

Transport Development in Europe

Symposium on Future Challenges of Transport and
Environment

Berlin, 24-25 June 2008

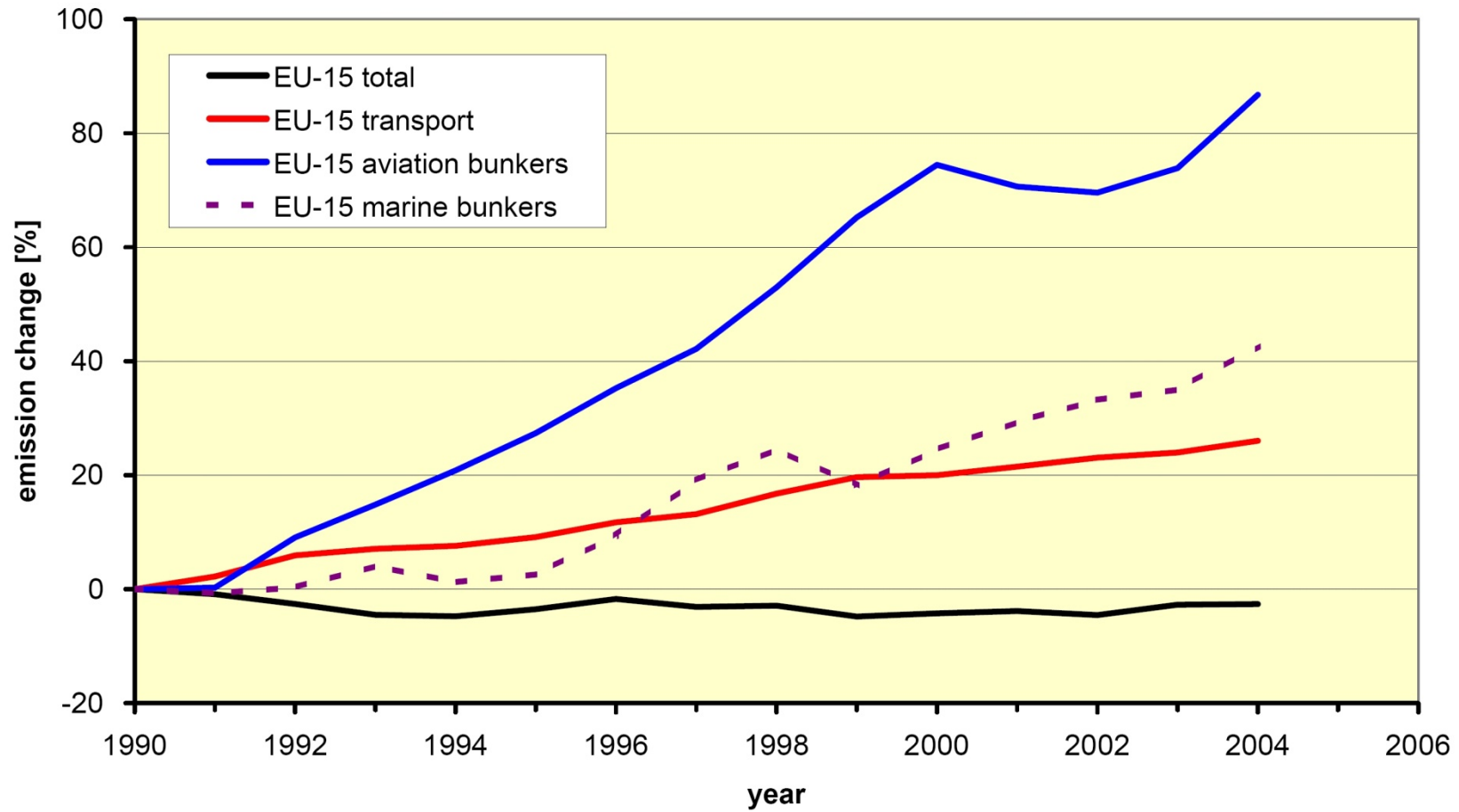
Günter Hörmandinger

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(Clean Air and Transport)

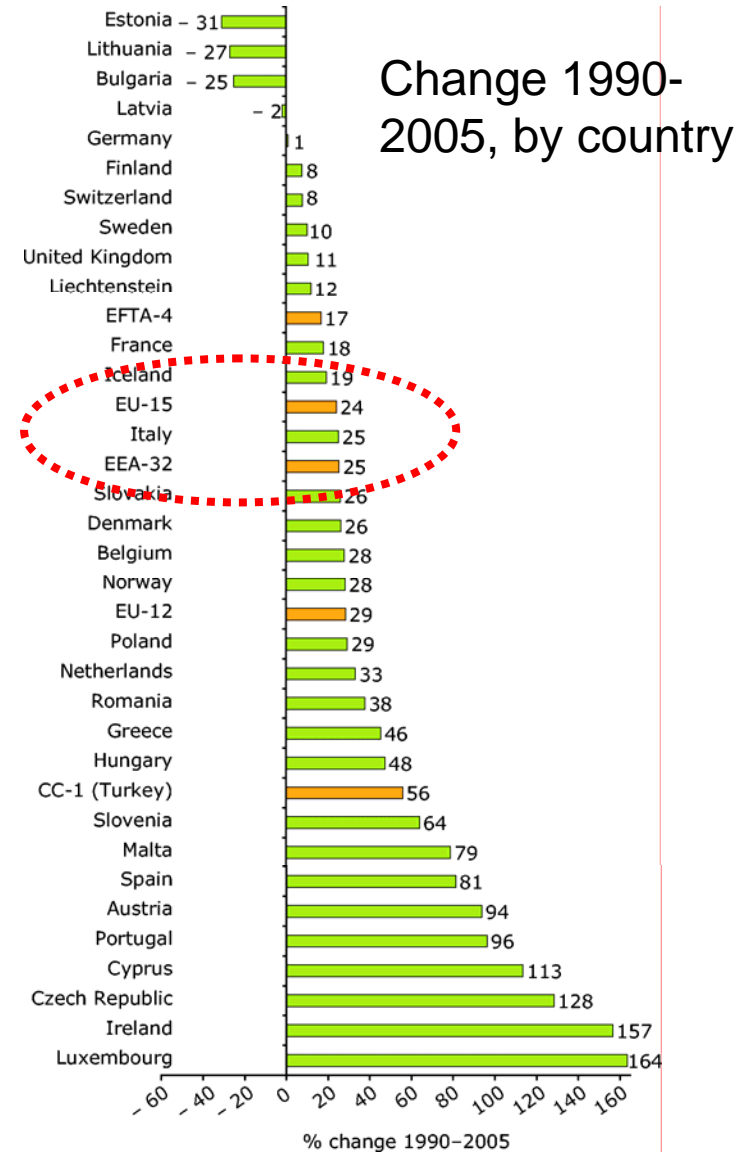
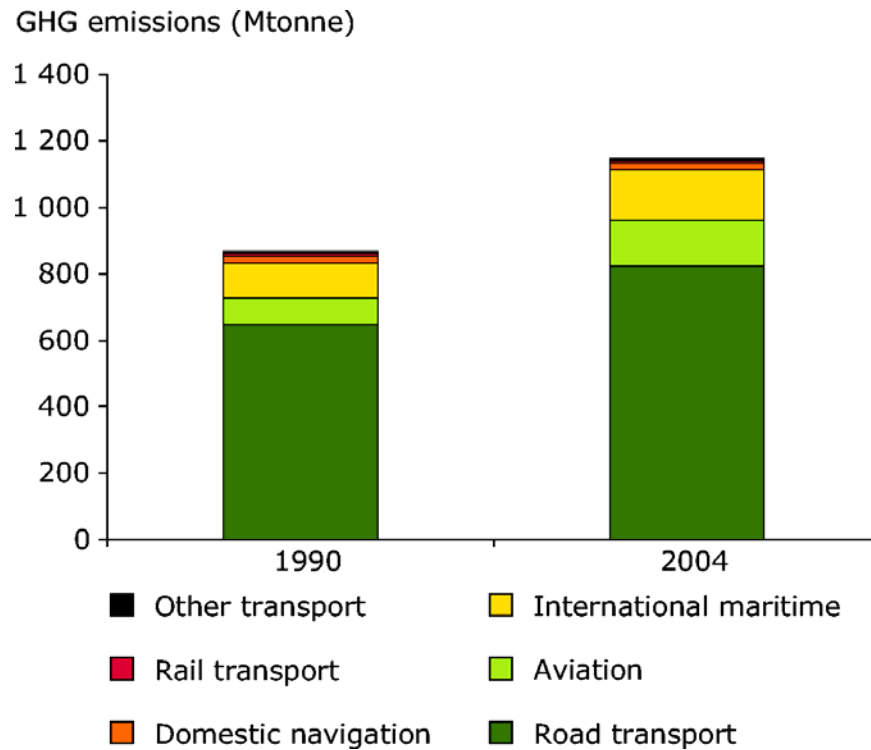
Outline

1. Transport and environment:
 - facts and figures
 - Outlook
2. Policy overview

EU15 – CO₂ emissions (1990 -2004)

