



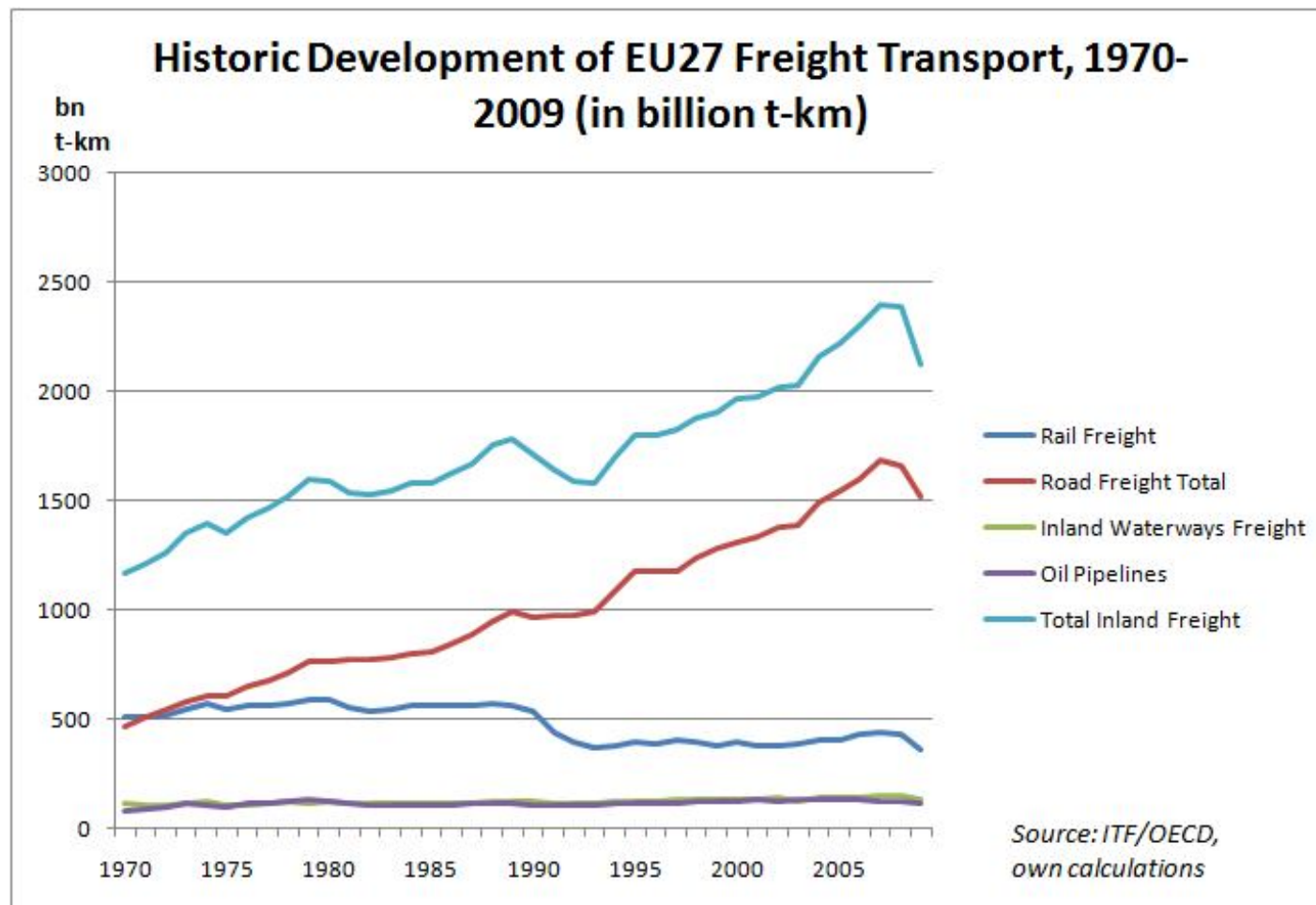
0
24 februari 2011

