# Stuck in the slow lane?

## UK progress towards low carbon vehicles and fuels

**Energy Institute**

**12th April 2006**

**Greg Archer**

**Director, Low Carbon Vehicle Partnership**

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# *Low Carbon Vehicle Partnership*

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

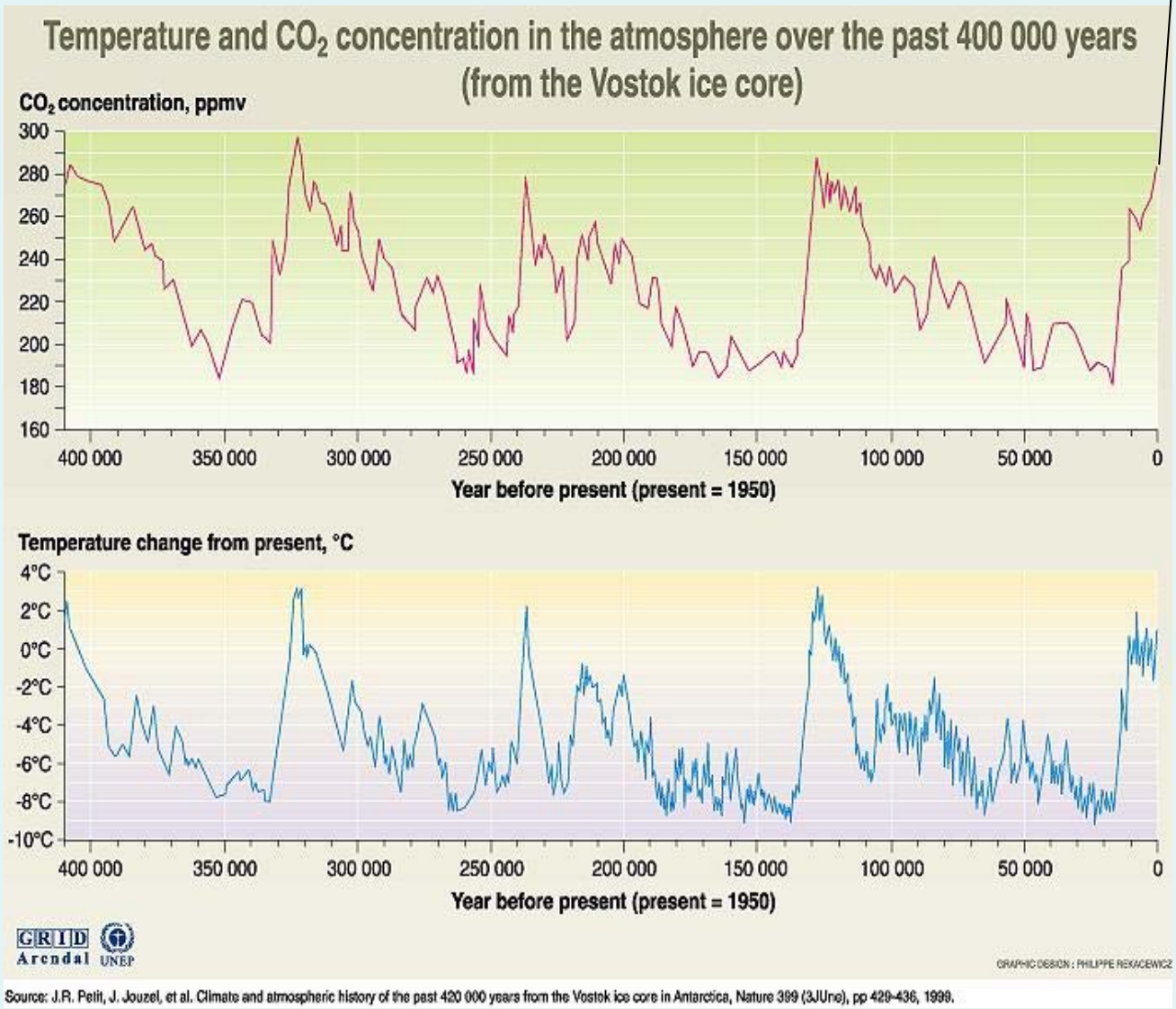
***Stimulating opportunities for UK businesses***