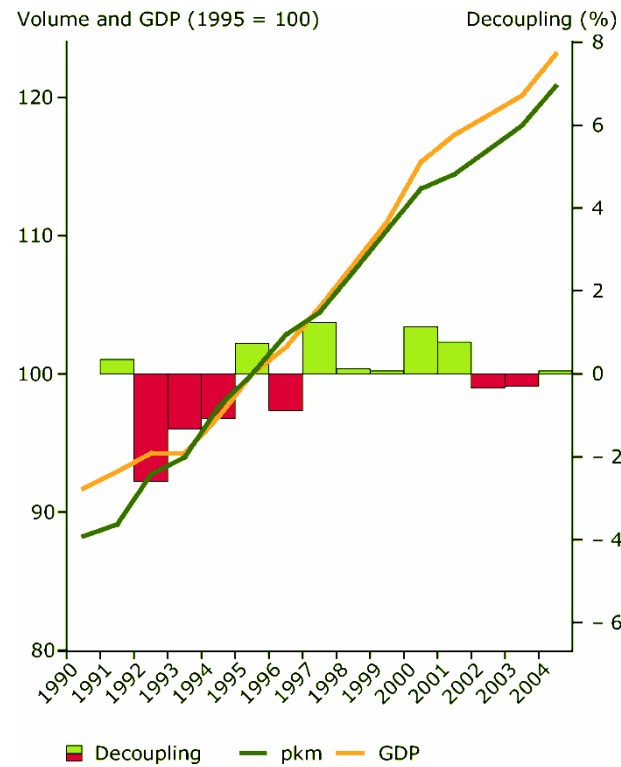


Greenhouse gas emissions from transport

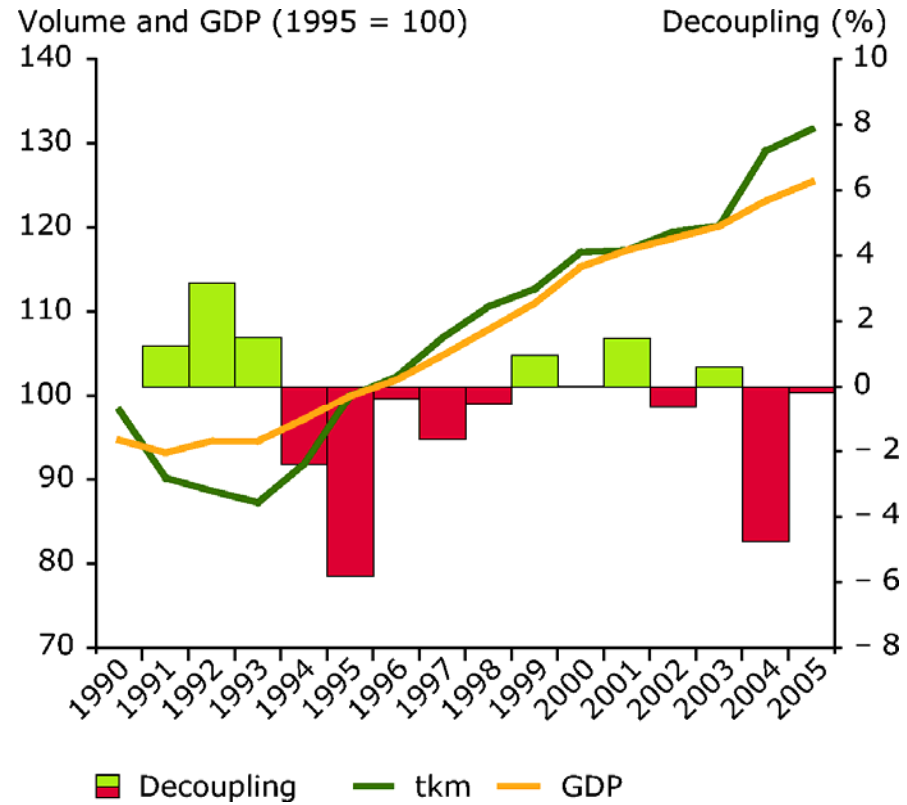


Transport activity

Passenger transport

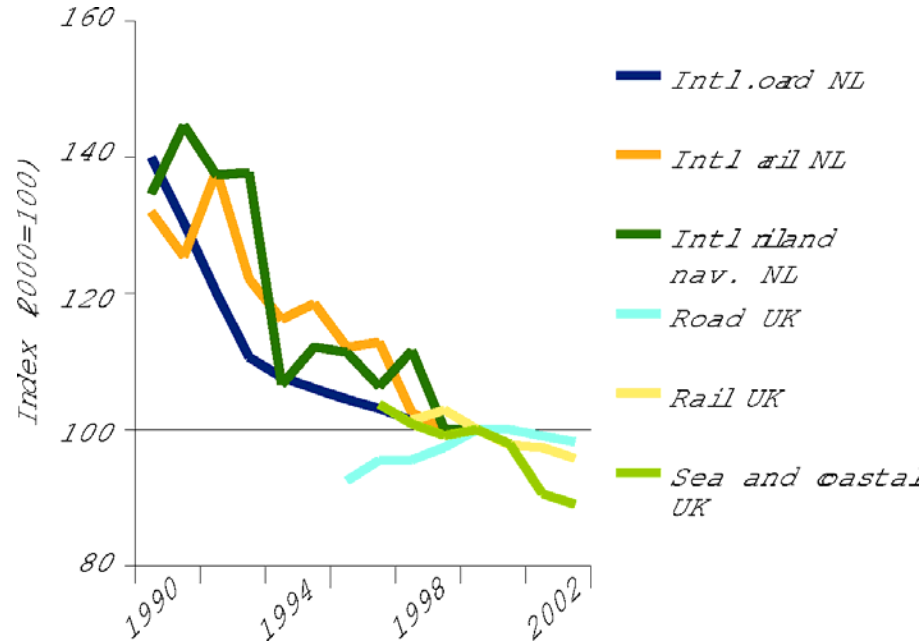


Freight transport

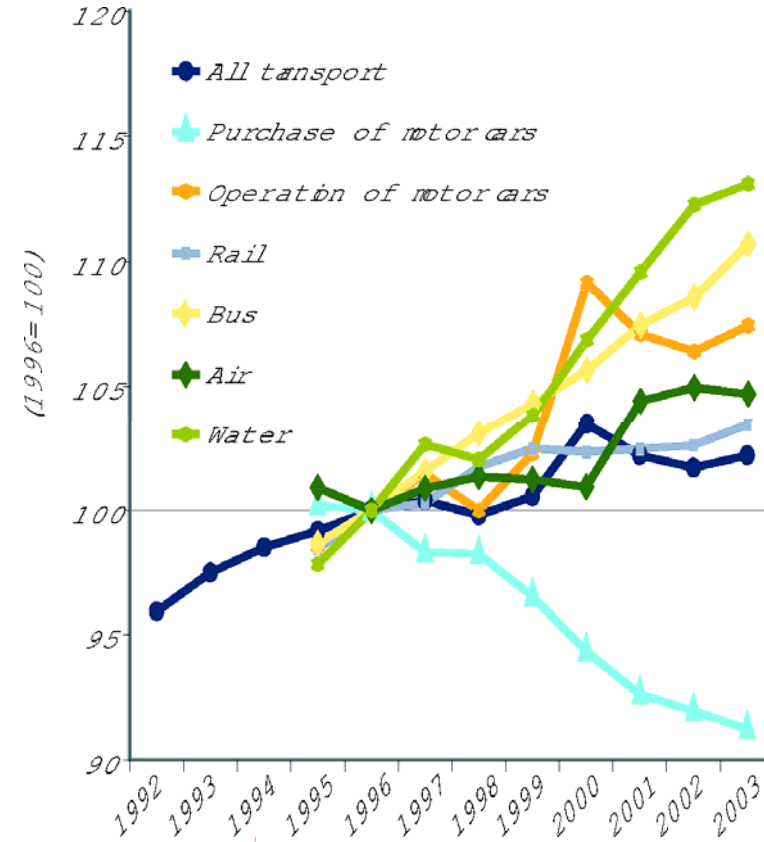


Some economic aspects of transport

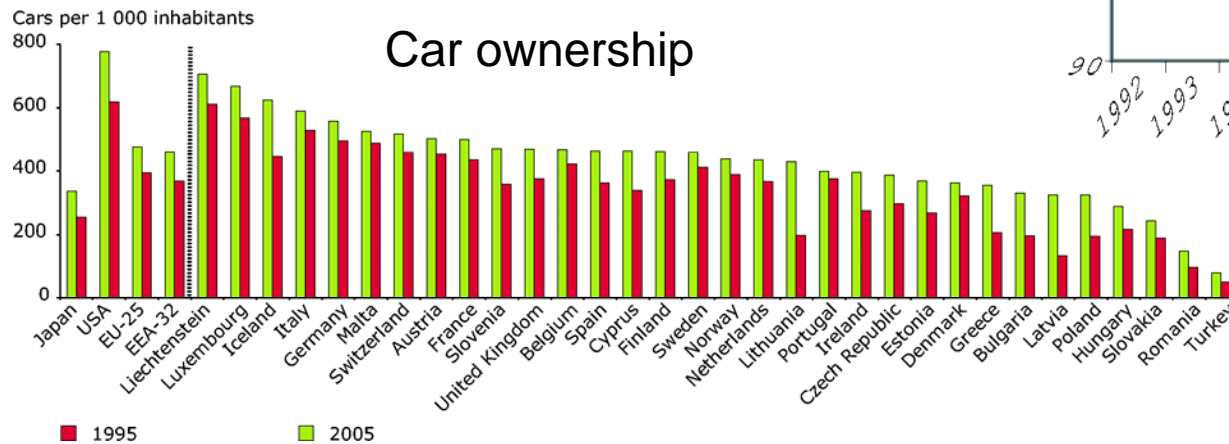
Freight transport cost, all modes



