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Railways: what climate solutions can they offer?

4th UIC Energy Efficiency Conference

September 24th - 26th 2009, Tours

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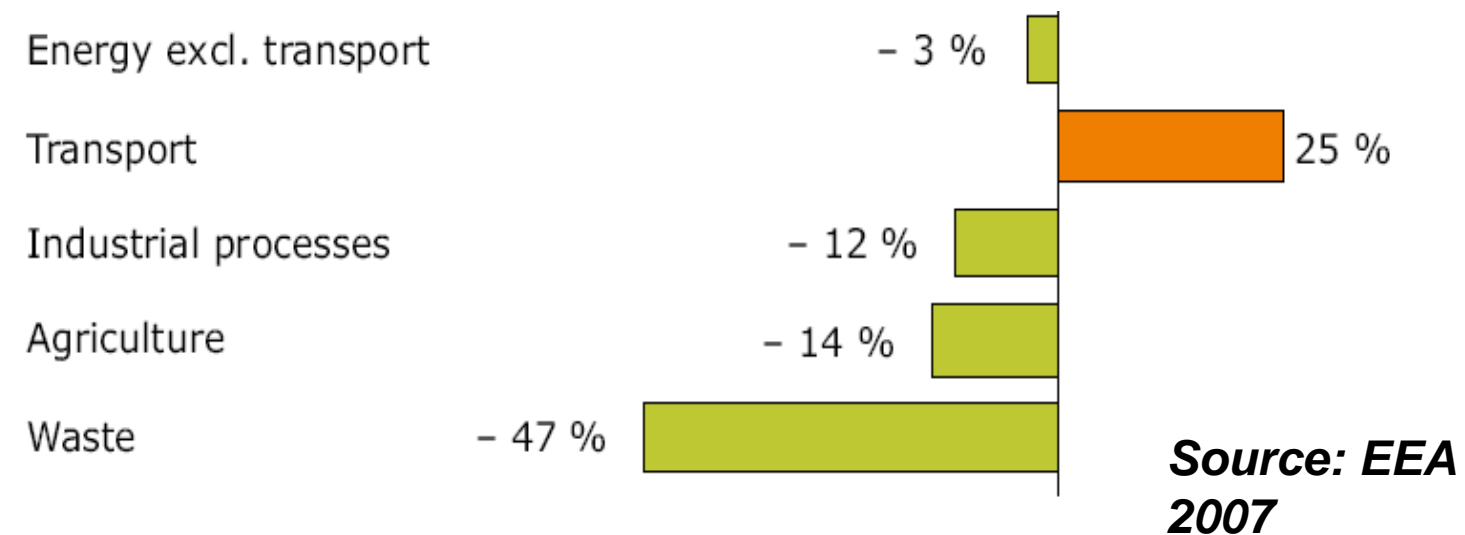


The continuing problem with transport



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Projected change in EU15 GHG emissions from 1990 to 2010 with existing policy measures



