
How to Reduce CO₂ and the Dependence on Oil in the Transport Sector - The Federal Government's `Fuel Strategy`

MEET Follow up Meeting
Hakodate, Japan
17 June 2009

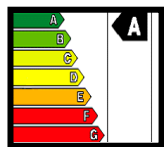
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Challenges of Transport

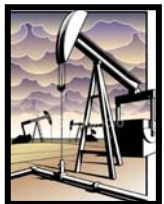
The requirements for future transport are:



Avoid / reduce emissions



Increase efficiency



Secure fuel- / energy
supply by diversification

**Global
Competition**



Main Fields of Action for Efficient and Sustainable Transport

Traffic Control /
modal shift

Investments in Transport
Infrastructure

Innovative Transport
Technologies

Extension of Public
Transport Services



German Integrated Energy and Climate Program

– December 2007

Key Elements

- 1 Combined heat-and-power generation
- 2 Expansion of renewable energies in the power sector
- 3 CCS technologies
- 4 Smart metering
- 5 Clean power-station technologies
- 6 Introduction of modern energy management systems
- 7 Support programmes for climate protection and energy efficiency (outside buildings)
- 8 Energy-efficient products
- 9 Provisions on the feed-in of biogas to natural gas grids
- 10 Energy Saving Ordinance
- 11 Operating costs of rental accommodation
- 12 Modernisation programme to reduce CO2 emissions from buildings
- 13 Energy-efficient modernisation of social infrastructure
- 14 Renewable Energies Heat Act
- 15 Programme for the energy-efficient modernisation of federal buildings
- 16 CO2 strategy for passenger cars
- 17 Expansion of the biofuels market
- 18 Reform of vehicle tax on CO2 basis
- 19 Energy labelling of passenger cars
- 20 Reinforcing the influence of the HGV toll
- 21 Aviation
- 22 Shipping
- 23 Reduction of emissions of fluorinated greenhouse gases
- 24 Procurement of energy-efficient products and services
- 25 Energy research and innovation
- 26 Electric vehicles**
- 27 International projects on climate protection and energy efficiency
- 28 Reporting on energy and climate policy by German embassies and consulates
- 29 Transatlantic climate and technology initiative

► 29 concrete measures to reduce its CO2 emissions by 30 % by 2020 compared to 1990 ◀



**There is one thing everyone agrees on:
At some point in the future we will need to
begin using alternative forms of energy – for
mobility, too!**

There are two reasons for this:

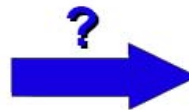
- ➔ 97% of today's transport operations depend on crude oil.
- ➔ The volume of traffic will increase further – in Europe as well as globally.



Therefore, energy supply and measures to prevent climate change increasingly influence mobility and the price we have to pay for it.

Target: De-coupling of increase of transport and energy use

"Wie werden wir uns bewegen?" -
Veränderung der Mobilität



Leitmotiv:

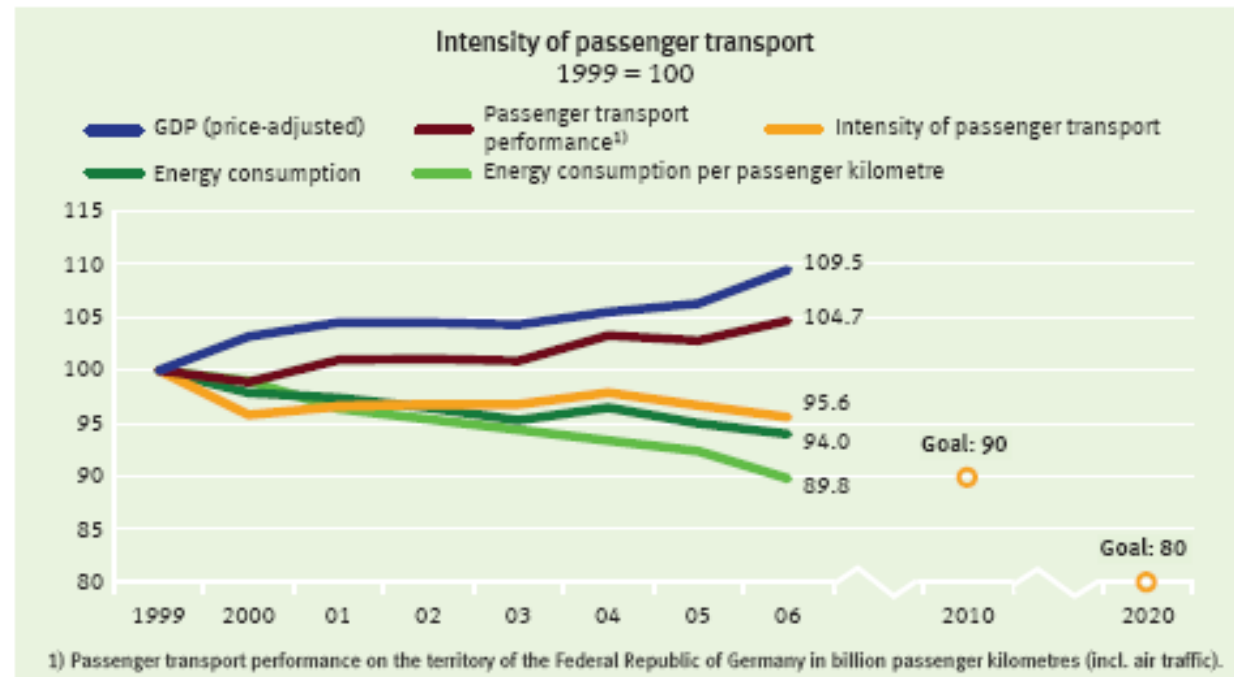
➔ „move away from oil!“ („Weg vom Öl!“)

