Creating the market for low carbon transport

Additives 2009: Fuels and Lubricants for Energy Efficient and Sustainable Transport

York

29th April 2009

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Managing Director

Low Carbon Vehicle Partnership

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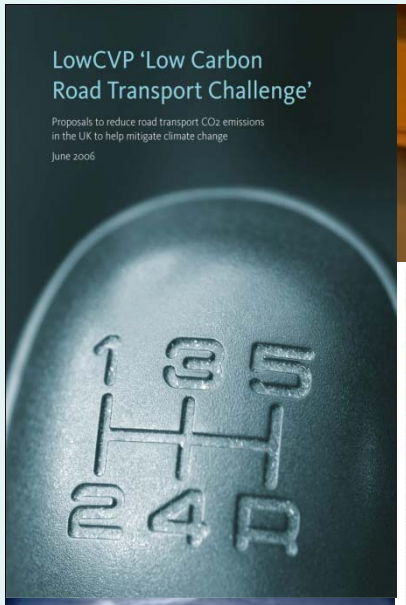
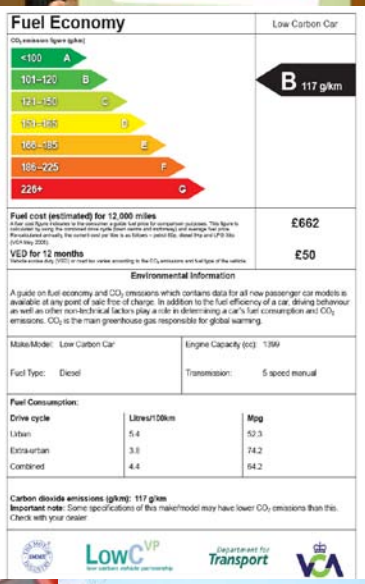
Accelerating a sustainable shift to low carbon vehicles and fuels in the UK

Stimulating opportunities for UK businesses





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A quick plug !

- The climate imperative
- Debate: Investing in a sustainable
- industry or bailing out past failures?
- Advanced and alternative fuels - including electric solutions
- Cutting road transport carbon; driving local action
- Debate: Delivering the CO2 targets; strategic marketing and technical approaches
- What Car? Green Awards and Revolve Brighton to London Eco-Rally
- Vehicle displays and inside exhibitions
- ‘Open mic’ session

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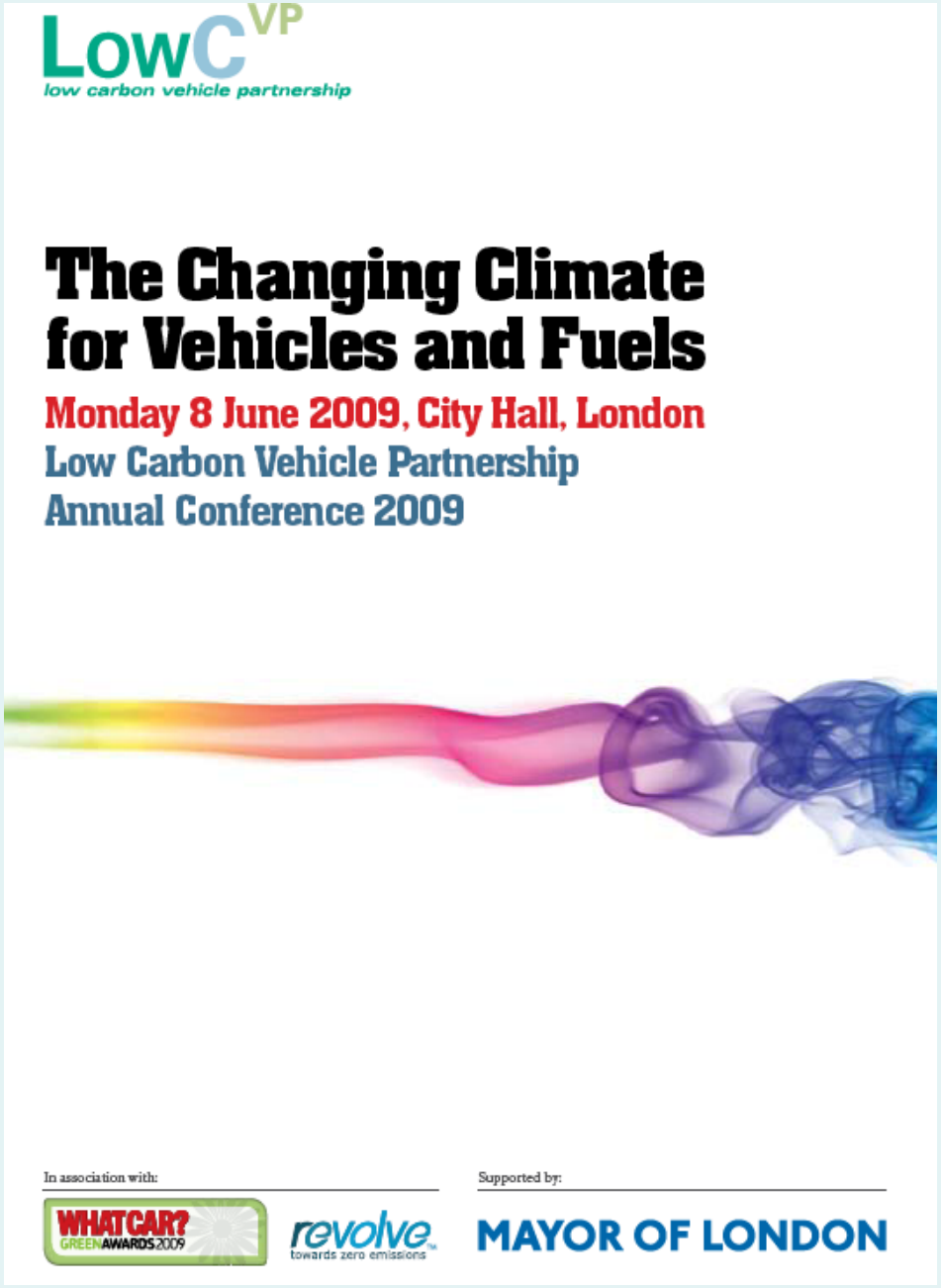

Outline

- 21st Century transport challenge
- Progress and approaches to accelerate technology deployment
- Market readiness of renewable transport fuels
- Preparing for the future
- What else is needed?