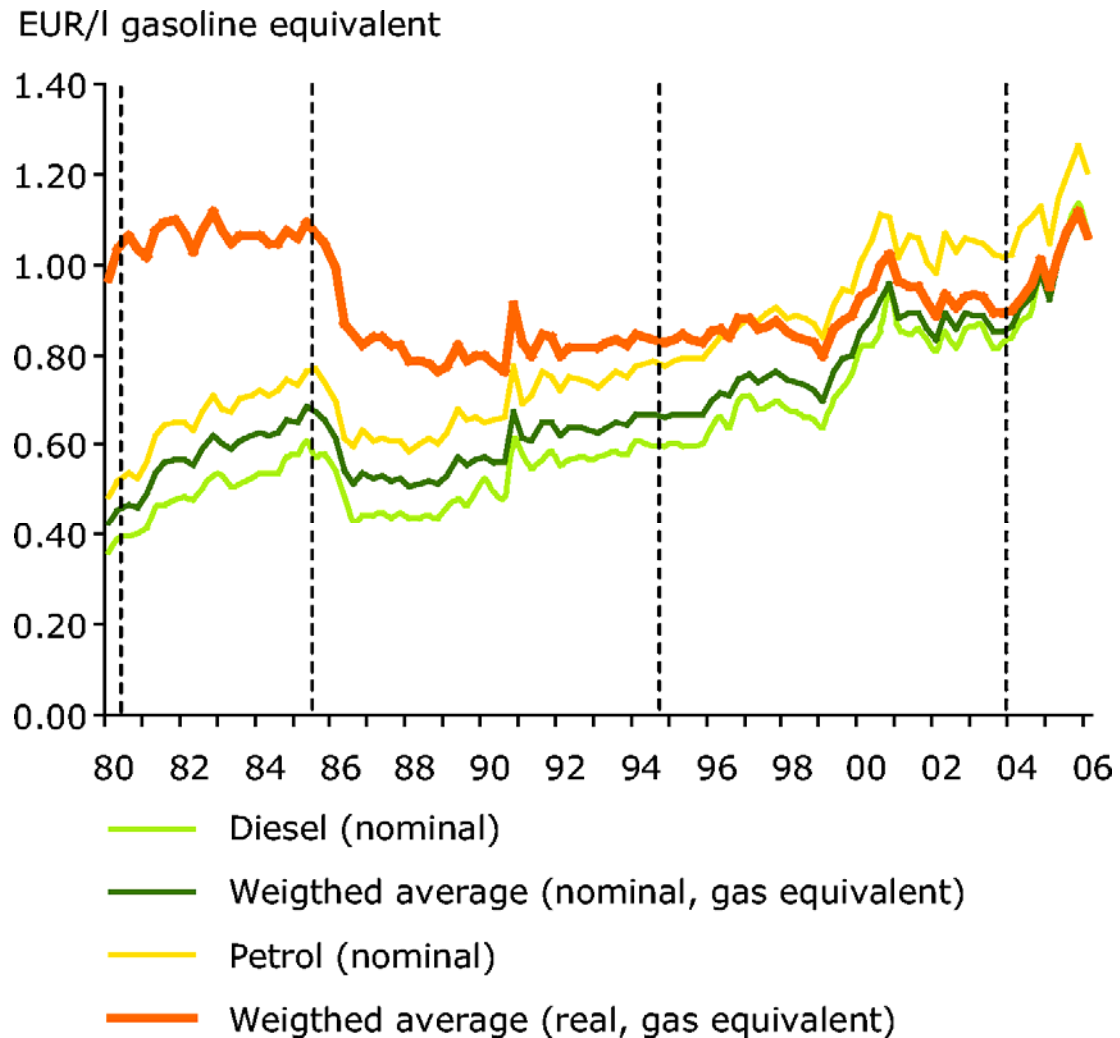
Travel cost, all modes



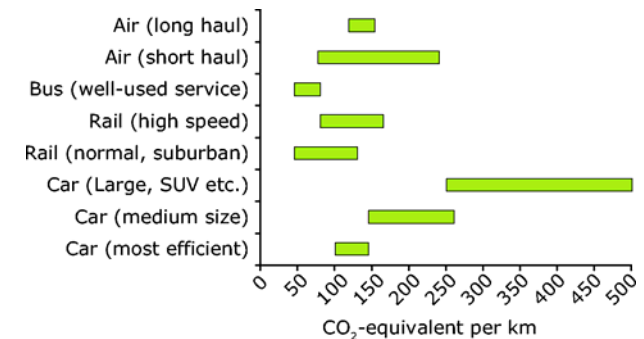
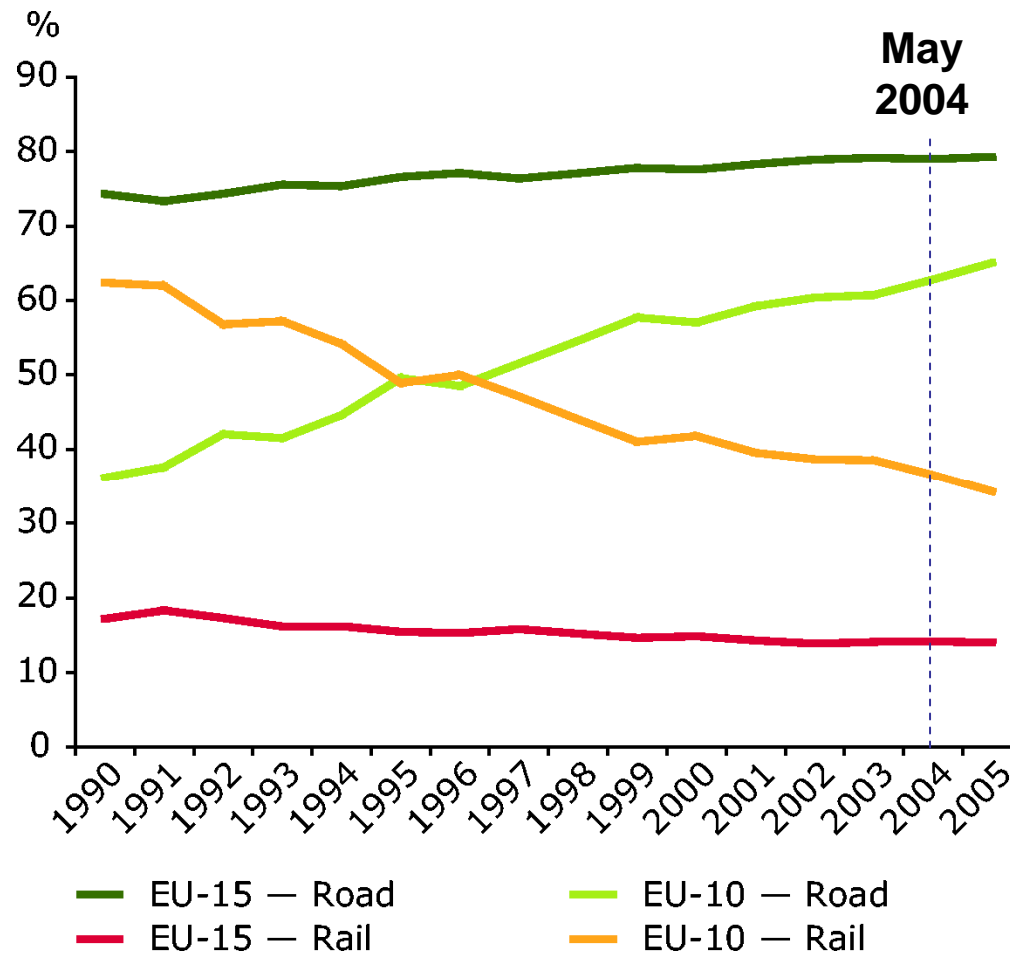
Car ownership



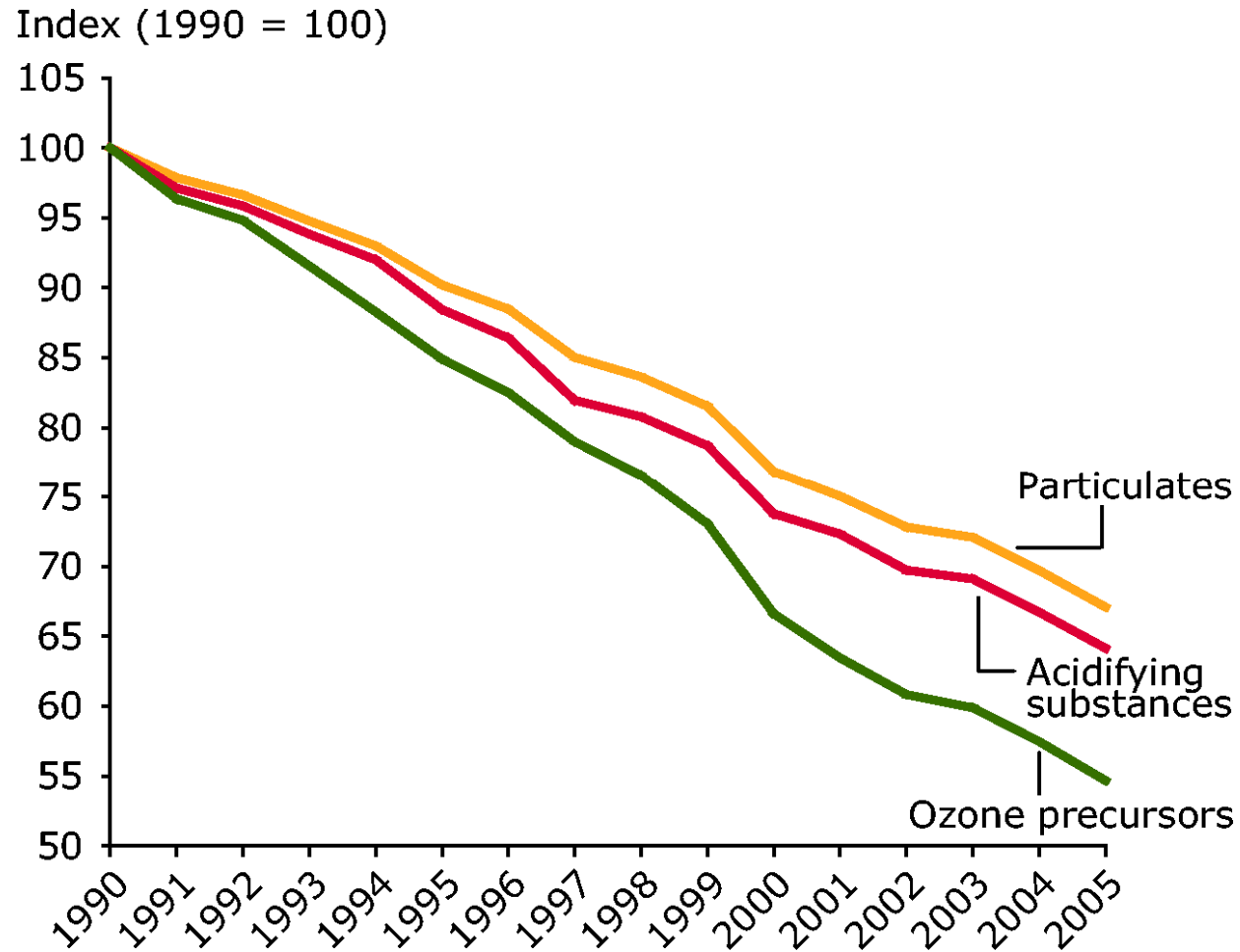
Fuel prices have not changed much in real terms



Modal shares in new Member States are fast approaching those of the EU-15



Air pollutant emissions from transport: a success story...



