

Biofuels and other alternative fuels for road transport

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Overview

3 main options:

- biofuels
- hydrogen
- natural gas

Policy implementation is focussing on biofuels:

- they are on the market today
- growing fast, with high potential
- clear contribution to energy policy objectives

RTD is focussing on second-generation biofuels and hydrogen

Gas-based fuels

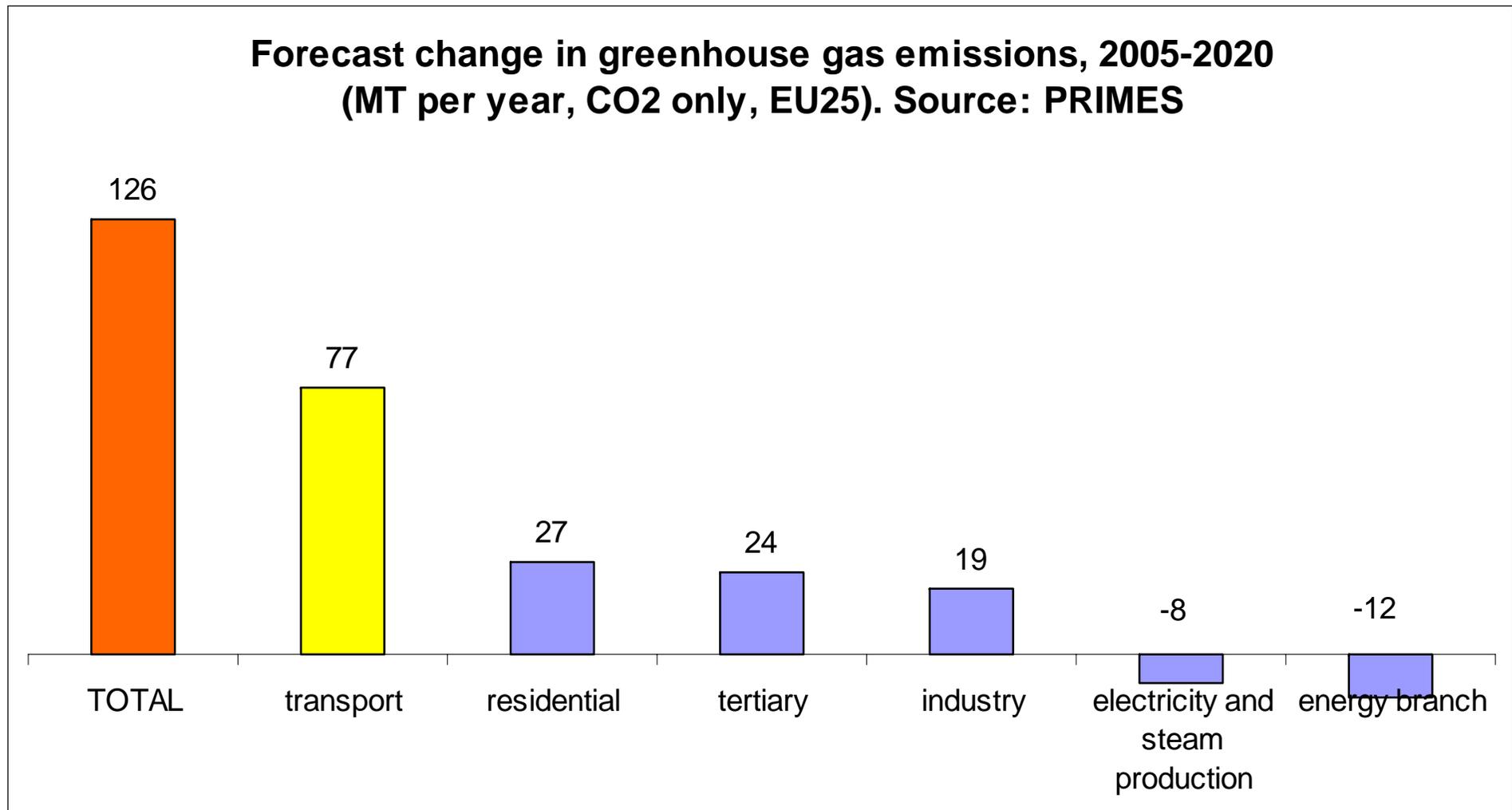
- can also contribute
- count towards overall objectives as appropriate
(eg “CO₂ and cars” policy)
- not the focus of specific policies or RTD effort

