



The project is funded by the European Commission's  
Directorate-General Environment



# EU Transport GHG: Routes to 2050?

Review of projections and scenarios for transport  
in 2050 (Task 9 Report V)

Partners



# Layout

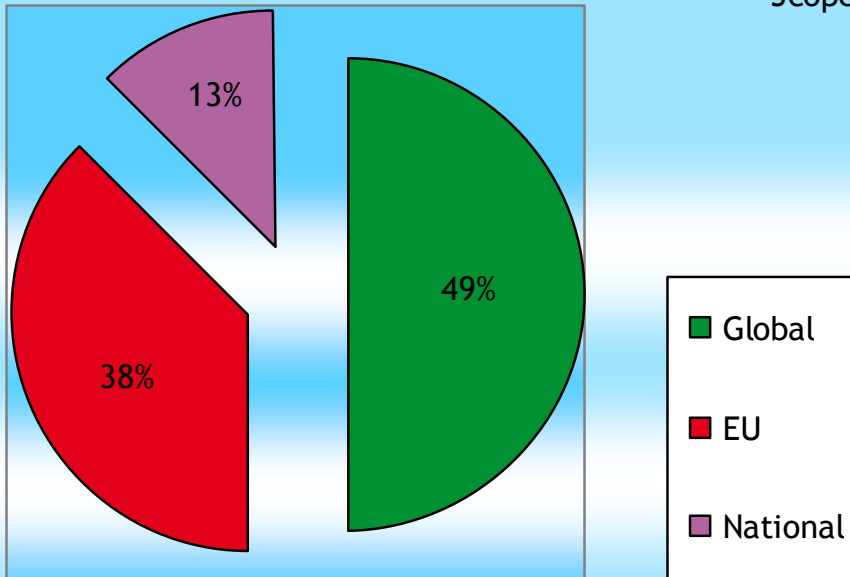
- The studies
- Emission and demand projections
- Options and measures
- Conclusions
- Propositions

# Studies

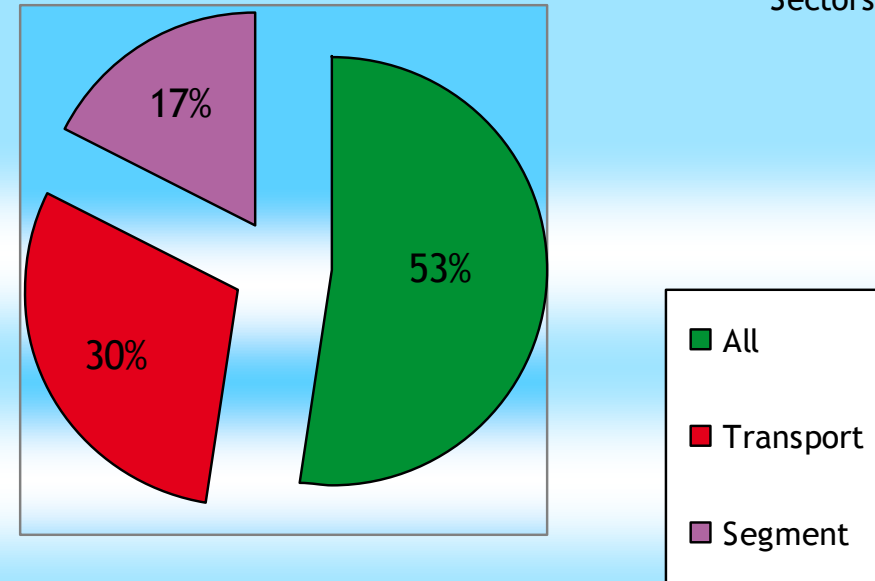
- Very similar and very different
    - Back casting
    - Modelling the future
    - Discussing the future
    - Extrapolating trends
  - Objective:
    - Low carbon future, research agenda, energy mix
    - Likely future, indication of required change, Indication of potential
  - Degrees of freedom
    - Energy sectors (Is electricity used in transport attributed to power generation or transport?)
    - Passenger vs. Freight
    - Road vs. non road
    - Individual modes (which ones are included?)
- WBCSD, 2005  
IPCC, 2007  
EC, 2008  
WEC, 2009  
ICCR et al., 2004  
CGPC, 2006  
McKinsey & Company, 2009  
Shell, 2008  
WEC, 2007  
ECN, 2007  
ERRAC, 2007  
EC, 2007  
PBL, 2009  
MCRIT, 2009  
VLEEM Consortium, 2005  
WWF, 2009  
Meyer et al., 2007  
IEA, 2008  
CE, 2007  
OECD/IEA, 2009  
ERTRAC, 2009  
RECIPE, 2009