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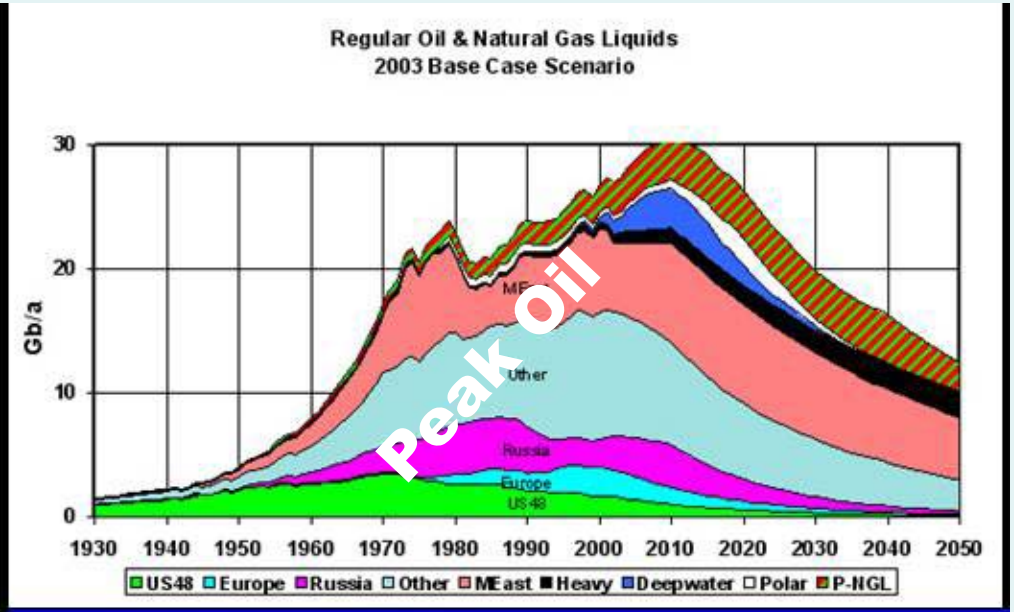
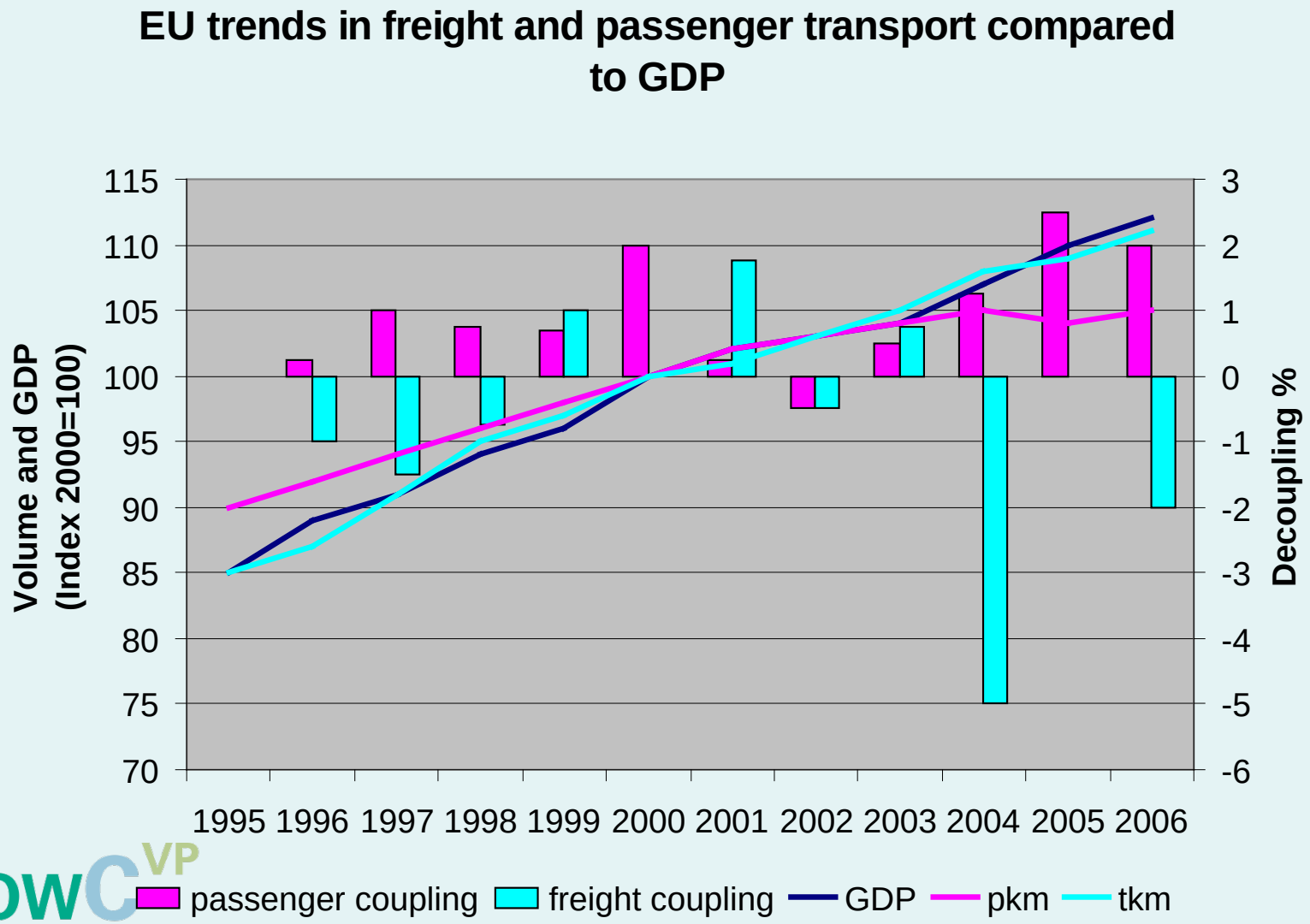
21st Century transport faces three key challenges



Reducing transport emissions requires delinking demand from economic growth



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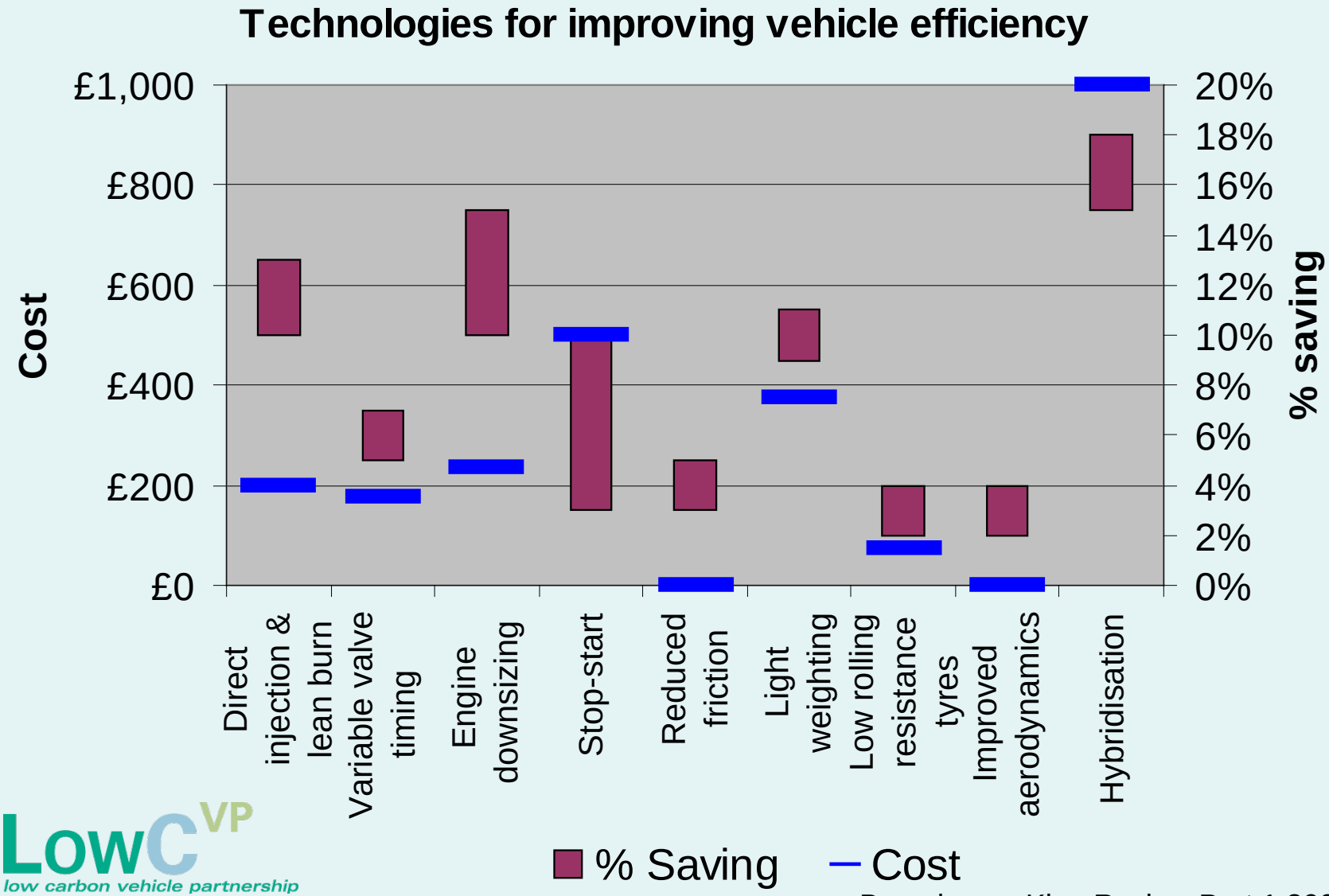
Source EUROSTAT 2008