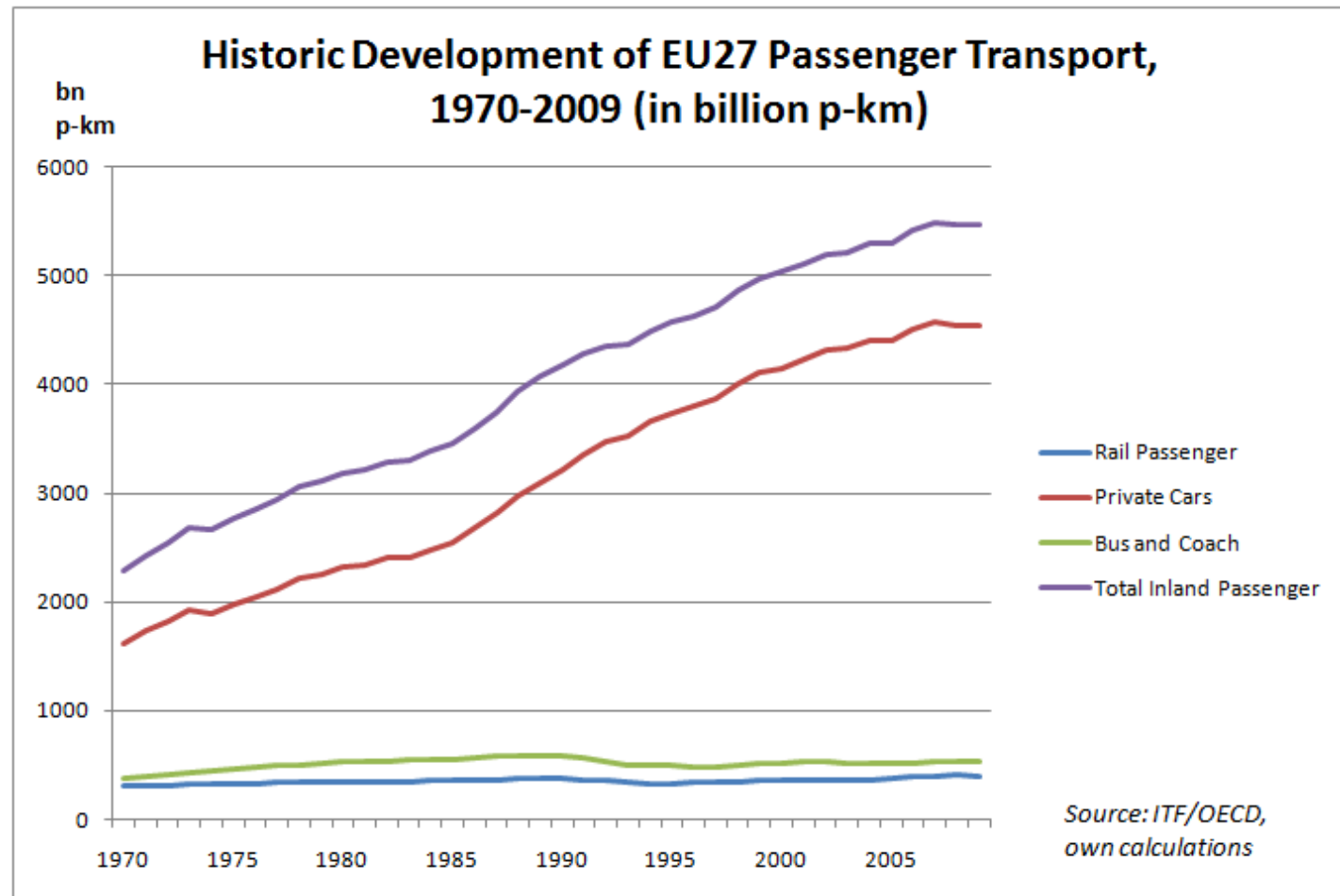
TNO innovation
for life

Where do we stand?