# Studies – geographical scope and sectors

Scope

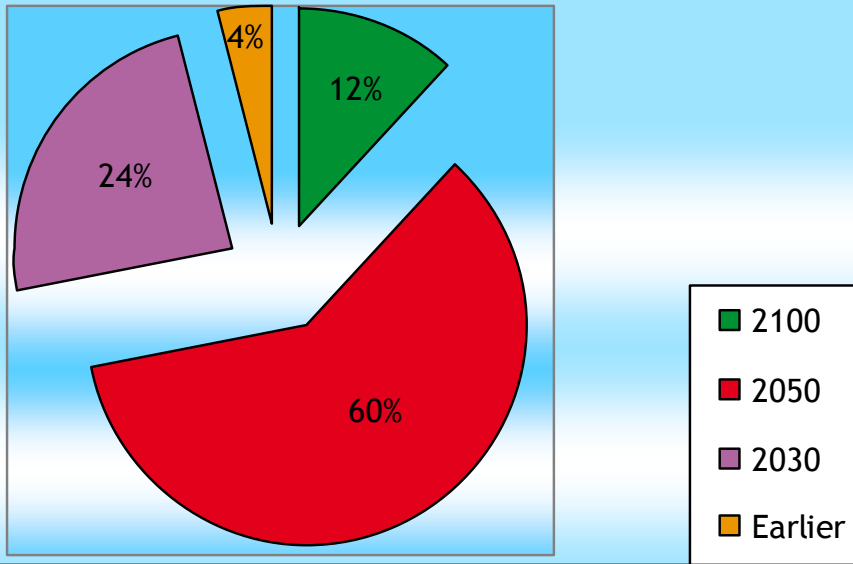


Sectors

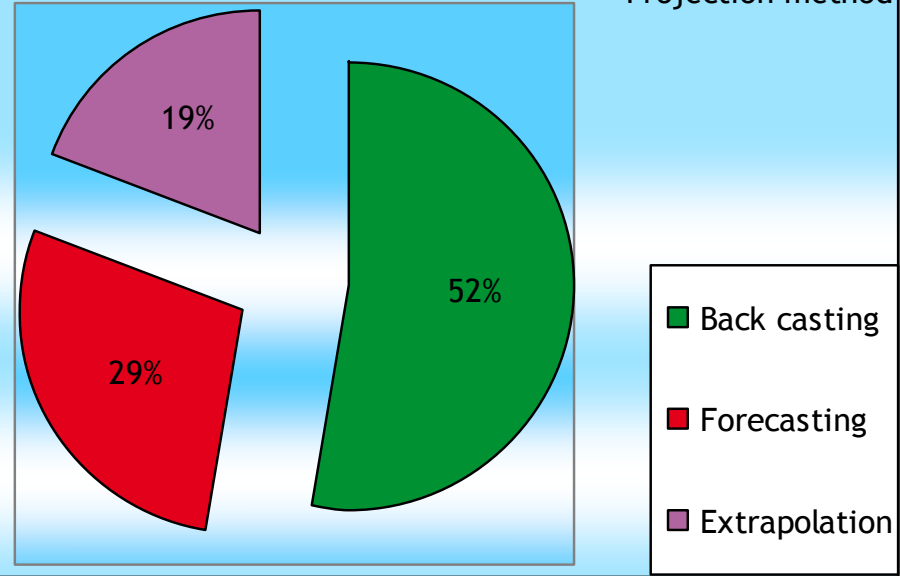


