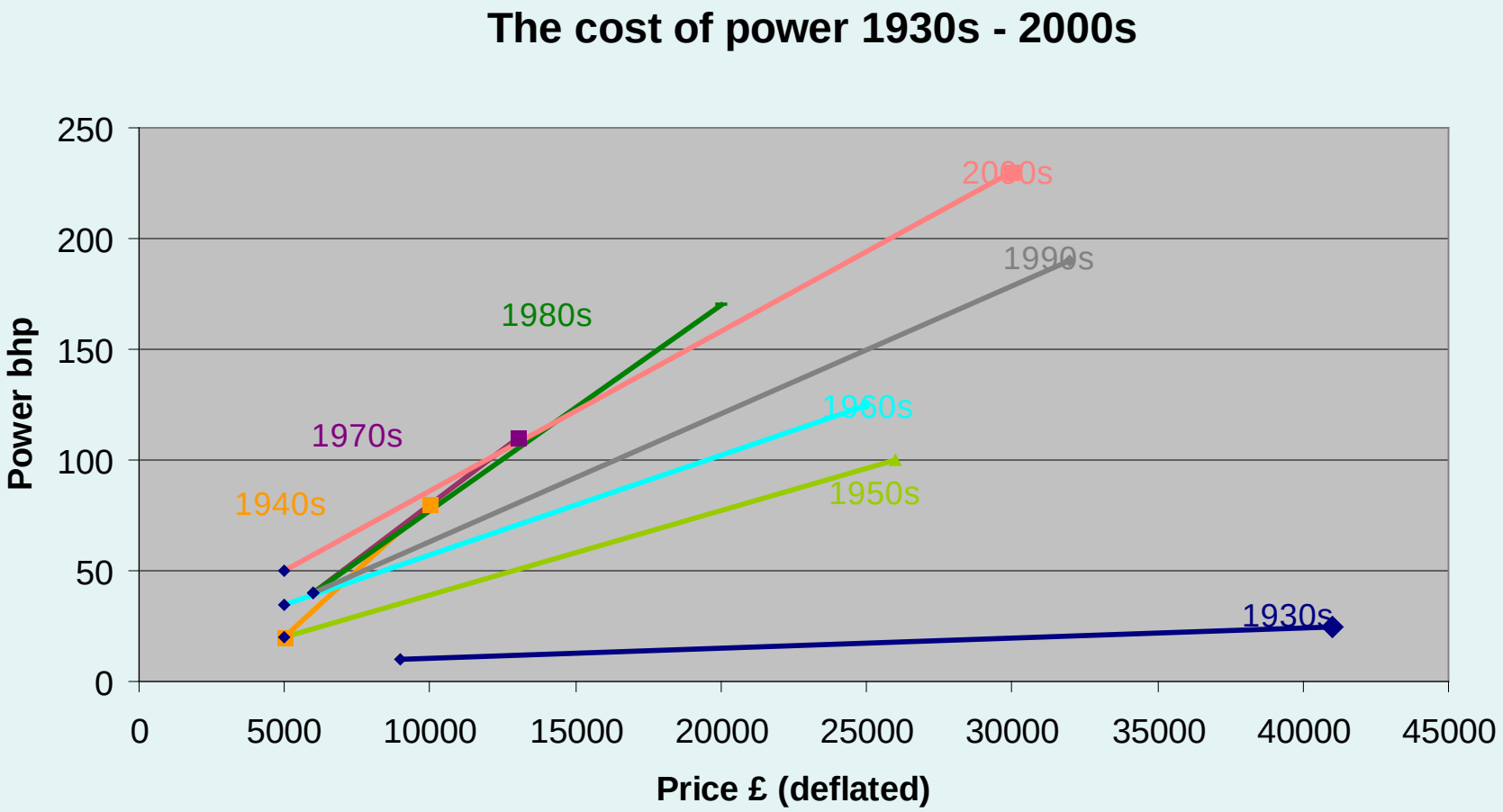
More powerful cars are more profitable – but the cost of additional power has become cheaper



