



Towards Decarbonisation of Transport

- **Policy Drivers**
- **Perspectives of alternative fuels**
- **Policy Actions**
- **Electromobility**

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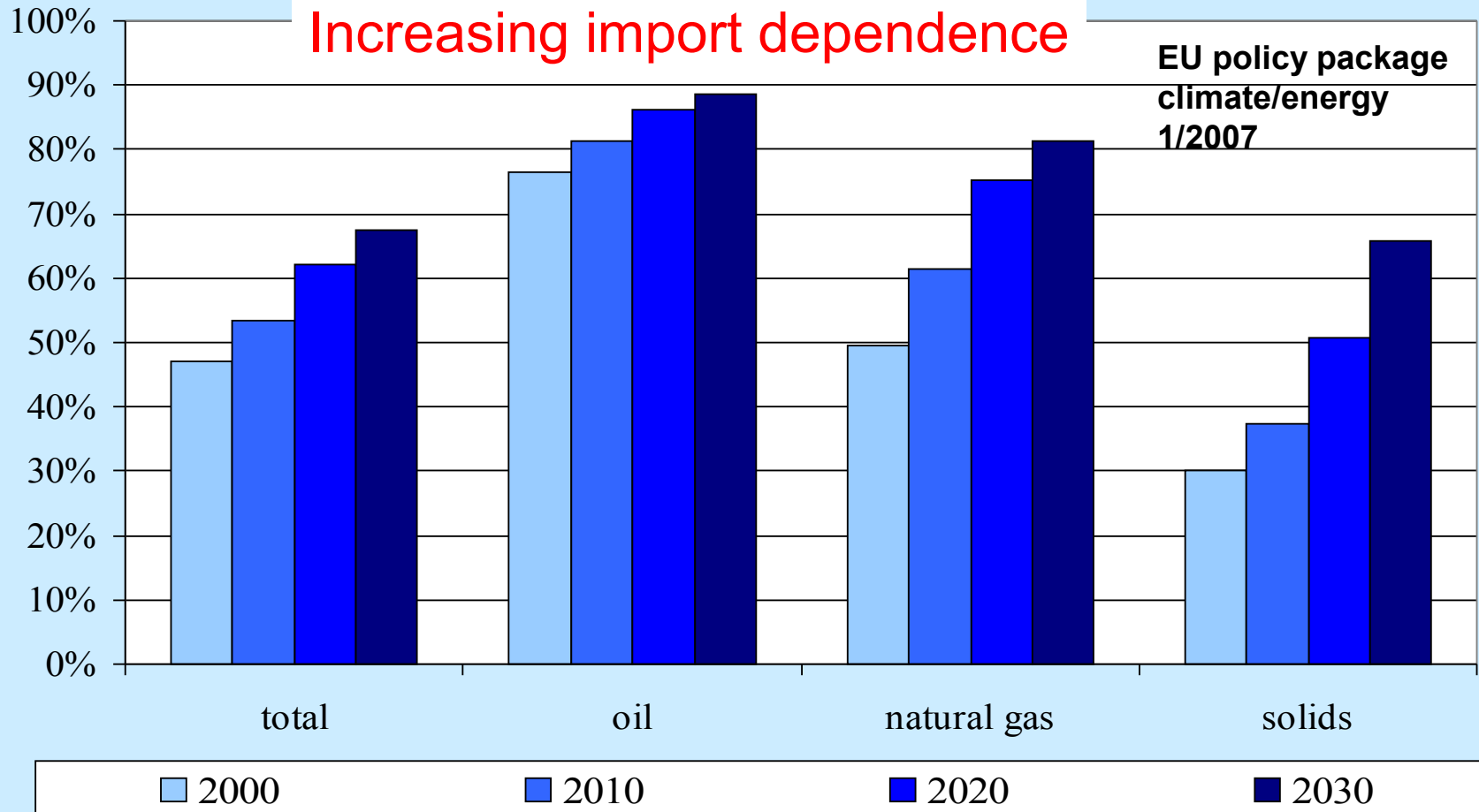
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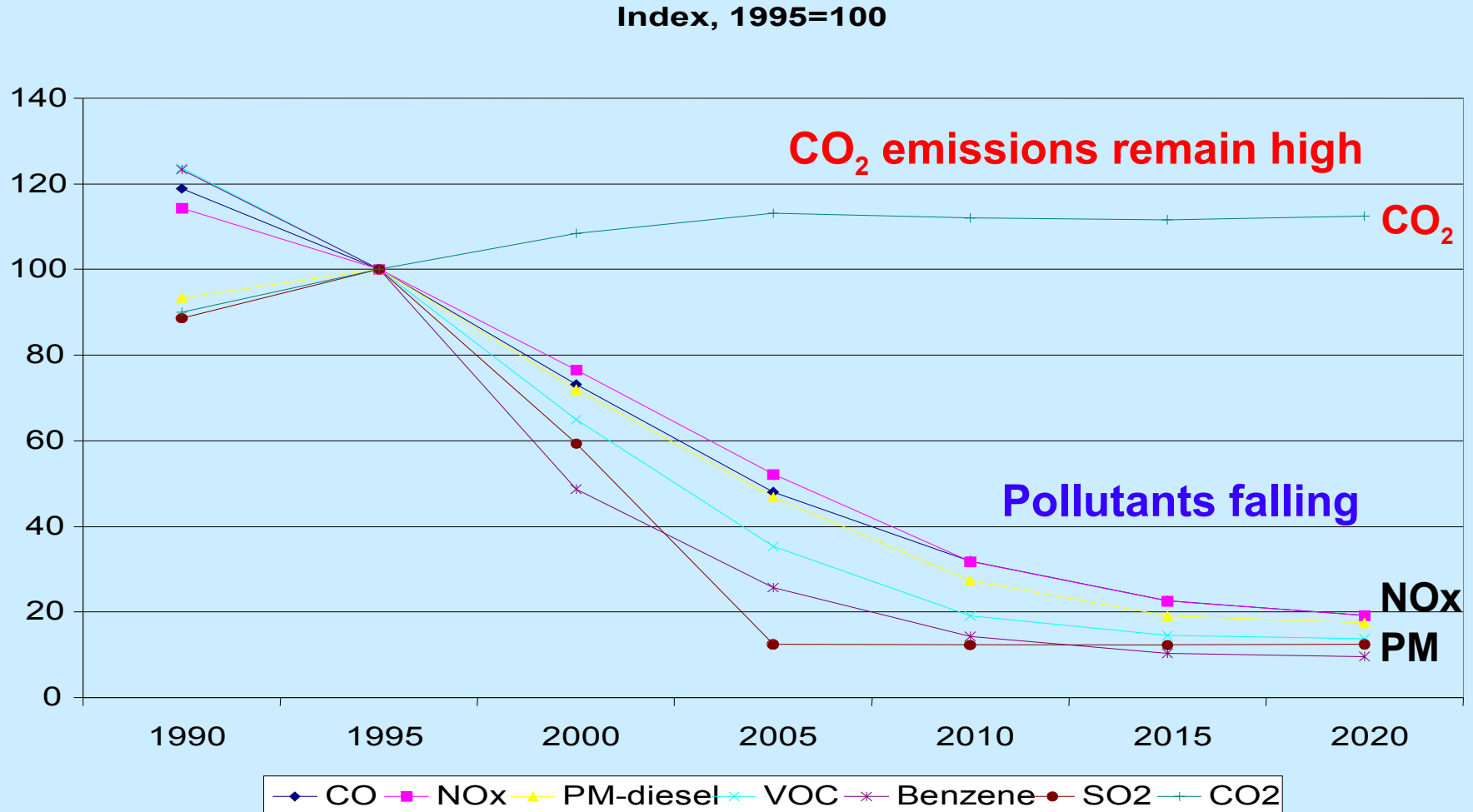
EU Energy Import