# Studies – projection year and method

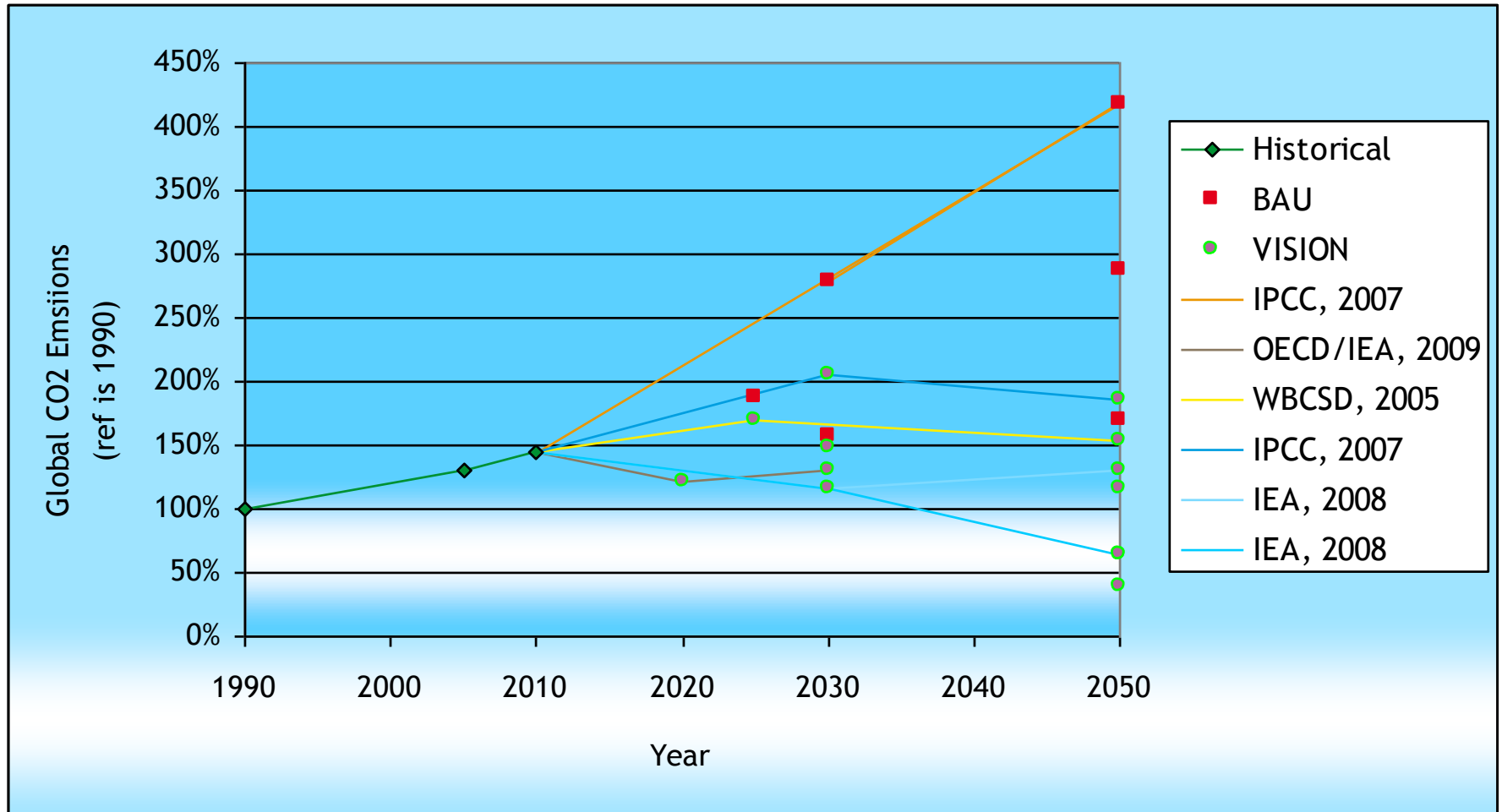
Projection year



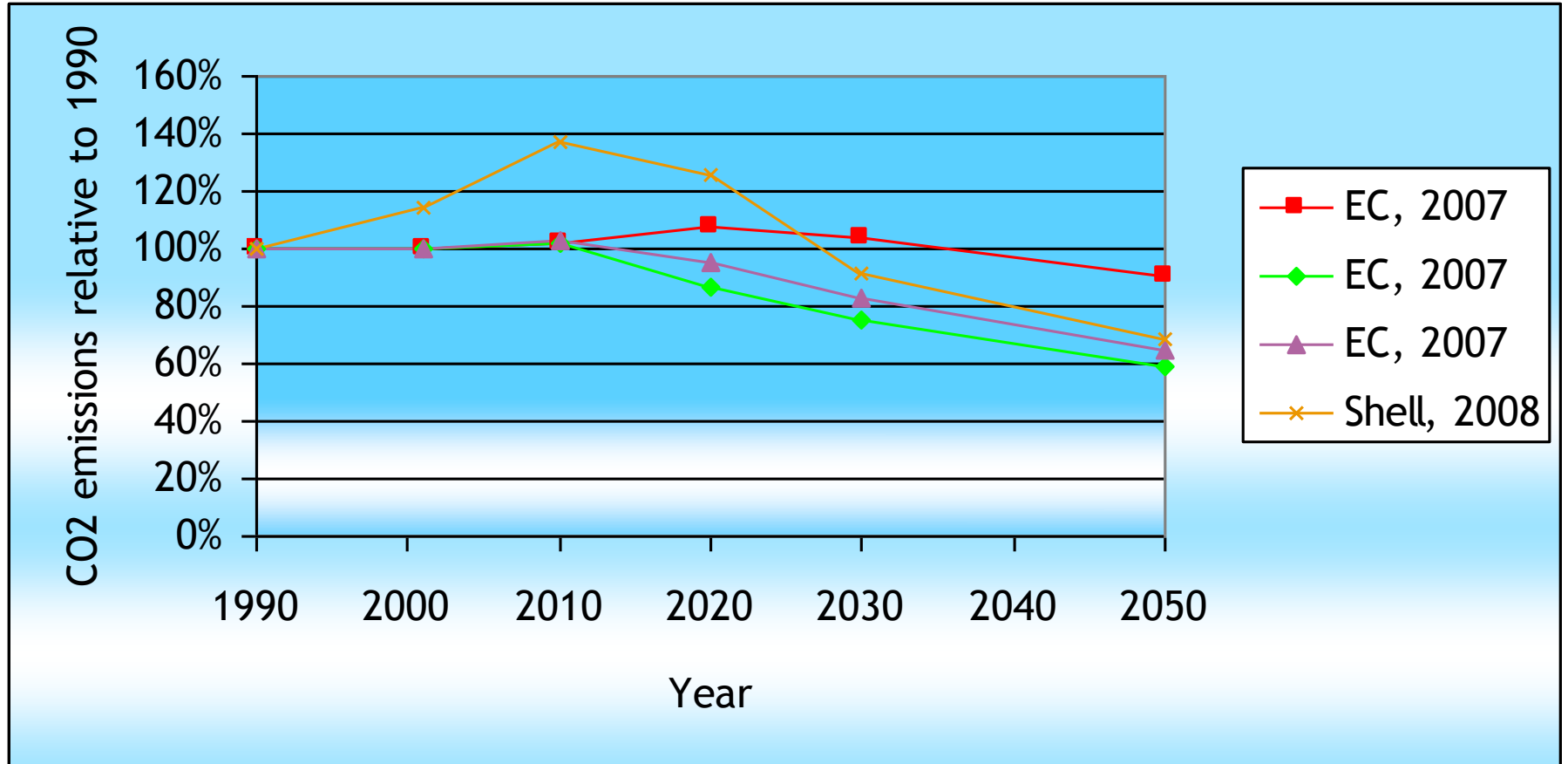
Projection method