Arie Bleijenberg

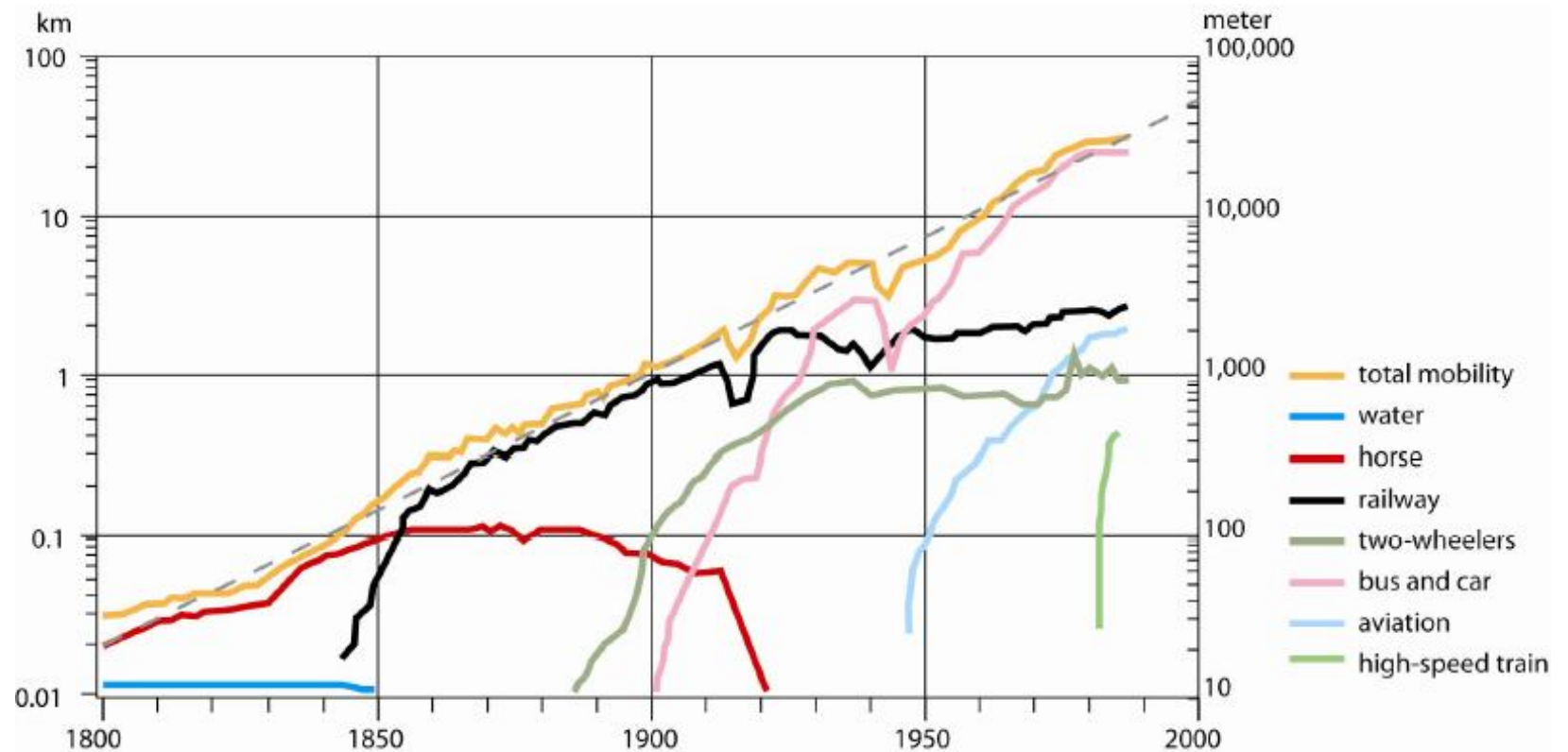
TNO







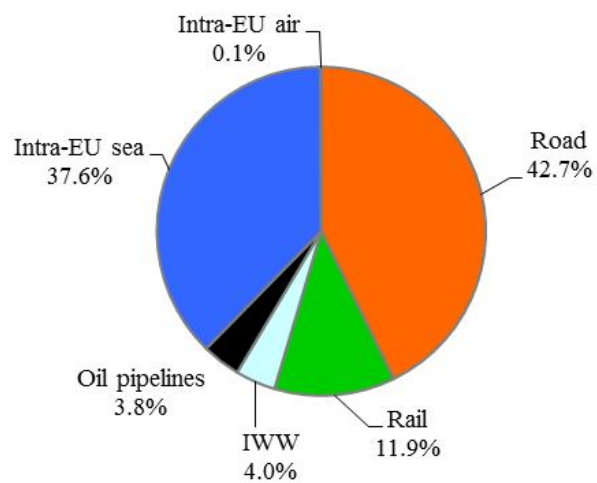
200 years of growth in passenger travel



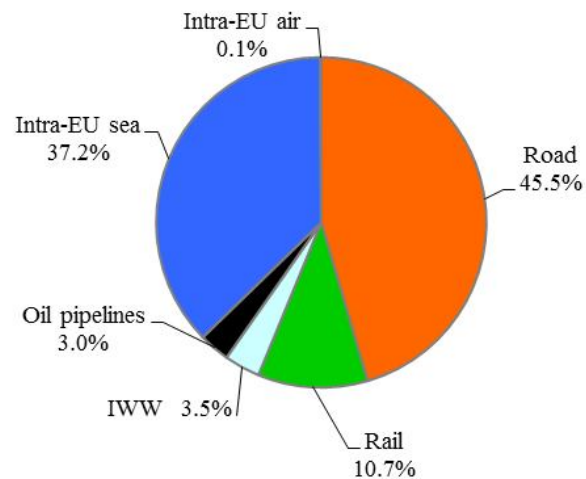


Modal split Freight last 10 years

Modal split intra-EU27 freight transport in
1998



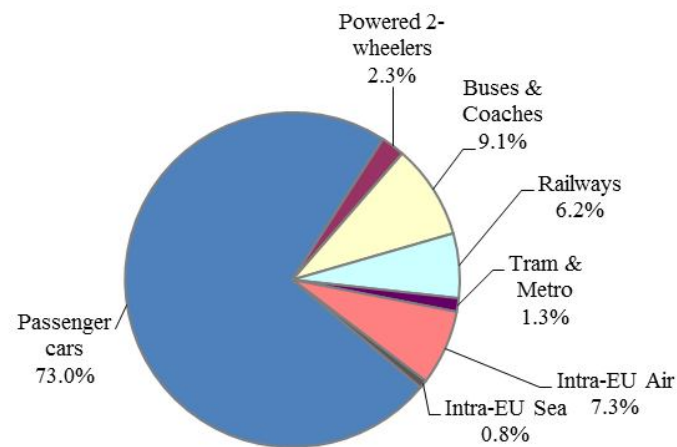
Modal split intra-EU27 freight transport in
2008