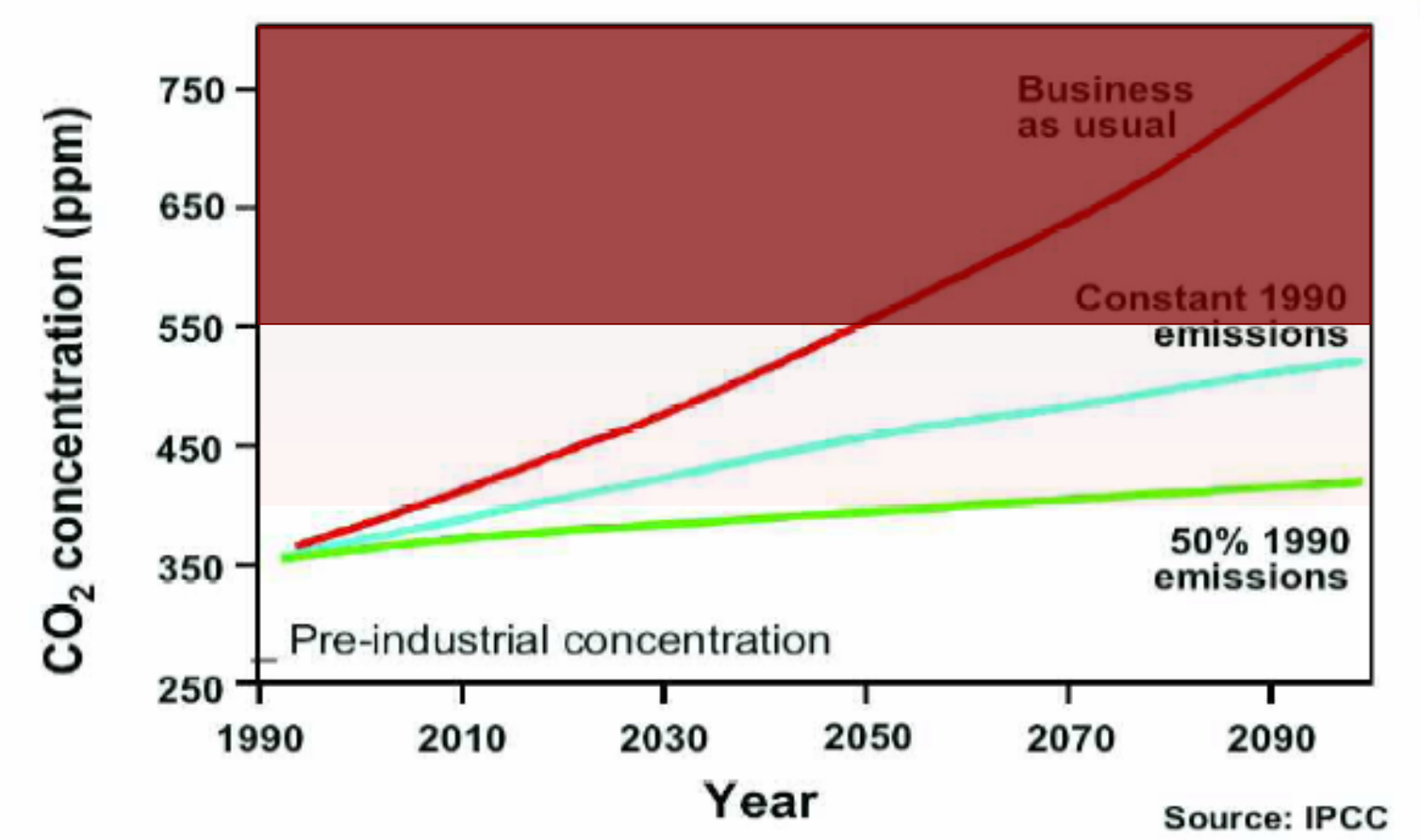
LowC VP
low carbon vehicle partnership

# *Trends in Atmospheric CO2 levels for past 400k yrs*




381ppm
2005

# *The risk of "dangerous climate change" increases as CO2 concentrations stabilise above 400ppm. At 550ppm there is considerable risk of significant harm*

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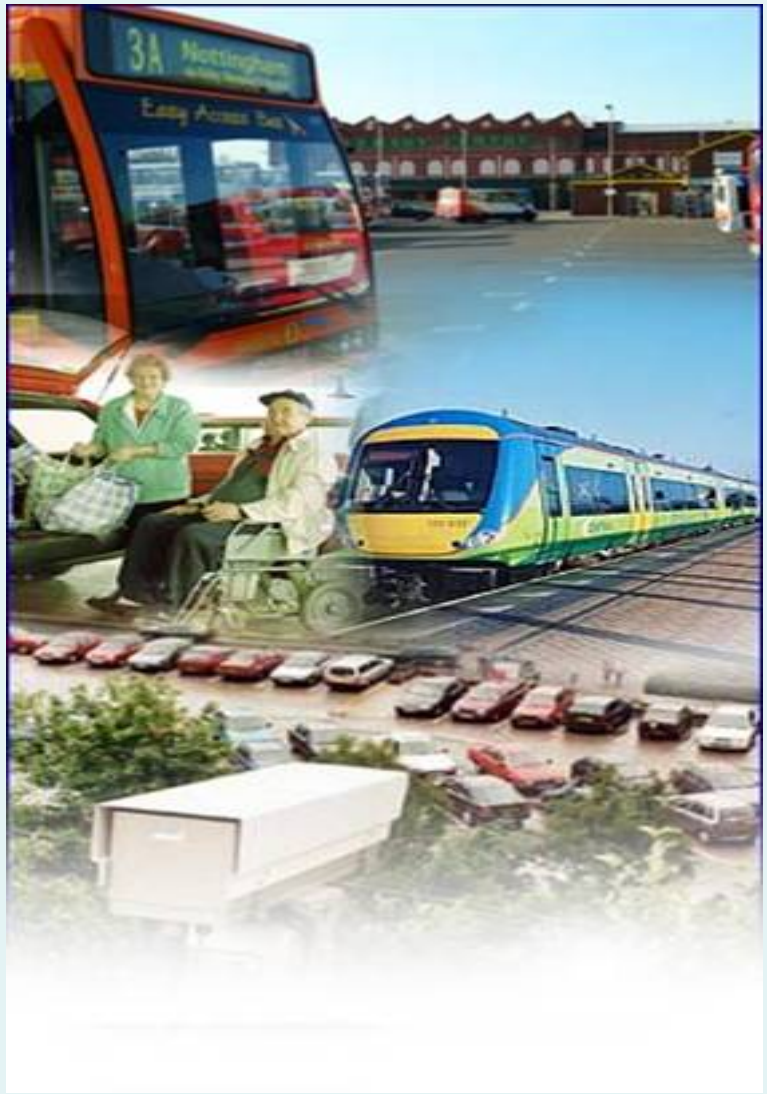
Adapted from IPCC via Hadley Centre, Dec 2005