Towards decarbonisation of road transport



Trends in EU Transport Emissions



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Perspectives of Alternative Fuels

Market share

Full substitution of oil in the long term

➔ Consistent step-up process required

Biofuels: Domestic resource base; mature for the broad market
Broadening of resource base with 2nd generation biofuels

➔ Political support, economic incentives, pilot plants

Hydrogen: Diversification of resource base as energy carrier
Improvement of energy efficiency with fuel cells

➔ Research + development, demonstration projects

Electricity: Diversification of resource base as energy carrier
Improvement of energy efficiency with electric motors

➔ Demonstration, early markets, research +
development

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EU-Activities on Alternative Fuels

- ◆ **Communication on alternative fuels (11/2001)**
Biofuels, natural gas, hydrogen
- ◆ **Directive on the market share of biofuels (5/2003)**
market share 2% in 2005, rising to 5.75% in 2010
- ◆ **Directive on the taxation of energy products (10/2003)**
lower taxation of alternative fuels enabled
- ◆ **Renewable Energy Directive**
Binding target: 10% share by 2020 (April 2009)
- ◆ **Technology Platforms, Joint Technology Initiatives**
Hydrogen/fuel cells(TP:2004; JTI:2008), Transport(2004), Biofuels(2005)
- ◆ **Green Cars Initiative of European Economic Recovery Plan**
Electromobility projects (call in July 2009)

