

European Federation for Transport & Environment



# Aviation and climate change - - some food for thought

**Jos Dings**

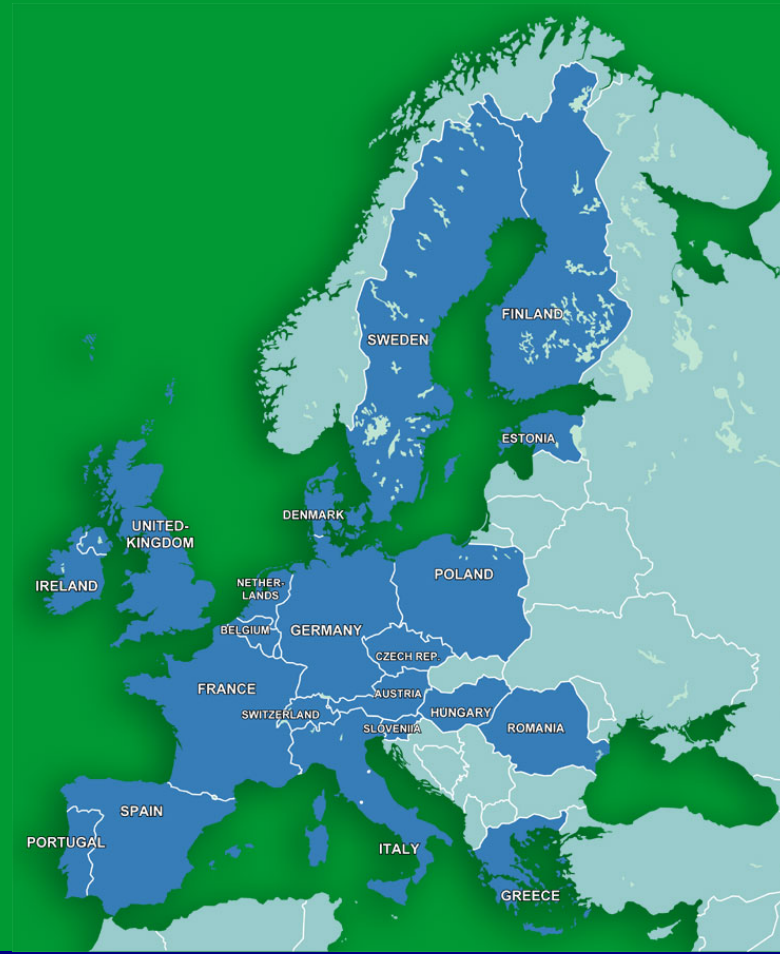
European Parliament, 31 January 2005



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## Aim and structure

- **Some notes on the impacts**
- **European and global perspectives**
- **Five reasons to think of more than trading**
- **conclusions**

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# Part 1 some notes on the impacts

