



Biofuels in the EU

An energy perspective

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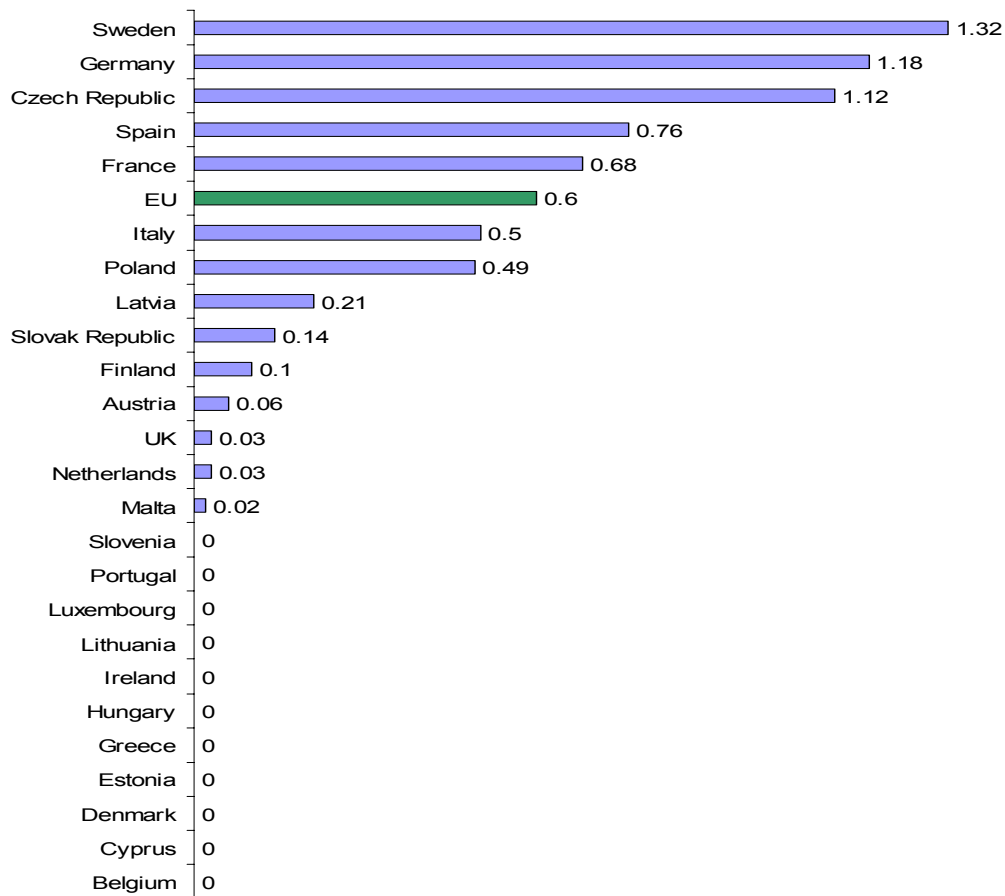
Energy Uses of Biomass