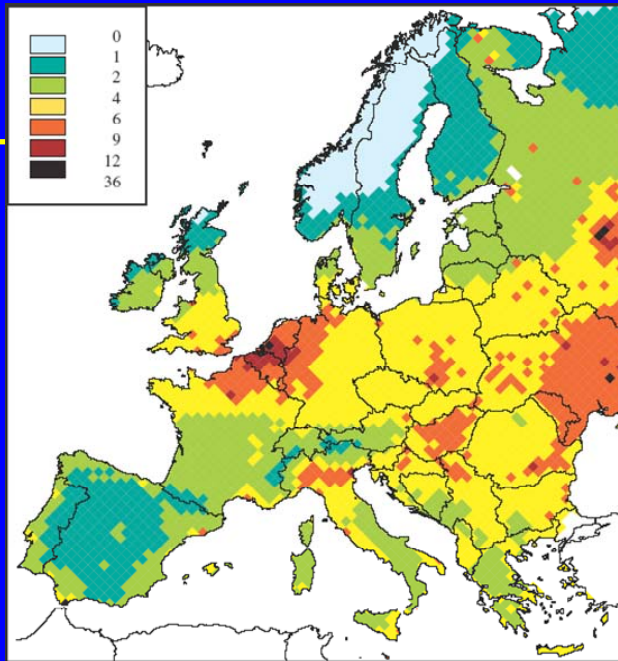
...although air quality is not yet what it should be.



**Example 1:
Fine particles**

**Even if situation improves by 2020:
2.5 million life years
or
272,000 premature
deaths
if nothing is done.**

Loss in average statistical
life expectancy due to
identified anthropogenic
PM2.5
Calculations for 1997
meteorology



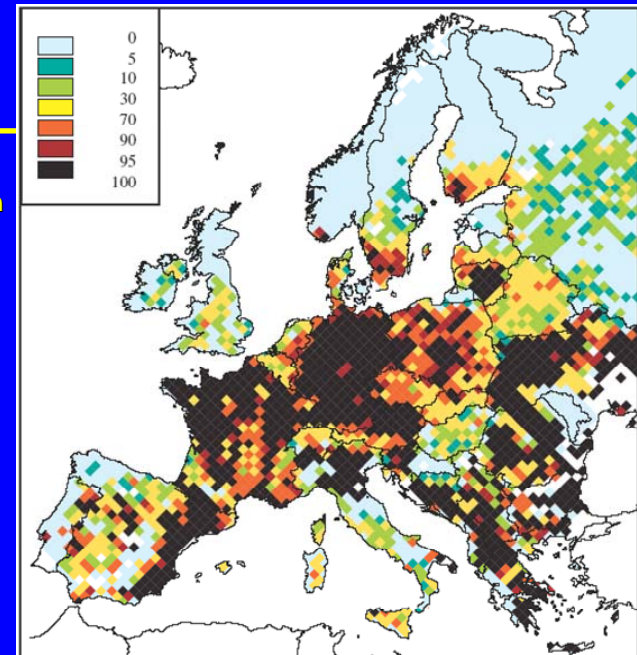
Source: Clean Air for Europe Programme (2005)



**Example 2:
Problem of too much
nitrogen deposited
to nature in 2020
*No EU policies have
yet addressed this.***

**Ecosystem area
exceeded eutrophication
590 000 km²**

Percentage of
ecosystems area with
nitrogen deposition
above critical loads
using grid-average
deposition.
Calculation for 1997
meteorology



Source: Clean Air for Europe Programme (2005)

Outlook on transport

FIGURE 19: PASSENGER TRANSPORT BY MODE, 1990-2030

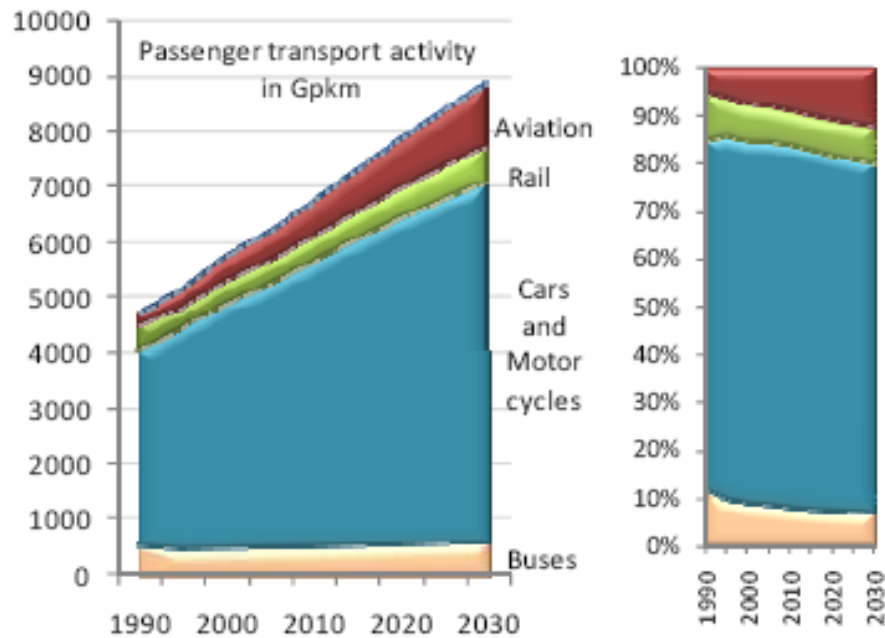
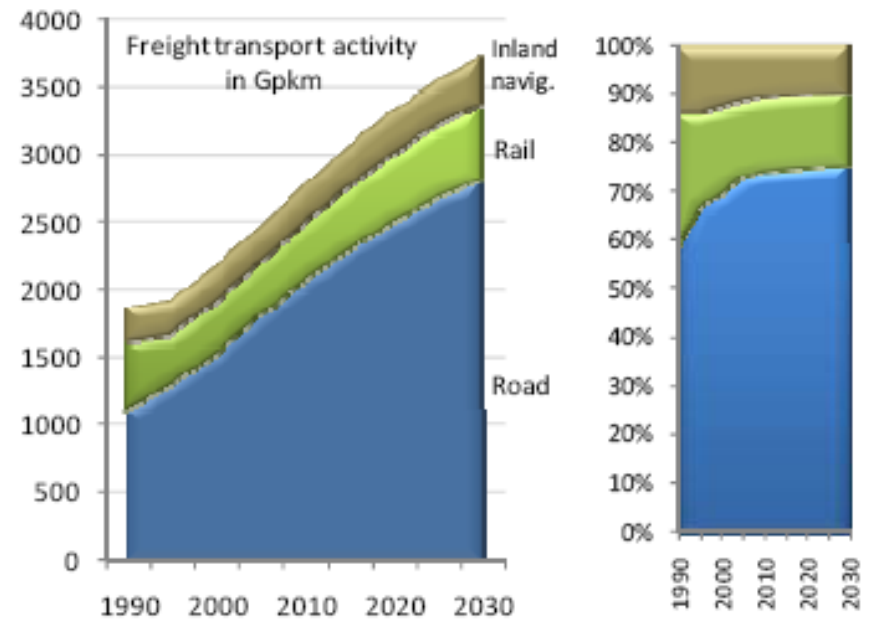
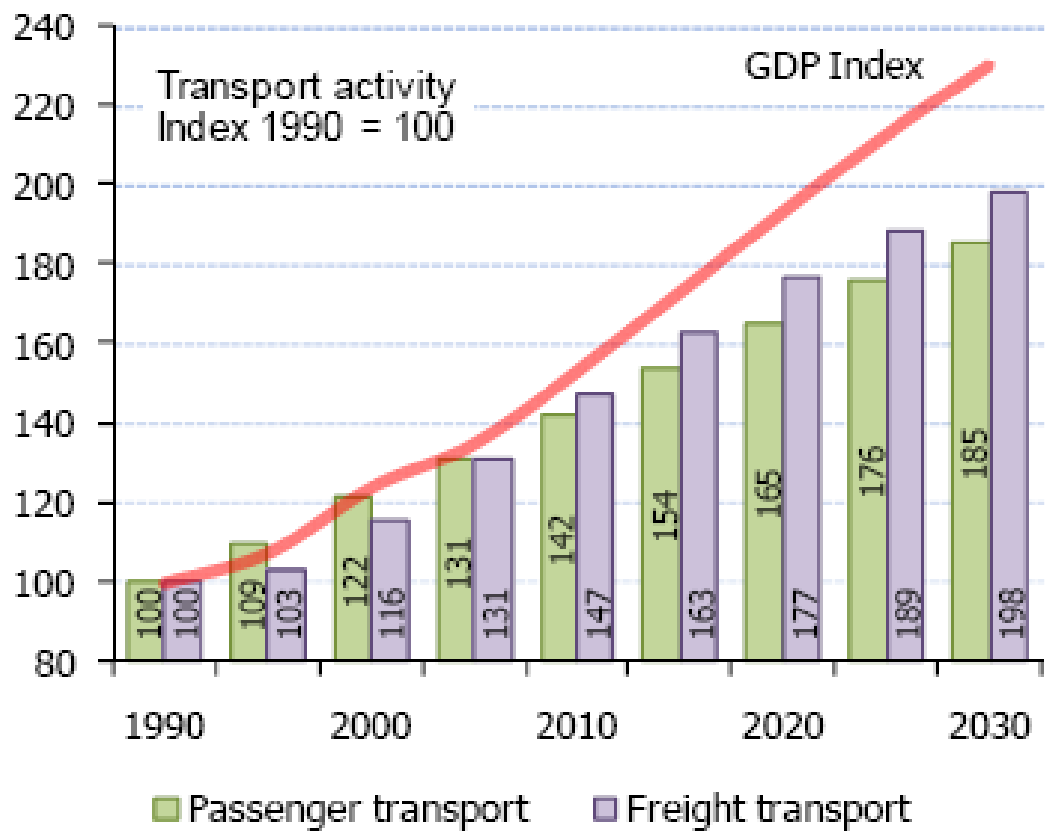