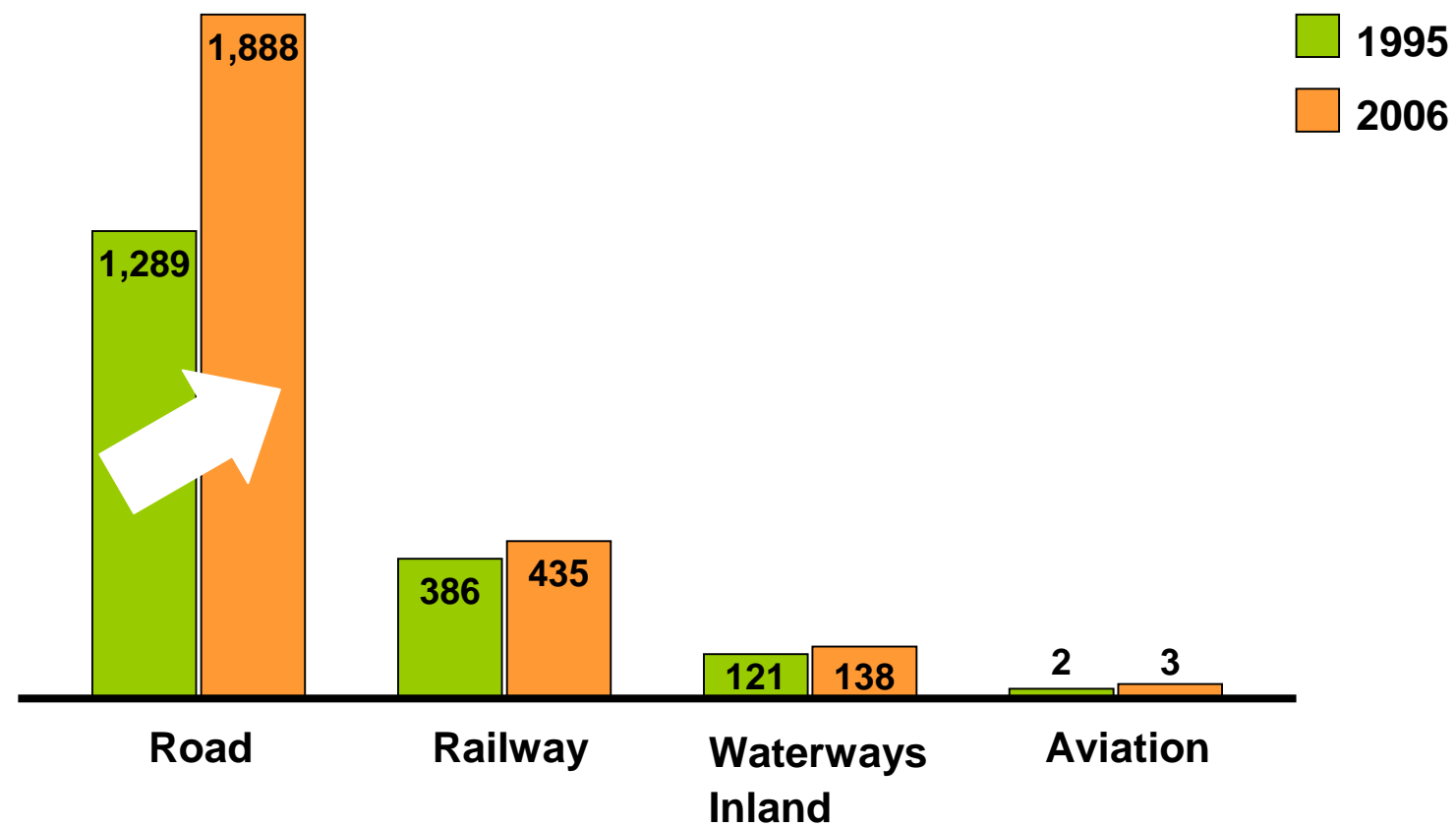
- Transport responsible for 22% of GHG emissions in EU-27 (EEA 2008)
- If transport followed trends in other sectors, EU-27 GHG emissions (1990-2005) would have fallen by 14% instead of actual drop of 7.9% (EEA 2008)

Freight Transport in EU27: Mostly by Road



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in 1,000 million ton-kilometers



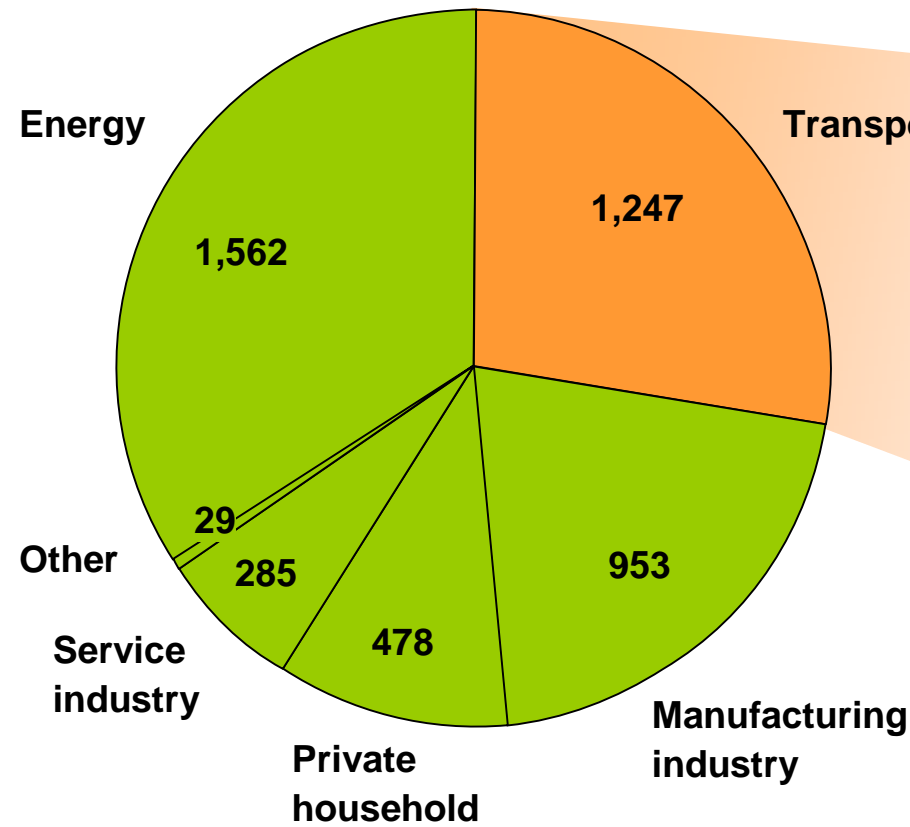
Source: Energy & Transport in figures, Directorate-General Energy and Transport