A range of existing technologies are available to reduce CO2 emissions – at a cost



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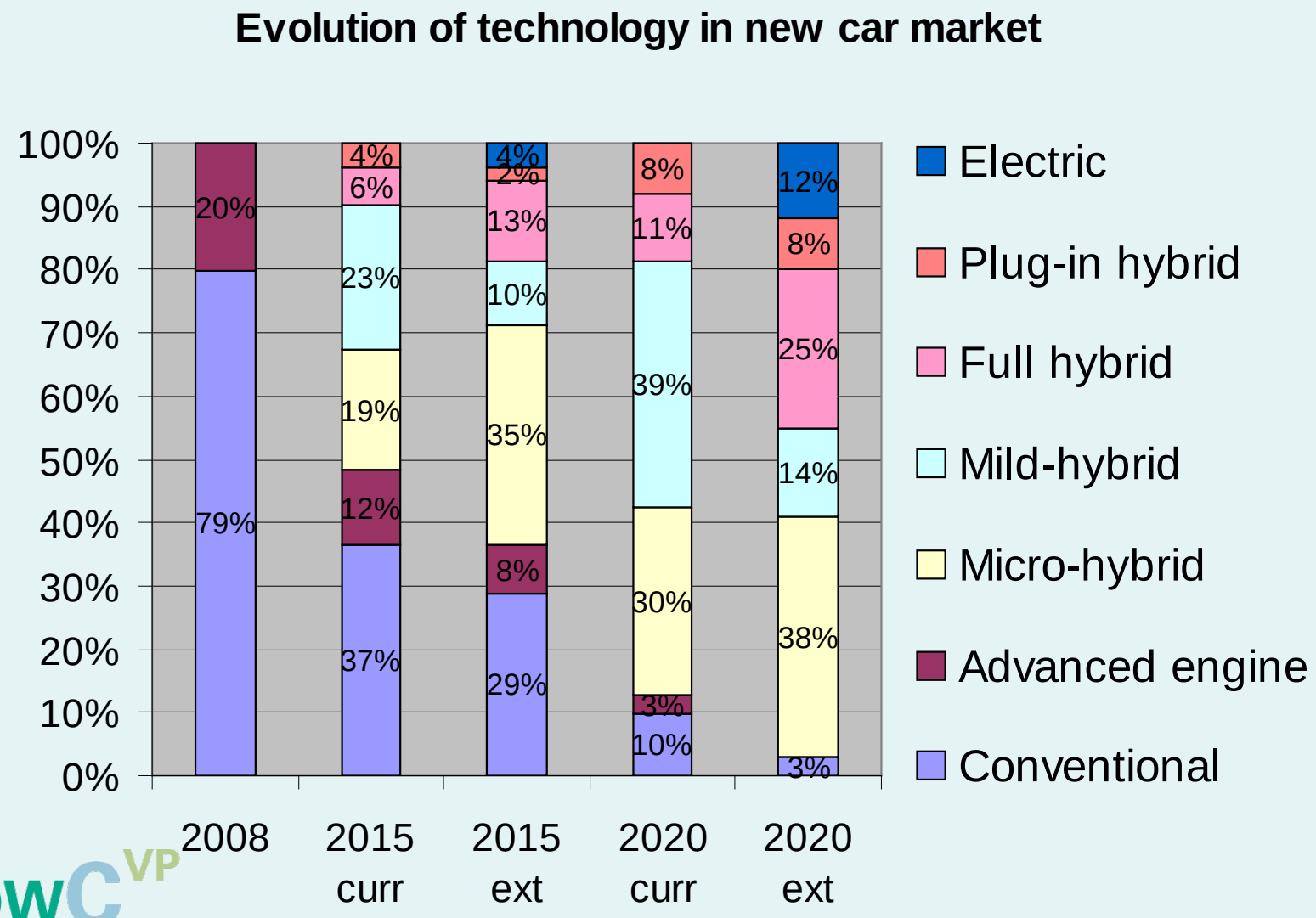
Based upon King Review Part 1 2008

To 2020 most emissions reductions will be through improvements to existing ICEs vehicles



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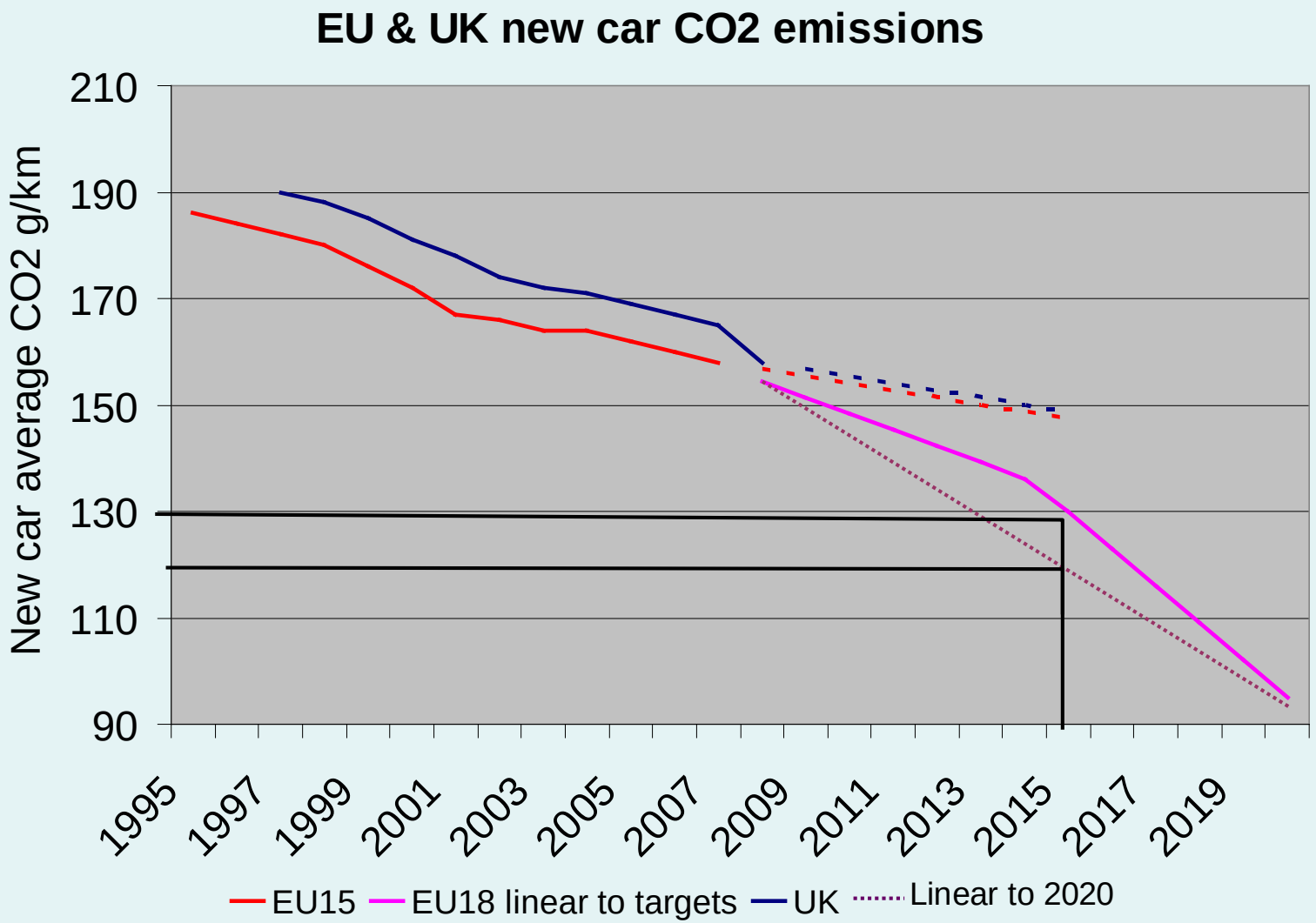
Climate Change Committee 2009