FIGURE 20: FREIGHT TRANSPORT ACTIVITY, 1990-2030



Source: DG TREN

FIGURE 18: TRANSPORT ACTIVITY GROWTH, 1990-2030



Energy in the EU: projection to 2030

FIGURE 1: PRIMARY ENERGY REQUIREMENTS BY FUEL

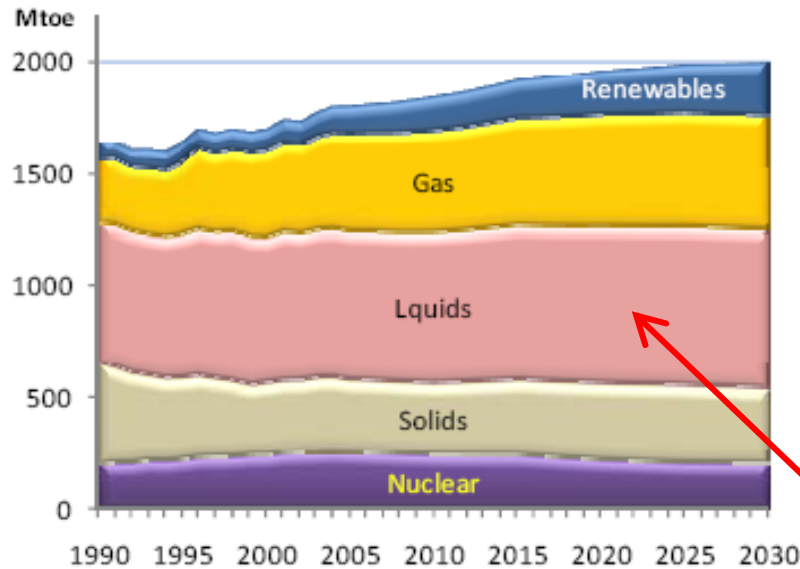


FIGURE 3: FINAL ENERGY DEMAND BY SECTOR

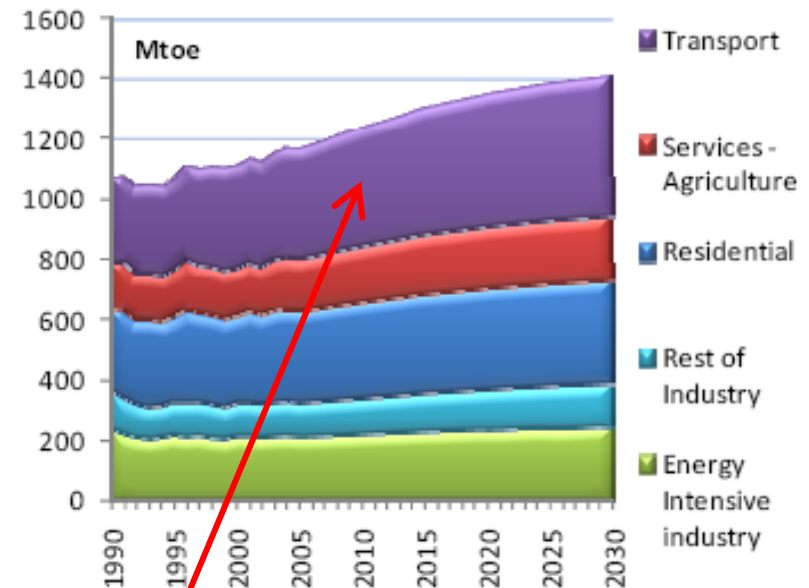
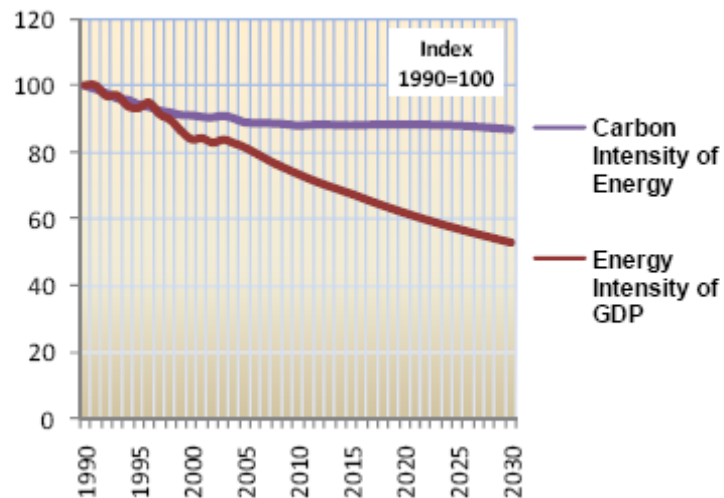


FIGURE 2: ENERGY AND CARBON INTENSITY INDICATORS



Includes partial fulfilment of car industry's voluntary commitments but no legislation on CO2 from cars, and oil price stabilising at ca \$60/bbl

Source: DG TREN

FIGURE 46: ENERGY CONSUMPTION IN ROAD TRANSPORT BY VEHICLE TYPE

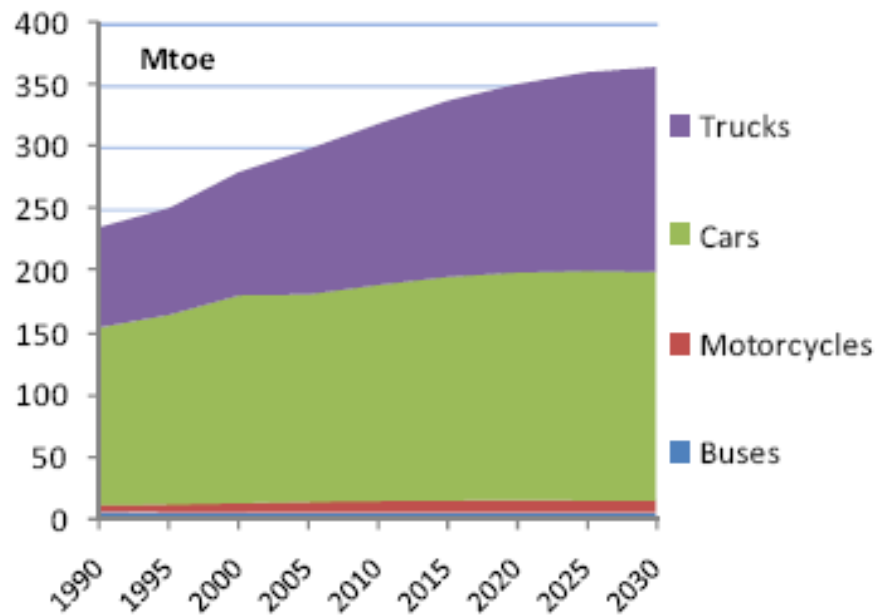
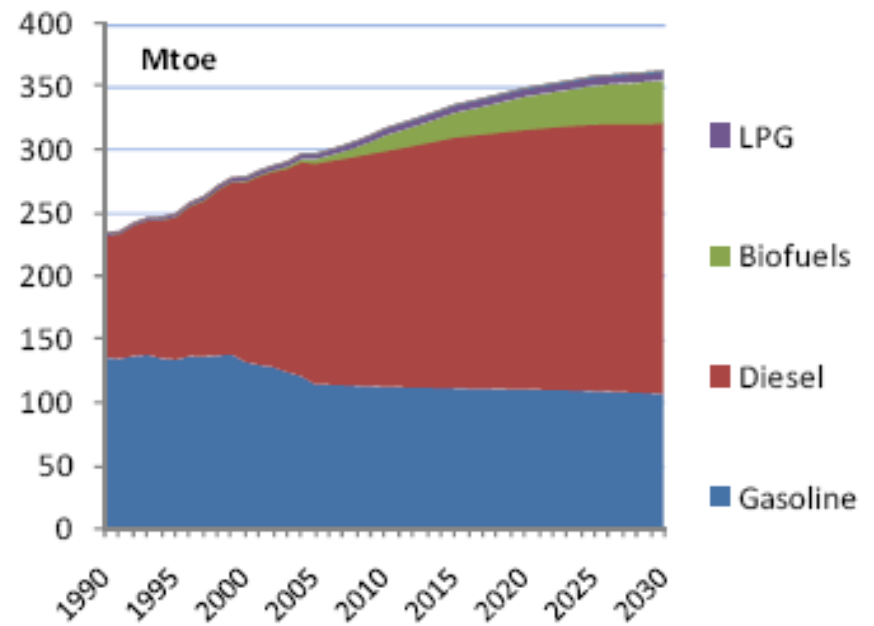


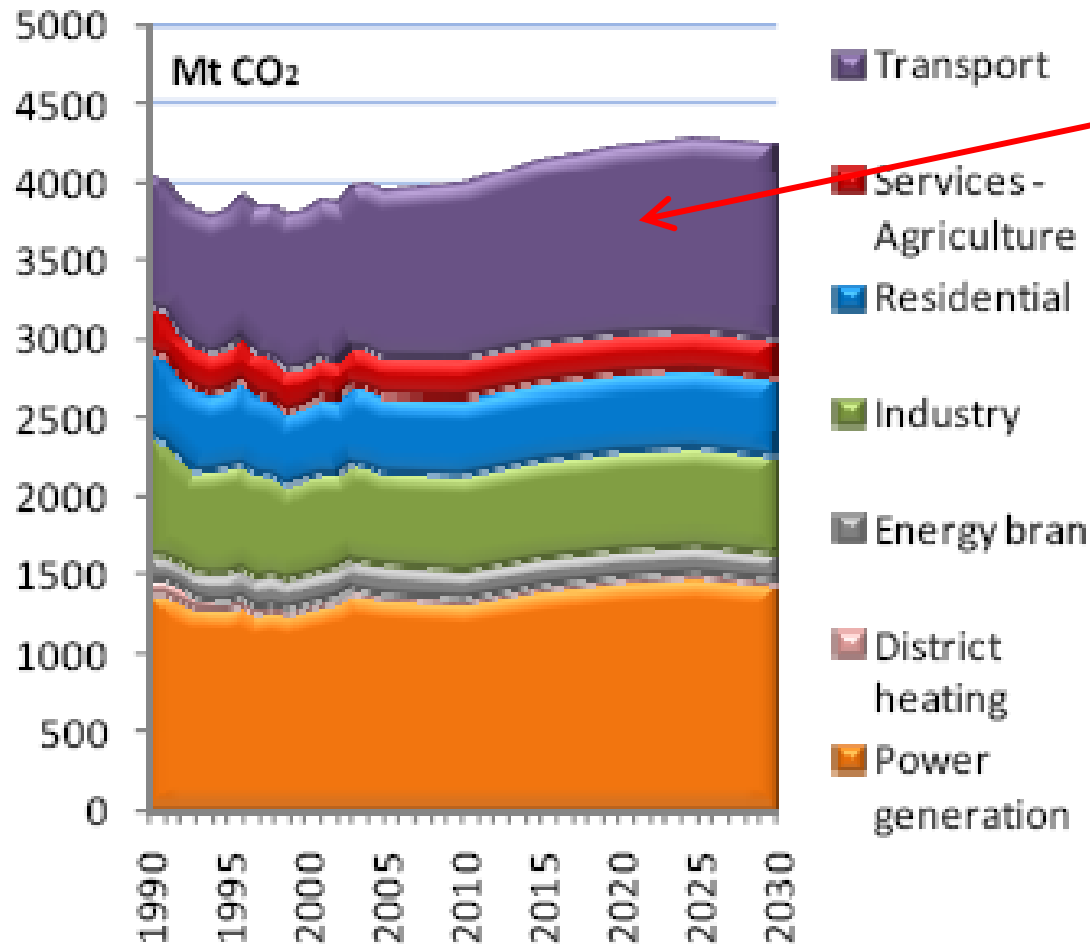
FIGURE 47: ENERGY CONSUMPTION IN ROAD TRANSPORTATION