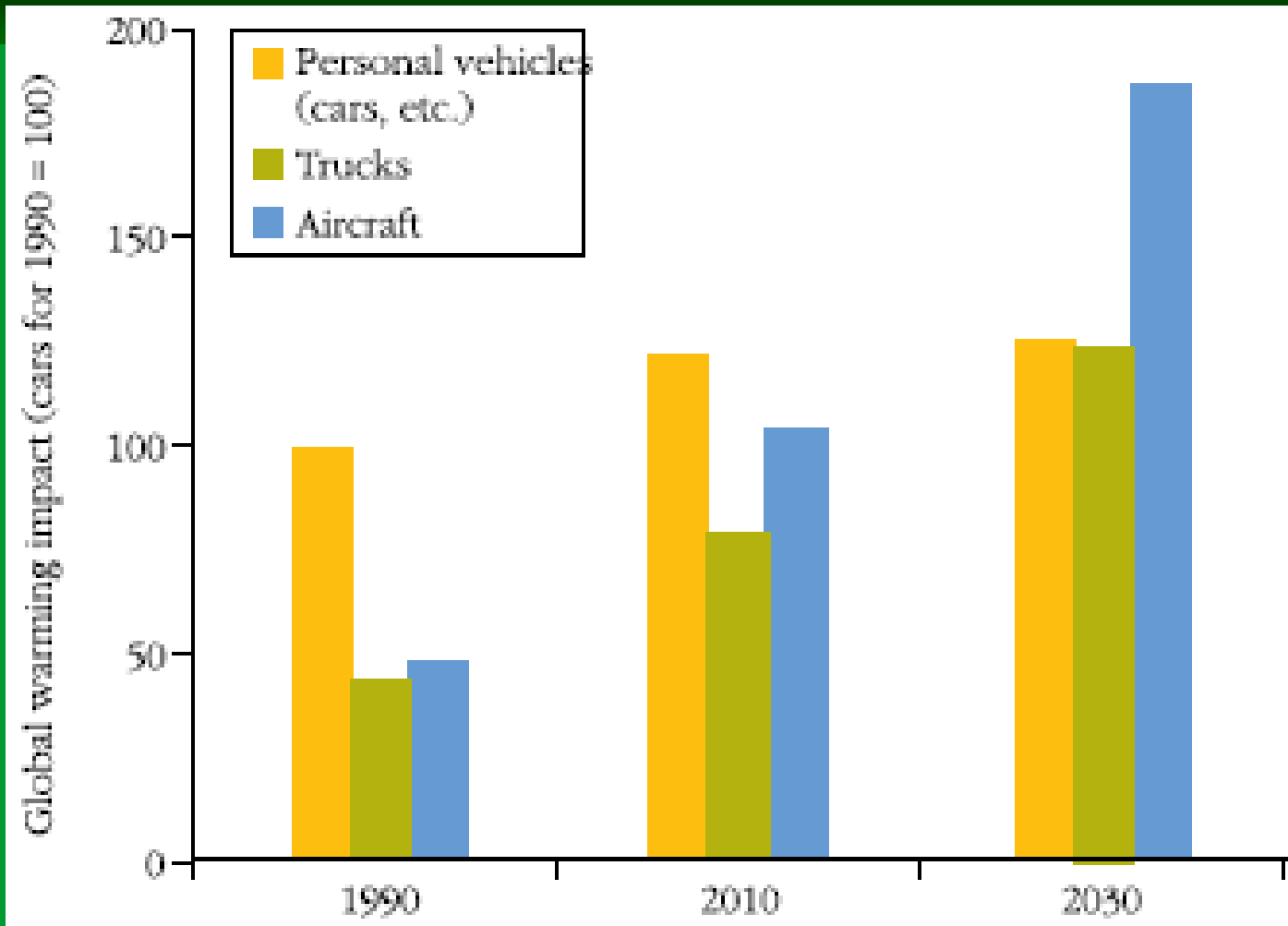
## Situation 2000

- radiative forcing 48-98 mW/m<sup>2</sup>
- = 2 - 4 times impact of CO<sub>2</sub> alone
- = 3.6 - 7.4 % of global total
- Cirrus most important uncertainty

## Remaining issues

- Cirrus potentially larger, estimates up to 154 mW/m<sup>2</sup> available (= 12%)
- EU: aviation contribution higher
- Indicator issue: share in temperature response may be higher than share in forcing
- “temperature response could be 3.5 times CO<sub>2</sub> response” (instead of 2)

## Future impact according to OECD (2000)



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## Part 2: global and EU perspectives



## Global: ICAO

- Mandated by Kyoto Protocol
- texts are political, not legal ('urges' etc)
- ET: no initiative, guidance only (almost: 'legal and structural basis')
- GHG charges: almost banned at latest Assembly ....
- ... but still preferred over fuel taxes !