External Costs in EU27: CO2-Emissions

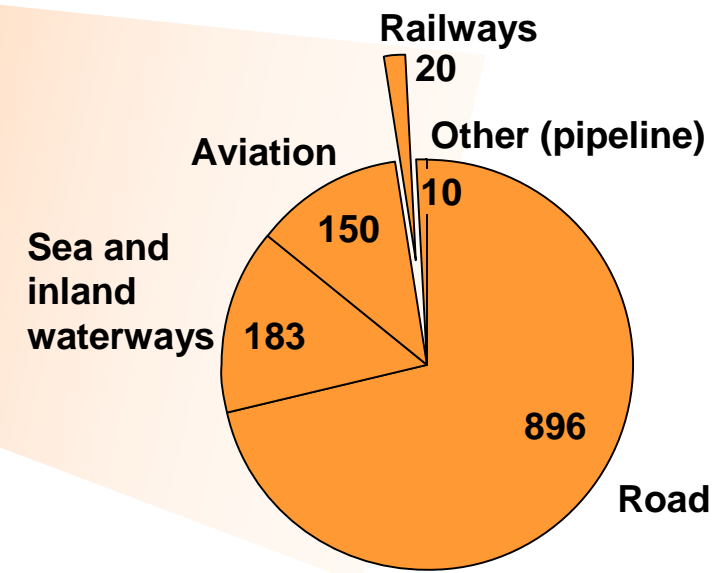


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by sector in 2005
in million tons