Source: DG TREN

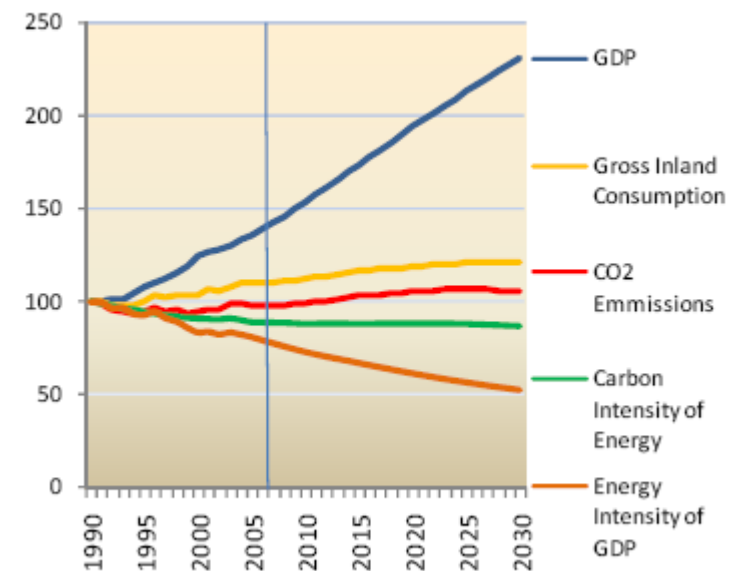
Outlook on CO₂ emissions

FIGURE 86: CO₂ EMISSIONS BY SECTOR



**Growth rate
ca 0.7%/a 2005-2030**

FIGURE 85: CARBON EMISSION INDICATORS



Section 2: policy

Climate Change and Energy Package

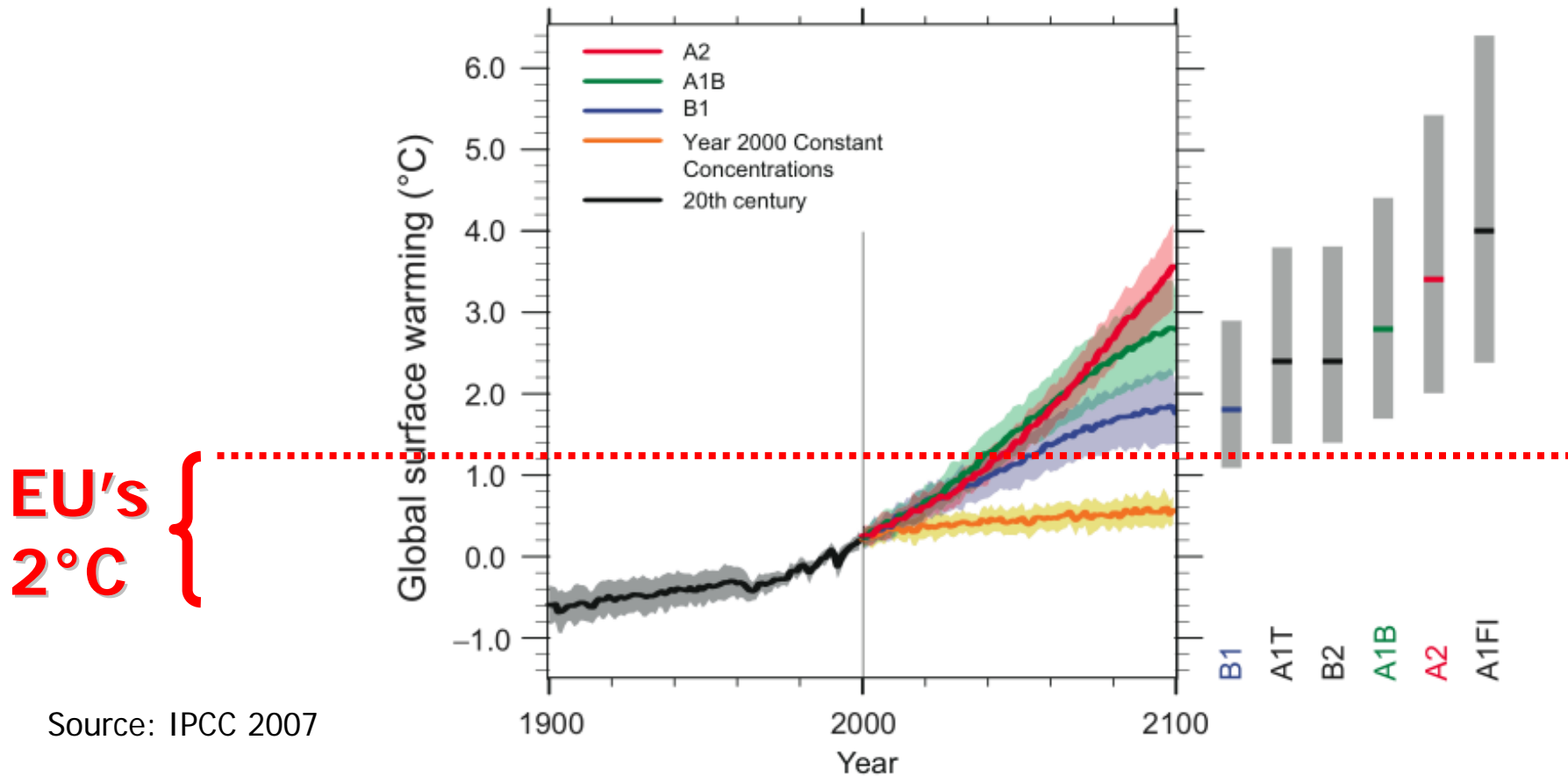
23 Jan 2008

- Meeting the objective that *global average temperature increases do not exceed pre-industrial levels by more than 2°C*
 - In international negotiations GHG reduction target of 30% by 2020 for developed countries (vs. 1990).
 - A firm, independent commitment to achieve at least **20%** GHG reduction by 2020 for EU-27 (vs. 1990)
- Transport
 - currently represents about 1/4 EU GHG emissions.
 - is the only major EU sector where emissions are increasing.
- Perspective of Kyoto Protocol:
 - 2012 -8% (EU-15)
 - Today -5% (EU-27)
 -1% (EU-15)

The EU's 2 degrees Celsius objective

(European Council 8/9 March 2007)

Multi-model Averages and Assessed Ranges for Surface Warming



EU's
2°C

Source: IPCC 2007

Meeting the 2° C objective

- **The overall EU target is to globally not exceed a temperature increase of +2C compared to pre-industrial period.**
- **450 ppm by 2100 will give 50% chance to meet the +2C target**
- **Global GHG emissions reduction by 15 and may be as much as up to 50% by 2050 compared to 1990, implying reductions in developed countries of 60-80% by 2050.**
- **Global GHG emissions peak before 2020**

Transport growth and emissions reductions

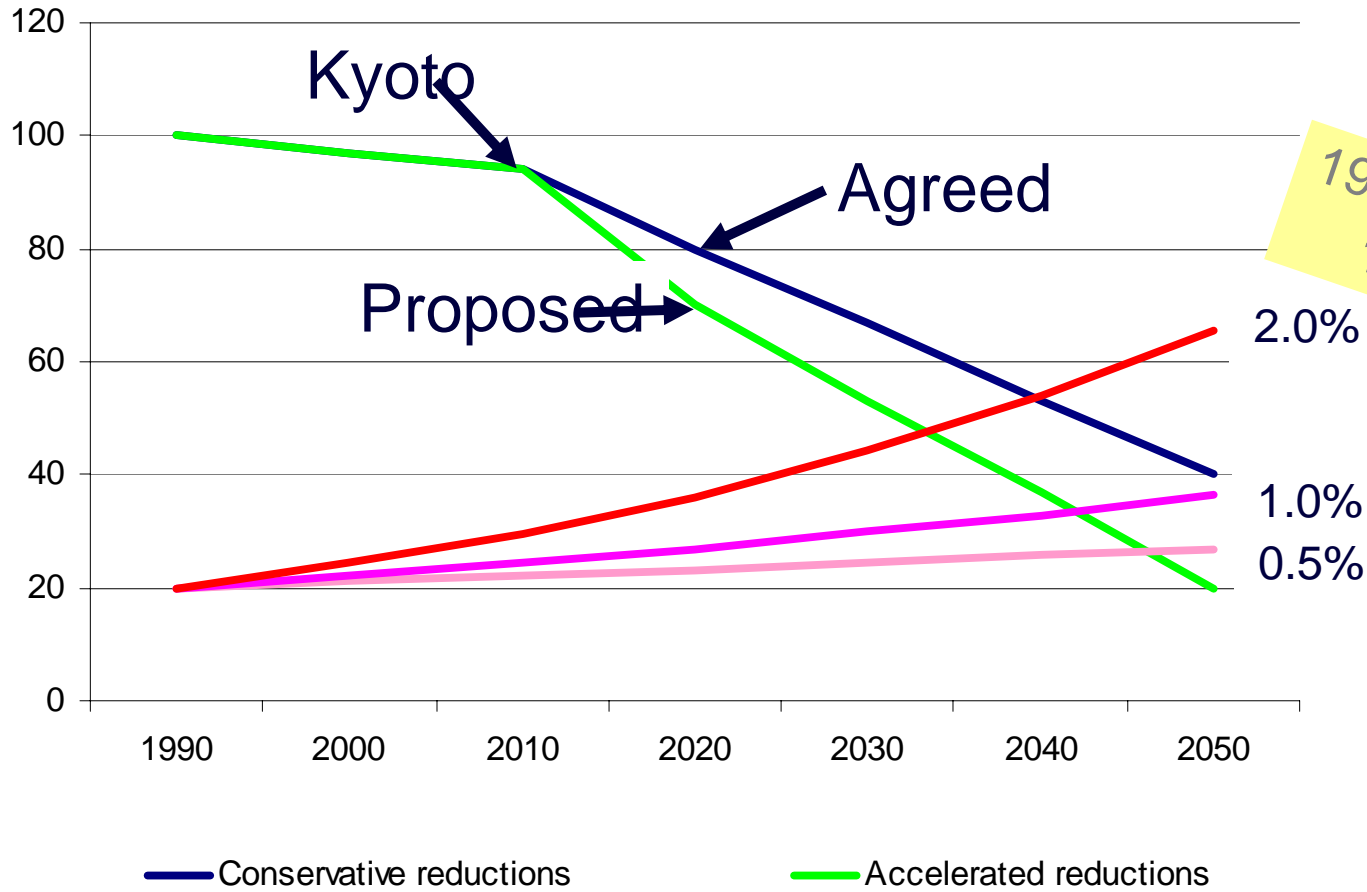
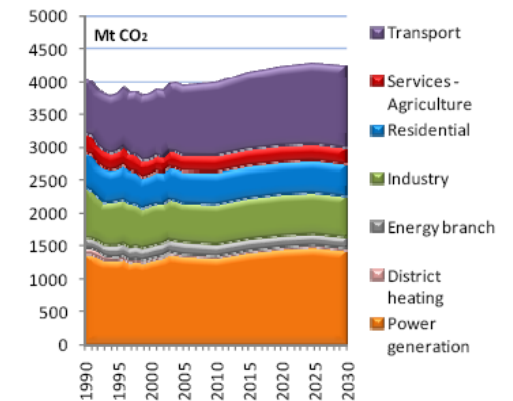