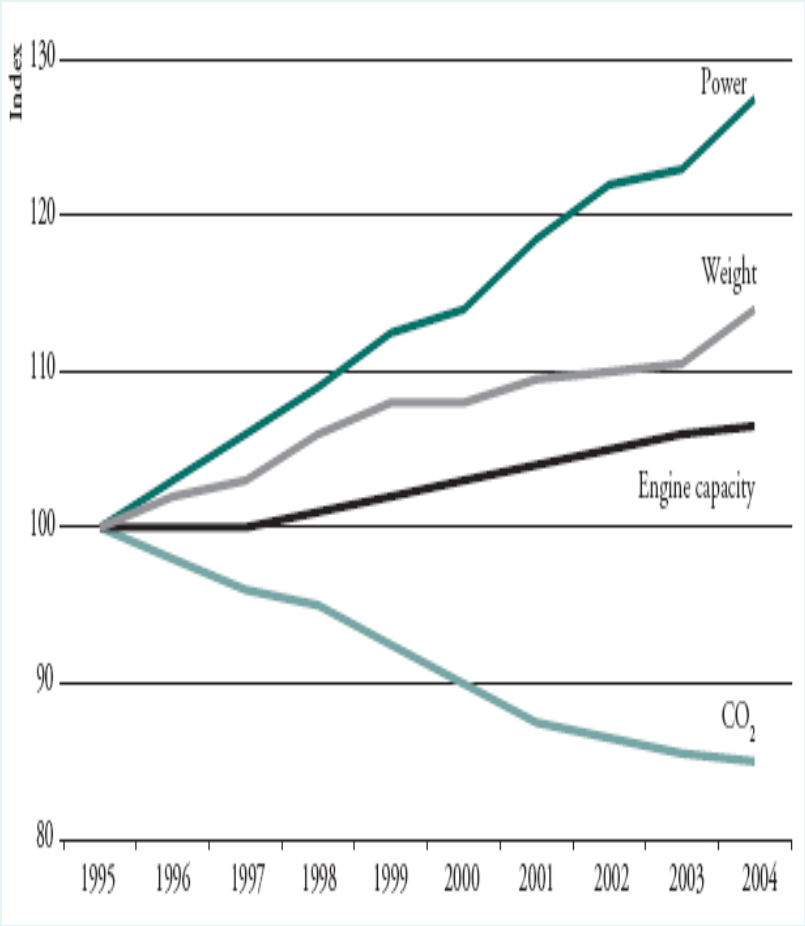
New cars are becoming more efficient – but the rate of progress must be accelerated to achieve targets



Based upon T&E and SMMT data

Accelerating progress depends upon:

- Reversing unsustainable trends in vehicle size, weight and power
- Maintaining consistently high fuel prices
- 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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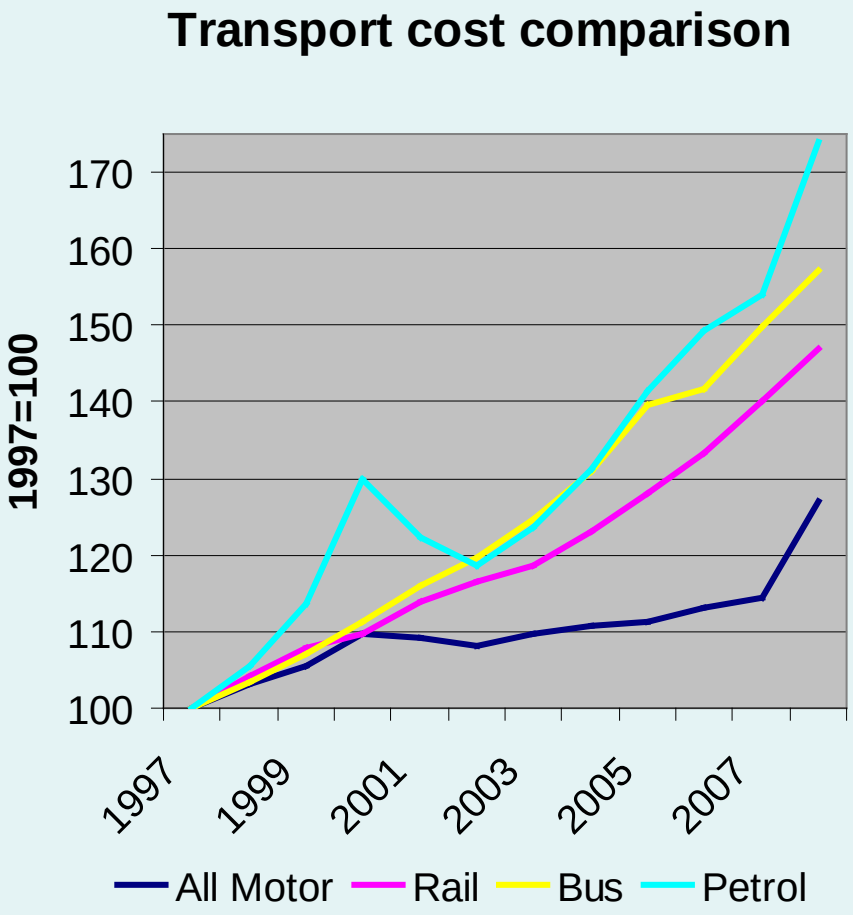
High fuel prices stimulate lower carbon and reduced demand for transport - but not necessarily mode shift



- High fuel prices <u>short term</u> lead to
  - Fewer journeys
  - Shorter journeys
  - More efficient driving
  - Lower speeds
  - Mode shift
- High fuel prices <u>long-term</u> lead to
  - Trip destination changes
  - Location changes
  - More efficient vehicles
- High fuel prices reduce technology payback times
- Public transport has become increasingly expensive compared to motoring