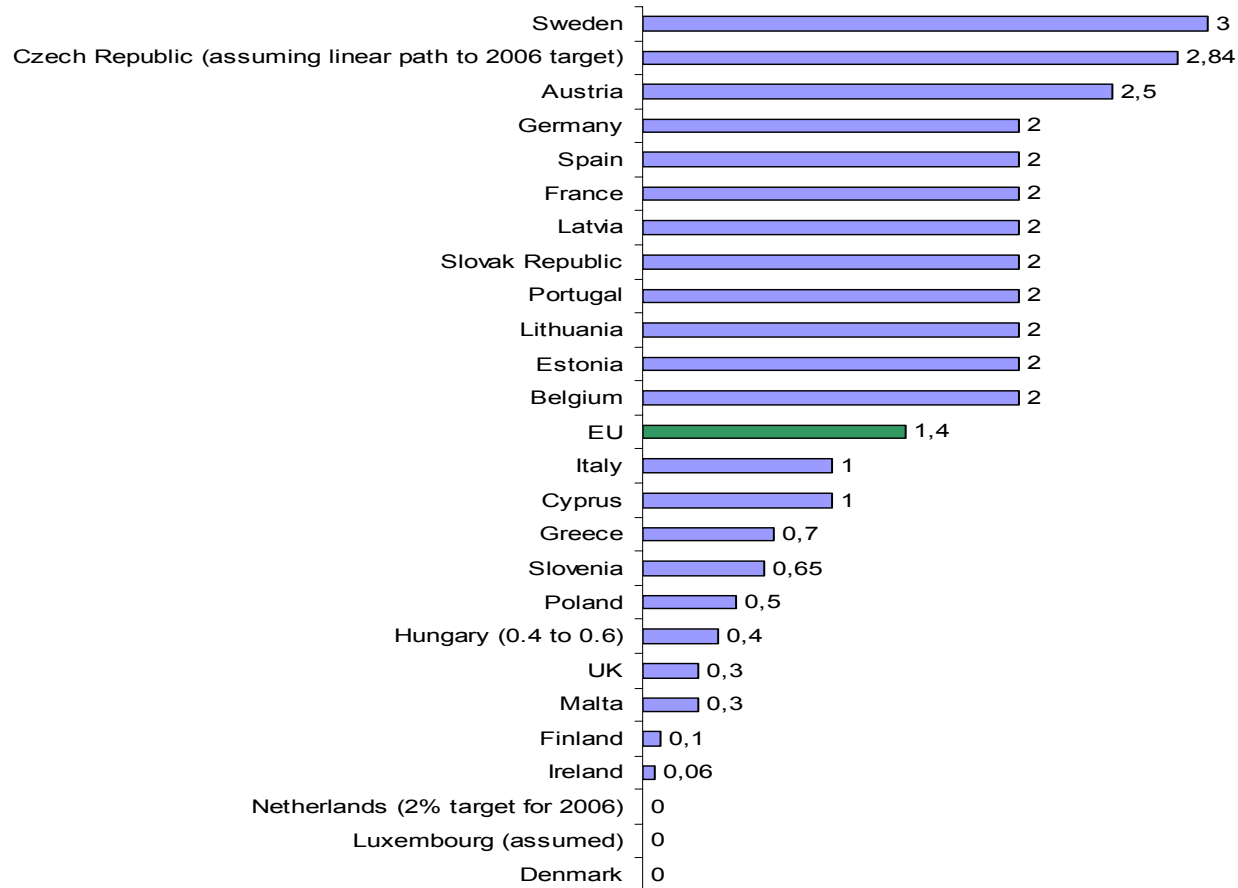
- **Transport biofuels**
 - tackle the most important
 - security of supply problem (oil)
 - employment-intensive
 - most expensive
- **Biomass in electricity generation**
 - highest greenhouse gas benefits
- **Biomass Heating**
 - cheapest (often competitive with fossil fuel)

Conclusion: biomass should be promoted in all three sectors

Figure 1 - Market share of biofuels in EU member states, 2003 (energy content, %)



National indicative targets for biofuel market share in EU member states, 2005 (%)





Policy Framework: Review of Biofuels Directive (2006)

→ How to achieve the 2010 objectives?

- **mandatory targets** for Member States?
- **biofuels objectives** for fuel suppliers?
- **mandatory blending**?
- **do nothing**?

→ Sustainability assurance?

- certification of sustainable cultivation?
- greenhouse gas performance incentives?



Standards

→ Biodiesel:

- revision of standard EN590 (more biodiesel in diesel)?
- revision of standard EN14214 (wider range of vegetable oils in biodiesel)?

→ Ethanol

- revision of fuel quality directive (easier to blend in petrol)?