FIGURE 86: CO₂ EMISSIONS BY SECTOR

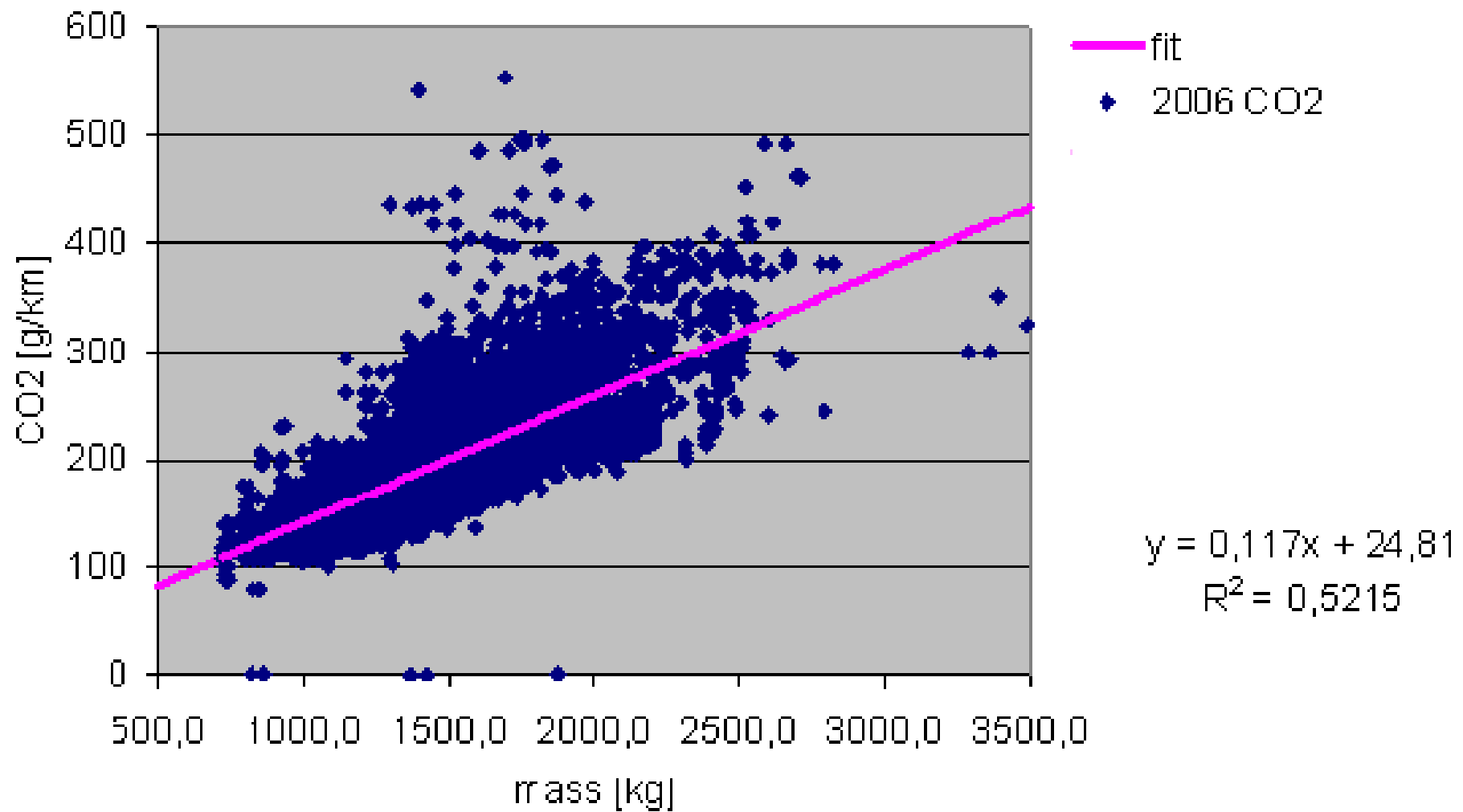


Revised CO₂ and cars strategy

COM(2007)19

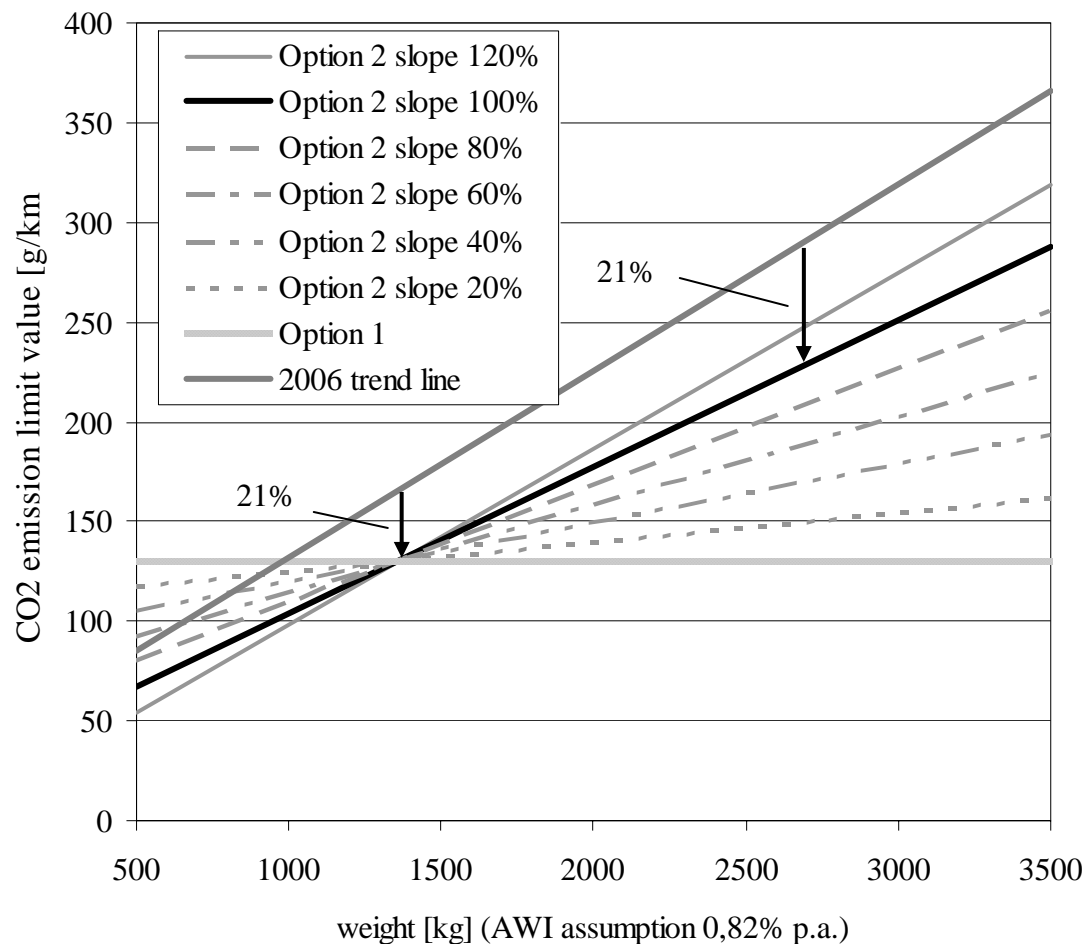
- 120 g delivered in 2012 through an “integrated approach”.
 - a) 130 g on the vehicle side through legislation**
 - b) 10 g through additional measures:
 - Improved air conditioning – *in preparation*
 - Lower rolling resistance of tyres – *COM(2008)316*
 - Tyre pressure monitoring systems – *COM(2008)316*
 - Gear shift indicators
 - Inclusion of N1 vehicles – *in preparation*
 - Increased use of biofuels – *revision of Fuel Quality Directive 98/70*