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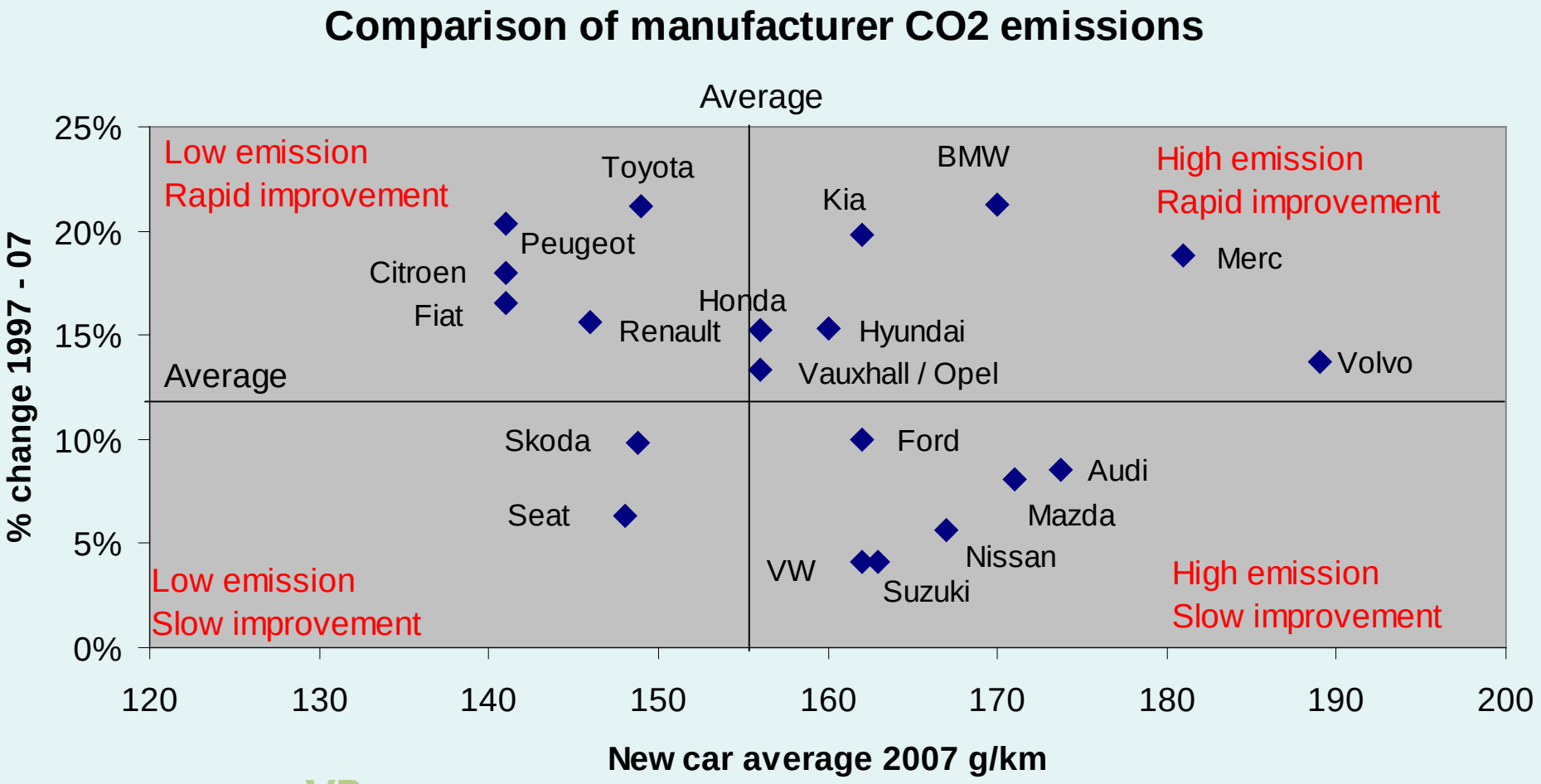
Based upon DfT 2008

Strong legislation is essential to tackle market failures and stimulate industry-wide action



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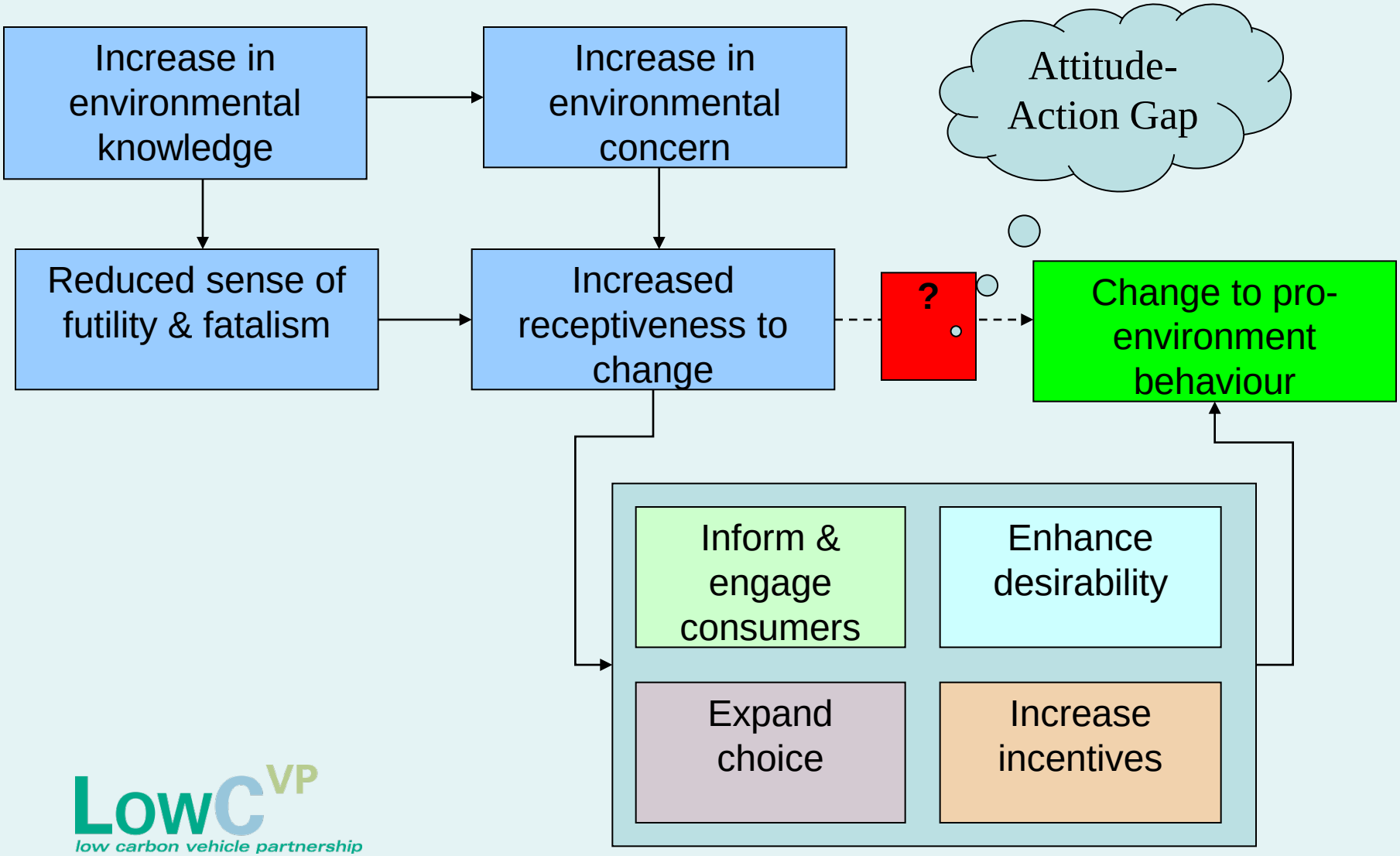
Derived from T&E data

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

- Deploying low carbon technologies across their range in most sectors (in which they operate)
- Promoting environmental performance & efficiency as desirable features in advertising
- Embedding sustainability into business practices