## ICAO

- **Consensus – deadlock - credibility**
- **Balance & accountability - as a rule:**
  - CAA representatives lead the way
  - No parliamentary involvement
- **Cynical example for global environmental policies & standards**

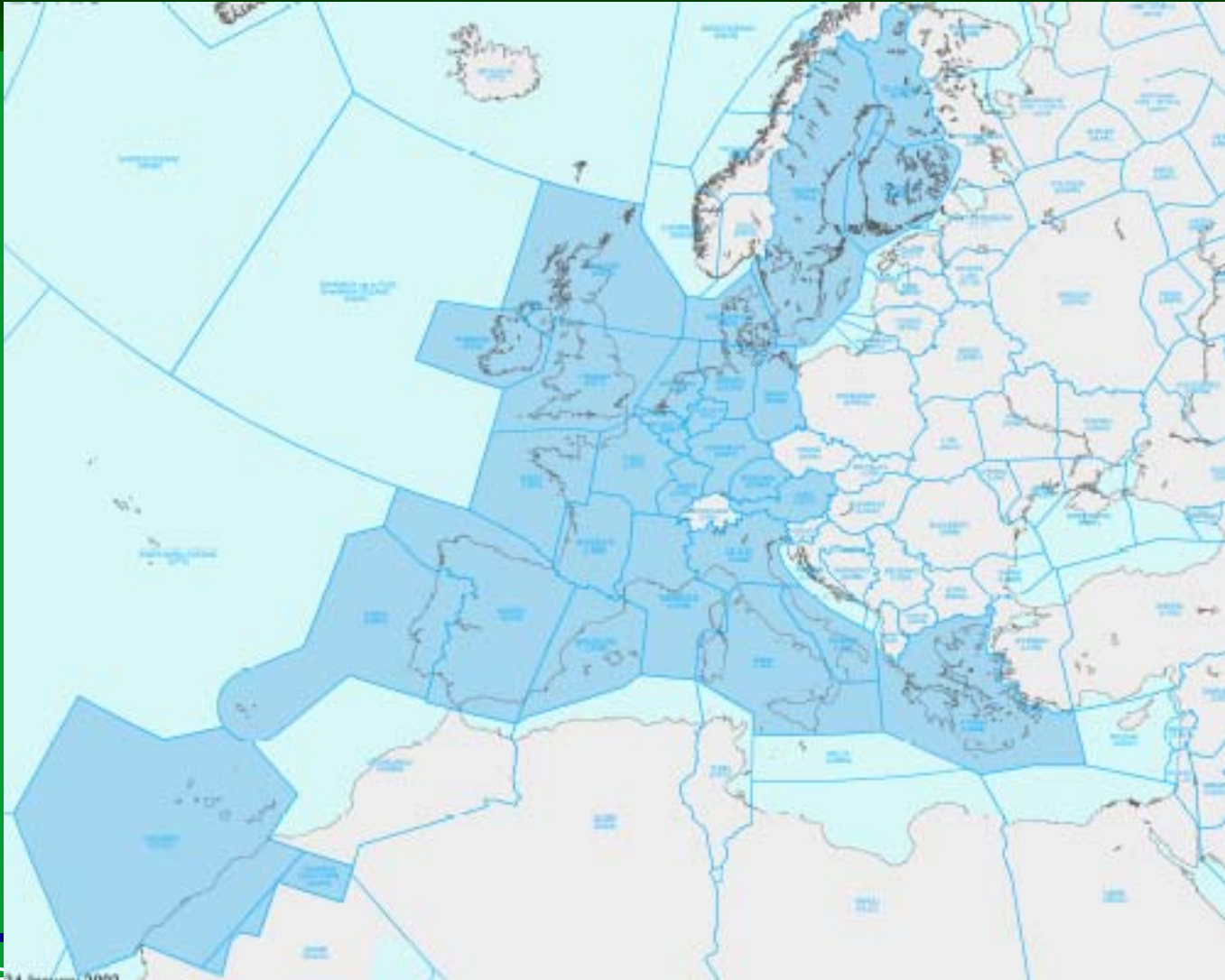
## Global: UN FCCC

- responsibility for international aviation & shipping emissions ('allocation')
- Even EU does not agree – common position should be a priority
- new try at SBSTA 22 ?
- Deadlock as well
- EU should make common position a priority

## European action

- **Yes, BUT competitiveness ....**
- **Transport sector is NOT sensitive to regional environmental policy if applied on a territorial basis (routes, airspace)**
- **Contrary to e.g. steel production sector**
- **Example: Swiss lorry km charge**
  - No competitive issues Swiss hauliers
  - Cleaner fleet (more sales !)
  - Less truck kms, higher load factor
  - Hardly any modal shift to rail ...