in the transport sector in 2005
in million tons

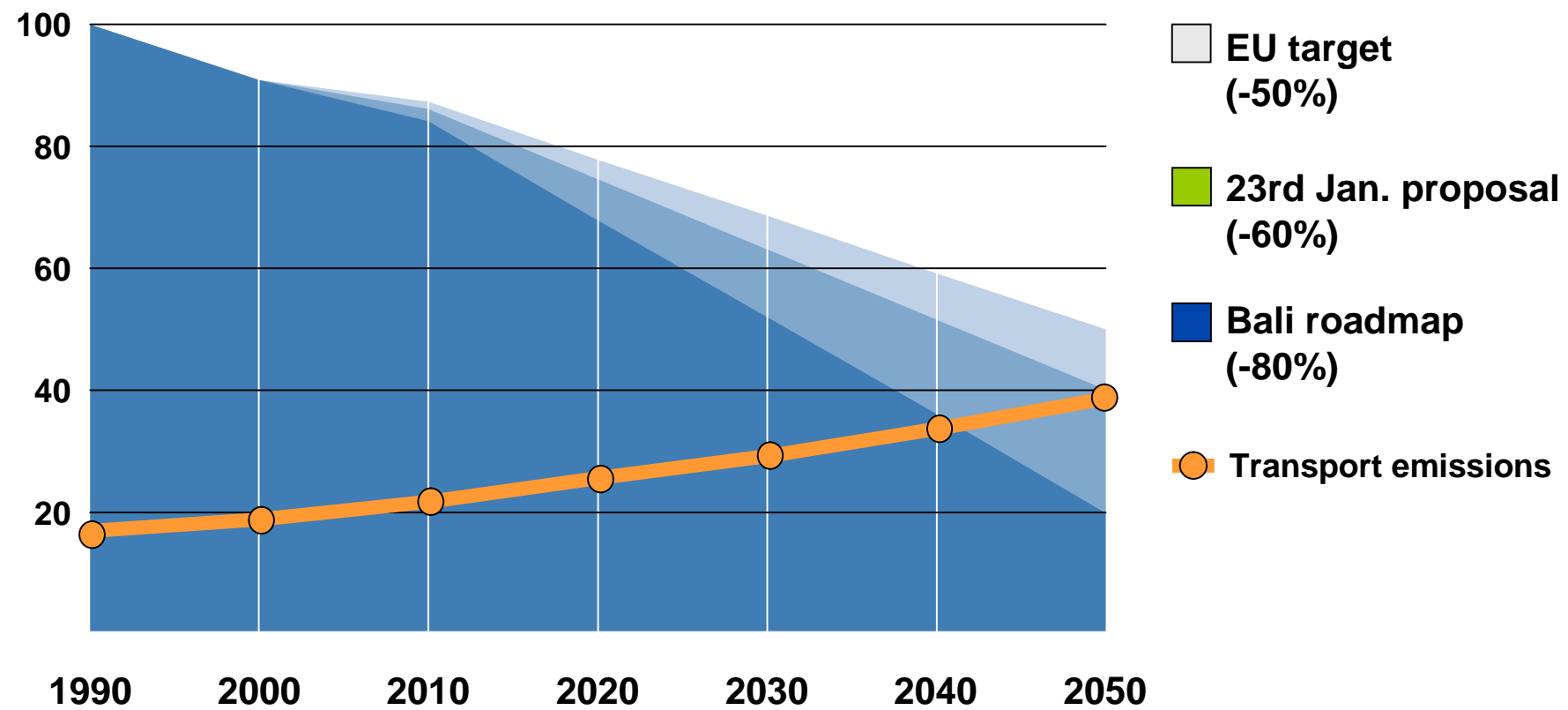


Source: Energy & Transport in figures, Directorate-General Energy and Transport; UIC Energy CO₂ database

Greenhouse gas-emissions in EU27 in 2050: Transport Accounts Probably for All



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Source: European Environment Agency 2008

Bold proposals needed!



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No single solution to transport and climate change → technology improvements needed, but policy changes are key



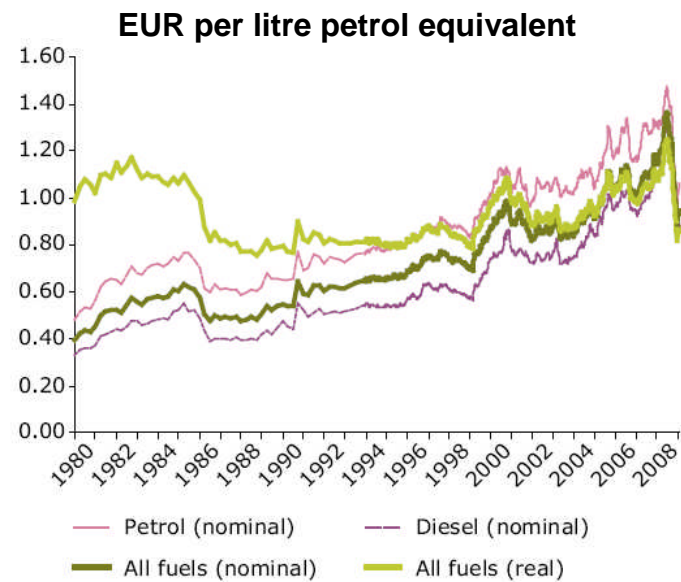
“All of the current trends in transport fly in the face of what science tells us is required. Present political action in the transport sector is woefully inadequate.”