# *Reducing road transport emissions will require a combination of measures*

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

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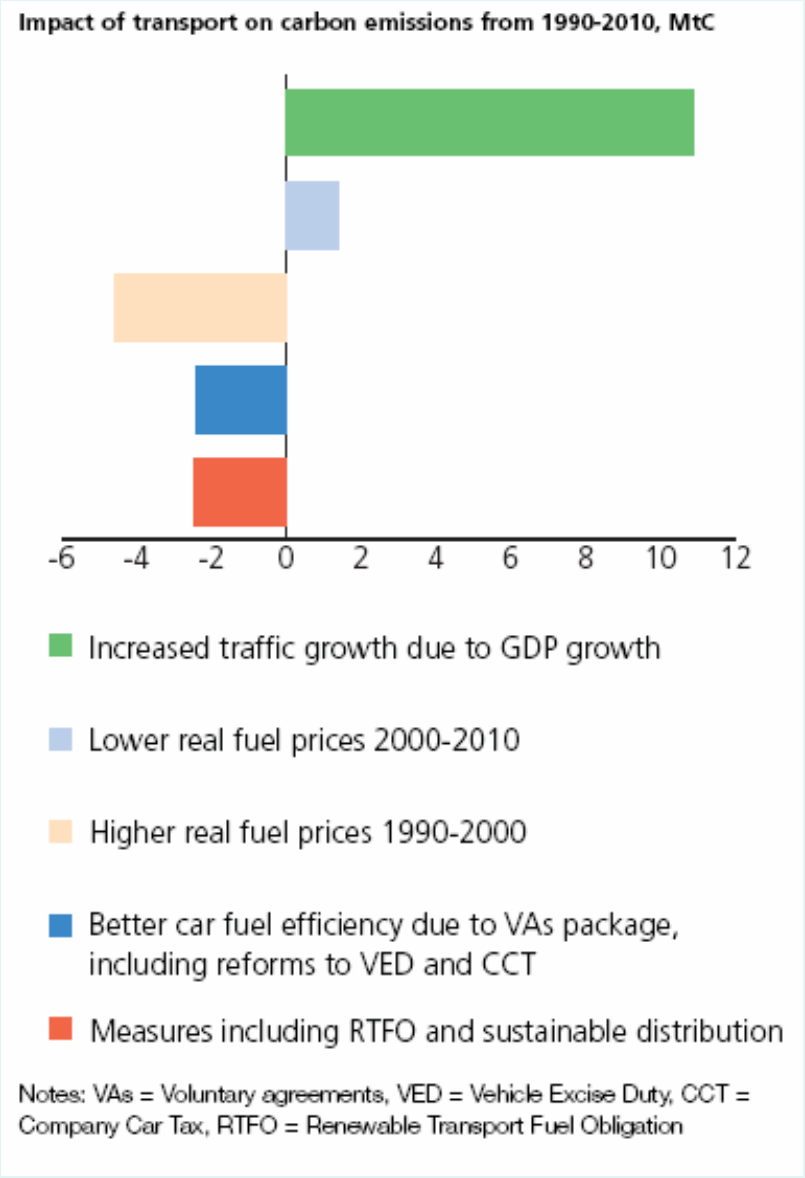
# *Impacts upon transport CO2 emissions*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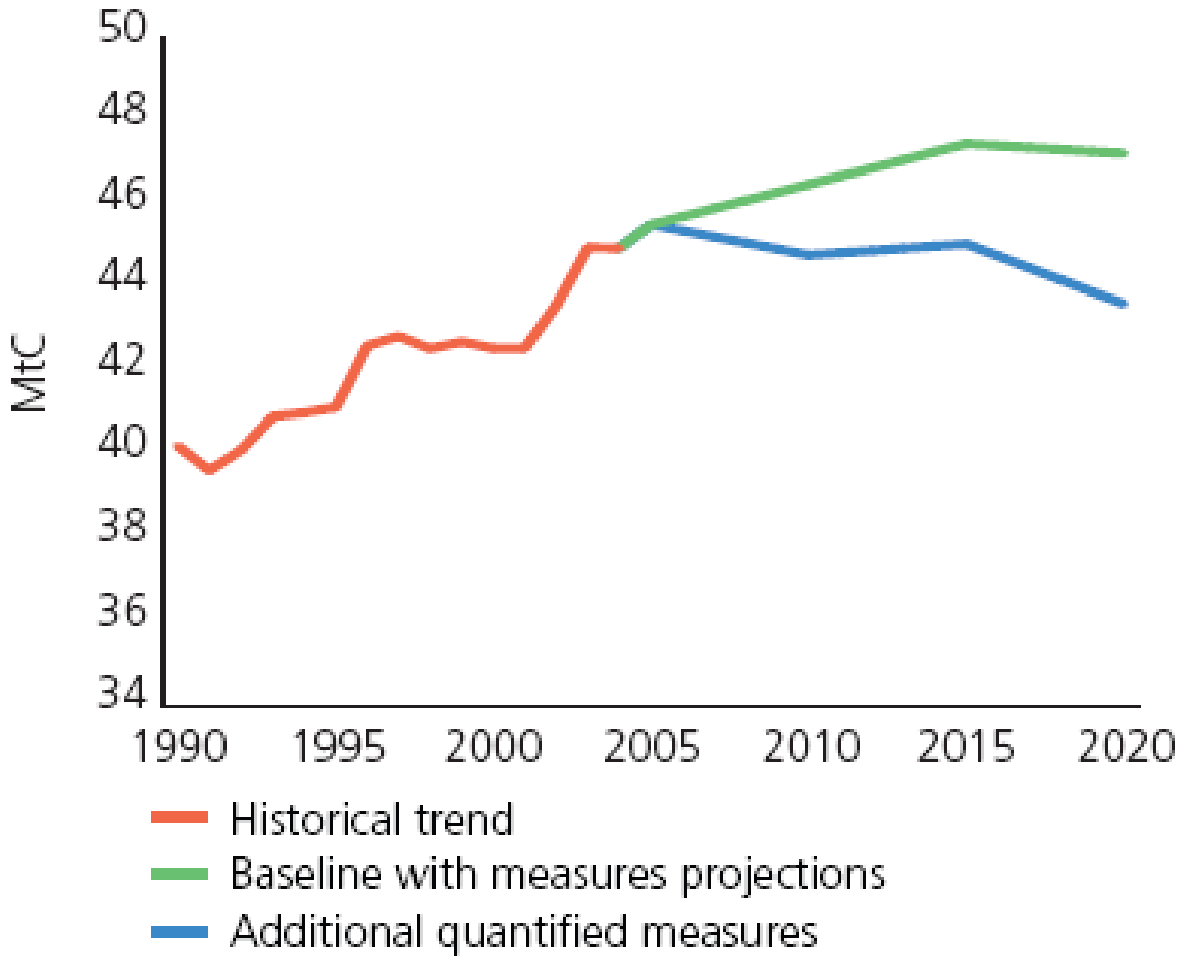
Climate Change Programme, 2006

# *Road transport GHG emissions are projected to continue to rise without further measures*

- **Existing measures**
  - 2.3 MtC
    VA package+ VED and CCT
  - 0.8 MtC
    Transport 2010 Plan
  - 1.9 MtC
    Fuel Duty Escalator
  - **5.1 MtC**
    **Total**
- **Additional measures**
  - 1.6 MtC,
    RTFO
  - 0.1 MtC,
    Future EU VA
  - **1.7 MtC**
    **Total**

**Projections of greenhouse gas emissions from the transport sector and the estimated effect of additional quantified measures, MtC**

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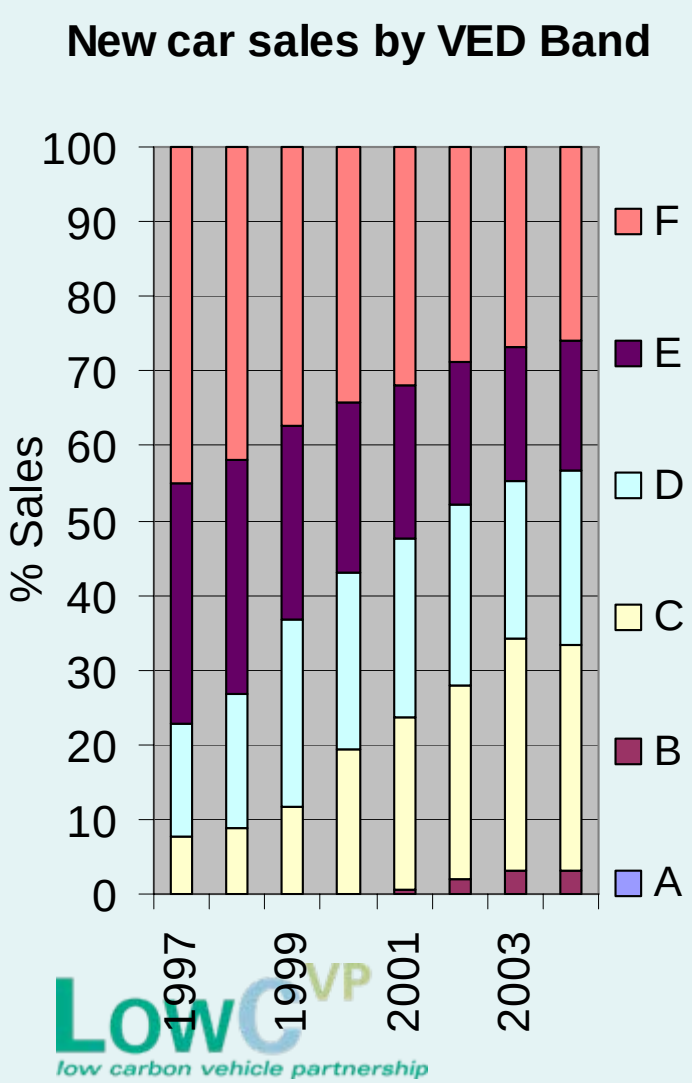
Climate Change Programme, 2006