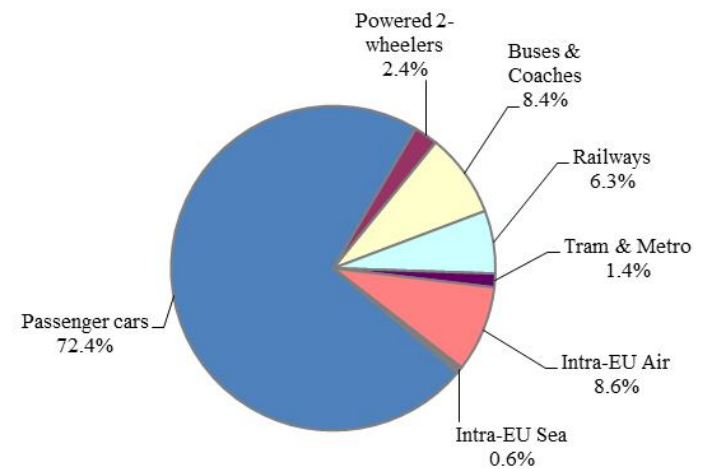


Modal split Passenger last 10 years

Modal split intra-EU passenger transport in 1998

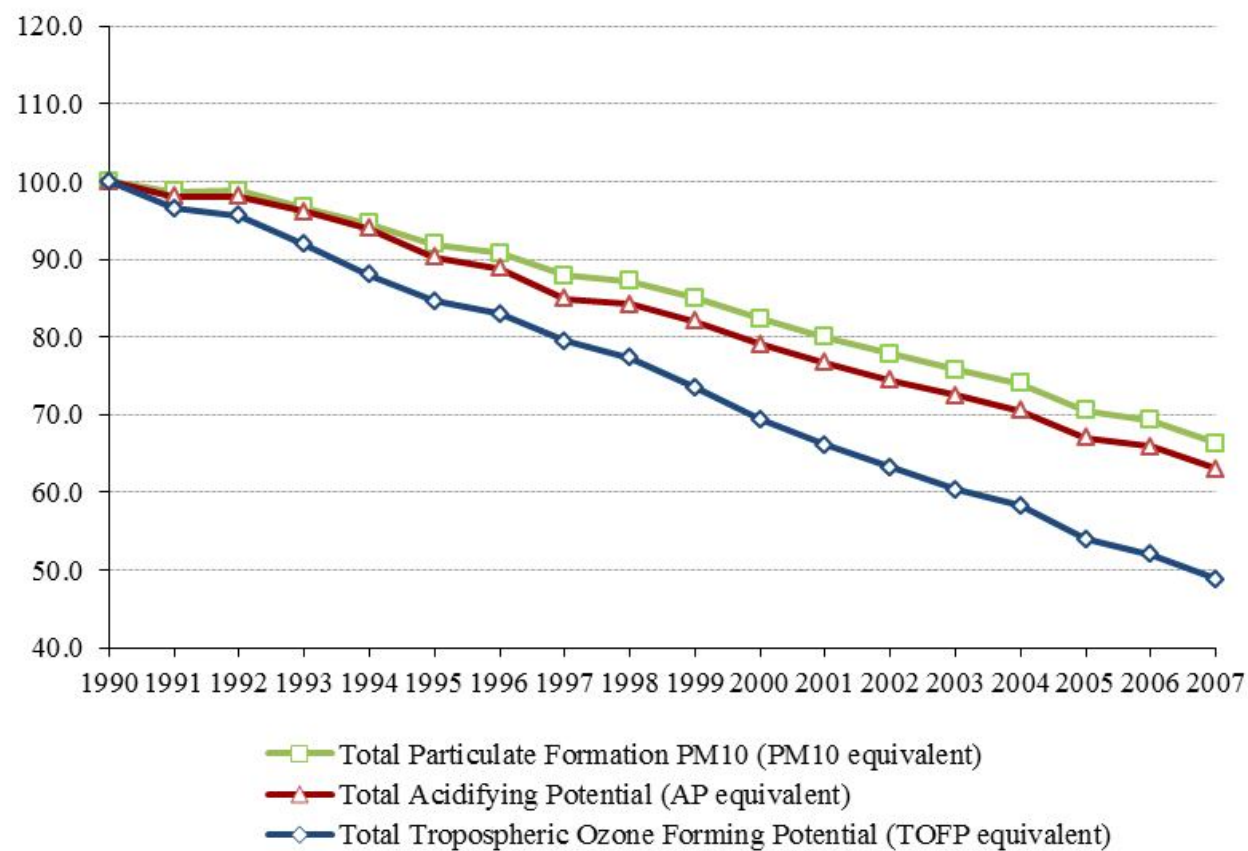


Modal split of intra-EU27 passenger transport in 2008



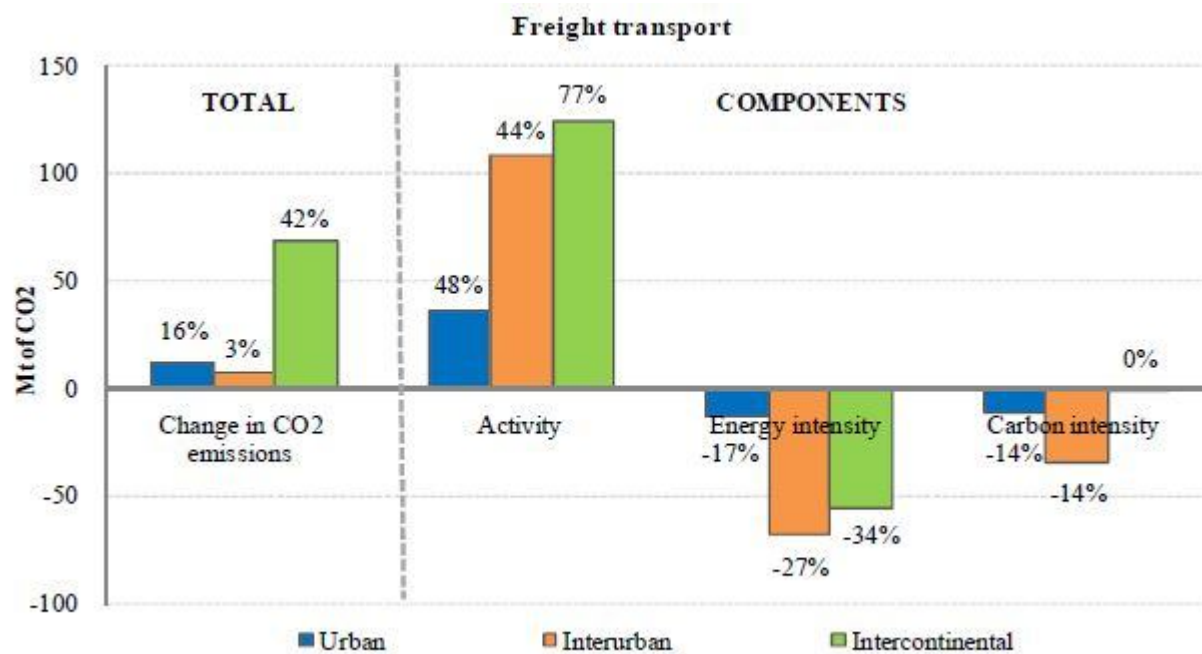


Air pollution from transport



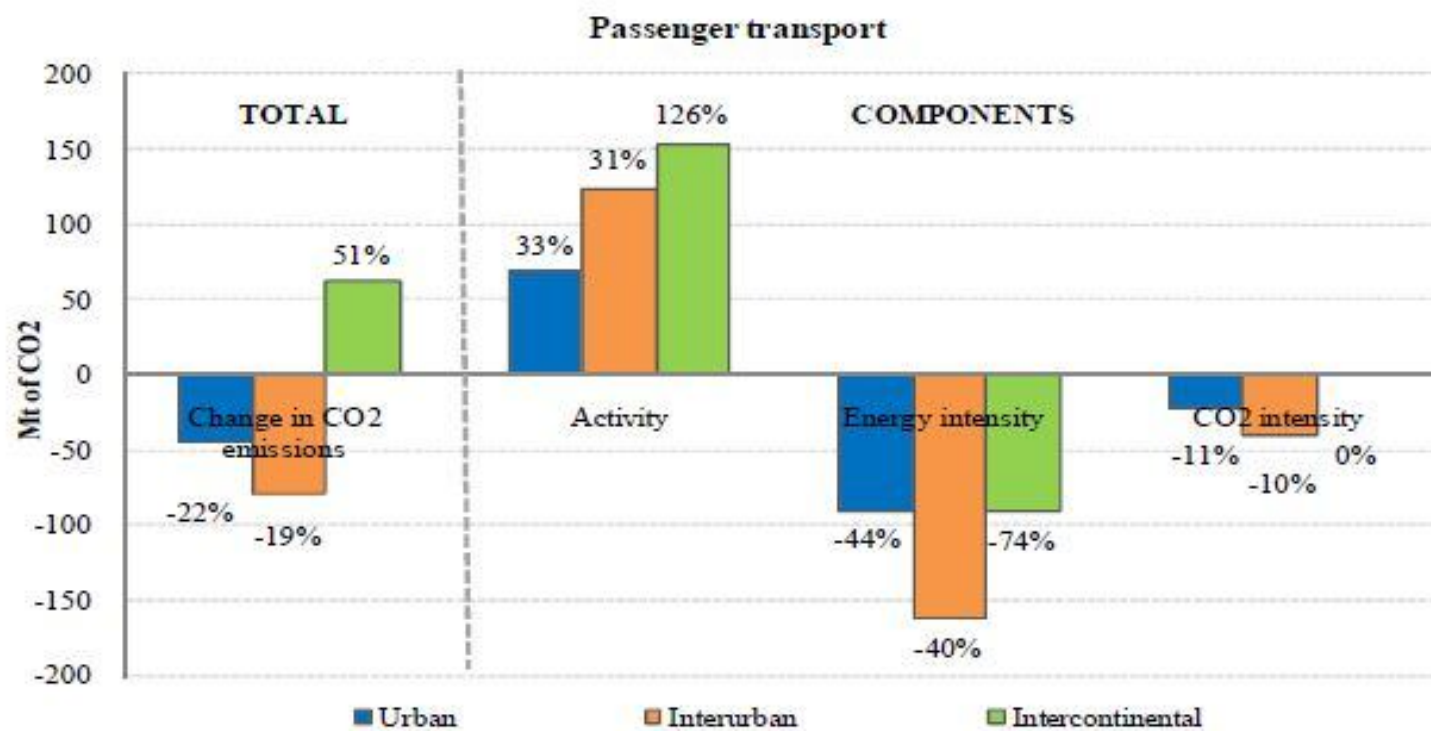


EC Reference Freight



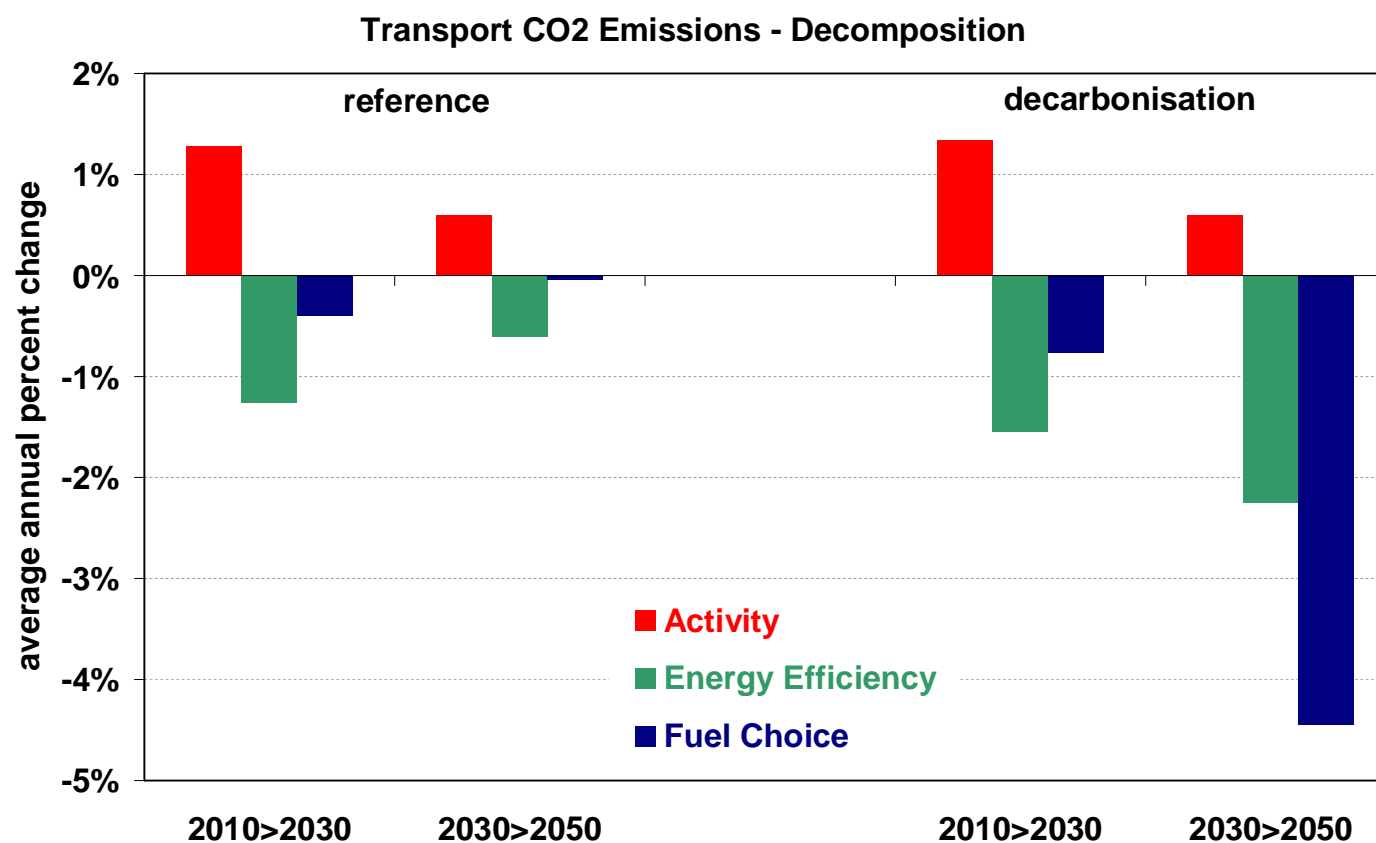


EC Reference Passenger