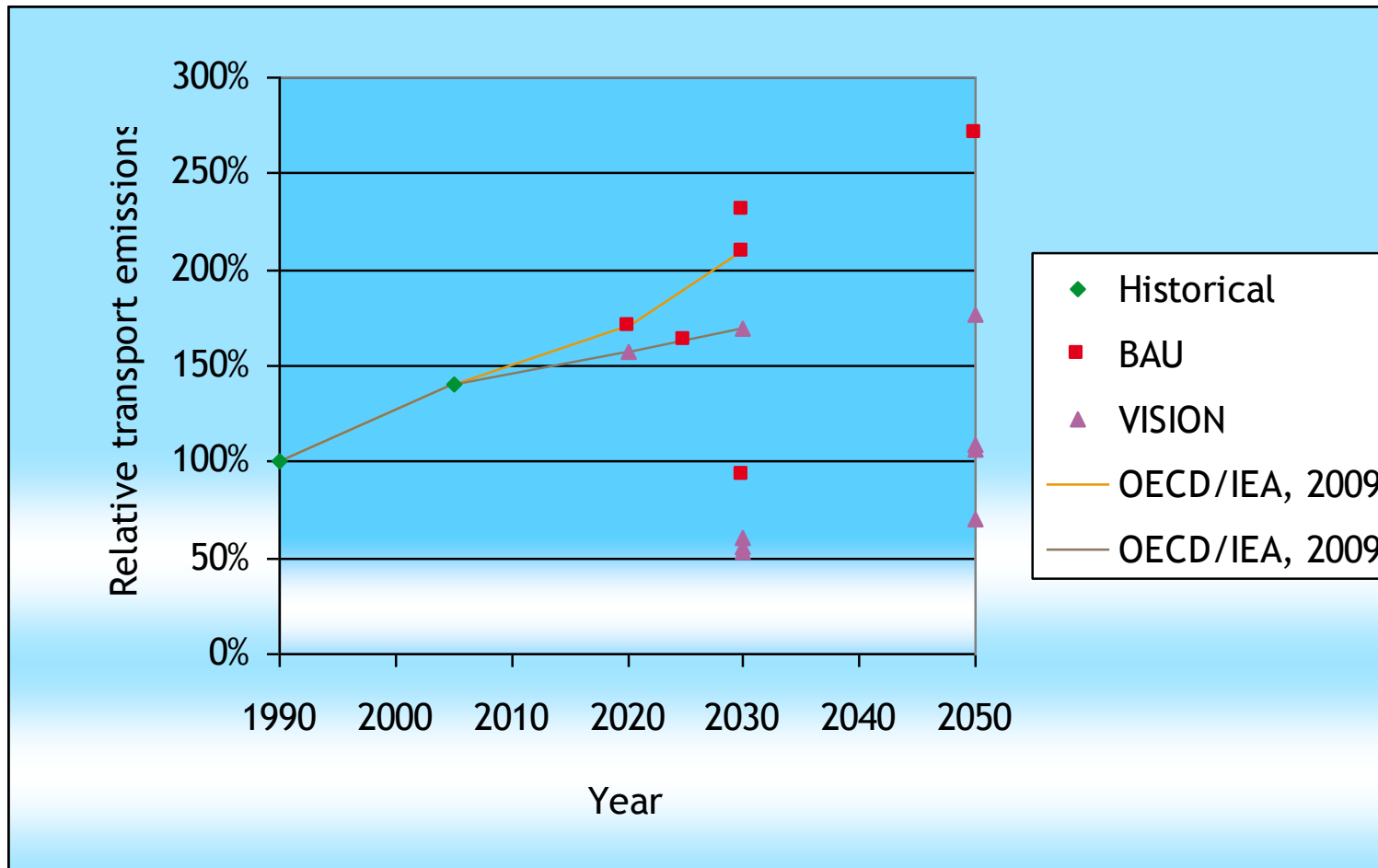
# Global Emissions for all sectors



# European Emissions for all Sectors

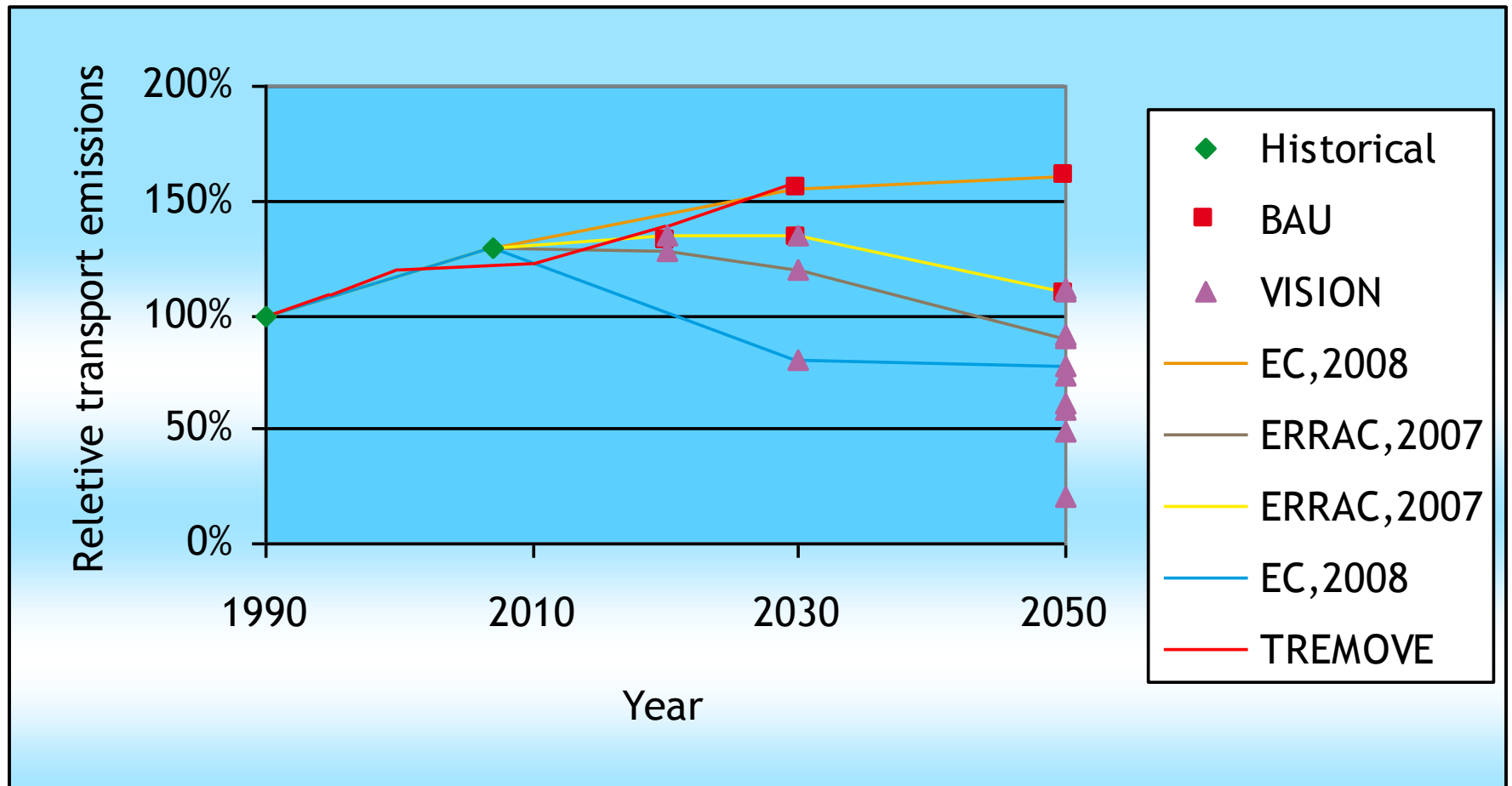