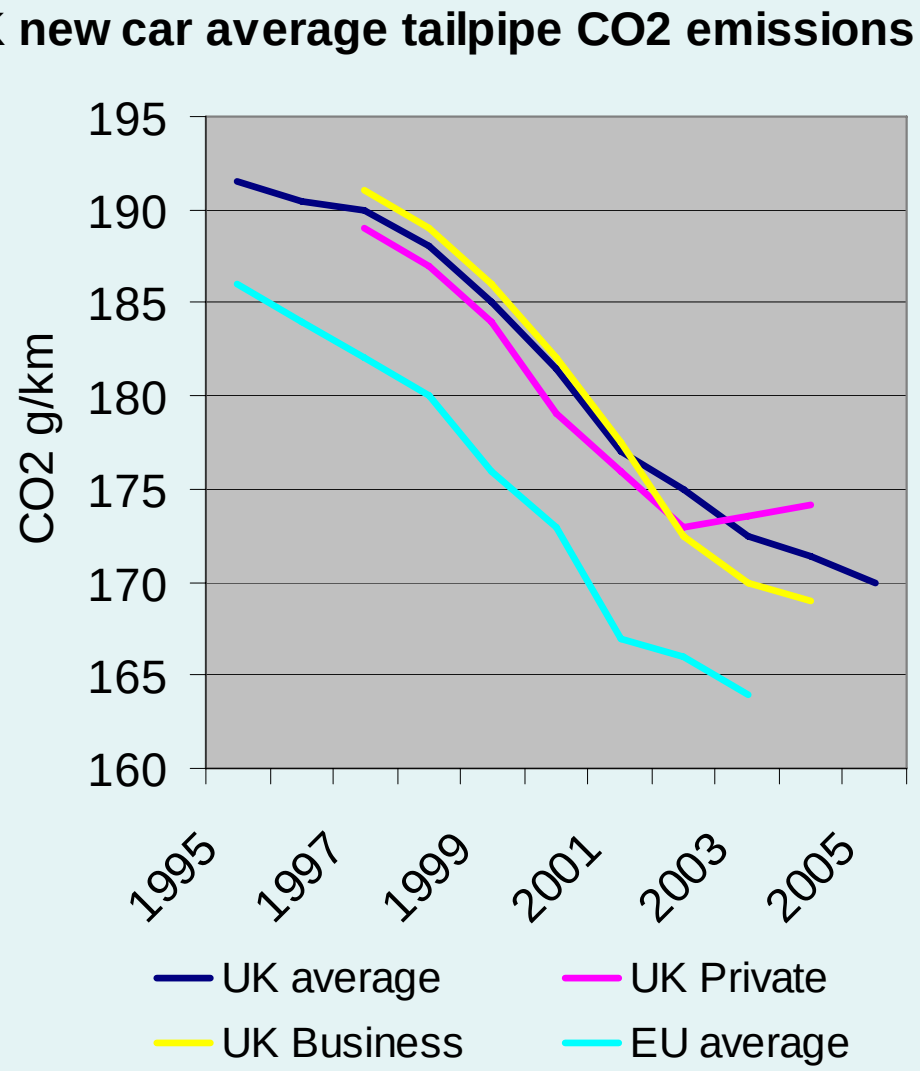
# *Progress towards Powering Future Vehicles Strategy targets is minimal*




- PFV established targets for 10% sales of cars below 100g/km by 2012
  - 2005 sales <100g/km = 467
  - 3% sales now below 120g/km
- PFV target for 600 low carbon bus sales per year by 2012
  - 2005 sales = 19

# *New car CO2 emissions declining – but progress is slow*

- UK new car $CO_2$ improved by 11% in 10 years
  - Fleet and business car efficiency is continuing to improve
  - Private consumers have started to purchase less efficient vehicles
  - Achieving EU targets is challenging
- VA interim target achieved – but accelerated progress needed to reach 140g/km by 2008
- UK emissions are c10g/km higher than the EU average
  - UK will reach 140g/km by 2023 at current rate of progress

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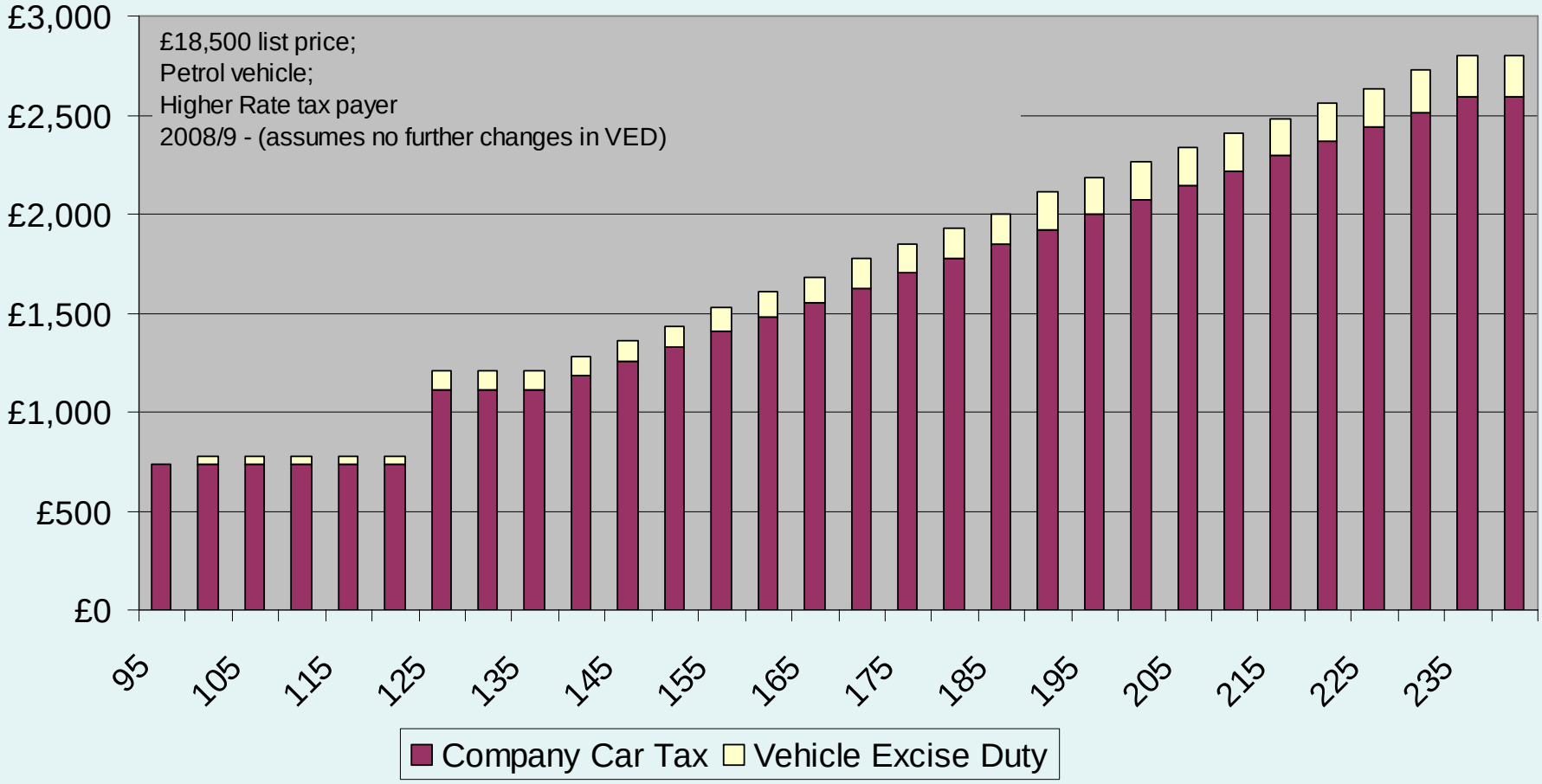
# *Company car tax provides a significantly stronger fiscal incentive than VED*