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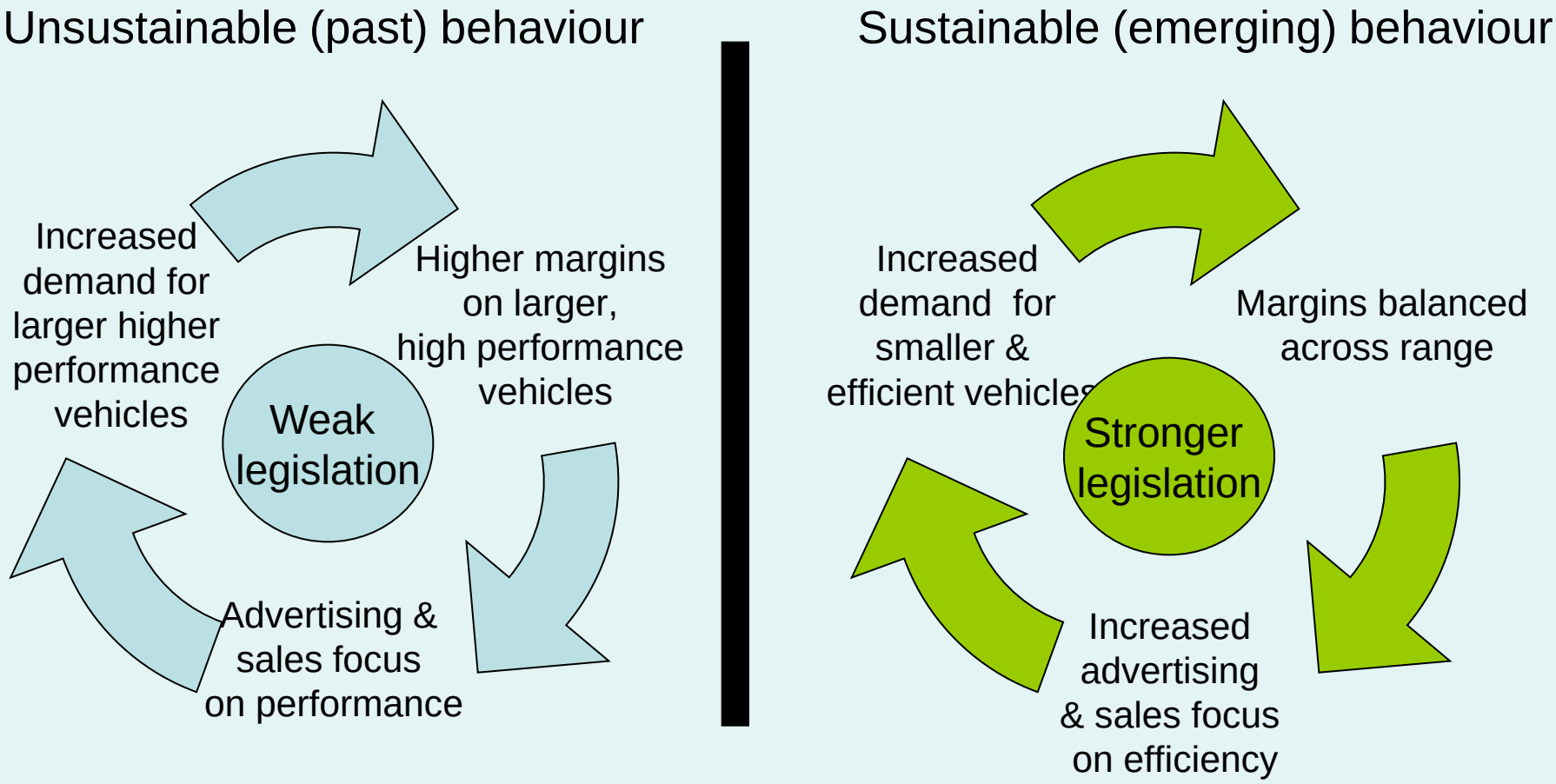
Unsustainable past business models are being challenged by legislation and market leaders



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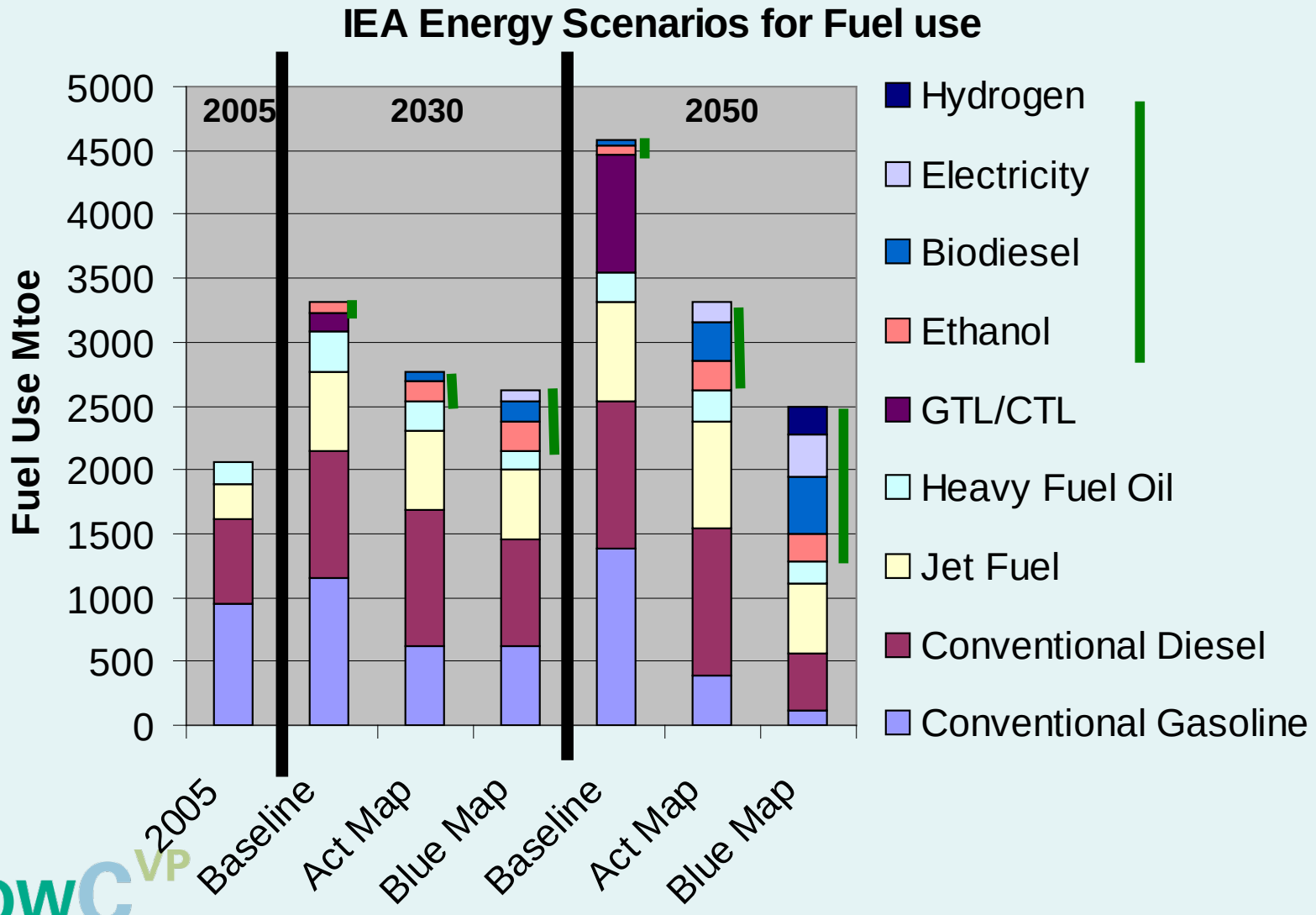
Beyond 2020 IEA scenarios show an increasing penetration of renewable transport fuels to meet increasing demand



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IEA 2008, Energy Technology Perspectives

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

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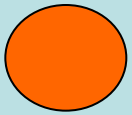
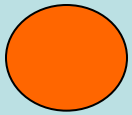
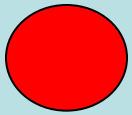
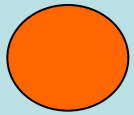
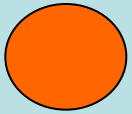
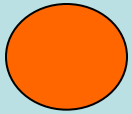
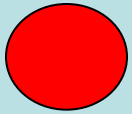
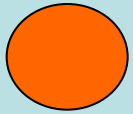
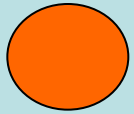
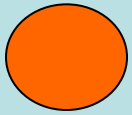
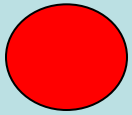
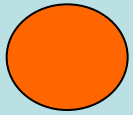
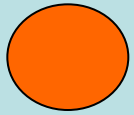
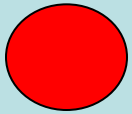
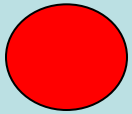
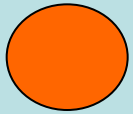
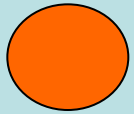
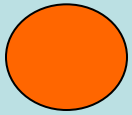
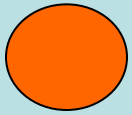
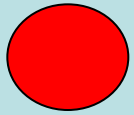
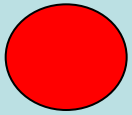
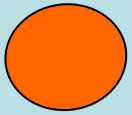
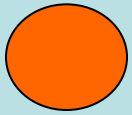
Technology readiness						
Cost competitiveness						
Vehicle availability						
Infrastructure deployment						
Driver acceptability						
Sustainability						