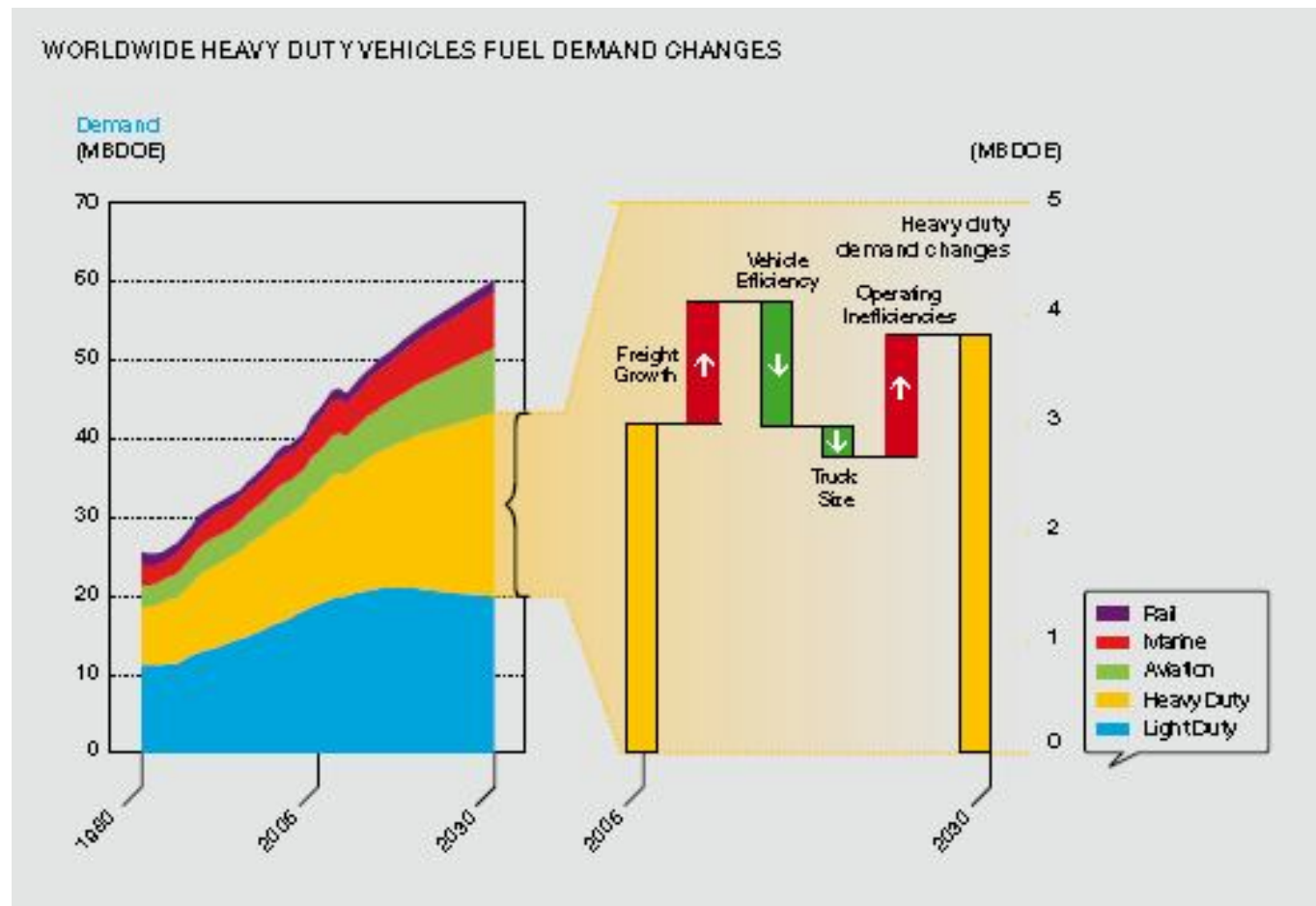


Marek Šturc





Hans Schnieder Freight

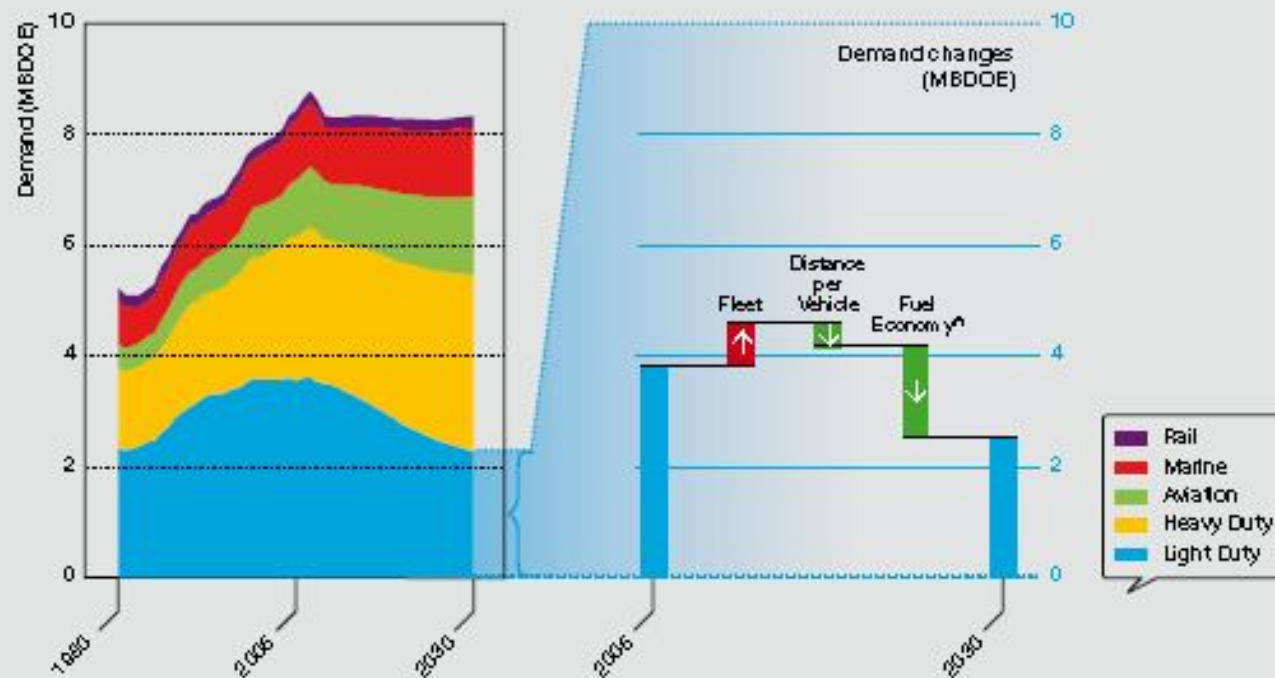




Harald Schnieder Passenger

EU-27 LIGHT DUTY VEHICLES FUEL DEMAND CHANGES

Source: ExxonMobil



(*) Fuel economy: regulation, feedback, new technology, scrapping schemes



Carsten Hess

GoGreen Program

30 % increase in carbon efficiency by 2020 for all products and services.

Our GoGreen program “automatically” reduces our customers’ carbon footprint for every item we deliver for them.