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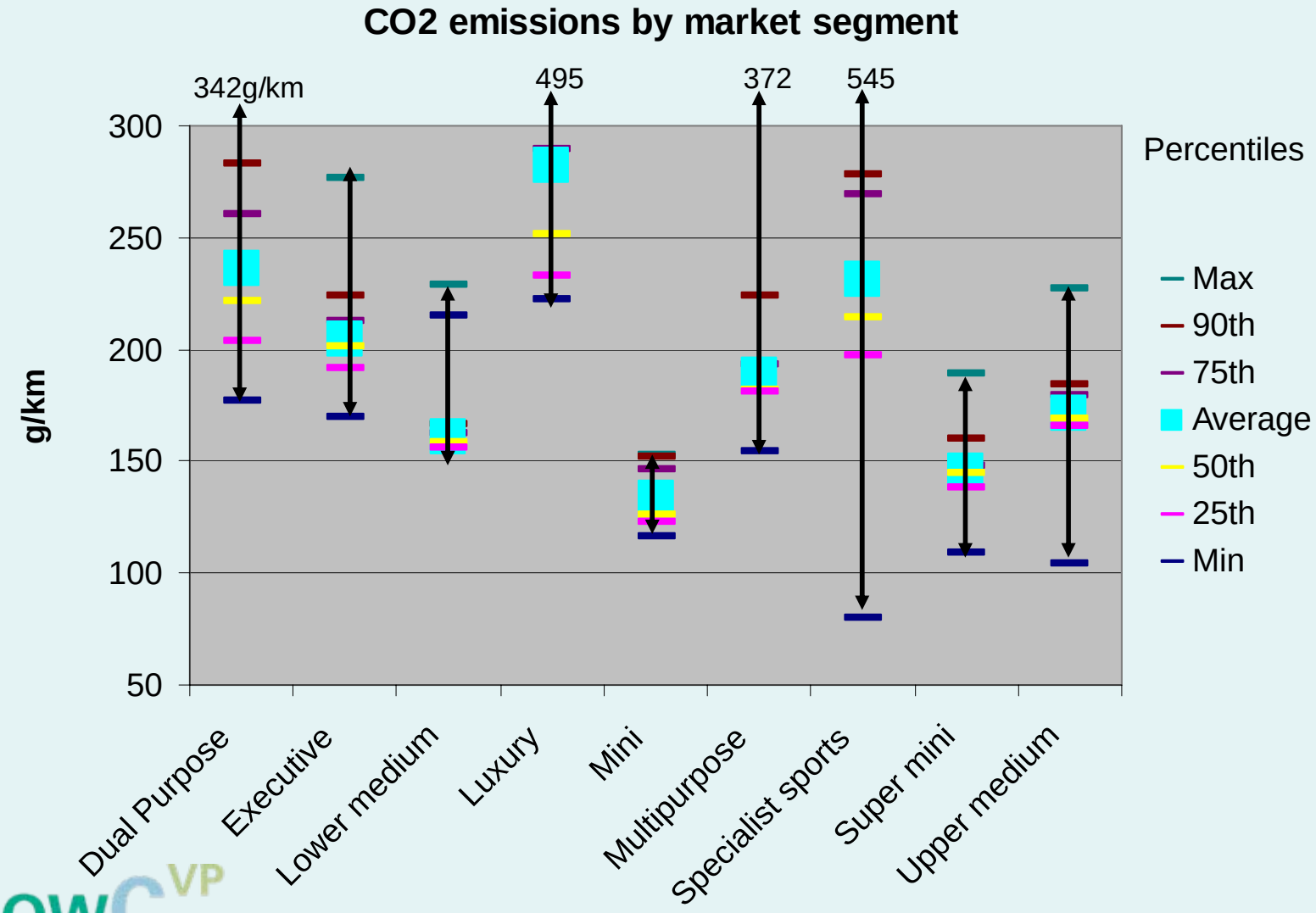
# *CO2 emissions also vary widely between vehicles in different market segments*