- Yvo de Boer, Executive Secretary UNFCCC, - speaking to International Transport Forum, Leipzig, 29 May 2008

Low prices for road transport have led to significant increase in traffic volume and thus CO2 emissions

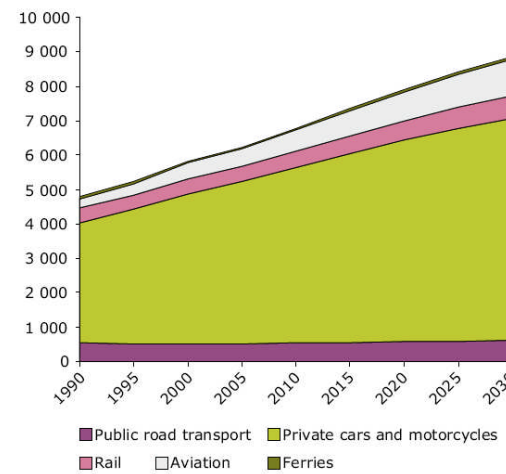


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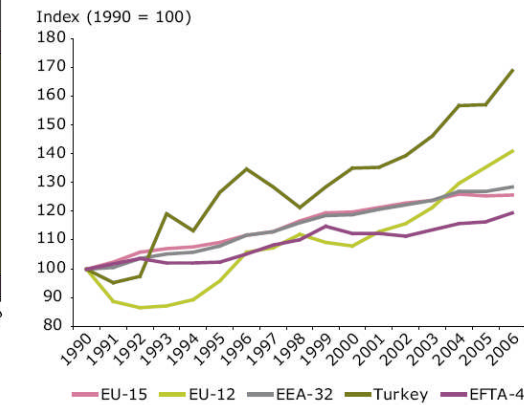
Source: DG TREN, 2008

Gfkm (Freight Transport activity)



Source: European Commission, 2007

Transport sector Greenhouse Gas Emissions



Source: European Topic Centre for Air and Climate Change, 2008.

Road is perceived as the cheapest transport mode:

- Fuel prices largely stable (corrected for inflation)
- Productivity gains due to modern technology and logistics concepts
- Important costs are externalized to society

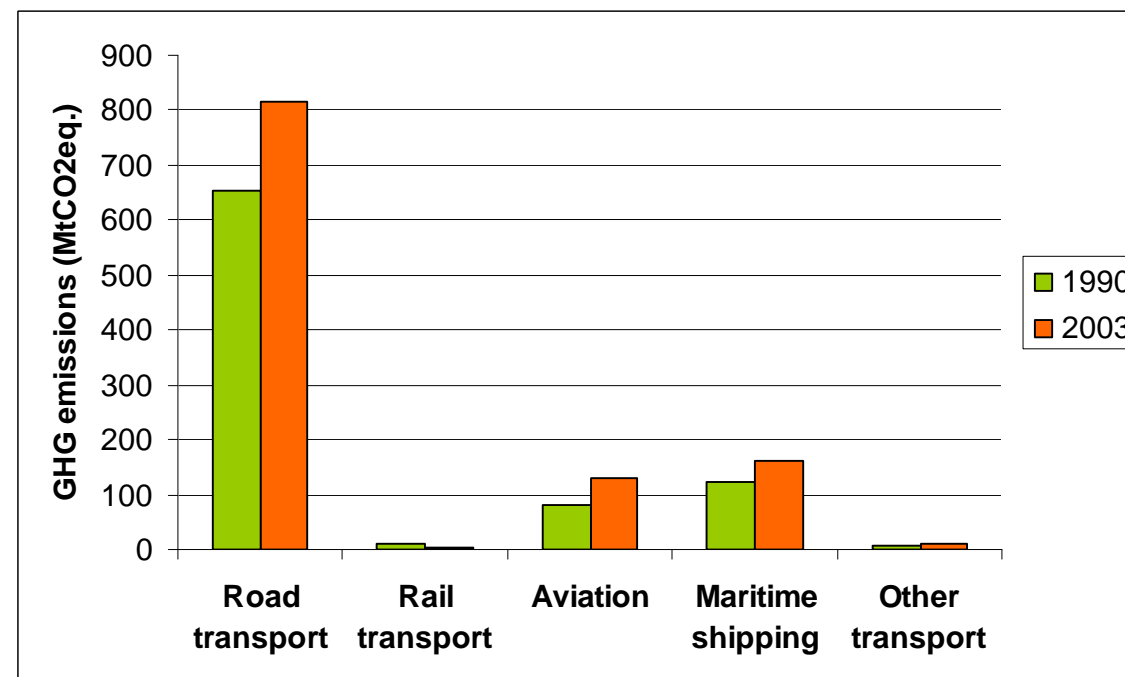
If prices are not adjusted, traffic volumes will continue to grow uncontrollable

Strengths of the railway sector 1



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Change in greenhouse gas (GHG) transport emissions by mode, 1990-2003 (EU27)