Strategy

- efficiency
- diversification of fuels / new energies
*especially renewables)
- Electrification of drive trains!

Success is possible

Germany is the only country in the EU that has succeeded in reducing CO₂ emissions from the transport sector over the last eight years – by 20 million tonnes.



Source: The Federal Minister of Transport (editor), *Verkehrszahlen* ('Transport In Figures'), 2007/2008

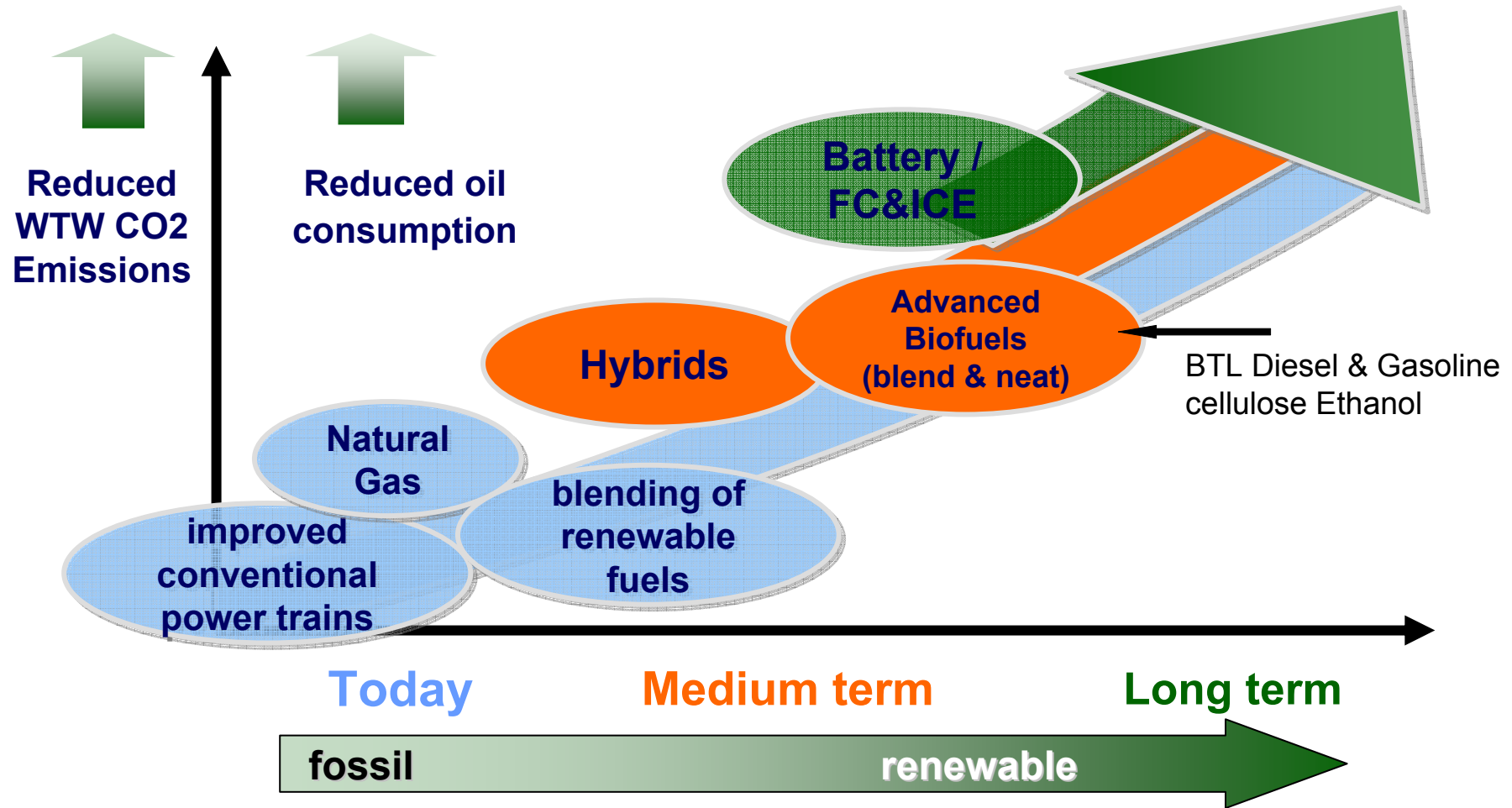
e.g.: Passenger Transport

- The increase in passenger transport performance between 1999 and 2006 (4,7%) was accompanied by a decline in energy consumption. The average consumption of energy decreased in the period under review by nearly 10%, to 1.77 megajoules per passenger kilometre (MJ/Pkm). The development of specific energy consumption in individual motorised transport was chiefly responsible for this change.