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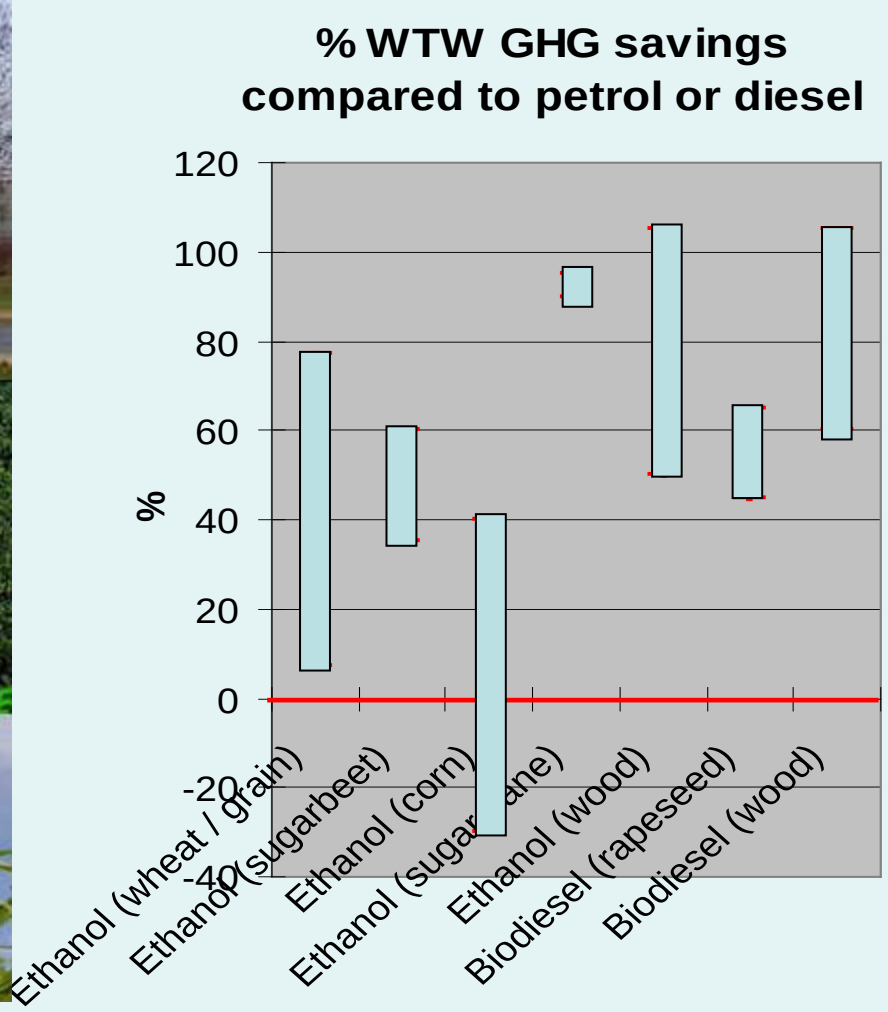
The relative scores do not represent LowCVP policy

There are good and bad ways of producing biofuels that assurance schemes can distinguish between



Derived from Concawe 2006

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

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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

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Preparing the market for renewable fuels requires:

- Coordinated support throughout the innovation chain
- Tackling market failures & supporting niche applications
- Long-term commitments to promising alternatives
- Adequate incentives to reward low carbon
- Bridging the customer attitude-action gap
- Preparing for the rebound effect and changes to transport fuel tax revenues

"It has very low emissions - it's impossible to find a garage selling the fuel."

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Fuel duty revenues

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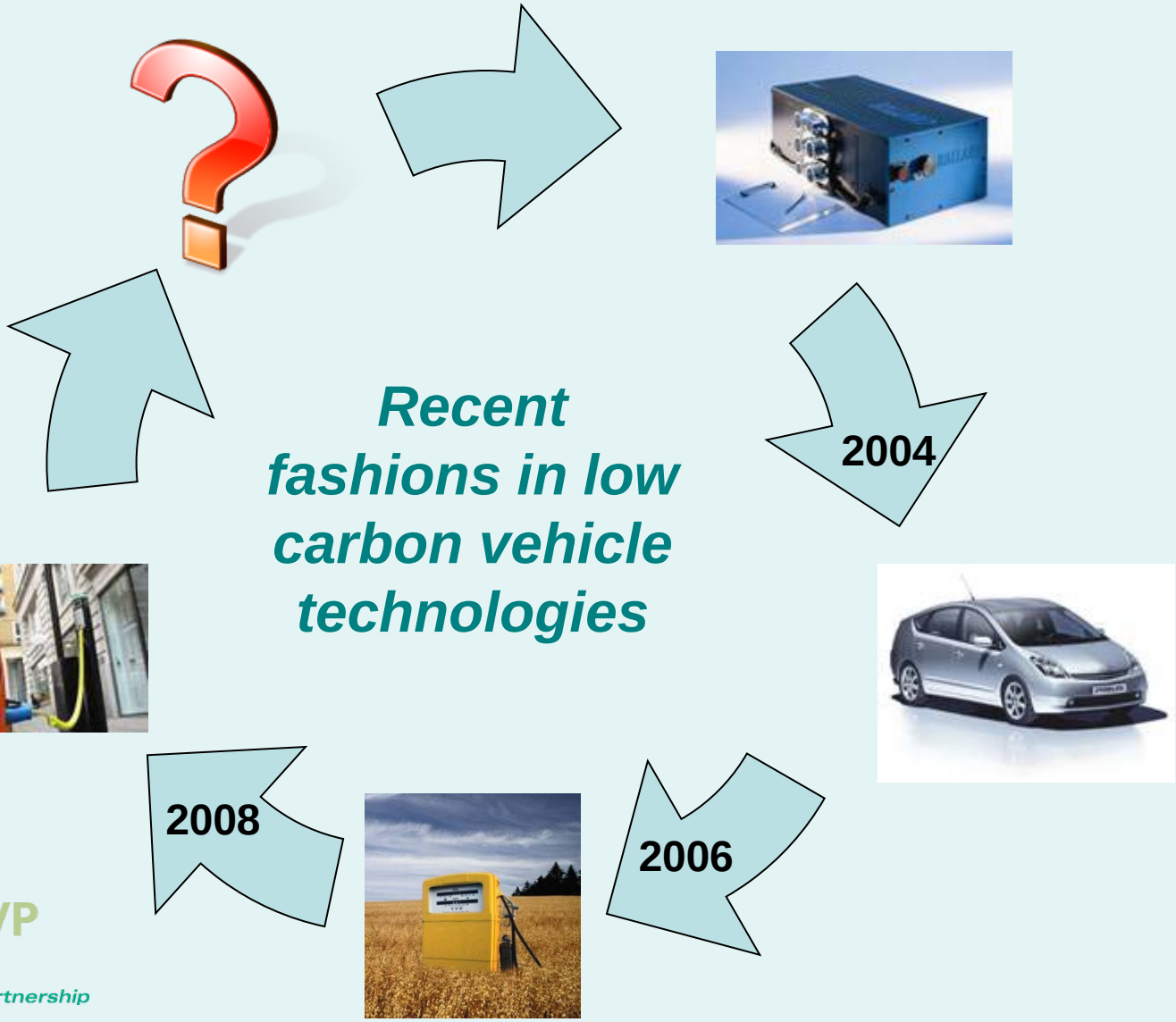
Recent history shows there are no "silver bullets"