Reporting of customer and product related emissions for the calculation of our customers’ own carbon footprint

From trade lane analysis to the analysis of the customers’ entire carbon footprint and consulting on supply chain optimization measures such as shifting transport modes

GOGREEN Products and Services

Calculation, offsetting and verification of non-avoidable carbon emissions at product level through climate protection projects

Customer-specific measures for improving their carbon footprint, e.g. use of new technologies such as fuel-saving tear-drop trailers





EC Policy options 2050

Relative to option 1	Option 2	Option 3	Option 4
CO2	- 69%	- 69%	-69%
Activity freight	0%	+5%	+5%
Activity passenger	-18%	-2%	-7%
Share rail +iww freight (1 = 5%)	7%	5%	6%
Share rail + iww pass (1 = 7%)	14%	9%	12%
Share convent. ICE cars (1 = 48%)	12%	3%	3%
Pricing and taxation	High	Low	Medium
Unit costs freight	+43%	-4%	-1%
Unit costs passenger	+23%	+2%	+13%
CO2 standards	Low	High	Medium
R&D/Battery costs	Low	High	Medium
Infrastructure	High	BAU	High



Scope CO2 reduction 2050

CO2 1990 = 100	Low	High
Projection	135	135
Volume/activity (tkm, pkm)	0%	-10%
Transport efficiency (modal shift, load factors)	-10%	-20%
Eco driving (speed, driving style)	-5%	-15%
Low carbon transport (CO2/vkm)	-65%	-52%
Target	40	40