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Fields of Policy Action

- **Research and Technological Development**
- **Market Introduction**
- **Market Regulation**
- **Funding**



Research and Technological Development

- **Improvement of conventional technologies**
(vehicle technologies; public transport systems)
- **Development of new technologies**
(biofuels; natural/biogas; hydrogen; hybrid; electric)
- **Transport and energy research projects of the EU R+D Framework Programme**
- **Integrated deployment through the urban mobility initiative CIVITAS**



Market Introduction

- **Promotion of clean and energy efficient vehicles through public procurement**

Directive requiring to include energy consumption, CO₂, and pollutant emissions in the purchase decision

- **Support to joint procurement**

Development of schemes for public authorities through EU funded projects (COMPRO, PROCURA)

- **Urban mobility actions**

CIVITAS programme; Urban Mobility Action Plan



Market Regulation

- **Regulation of pollutant emissions**
Reduction of pollutant emissions through EURO standards
- **Regulation of CO₂ emissions**
Cars: 130g/km by 2015; 95g/km by 2020
Light Duty Vehicles: 175 g/km by 2017
- **Renewable energy Directive**
10% share of renewable energy sources in motor fuels by 2020
- **Fuel quality Directive**
Reduction of CO₂ intensity of fuels by 6 % by 2020
- **Promotion of clean and energy efficient vehicles in public procurement**
Directive requiring to include energy consumption, CO₂, and pollutant emissions in the purchase decision
- **Greening Transport**
Internalisation of external costs into vehicle operation through distance related and differentiated charging

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Funding

● R+D Community Framework Programme

Priority support to clean vehicles and alternative fuels

Urban mobility projects in CIVITAS (since 2002: 180 M€)

Fuel cells and hydrogen JTI (470M€; DG TREN 140M€)

Green Cars Initiative in FP-7 (500 M€)

● Structural and Cohesion Funds

Dedicated support for clean vehicles

● European Investment Bank

Loans for clean vehicles in Green Cars Initiative (4 b€)

● State aid

Community guidelines on state aid for environmental protection



Achievements in Environmental Performance of Vehicles

Energy efficiency

Reduction of fuel consumption of new cars by 22 %
from 7.6 l/100 km (1995) to 5.9 l/100 km (2008)

CO₂ emission reduction

Reduction of emissions of new cars by 18 %
from 186 g/km (1995) to 153 g/km (2008)

Pollutant emission reduction

Reduction through tightening of Euro emission standards

Particulate emissions e.g.

by factor 18 for heavy duty vehicles (Euro I/1993 to IV/2006)

by factor 28 for cars (Euro 1/1993 to Euro 5/2009)



Electric vehicles in Support of Policy Priorities

Security of Supply	Diversification of primary energy sources with electricity as universal energy carrier Energy saving through efficient electric motors .
Climate Protection	Avoidance of greenhouse gas emissions with electricity from CO₂-lean production Less energy use with efficient motors
Competitiveness	High market potential for investment into innovative technologies Creation of jobs in expanding markets



Electromobility Demonstration Project

Part of Green Cars Initiative

- Vehicles
- Infrastructure
- Standards



Call closed on 14 January 2010

EU contribution: 23 M€ (46 M€ total budget min)



Electromobility Demonstration Project

Objective

- **Testing the viability of different types of electrical vehicles for market maturity**
- **Accelerating the market roll-out of electric vehicles in Europe**
- **Contributing to EU energy policy by**
 - **Improving the energy efficiency of road transport**
 - **Diversifying the energy supply via an energy carrier**
 - **Reducing the emissions of CO₂ and pollutants**



Summary

- ◆ **Need for oil substitution in transport growing**
 - ◆ Concerns on security of energy supply
 - ◆ Necessity of CO2 emission reductions in transport

- ◆ **Package of policy actions in place**
 - ◆ Support to R&D
 - ◆ Promotion of market introduction; public procurement
 - ◆ Market regulation (targets on energy and CO2)
 - ◆ EIB loans; Structural Funds; State aid; tax relief

- ◆ **Transition to multiple fuel mix expected**
 - ◆ Staged oil substitution with combination of new fuels
 - ◆ Biofuels, natural gas, hydrogen, electricity



Outlook

■ Decarbonisation of transport

- Major theme of the next European Commission
- Focus on energy efficiency and substitution of oil

■ White Paper

- Outline the community policy on transport for 2010-2020

■ TEN-T Guidelines revision

- New technologies in support of future decarbonisation of transport



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