- Chiefly because of technological improvements and the growing share of diesel vehicles, the consumption of fuel per kilometre in individual motorised traffic went down by 8.2%.

“E-Mobility”

Fuel Cells and Battery Electric Vehicles

National „Fuel Strategy“: Evolution of Alternative Fuels and Vehicle Technology

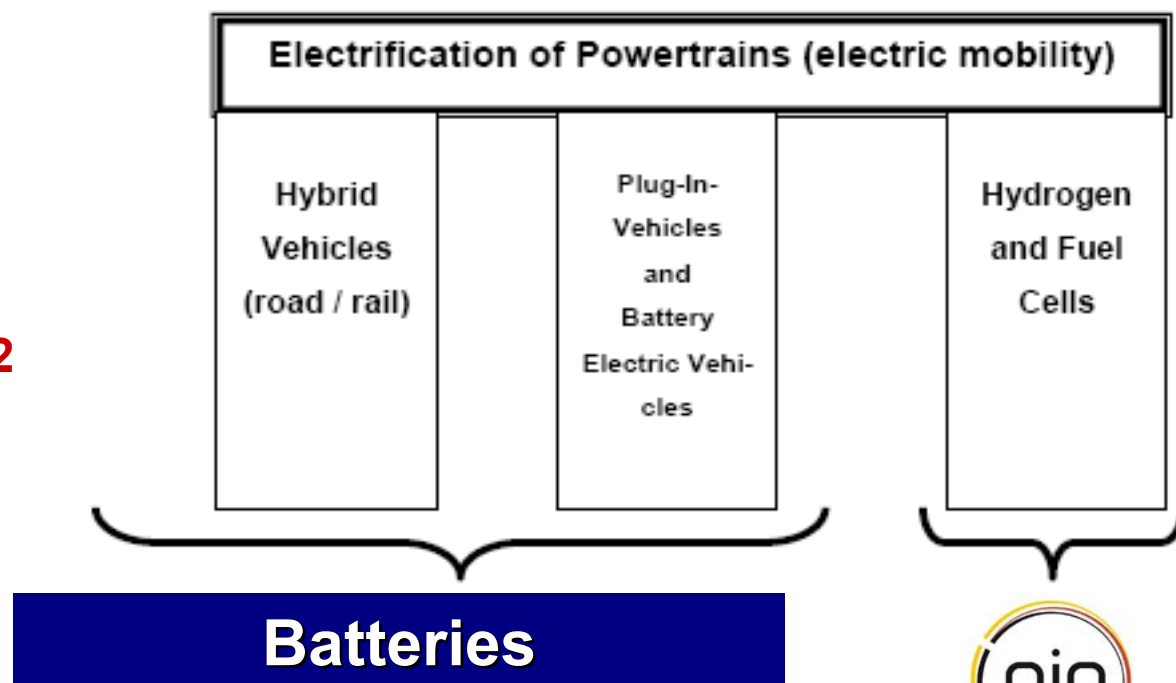


Good arguments for electrifying powertrains

- High degree of (energy) efficiency - major contribution to CO₂ reduction possible
- Access to the entire spectrum of renewable energy (esp. electricity from renewable sources) for transport – contribution to energy security
- No PM or NOx emissions and less noise pollution
- Contribution to improving network management (load balancing of renewable sources of energy)
- Future strategy †