- **Rail is the only mode that has decreased GHG emissions since 1990 – all other modes have increased.**

Source: EEA 2007

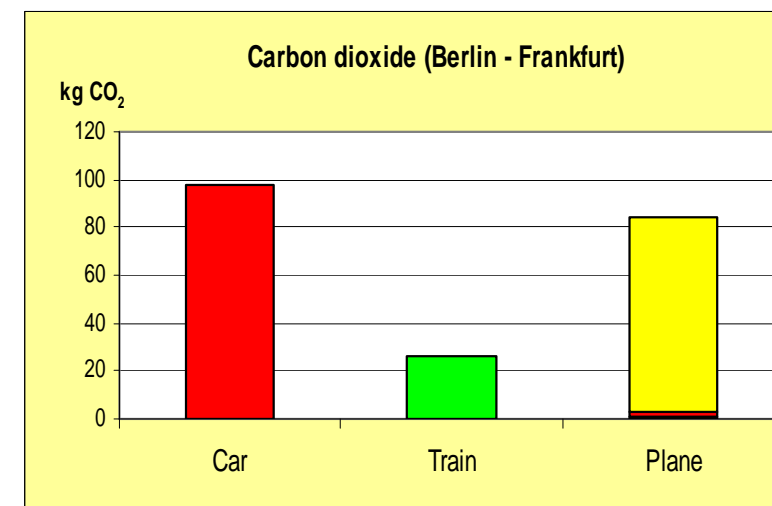
Strengths of the railway sector 2



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Climate change and CO2 emissions

- Travelling by rail is on average 3-10 times less CO2 intensive compared to road or air transport
- With 7-10% of market share, rail still contributes less than 2% of the EU transport sector's CO2 emissions
- 80% of European rail traffic uses electric power for traction: through use of renewable energy it is possible for rail travel to be emission free



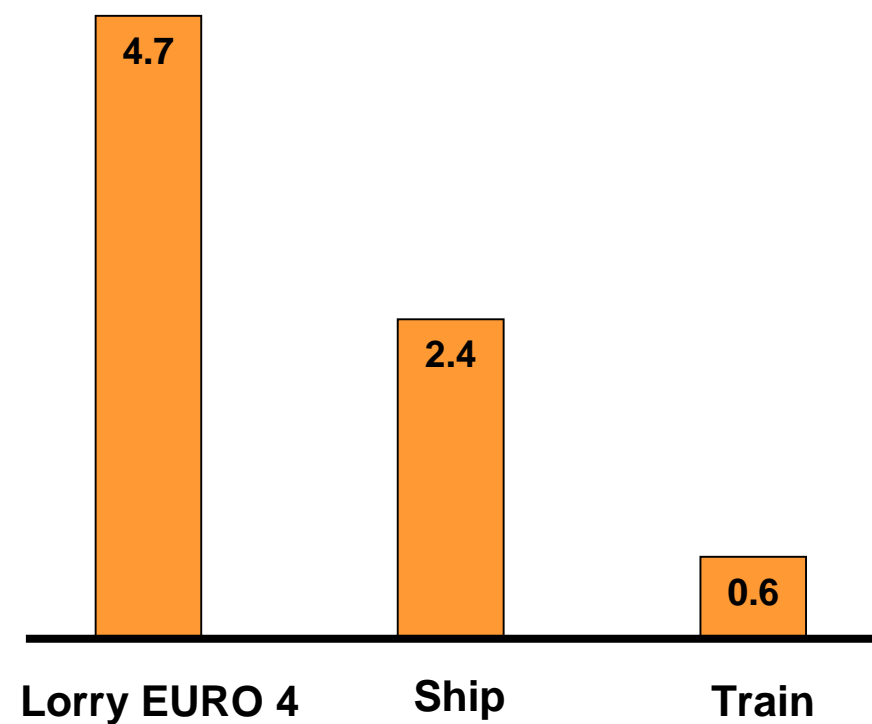
Comparison of CO2 emissions: one passenger transported between Berlin and Frankfurt city centres

May 2008: CER members agreed to a further cut in specific emissions of average 30% over 1990-2020

Freight transport: Rail to be used as the backbone mode!