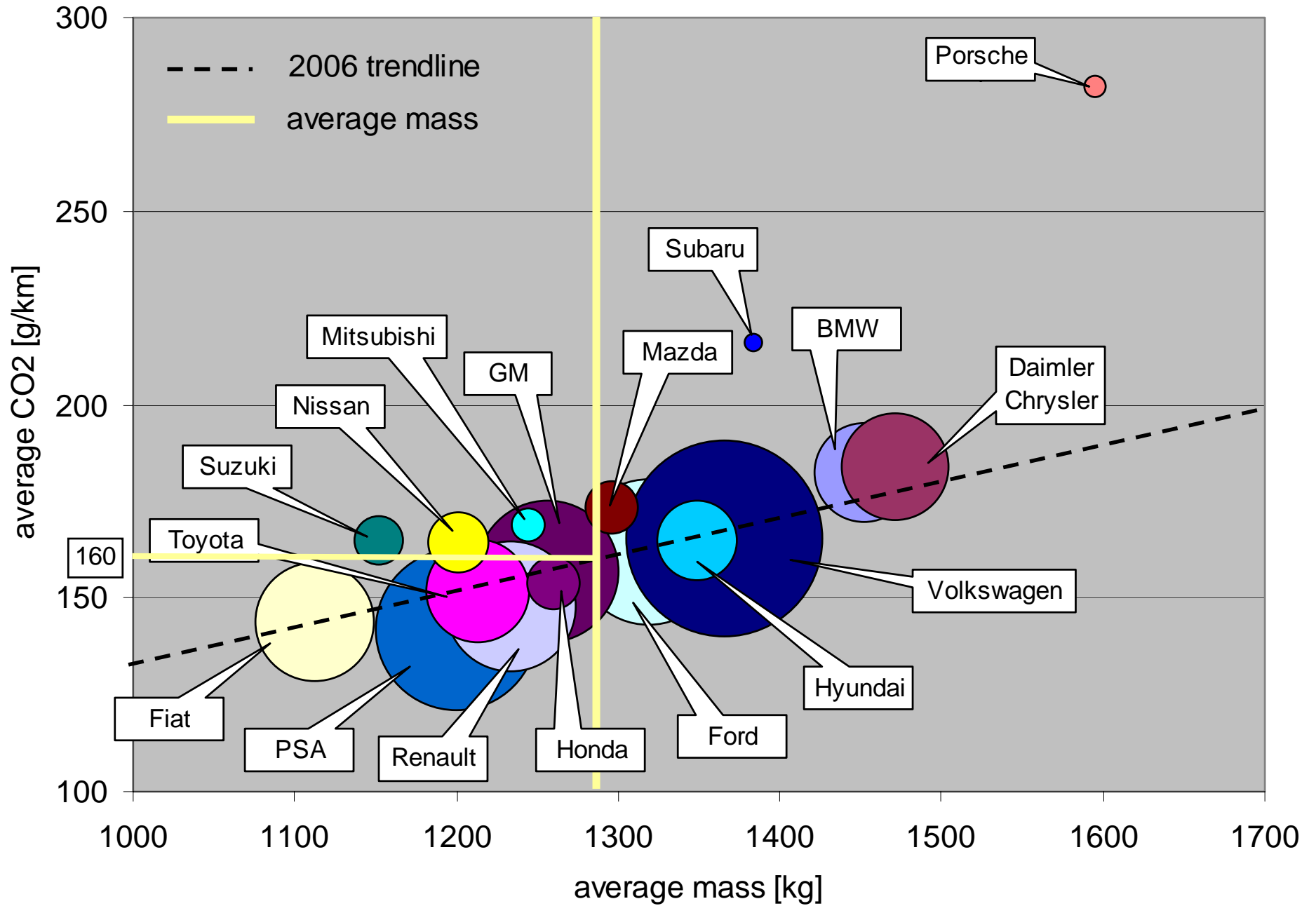
2006 CO2 vs mass



Determining the limit value curve

- Starting point: 2006 trend line
- Scale the curve to achieve 130g/km no average in 2012: this is the “100% curve”
- Consider Option 1 (uniform target) as “0% curve”
- Slope can be varied by applying different % values





Alternative fuels

- White Paper on renewable energy, COM(97)599
 - Sets out Community Strategy and an Action Plan to double the share of Renewable energy from 6 to 12 % in Gross Inland Production by 2010
- Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport - target of 5.75% by 31 December 2010
- Communication on the implementation of the Community Strategy and Action Plan COM(2001)69(01). Proposed directives:
 - Directive on the promotion of electricity from renewable energy sources in the internal electricity market
 - Directive on Combined Heat and Power (CHP) - Target: doubling the share of CHP from 9% (1994) to 18% (2010); Special provision for renewables
 - Directive on the promotion of the use of energy from renewable sources(COM(2008) 19 final) - mandate for a minimum use of biofuels and their detaxation

Fuel quality Directive

- Proposal for revision COM(2007)18
 - Monitoring and reporting requirement for lifecycle CO₂ emissions
 - Reduction by 10% over 10 years
- Key issue: sustainability criteria

GHG emissions from Heavy Duty Vehicles

- Study finishing end 2007
- Options:
 - Best practice programme
 - Weights and dimensions of vehicles
 - Labelling and certification
 - Engines
 - Entire vehicles
 - Vehicle components
 - CO2 measurement and reporting as part of EURO VI
 - Market based instruments (Road charging, Taxation)
 - Truck tyres
 - Better logistics
- No decision yet on action / timetable
- Later options: Regulating CO2 from trucks, EU ETS

Non-road modes

Recall the 6th Environmental Action Programme 2002-2012
(Decision 1600/2002/EC)

- iii) Reducing greenhouse gas emissions in the transport sector:
 - (a) identifying and undertaking specific actions to reduce greenhouse gas emissions from **aviation** if no such action is agreed within the International Civil Aviation Organisation by 2002 - **Done**
 - (b) identifying and undertaking specific actions to reduce greenhouse gas emissions from **marine shipping** if no such action is agreed within the International Maritime Organisation by 2003 – **Under preparation**
 - (c) encouraging a switch to more efficient and cleaner forms of transport including better organisation and logistics;

Commission proposal to include aviation in the EU ETS – Dec 2006

- CO2 emissions only
- Intra-EU flights in 2011, expanded to all flights arriving in or departing from the EU from 2012
- Not apply to flights arriving from 3rd country that has comparable measures in place
- Small percentage of allowances will be auctioned in 2011-12 (expected to be around 3%). Auctioning in later periods determined via EU ETS review.
- All other allowances to be allocated for free on basis of a benchmark
- Aircraft operators can buy allowances from other trading sectors and use CDM credits

Discussions in institutions

- EP Position – November 2007
- Council Political Agreement – December 2007
- Key areas of discussion
 - Start date (Council 2012, EP 2011, Both support single start date for all flights)
 - Level of cap (Council 100%, EP 90% of 2004-6 average annual emissions)
 - Level of auctioning (Council 10%, EP 25%, Both support increase in accordance with general review of ETS)

Key areas of discussion continued

- Treatment of new entrants
 - Use of Kyoto project credits and credits from other sectors
 - Interaction with third country measures
 - How to take into account non-CO2 emissions
 - Use of auction revenues to fight climate change in the EU and elsewhere
-
- Proposal to review the ETS adopted in January 2008 will also have implications for aviation in particular in relation to auctioning and the use of JI/CDM credits

Maritime transport

EU as maritime 'player':

- 27 Member States, 490 million people
- 20% World Trade
- 90% of EU international trade is by sea.
- Around 40% of the global fleet is controlled by EU interests

EU level action

- In case effective international action is not forthcoming the Commission will take action
- Proposal in 2009
- Policy criteria:
 - Polluter pays
 - Cost effective
 - Fair
 - Quantifiable
 - No distortion of competition
 - Proportionate
 - Contributes to building a global system

EU Policy Options

- Option 1 - Include shipping in EU ETS
- Option 2 - Variation in harbour dues
- Option 3 - Mandatory CO₂ index limit
- Option 4 – Design Index for new ships
- Option 5 – Reducing emissions from cooling gasses
- Option 6 – Better routing / port integration
-

Next steps - Maritime

- Tender publication for supporting study to prepare maritime proposal
- IMO Meetings (March, June and October 2008)
- UNFCCC meetings (March/June/August/December 2008)
- Preparation of EU proposal
- Decision on EU action
 - Consult stakeholders
 - Impact assessment
 - EC proposal (could enter into effect 2012)
- Conclusion of international negotiations December 2009

Transport policy

- Green transport package forthcoming
 - Communication on greening the transport sector
 - Communication on the internalisation of external costs of transport
 - Eurovignette review

Air pollutant emissions

- In force or decided:
 - LDV Euro 4, 5, 6 plus implementing legislation
 - HDV Euro IV, V
 - NRMM, tractors, motorcycles
- In the pipeline:
 - Euro VI
 - VOC stage II
- More work needed:
 - Real world emissions

Other issues

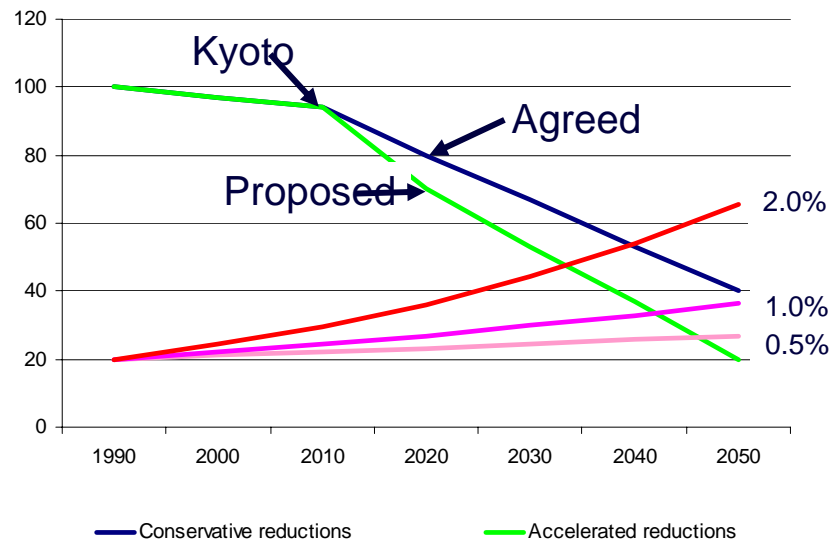
- Urban transport
 - Green Paper on urban mobility
COM(2007)551
 - Action plan, forthcoming
- Fiscal measures
 - Vehicle taxation
 - Fuel taxation

Urbanization

- 2007 - 50% of worlds population live in cities 3.2 billion
- 2050 - 66% over 6 billion people
- 93% of growth will be in Asia and Africa

Figures from UN-HABITAT 2006

The challenge: Build up a strategy to reduce GHG emissions from transport



Sources

- EEA (European Environment Agency)
 - <http://www.eea.europa.eu/themes/transport/maps-and-graphs>
- DG TREN
 - EUROPEAN ENERGY AND TRANSPORT TRENDS TO 2030 — UPDATE 2007
http://ec.europa.eu/dgs/energy_transport/figures/trends_2030_update_2007/index_en.htm
- CAFE: Clean Air For Europe (CAFE) programme
 - http://circa.europa.eu/Public/irc/env/cafе_baseline/library
- Options on greenhouse gas emissions from heavy-duty vehicles
 - http://circa.europa.eu/Public/irc/env/gge_hdv/home