# EUROCONTROL EU15 airspace



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## Part 3 Views on trading vs. taxes and charges

**Four reasons why going beyond 'grandfathered'  
emissions trading is a good idea**

## Reason 1: level playing field

### ○ Airlines

- Exempt from fuel tax (road EUR 0.45/l, rail unknown)
- International tickets exempt from VAT
- Duty free sales on board

### ○ Airports

- Infra (airport & connecting)
- Duty free EU-other countries
- Corporate, land & estate taxes

### ○ Manufacturers

- Support & guaranteed loans

## VAT on international passenger transport, 1997

	Aviation	Coach and rail
Leisure	No	10 MS yes 5 MS no
Business	No	2 MS yes 13 MS no



## Reason 2: non-CO2 impacts

	CO <sub>2</sub>	5 other gases	NO <sub>x</sub> / contrails / cirrus
<b>Kyoto</b>	<b>X</b>	<b>X</b>	
<b>EU ETS</b>	<b>X</b>		
<b>aviation</b>	<b>X</b>		<b>X</b>

## Reason 3: competitiveness and cost effectiveness

**‘One important policy conclusion is that, in terms of competitiveness, it will generally be preferable to employ an environmental tax (or, equivalently, auctioned tradable permits), and use the revenue raised to reduce the rates of existing, distortionary, taxes on business, than to allocate permits through a non-revenue-raising “grandfathering” procedure’**

**(OECD, *Environmental taxes and competitiveness*, summary, June 2003)**

## Some explanation 1

- **MYTH: trading is efficient, taxing isn't**
- **FACT: depends on design**
  
- **All instruments have equal (and maximum) cost effectiveness if:**
  - Equal scope, base and (price / charge / tax) levels
  - Permits auctioned instead of grandfathered !
  - No transaction costs

## Some explanation 2

- **Costs:**
  - Fuel taxes / GHG charges are costs to *aviation*, NOT to *society*
  - Better tax 'negatives' (e.g. fuel, emissions) than 'positives' (labour, profits): avoid excess burden
- **Effectiveness: depends on**
  - Supply side impact: price paid for GHG emissions (currently only fuel price)
  - Demand side impact: via ticket prices, elasticity approx. -1