Emissions related to 100 tons freight transport from Basel to Rotterdam
(700 kilometers) in tons



Source: Ecological Transport Information Tool

The solution for the environment friendly transport:
RAILWAYS. The way forward: Balanced conditions

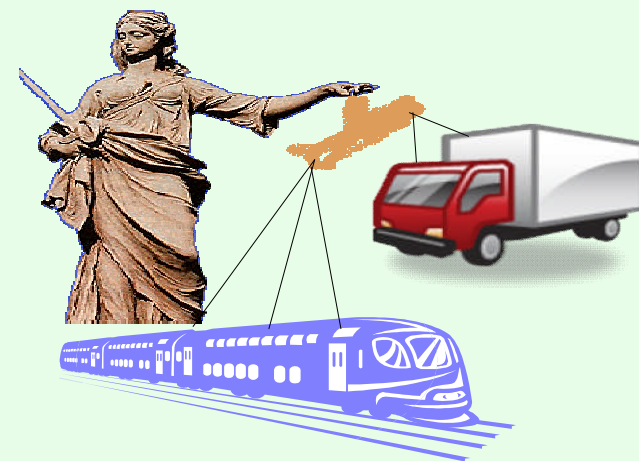


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Eurovignette proposal – first step in the right direction!

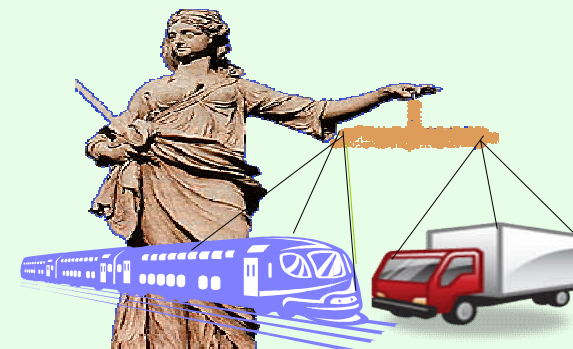
Eurovignette: End Road-Privilege

Today



Only Rail can be charged for external costs

Tomorrow?



Fair competition between modes

**Plus: Other instruments have to follow:
Emission Trading Scheme - today counterproductive!!!**



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- Railways are indirectly affected by the ETS because electricity generators will pass their additional costs on to the electricity consumers, ie. the railways.
- ➔ A study by INFRAS Zurich shows that from 2013 onwards, European railways will be charged with additional costs of more than 500 MEUR yearly

- At the same time road, air and waterway transport emitting the substantial part of CO2 in the transport sector - are either not affected by the ETS at all, or only affected to a small extent.
- ➔ As rail's competitors in the transport markets will not be carrying such costs, transport volumes will shift to other, more polluting modes of transport!!!
- ➔ According to a study by ZEW Centre for European Economic Analysis, CO2 emissions in Germany alone would increase by approximately 800 000 t/year !!!

**Joint Resolution by the Chairmen of European Railways, Berlin 5 September 2009:
European Commission should announce necessary measures for compensating the
railways in its new Action Plan for Energy Efficiency**

Short-term measures



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1. Revision of the Eurovignette Directive to allow internalisation of external costs for road transport is URGENT and top priority
2. Appropriate measures on a European and / or national level should be taken to compensate railways for the unintended effects from the current implementation of ETS on the transport sector

→ ***All studies clearly show the high external costs of other transport modes***

→ ***Internalisation of external costs for road transport is not allowed***

→ **Competition between rail and road is fundamentally distorted**



Medium term measures



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Organisational changes: Better combination of transport modes to use strengths of each

Swiss example: introduction of the Heavy Vehicles Fee

- *Combined transport => +17 million tons*
- *Reduced vehicles crossing Alps by 16% (2000-2006)*
- *2/3 of the revenue => financing major rail projects*
- *Modal split => transalpine rail freight reached 66% in 2006*



Leverage effect: Use of revenues in cleaner transport will boost investment, including public-private partnership (PPP)

PPP example: Perpignan - Figueras: *project linking the Spanish network with the rest of Europe*

Long term measures



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Use of market-based instruments to make more rational choices of transport modes



Pricing systems that reflects costs

- modal shift
- greener and more efficient transport system

Environment / climate change debate

- Copenhagen conference in December 2009
- transport will have to limit CO2 emissions
- transport prices will have to reflect real costs, including external costs

Economic debate

- internalisation of external costs ⇒ modal shift ⇒ new production and distribution structure
 - focus on combined transport
- capacity limits of urban infrastructure
 - public railbound transport

Thank you for your attention!



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