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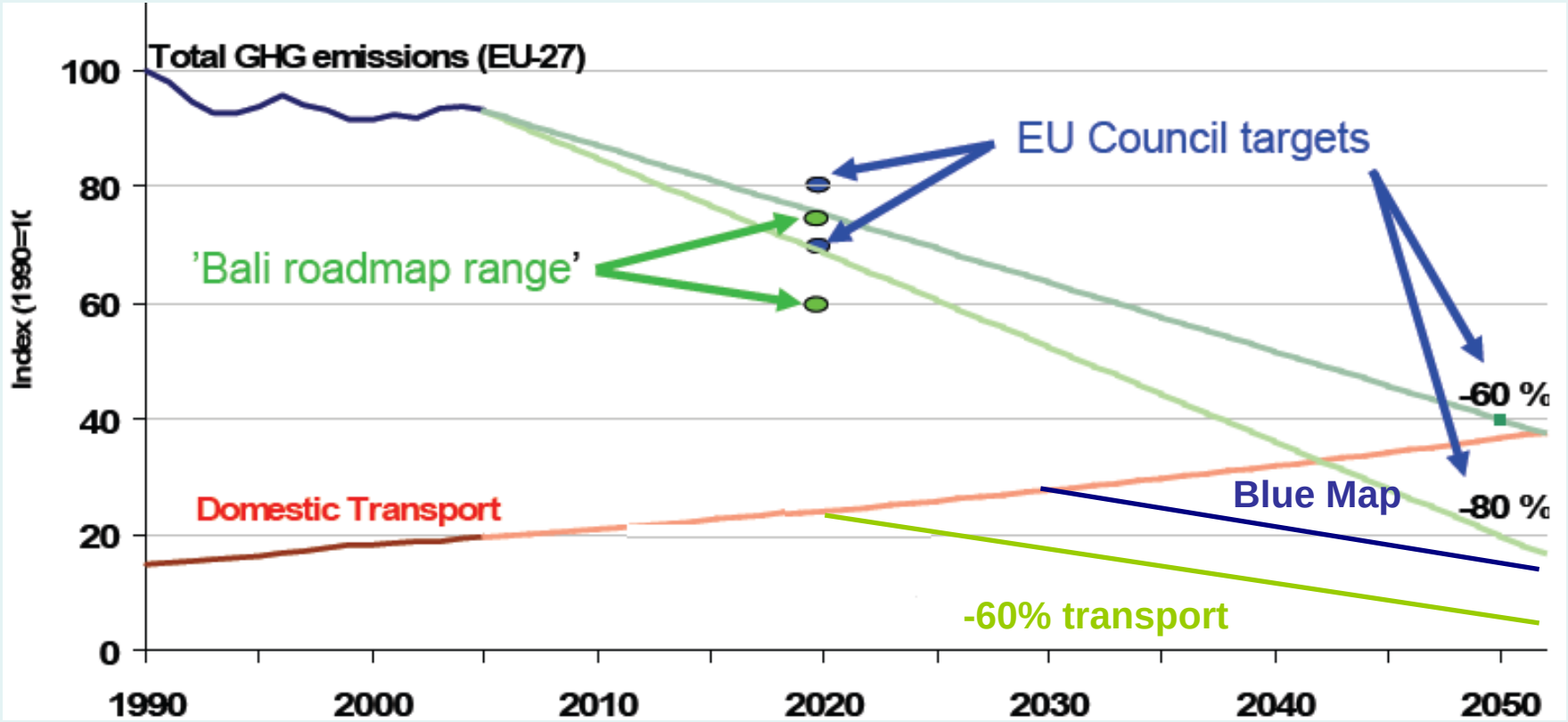
EU domestic transport emissions will consume the CO2 budget on current trends –

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



Adapted from EEA 2009 & TNO 2009

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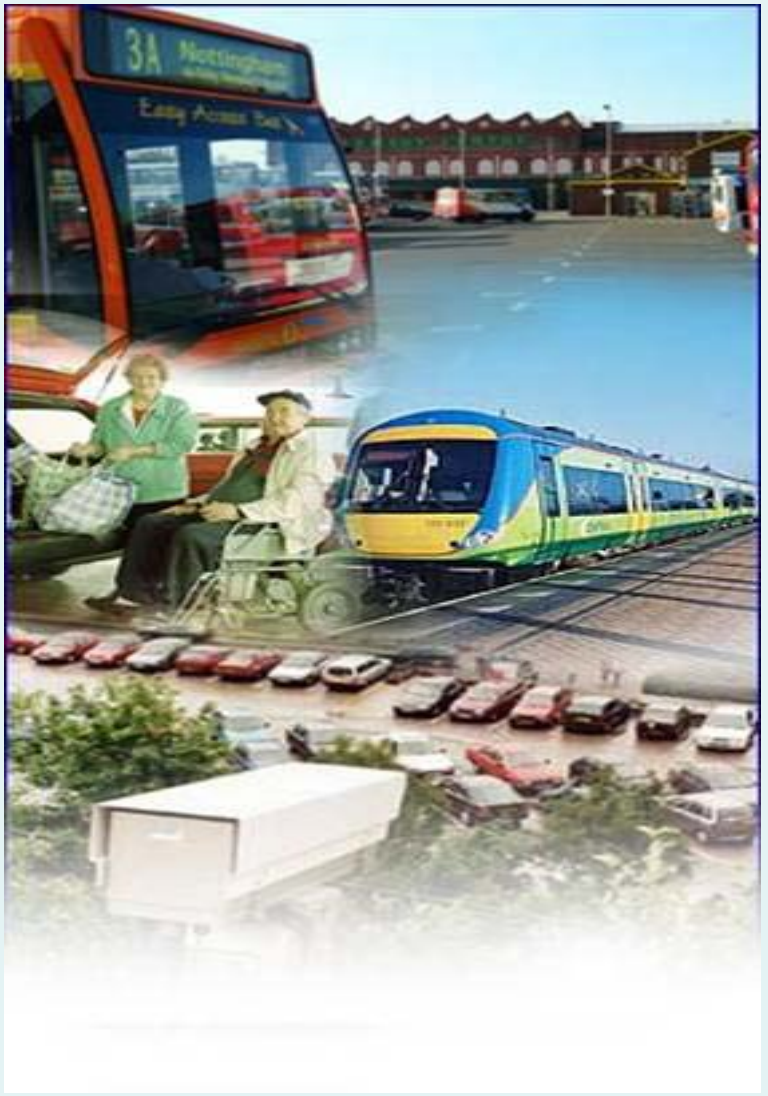
Technology can only be part of the solution - demand management and mode shift are also needed – in part to manage rebound effects

- 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 must rapidly address tri-21st Century challenges
- Technology deployment, not availability is the key issue
- Current progress in improving vehicle efficiency must be accelerated by:
  - Reversing unsustainable vehicle characteristics trends; consistently high fuel prices; legislation; and, increased consumer demand
- Industry response is patchy but market leaders are stimulating consumer demand and deploying technology across their ranges
- Beyond 2020 renewable fuels will play an increasing important role notably biofuels, electricity and (possibly) hydrogen – there are no “silver bullets”
- On current trends transport will occupy the entire EU CO2 cap by 2050
- Technology is only part of the solution – demand management and building public transport infrastructure to encourage modal shift is crucial

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Any Questions?

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