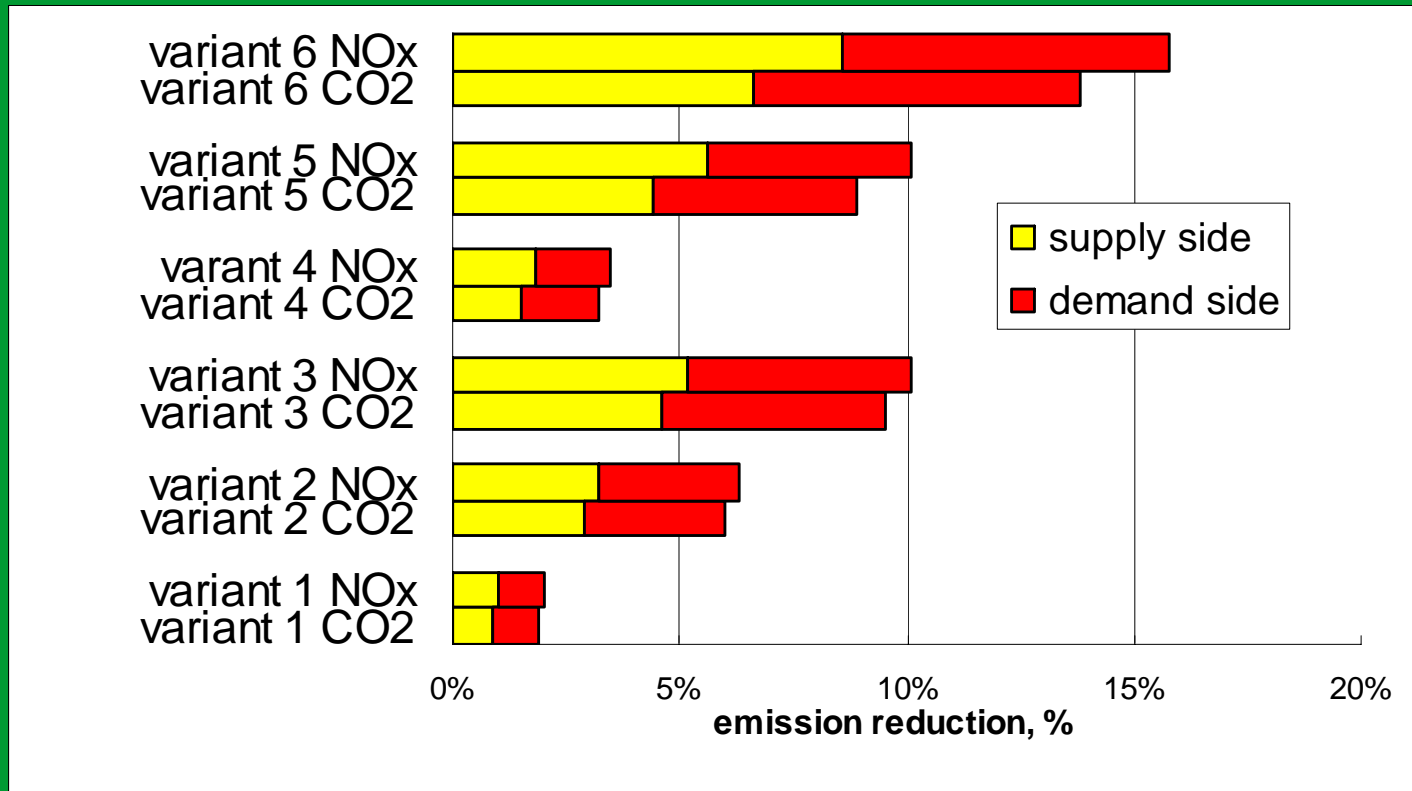
## 4 Energy security

- **Oil greatest concern ...**
  - 2020: 85% imported (EC 2000) ...
  - 2001: aviation 15% of transport energy
- **... which implies some EUR 15-20 bln/yr imports for aviation**
- **'Kerosene type fuels are considered to be the only viable option for aircraft till 2050' (IPCC 1999)**

## Emissions trading to save oil ?

- **Assume:**
  - CO2 only
  - EUR 10 / tonne (currently 7)
  - 95% grandfathered ....
- **Then approx. 1-1.5% lower CO2 / fuel consumption of aviation**