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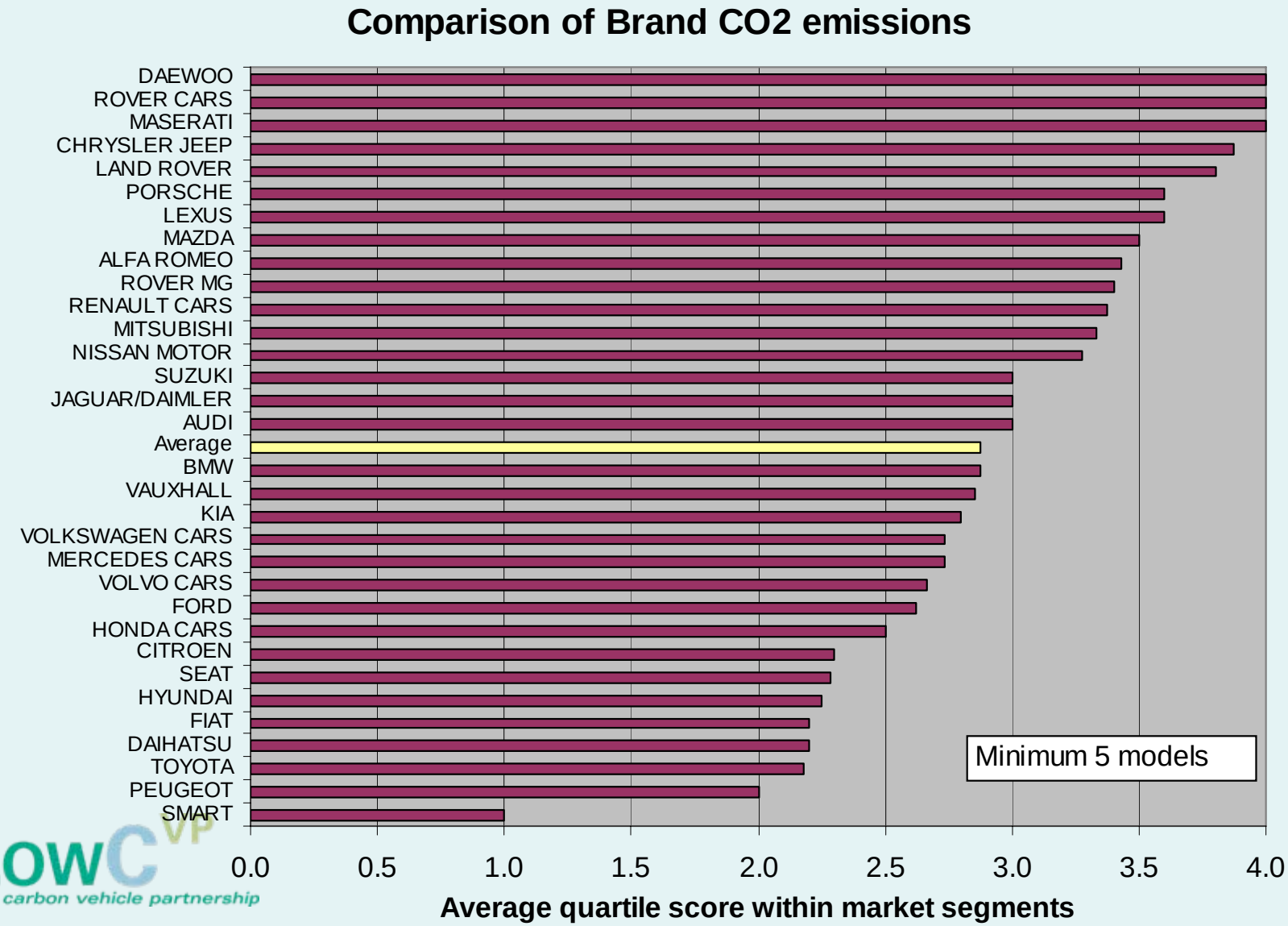
# *Comparison of brand CO2 emissions shows wide variation in performance*

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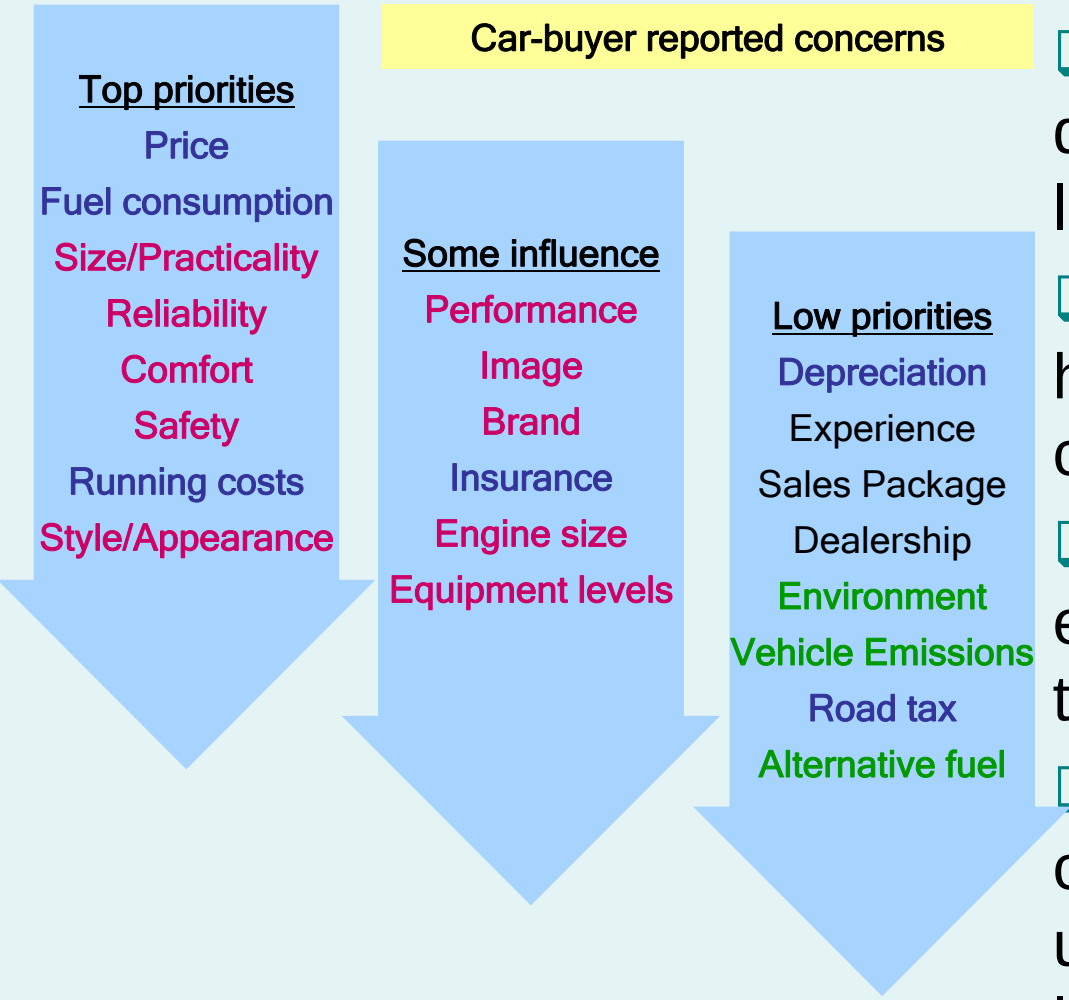
# *Environmental concerns are a low priority for most private car buyers*




- mpg is reported as a key decision-making factor – but little evidence
- Poor understanding and high tolerance of running costs
- Little knowledge of emissions and new technology
- Public concern about climate change – but few understand the causes and less take personal responsibility

