

# 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 “CO<sub>2</sub> and cars” policy)
- not the focus of specific policies or RTD effort

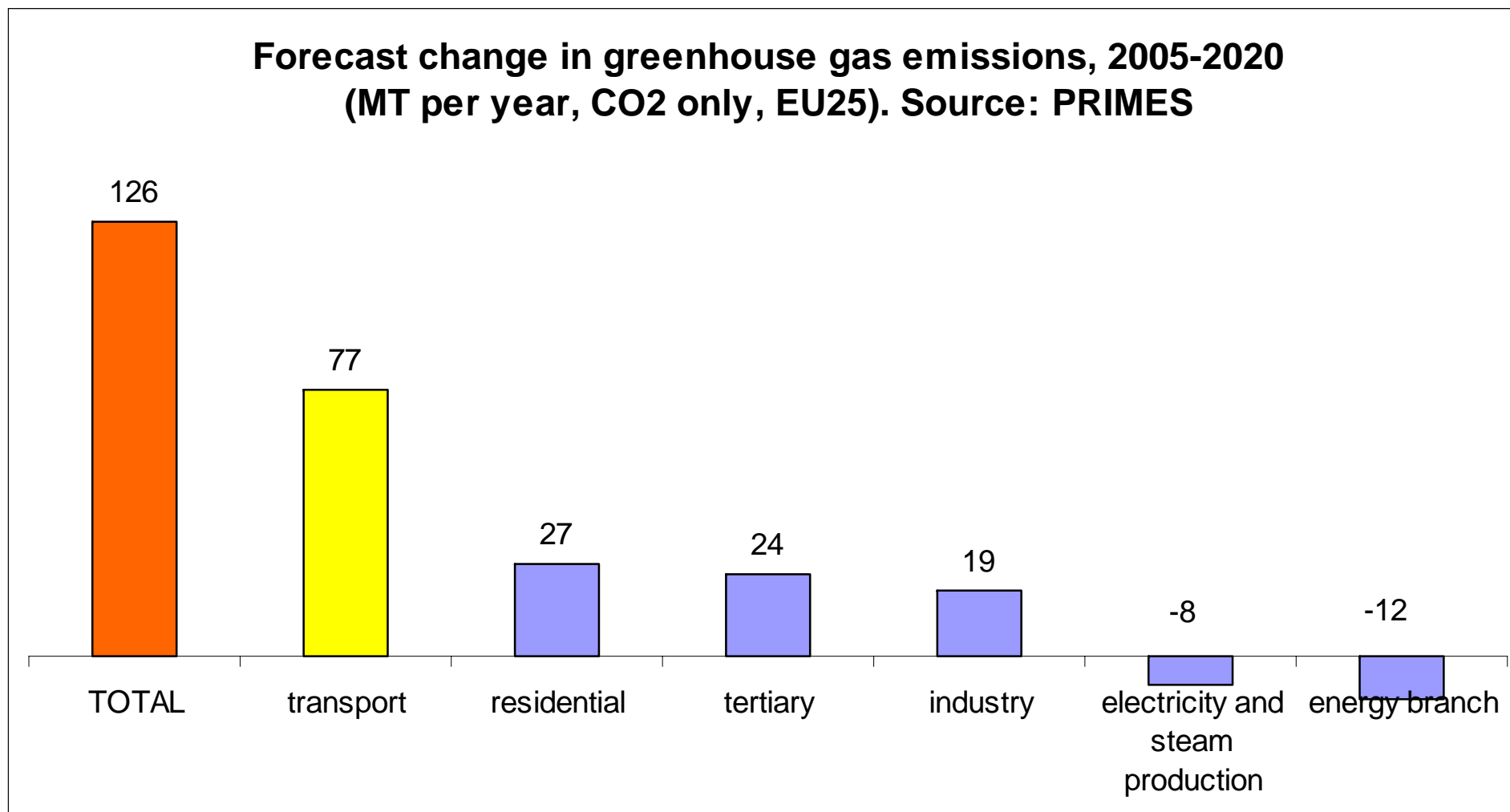
- 1 Why biofuels?**
- 2 EU biofuel objectives**
- 3 How the 2020 objective can be met**
- 4 Biofuels - key issues for the future**
- 5 Hydrogen as transport fuel**



# 1 Why biofuels?



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



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

|  | Potential<br>for oil savings<br>(Mtoe, 2020) | Cost of<br>savings<br>(€/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                     |
| <b><i>Biofuel promotion</i></b>                              | <b>43</b>                                    | <b>120 to 399</b>             |

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



## 2 EU objectives



# EU renewable energy objectives

|  | <b>Renewable<br/>energy</b> | <b>Biofuels</b> |
|--|-----------------------------|-----------------|
| <b>2005 (achieved)</b>                       | 6.5%                        | 1%              |
| <b>2010 (indicative<br/>objective)</b>       | 12%                         | 5.75%           |
| <b>2020 (proposed<br/>binding objective)</b> | 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  $\geq 2$ )**
- reduce costs of hydrogen **delivered (factor  $\geq 3$ )**
- novel storage materials **to increase vehicles' operating range**

# Project Family

## Hydrogen for Transport

Buses

Cars

Mini-Transport

HyFLEET:CUTE



ZERO REGIO



Zero Regio  
H2-MotorFuel



HyCHAIN



200 Vehicles

-

Investment: 105 M€ (EC: 48 M€)

Coordinated Action



Project evaluation, preparation  
for »Lighthouse Projects»

thank you for your attention

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