# Global Transport Emissions

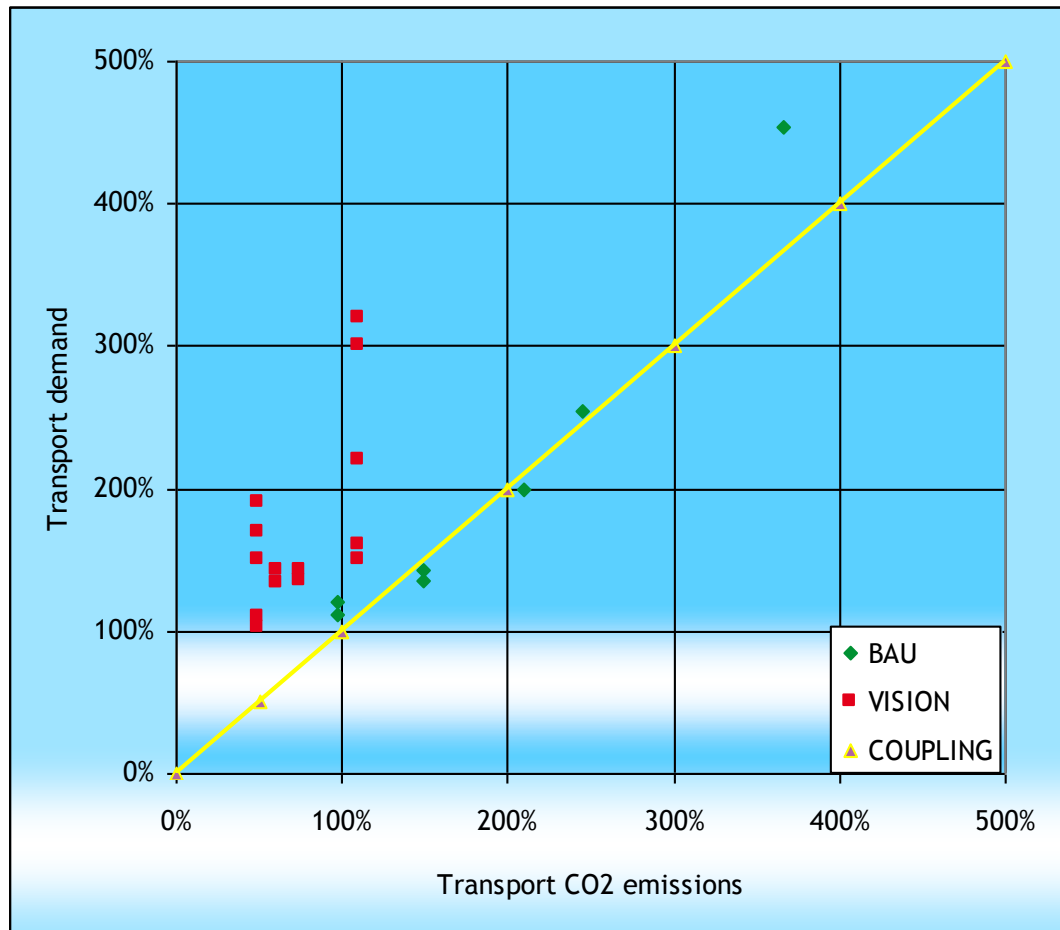




# European Transport Emissions



# Demand



# Demand

## BAU

Transport segment	Outlook year	Demand increase
aviation	2050	455%
freight	2020	120%
freight	2030	143%
freight	2050	255%
Passenger	2020	112%
Passenger	2030	135%
passenger	2050	200%