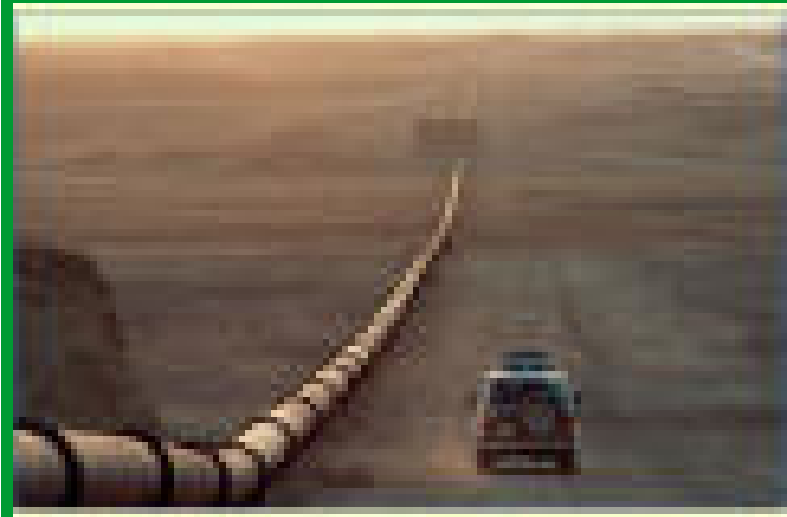
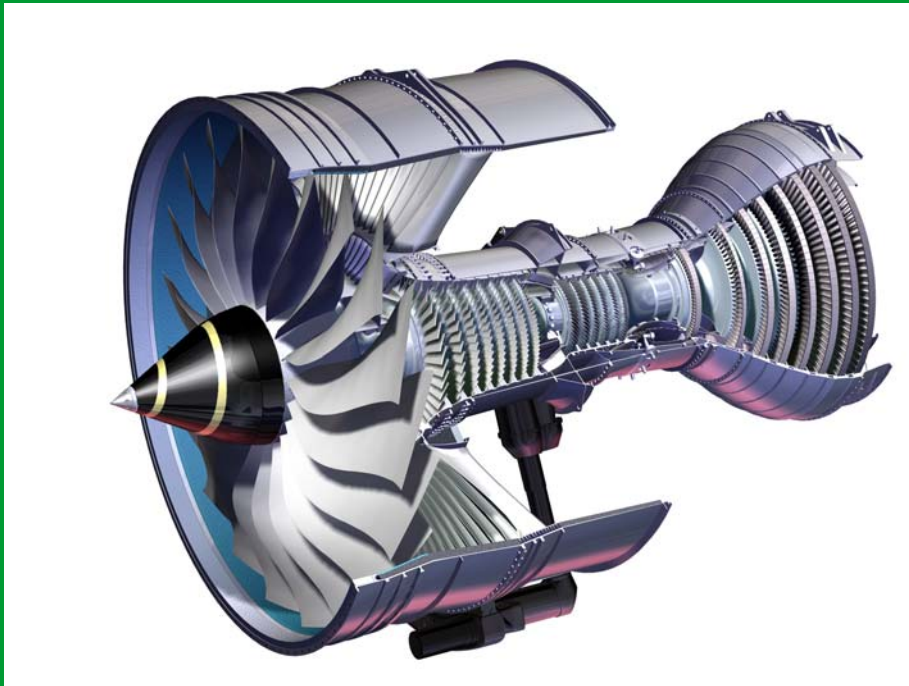
## 'En route' emission charges to save oil !



○ variant 6 = approx. EUR 0.19/litre

## An investment choice

- Advanced engines or Arab oil ?