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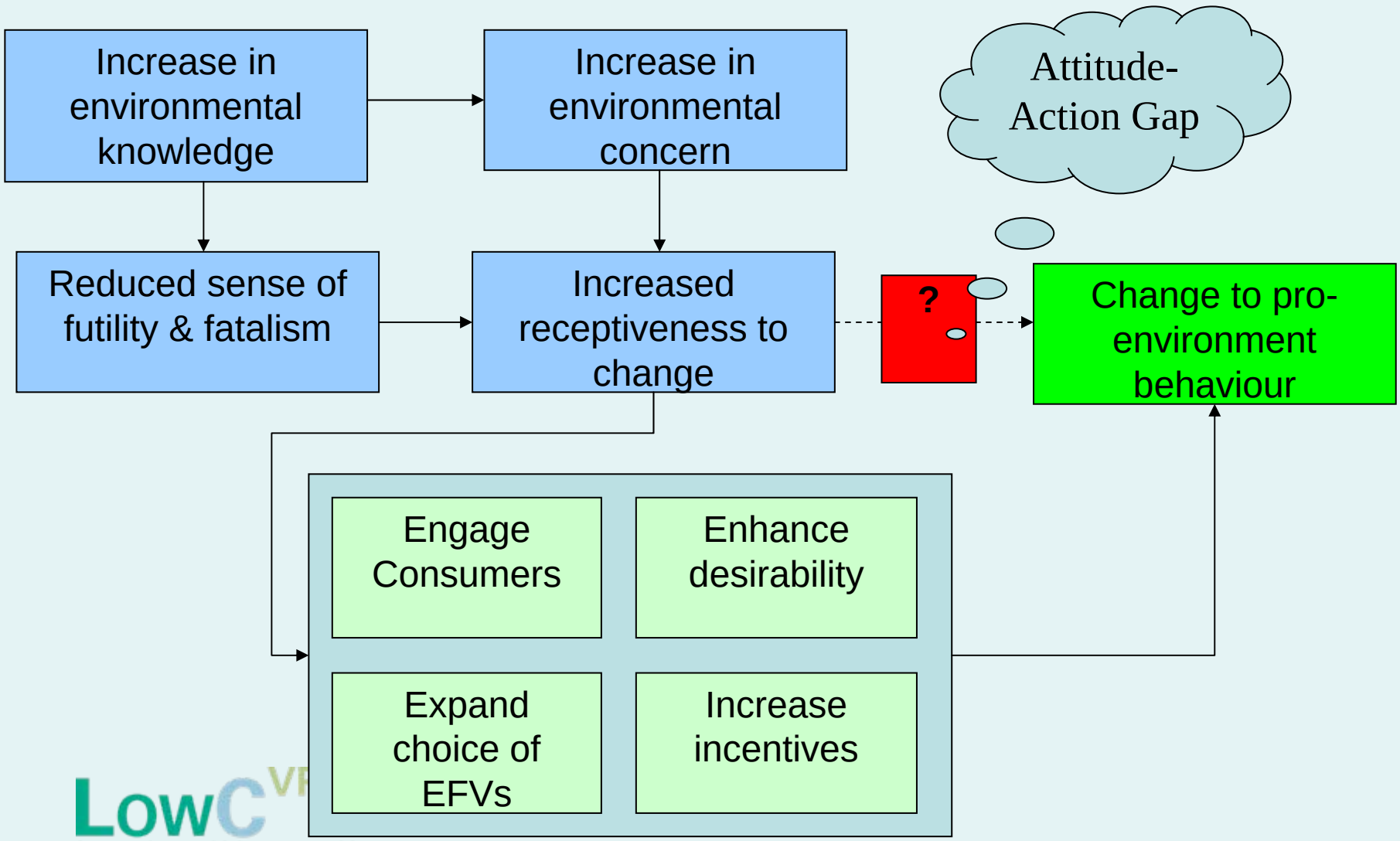
# *Increased demand for environmentally friendly vehicles requires bridging the attitude-action gap*

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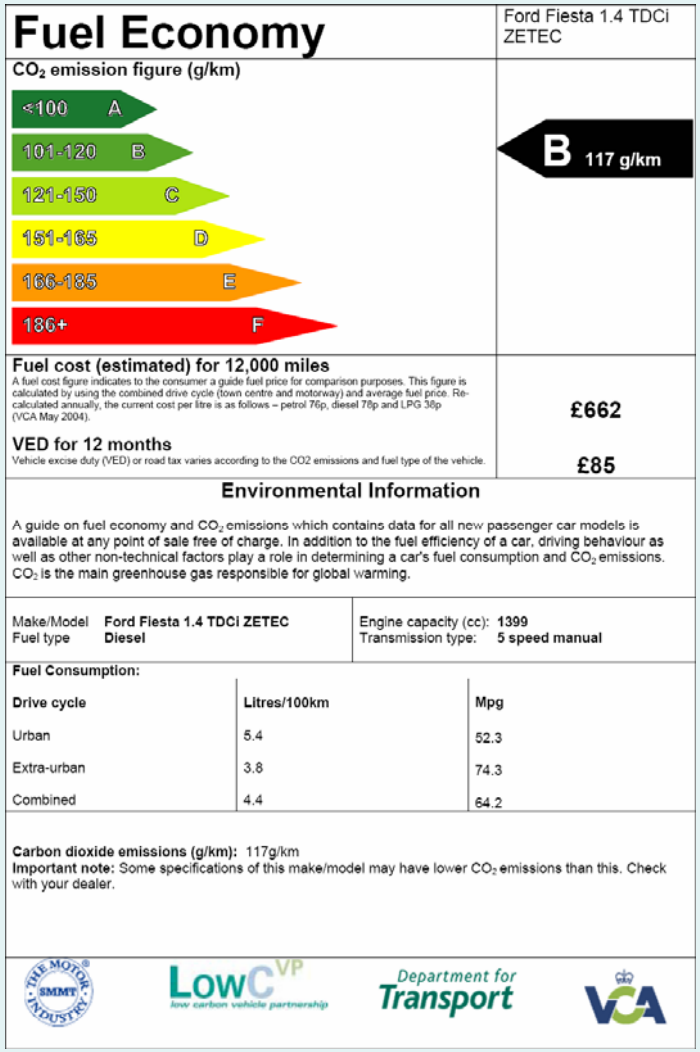
Adapted from Walton 2004

# LowCVP is working to enhance consumer information



**Fuel Economy**

Ford Fiesta 1.4 TDCi ZETEC

$CO_2$ emission figure (g/km)

<100 A
101-120 B
121-150 C
151-165 D
166-185 E
186+ F

B 117 g/km

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

A fuel cost figure indicates to the consumer a guide fuel price for comparison purposes. This figure is calculated by using the combined drive cycle (town centre and motorway) and average fuel price. Re-calculated annually, the current cost per litre is as follows – petrol 76p, diesel 78p and LPG 38p (VCA May 2004).

£662

**VED for 12 months**

Vehicle excise duty (VED) or road tax varies according to the CO2 emissions and fuel type of the vehicle.

£85

**Environmental Information**

A guide on fuel economy and $CO_2$ emissions which contains data for all new passenger car models is available at any point of sale free of charge. In addition to the fuel efficiency of a car, driving behaviour as well as other non-technical factors play a role in determining a car's fuel consumption and $CO_2$ emissions. $CO_2$ is the main greenhouse gas responsible for global warming.