That means:


- ▶ energy-security
- ▶ reduction of CO₂



I. Fuel Cells: Program launched in 2008

German National Innovation Program (NIP) Hydrogen and Fuel Cell Technology

NIP is supported by:

 Federal Ministry
of Transport, Building
and Urban Affairs

 Federal Ministry
of Economics
and Technology

 Federal Ministry
of Education
and Research

 Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety



- **200 M€** funded by Fed. Ministry of Economics
- focus R&D
 - **500 M€** funded by Fed. Min of Transport, Building, Urban Affairs
- focus demonstration
 - **700 M€** industry contribution
-
- **1.400 M€** total budget
 - Duration: 2007-2016

NIP is a strategic alliance b/w German politics, industry and academia

II. Battery Technology

Electric Mobility: Focus Batteries – Federal Economic Stimulus Package in January 2009

- €500 Mio. from Federal Economic Stimulus Package (>50bn. €)
- Lead market in future-tech e-mobility
- Technological competencies, competitiveness
- Cross-sector alliance between industry, science and politics
- Four Federal Ministries: Transport, Economy, Environment, Education

Developing and Introducing E-Mobility in “Model Regions”

Project of the Ministry of Transport:
E-Vehicles – integrated transport concepts

150 Mio. €:

- City busses with battery storage for electrical shares of driving
- Middle sized /light duty commercial vehicles with Diesel-hybrid-drive train
- Electric vehicles
- Electric motorbikes
- Electric bicycles
- Hybrid trains (Schienenhybridfahrzeuge)
- Public charging points
- Battery Test Centre (incl. crash tests) and
- Infrastructure for H2

=> Project Management:



Model regions will be selected which meet clearly defined principles to develop e-vehicles „with real life circumstances“ and to support this development effectively

Guiding principles and objective of the promotion

WHY „model regions“?

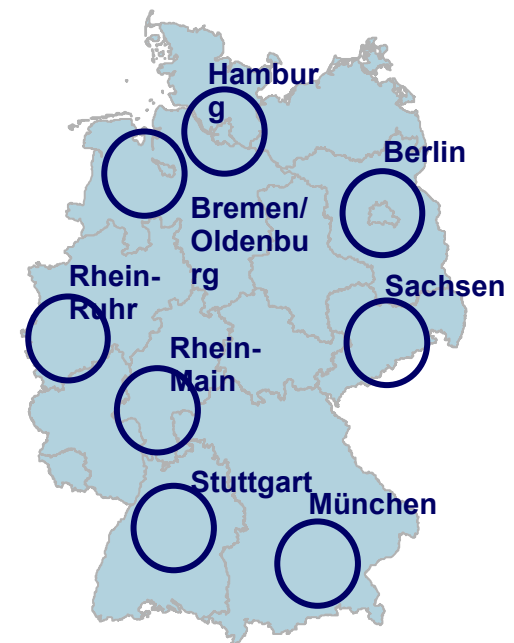
- To develop e-vehicles within Clusters
- Support for clusters/ model regions
- Combination of global firms and regional actors
- Competition within the cluster
- Visibility of e-transport in everyday life
- Basis for further national development (e.g. infrastructure)

PRINCIPLES:

- Integrated approach for the development of the regions
- Integration OEM, customer, infrastructure managers and local stakeholders (local authorities, energy suppliers, etc.)
- Topics to focus on:
 - Making e-vehicles available
 - Installation and integration of charging stations in public | unified standards
 - Project development and coordination with inthe region

TARGET:

Max. 8 model regions, including 1-2 rural areas



Conclusion

E-Vehicles is very well suited to meet special requirements of future transport.

Emissions	Electricity production from renewables work without emissions (PM10, NOx) & less noise.
Efficiency	Electrified drive trains are much more efficient than combustion engines.
Energy portfolio	Different sources of renewables can broaden the primary energy portfolio significantly.

Conclusion:

There is agreement throughout the world that, as far as global efforts to combat climate change are concerned, the focus is no longer on the question *whether*. Far more crucial are the questions *who* and *how*?

Questions to MEET:

- What contribution can – and must – the transport sector make?
- Should the Transport Sector define quantifiable CO₂ or Energy Efficiency Targets?
- What are the next steps for Copenhagen?

Thank you for your Attention!