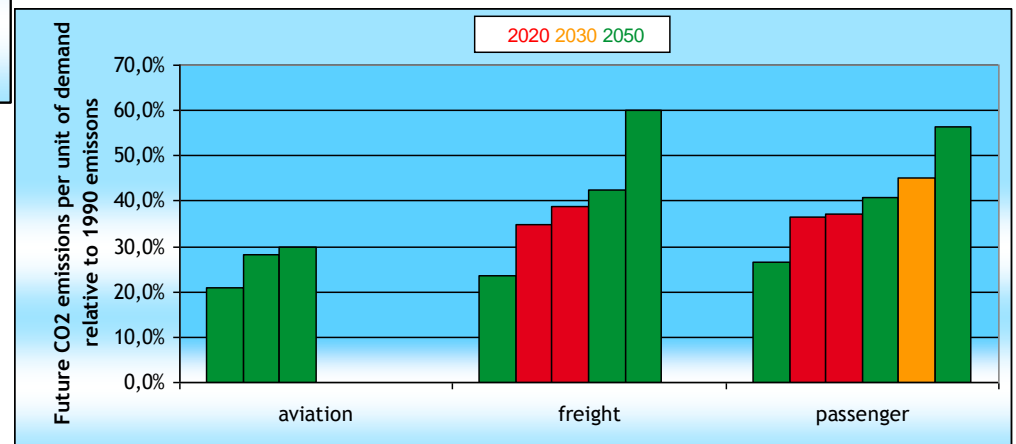
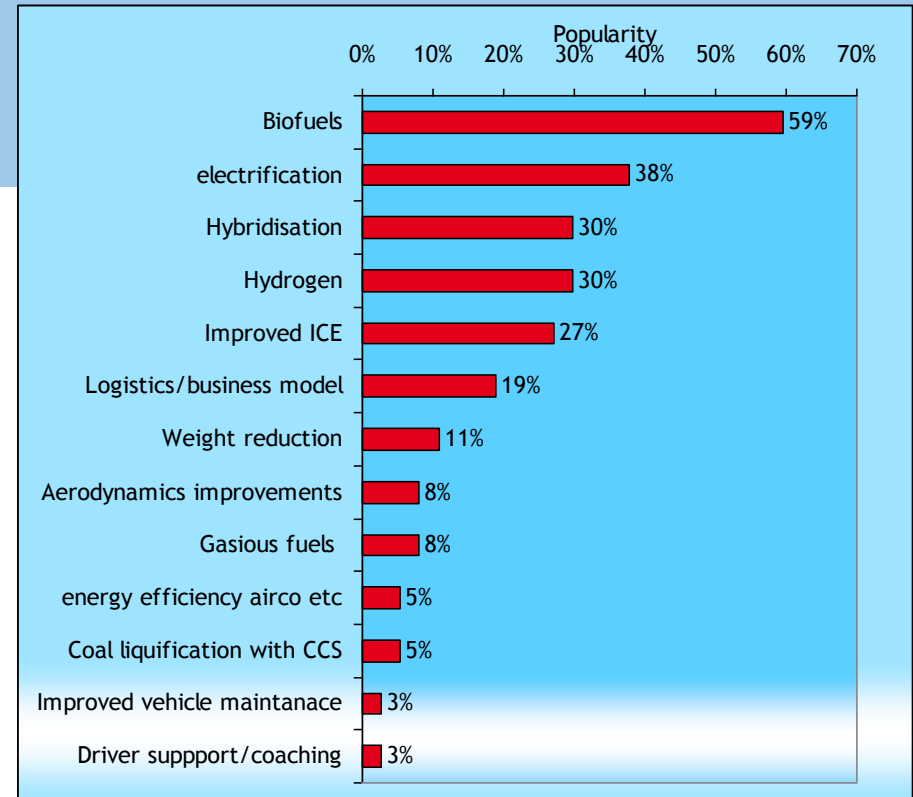
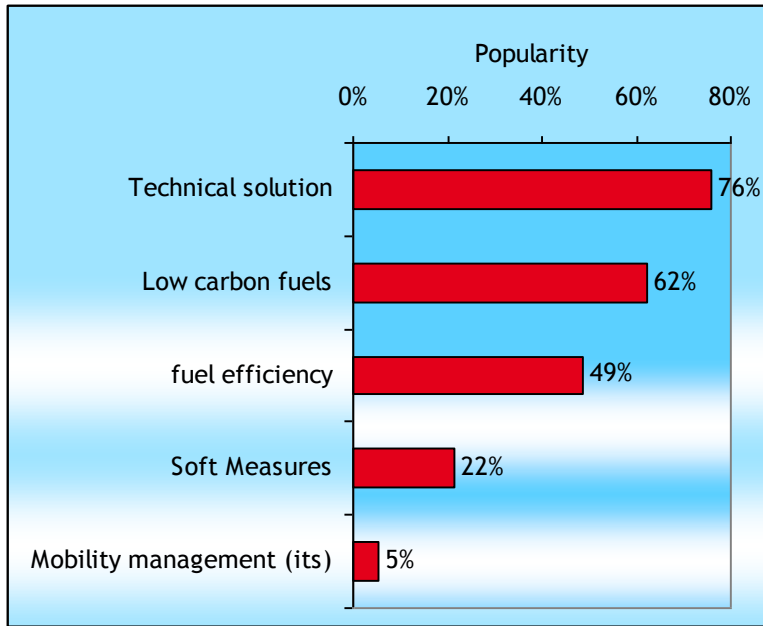
## VISION