Make/Model: **Ford Fiesta 1.4 TDCi ZETEC**
Fuel type: **Diesel**
Engine capacity (cc): **1399**
Transmission type: **5 speed manual**

**Fuel Consumption:**

| Drive cycle | Litres/100km | Mpg |
|---|---|---|
| Urban | 5.4 | 52.3 |
| Extra-urban | 3.8 | 74.3 |
| Combined | 4.4 | 64.2 |

**Carbon dioxide emissions (g/km):** 117g/km
**Important note:** Some specifications of this make/model may have lower $CO_2$ emissions than this. Check with your dealer.

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- **Voluntary car industry initiative**
  - **brokered by LowCVP**
- **Combination of simple and statutory information:**
  - **Label shows CO2 emissions, estimated fuel costs and test cycle data**
- **Bands linked to UK Vehicle Excise Duty**
- **Labels presently in 75% of showrooms**

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# *Renewable Transport Fuels Obligation – RTFO will significantly increase UK supply of biofuels*

- Quota scheme for renewable transport fuels
- Will require all suppliers of transport fuels in UK to:
  - Sell a given amount of renewable transport fuel each year (for which they will receive certificates); or
  - Purchase certificates from another company; or
  - Pay a "buy-out" price
- Scheme scheduled to commence April 2008
- Targets:
  - 2008/9 2.5%
  - 2009/10 3.8%
  - 2010/11 5%
- Obligated companies required to report on GHG savings and sustainability of supplied renewable transport fuels

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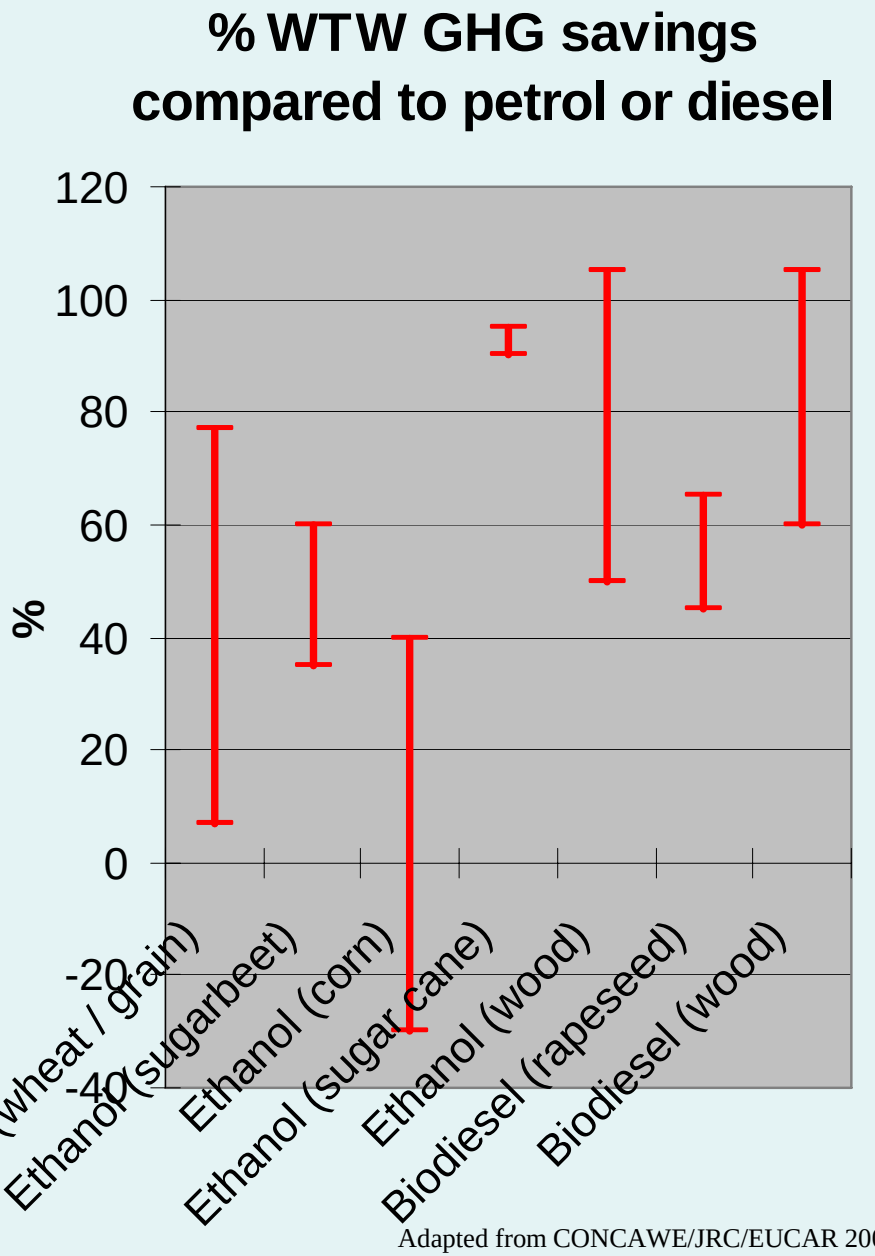
# *Well to Wheel GHG savings & production costs for biofuels vary widely*

- GHG savings (& production costs) of biofuels vary widely depending upon:
  - Feedstock
  - Cultivation processes
  - Production processes
  - By-product use
- Incentives are needed to encourage supply of biofuels with the highest GHG savings
- A sustainability assurance scheme is needed to mitigate wider environmental & social effects of biofuel production




Adapted from CONCAWE/JRC/EUCAR 2004

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# *How will the obligation be met?*

- Oil majors will:
  - Splash blend ethanol at c50 depots
  - Blend biodiesel at refineries
- Additional tankage requiring planning permission needed at depots
  - Delays likely if there are significant delays completing the HSE Buncefield inquiry or there is a subsequent public inquiry

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# Summary

- Levels of GHG will reach potentially “dangerous levels” in the next 10 years
- Road transport is a significant & growing source of GHG emissions
- Technology offers the potential to significantly reduce GHG emissions - but responsible vehicle use and other measures also have important roles
- There are a wide range of fuel and vehicle technology options available with different GHG savings and costs
- There is a low level of consumer awareness & interest in low carbon car options
  - Low carbon vehicle technologies are more expensive & payback periods long
- Changing consumer attitudes requires additional incentives & measures to increase desirability, a wider range of models from which to choose and better consumer engagement
- The RTFO will provide a important mechanism for increasing supply of biofuels to the UK – assuming the necessary infrastructure can be installed post Buncefield
- GHG savings vary widely between fuels of different origin and biofuels can contribute to other forms of environmental harm – carbon certification and sustainability assurance schemes can help to mitigate this

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# The Low Carbon Vehicle Partnership

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