Reproduced from Cousins et al 2008

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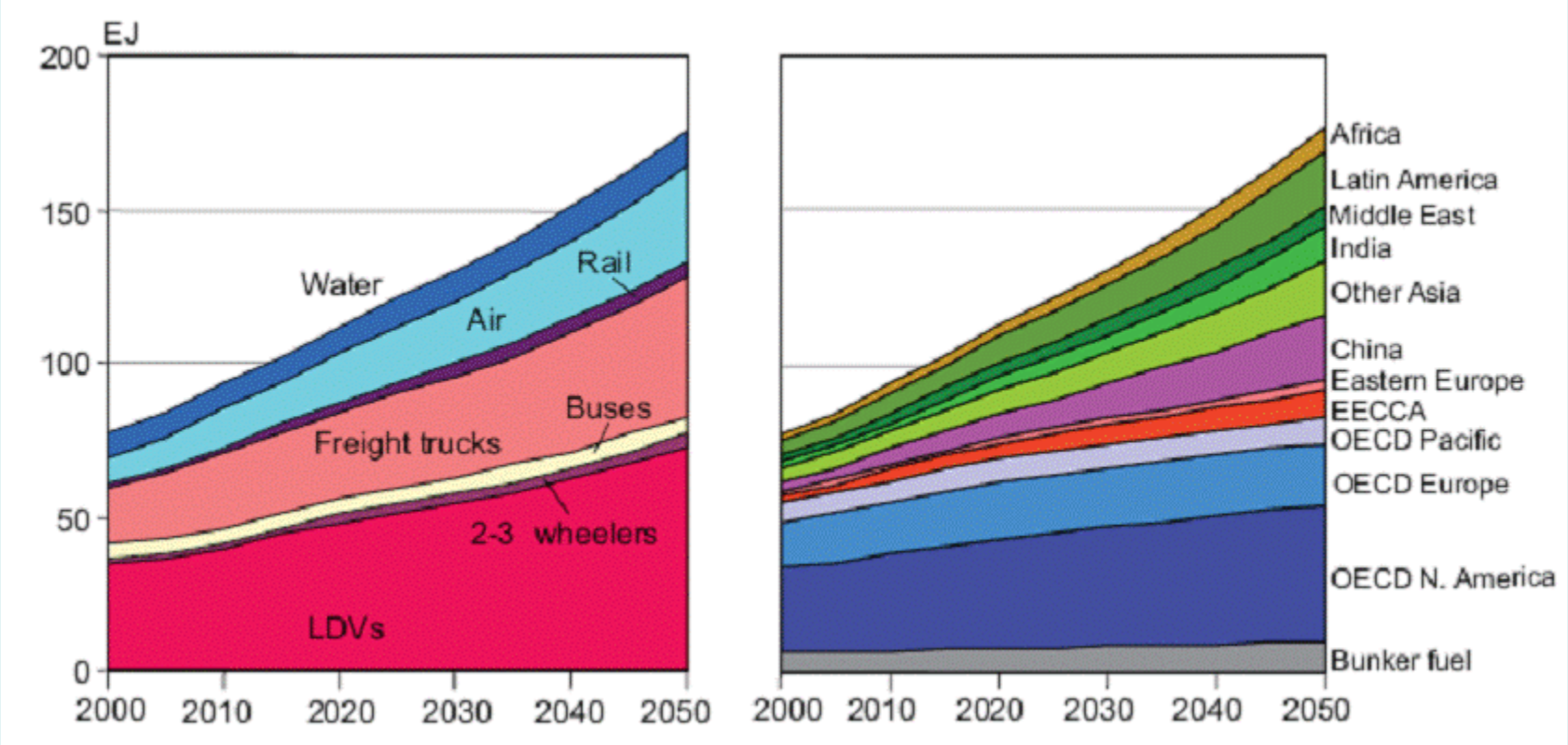
Transport is an important and growing source of GHG emissions – Global energy demand for transport is projected to more than double by 2050



IEA 2008, citing WBCSD 2004

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