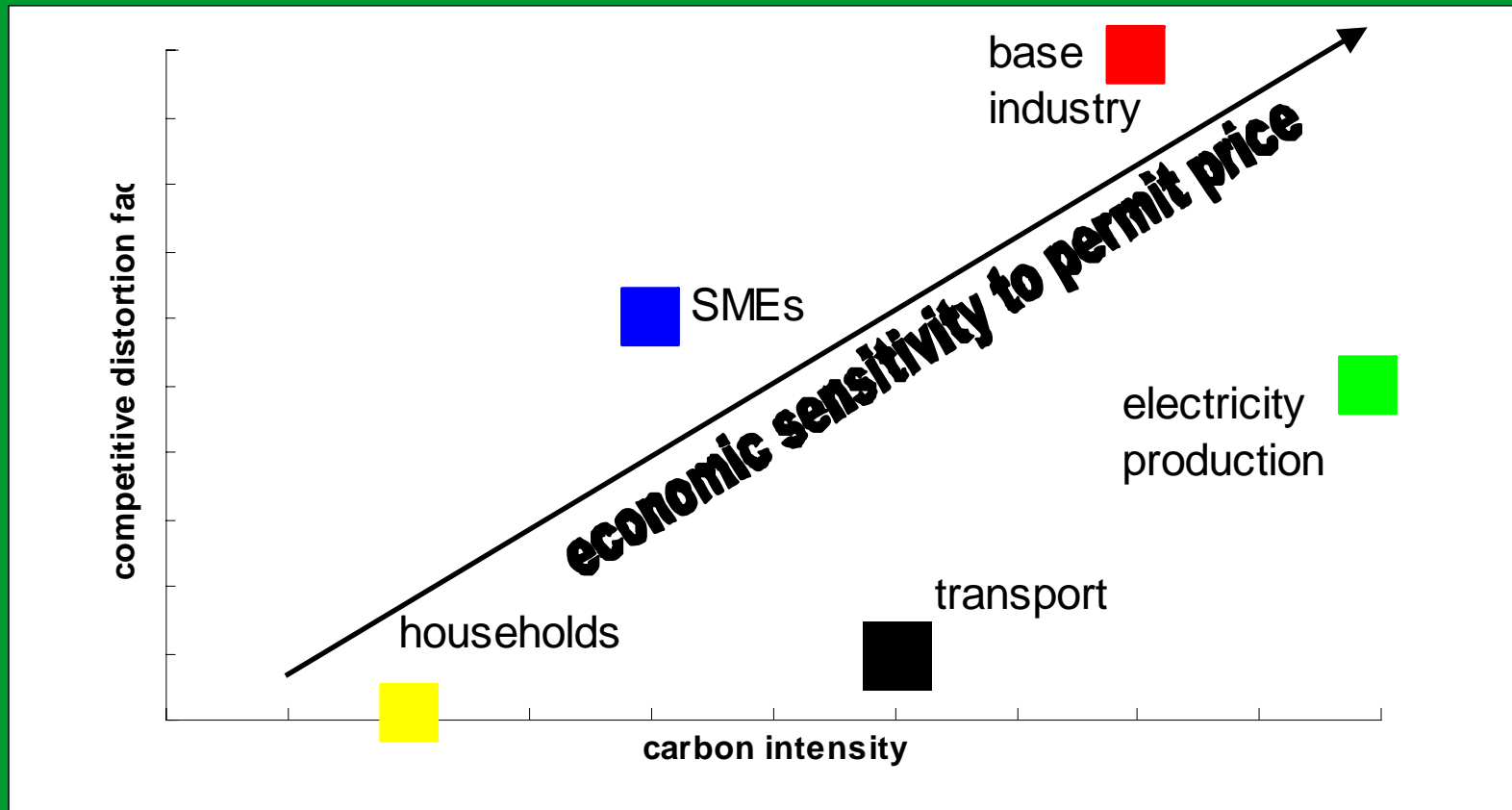




## 5 Trading: limited effect by 'weakest link'

- **Permit prices in economic theory**
  - Fixed ceiling
  - Permit prices depend on this ceiling
  - Ideally all economic sectors covered under same system
  - Optimum: all sectors equal prices = maximum cost effectiveness

# Sensitivity to permit prices per sector (indicative)



## Permit prices in political economics

- Each sector has highly different 'permit price sensitivity' in relation to international competition
- Depends on carbon intensity and 'export factor'
- Inter-sectoral ETS: prices determined by sensitivity 'weakest link' e.g. steel
- Less sensitive sectors - such as transport – could & should do more

## Trading: some crucial design issues

- **Scope**
  - domestic and intra-EU flights as a minimum
  - Include non-CO2 impacts
- **half open system ('buy only') ?**
- **Ceiling: crucial issue**
  - Authority: EC rather than MS ?
  - Level: like Kyoto, -8% compared with 1990
- **Auctioning, not grandfathering**
- **Limit 'escape' to JI/CDM**

## Instruments: an overview

- **Trading:**
  - Can in theory be as good as charges & taxes ...
  - but in practice 5 good reasons to do more
  
- **Fuel taxation**
  - still political (unanimity) & legal (ASAs) barriers
  - bilateral solutions may be the way to go
  
- **En route emissions charge**
  - promising option
  - issue of revenues

## Conclusions

- **2005: Finally a serious discussion**
- **Five reasons why 'grandfathered' emissions trading is not optimal as the only solution**
- **En route emissions charging promising**
- **ETS: courage needed (ceiling, auctioning, non CO2) to make it (cost)effective**

## Thank you for your attention !

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