Transport segment	Outlook year	Demand increase
aviation	2050	300%
aviation	2050	190%
aviation	2050	320%
freight	2020	103%
freight	2020	143%
freight	2030	143%
freight	2050	170%
freight	2050	150%
Passenger	2020	110%
Passenger	2020	134%
Passenger	2030	135%
Passenger	2050	150%
Passenger	2050	160%
Passenger	2050	220%

# Conclusions on Emission and Demand projections

- BAU
  - Global emissions increase; EU emissions will stabilise
  - Global transport emissions will increase (200%)
  - EU transport emissions will increase (150%)
- VISION
  - Emissions will be lower than BAU
  - Few studies show a decrease below 1990 levels in Global emissions
  - EU total emissions will decrease (to 60% @ 1990)
  - **Transport emissions will reduce in the same order of magnitude**
- Demand
  - Will increase both in BAU and VISION
  - More than half the VISION scenarios assume technology decreases emissions faster than demand increases

# Technical options



# Technical Options

- Most studies assume a largely technical solution
- Biofuels (but where do they come from?)
- More CO<sub>2</sub> reduction in passenger than in freight
- Most innovations in passenger road transport
- Focus on ROAD

# Non Technical Options

- Less detailed descriptions
- Most common options:
  - Improvement of spatial planning (other options)
  - Improved logistics (several %)
  - Change in travel behaviour / Demand reduction (not reported)
  - Fuel efficient driving (1-2%)
    - Competition with technology
  - Modal shift (up to 5% of total reduction)
    - Road will dominate
    - Most important freight to rail/shipping or aviation to HSR

# Policy instruments

- Meta policy
  - How to make policies vs. the policy to make
  - Non economically restrictive
  - Long term/stable
  - Not technology specific
  - Agreement between stakeholders
  - Policy against public opinion?
- Common elements
  - International cooperation
  - Support research & aid for developing technologies
  - Efficiency or Emission standards
  - Internalisation
  - Demand reduction will only curb growth
- ACT NOW or else!



# Conclusions

- BAU emissions will increase; EU emissions will stabilise
- Few reduction scenarios show reduction in the order of 80% @1990
- Transport emissions are expected to reduce with the same order of magnitude as total over all sectors
- Information on Road modes dominates
- Demand will increase both in BAU and vision scenarios
- Technological options are dominant in scenarios
- International cooperation is the key
- We must act now to be able to achieve a high level of reduction at an acceptable cost

# Optional: Discussion

- Demand is almost unanimously expected to increase. Technology will then have to achieve the efficiency target AND compensate for the increase. Can this be realistic?
  - Demand increase in EU 170% => can technology decrease emissions from 170% to 20% or even 50%: this requires efficiency improvements of 70-90%)
- Aviation and international shipping receive less attention than the other modes. While aviation is expected to increase by a factor of 4 and international shipping transports an enormous volume of freight.

# Optional: Technologies

