Transport and Climate Change

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Transport and Climate Change

- Biggest Chaos Dominates Policy
- Long-term Challenges
- What Transport Can Contribute
- Starting now
Biggest Chaos Dominates Policy

- Financial Turbolences
- Protection of the Industry
- A Big Chance is Being Missed
- National Egoism versus Global Necessities
Long-term Challenges

- Energy Forecasts
- Transportation Forecasts
- IPCC and Stern Reviews
- Starting now
CO$_2$-Emissions

World-Wide 1971-2030

EWI/Prognos 2005
Global Motorization

Cars/1000 inhabitants


Regions: North-America, Europe, Oceania, CIS, Latin-America, Asia, Africa
Development of Average Fuel Consumption
Comparison Norm/ Tested Consumption 2007

![Graph showing consumption comparison between Norm and Tested values for various vehicle types, including Benzin, Hybrid, Diesel, and others.]
Producers of CO\textsubscript{2}

**World**
- Road: 18% (45%)
- Air: 5% (18%)
- Other transport: 8% (1%)
- Energieindustrien: 2% (3%)
- Production: 3% (2%)
- Households: 3% (1%)
- Andere Sektoren: 2% (1%)

**OECD**
- Road: 23% (43%)
- Air: 6% (14%)
- Other transport: 2% (8%)
- Energieindustrien: 3% (5%)
- Production: 1% (2%)
- Households: 1% (2%)
- Andere Sektoren: 8% (18%)

Source: OECD/ECMT 2007
Expected Change of Emissions 1990/2010 by Sectors

- Waste industry: -47%
- Agriculture: -18%
- Production process: -10%
- Traffic: 27%
- Energy without traffic: -7%

Legend:
- Waste industry
- Agriculture
- Production process
- Traffic
- Energy without traffic
Reduction at all? Arguments against!

On the Average Transport Emissions Can be Reduced by ca. 20% 1990/2020 in Industrialized Countries!

Concerted Effects of Energy Prices and Policy Actions

Some Examples
Aviation

Development of EU-25 international aviation GHG emissions

- International aviation GHG emissions % over 1990
- Total GHG (without LUCF and int. aviation) % over 1990
EU Draft Directive 2006: ETS

Problems with Aviation

- Mobile and international nature of emission sources
- Relatively low share of aviation
- Main trading instrument of Kyoto P.: Assigned Amount Units (AAU) not granted for internat. aviation
- List of 14 policy options to be checked
EU Draft Directive 2006: Scenario

- All departing flights
  all arriving and departing
- Only CO$_2$
  multiplier of 2 for non-CO$_2$
- Auctioning 20% of allowances off
  share of 40%
- Stabilisation at 2005 levels
  use of CDM and JI
- Price per allowance
  6, 15, 30 €
## Scenario Results

Comparison with BAU

<table>
<thead>
<tr>
<th>Geographical coverage</th>
<th>Reduction by 2015</th>
<th>Reduction by 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Mt CO₂</td>
</tr>
<tr>
<td>Intra EU flights</td>
<td>36%</td>
<td>31</td>
</tr>
<tr>
<td>EU - All departing flights</td>
<td>36%</td>
<td>77</td>
</tr>
<tr>
<td>EU - All arriving and all departing flights</td>
<td>36%</td>
<td>122</td>
</tr>
</tbody>
</table>
Impact of Trading CO₂ Certificates

Frankfurt FRA- London
LHR
A 321-100
Km: 695
CO₂: 10.4 t price/ton: € 30
Value of certificate: € 312
Value per PAX: € 2.50

Frankfurt HHN- London STN
B 737 800
Km: 572
CO₂: 8.2 t price/ton € 30
Value of certificate: € 246
Value per PAX: € 1.60
Result Aviation

No Major Reduction Compared With 1990 Emission Values Possible

But Stabilization or Modest Decrease Compared with 2005 Values

Incentives Can be Set Accordingly: ETS, Starting/Landing Fees, Tax Harmonization
Car - Emissions

295 vs 116 g/km 2006
Emissions Control Scheme for Cars

Bonus/Malus Scheme

Limit Value 130 g/km

Reference Curves
Closed Trading or Bonus/Malus Scheme

Purchase of certificates

Sales of certificates

130 g/km

Dr. Karl-Heinz Zierock
Berater für Umwelt- und Klimaschutz
Closed Trading or Bonus/Malus Scheme

Payment 20/35/60/95 €/g/km

Compensation/Fleet

130 g/km
City-Tolling in London, Stockholm, ...
Results:

Reduction Targets Achievable Without Compromising the Functionality of Passenger Transport

Problems: Prestige, Premium Cars, Company Cars

Main Problems in the Developing World
Freight Transport and Logistics

EU27 Performance by Mode for Freight Transport
1995 - 2006
billion tonne-kilometres

- Road
- Sea
- Rail
- Inland Waterway
- Pipeline
- Air
Potential in Freight Transport

- Propulsion Technology (Limited)
- Information Technology (Limited)
- Driver Education (Moderate)
- New Logistic Concepts (High)
Payment System "Toll Collect"
Target-based Differentiation: Euro Categories

Development of Truck Fleet by Euro Categories in Germany
Potential of Logistics

General Idea of Logotakt

- Open Networks
- Intermodality on Main Run
- Robustness
- Scheduled Milkruns and Transhipment
Freight Transport and Logistics

High Reduction Potential Through
- Driving Behaviour
- Logistic Process Optimization
- New Logistic Concepts

Potential of Cooperative Logistics and Open Networks Widely Unexplored.
Clear Targets
Clear Strategies
Clear Roadmaps

No Exemptions or Smart Rules For the Transport Sector

Start Now