Technology Challenges: Currently available Biofuels

Replace fossil methanol by bioethanol in biodiesel production to produce Fatty Acid Ethyl Ester (FAEE)

Re-launch modified diesel engines to run on 95-100% ethanol (Scania in Sweden)

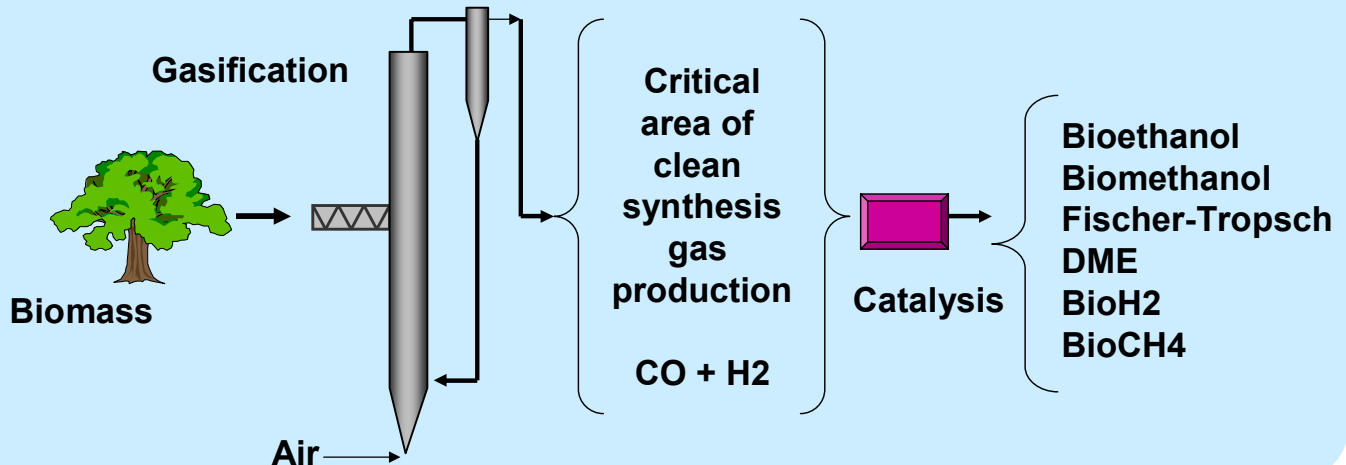
Introduce ethanol derivatives in diesel blends



Technology Challenges: Next generation Biofuels (1)

Thermochemical Conversion:

Improve the gas cleaning and upgrading process resulting from biomass gasification to produce clean synthesis gas





Technology Challenges: Next generation Biofuels (2)

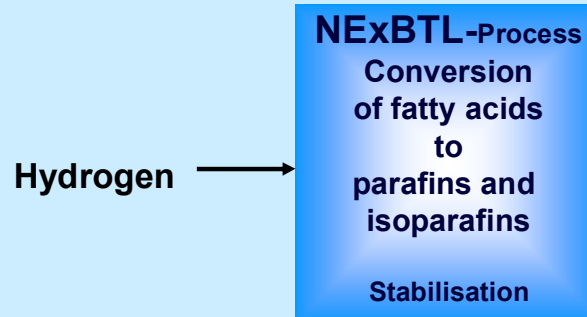
Biological Conversion:

Improve the economics and process reliability of enzymatic hydrolysis and subsequent fermentation to bioethanol



Technology Challenges: Next generation Biofuels (3)

Hydrogenation Process (Neste Oil):
Demonstrate market acceptability





Technology Challenges

All the above technology areas will be supported under the demonstration part of FP7.

Deployment in large, small and captive fleets will be supported as well.

In addition TREN follows closely the development of standards with CEN (revision of Biodiesel EN14214, CEN Workshop Agreement on E85, Draft EN on ethanol, new mandates to CEN on FAEE and B10% in diesel standard EN 590).



Conclusion

- High oil prices → high profile
- Biofuels' progress is solid but not fast enough to meet objectives
- Plenty more work to be done