- 1 Why biofuels?**
- 2 EU biofuel objectives**
- 3 How the 2020 objective can be met**
- 4 Biofuels - key issues for the future**
- 5 Hydrogen as transport fuel**

An aerial photograph showing a large, rectangular field of bright yellow crops, likely rapeseed or sunflower, used for biofuel production. The field is divided into numerous vertical rows. To the left of the yellow field is a large green field. To the right, there is a dense forest and a small pond. A dirt road or path runs along the left edge of the yellow field. The text "1 Why biofuels?" is overlaid on the left side of the image.

1 Why biofuels?

First reason: reduce **greenhouse gas emissions** in transport



Second reason: reduce transport's dependence on **imported oil**

	Potential for oil savings (Mtoe, 2020)	Cost of savings (€/toe)
<i>Better air conditioning</i>	1	36
<i>Better tyres</i>	2	4
<i>Tyre pressure monitoring</i>	3	-273
<i>Better lubricants</i>	4	284
<i>Reducing fuel consumption – light commercial vehicles</i>	5	557
<i>Reducing fuel consumption – passenger cars</i>	20	71 to 505
<i>Biofuel promotion</i>	43	120 to 399

Third reason: support **rural development**
(EU and developing countries)

2 EU objectives



EU renewable energy objectives

	Renewable energy	Biofuels
2005 (achieved)	6.5%	1%
2010 (indicative objective)	12%	5.75%
2020 (proposed binding objective)	20%	10%

3 How the 2020 objective can be met



- 10% share = **31 Mtoe** in 2020
- EU *could* produce **33-34 Mtoe** domestically
- This might need **18 Mha** of land:
 - 7 Mha from set-aside
 - 7 Mha from (subsidised) cereal exports
 - 4 Mha from land that would otherwise fall out of agricultural use
- **But ...** a mix of domestic production and imports is more likely and more desirable

4 Key issues for the future



- 1) **EU legislation** to make the 10% objective binding
- 2) **Minimum environmental standards** for biofuels benefiting from public support
- 3) Development of **global markets and standards**
- 4) **EU market opening** in cereals and ethanol
- 5) Technology for **second-generation biofuels** from wood, straw and wastes

5. Hydrogen as transport fuel

- **Motivation for hydrogen and fuel cell activities**
security of supply, climate protection, competitiveness
- **European Technology Platform**
Development of a common European strategy on hydrogen and fuel cells

Aim

- **Early markets** by 2010
- **Commercialisation** of stationary applications by 2015
- **Commercialisation** of transport applications by 2020
- **Demonstration projects**
Development of hydrogen and fuel cells with focus on transport applications
- **Joint Technology Initiative**
Market preparation through public-private partnership to implement the European strategy

Key issues

- reduce fuel cell system costs (**stationary by 10; transport by 100**)
- enhance performance + durability **of fuel cell systems (factor ≥ 2)**
- reduce costs of hydrogen **delivered (factor ≥ 3)**
- novel storage materials **to increase vehicles' operating range**

Project Family

Hydrogen for Transport

Buses

HyFLEET:CUTE



Cars

ZERO REGIO



Zero Regio
H2-MotorFuel



Mini-Transport

HyCHAIN



200 Vehicles

-

Investment: 105 M€ (EC: 48 M€)

Coordinated Action

premia



Project evaluation, preparation
for »Lighthouse Projects»

thank you for your attention

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