Biofuels in European Renewable Energy Policies

BIOFUEL MARKETPLACE International Workshop
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Content

• Potential benefits and drawbacks of biofuels
• EU Biofuels Directive
• National Implementation of the Biofuels Directive
• Production of Liquid Biofuels in Europe
• Biodiesel and Bioethanol in Germany
• An EU Strategy for Biofuels
Potential Benefits of Biofuels

• Reduction of GHG Emissions
• Reduction of air pollution (CO, SO₂, PM)
• Improvement of energy security
• Reduction of oil imports, diversification of energy sources and technologies
• Development of new agricultural markets, income generation in rural areas
Potential Drawbacks of Biofuels

• Higher fuel production costs
• Increase of some pollutant emissions ($NO_x$, aldehyde) – compliance with emission norm EURO 4
• Vehicle/fuel system modifications – technical limits to blending (B/E5), limits on the vapour content of petrol
• Higher crop and crop product prices (food-fuel competition)
• Negative environmental impacts (e.g. fertiliser run-off)
EU Biofuels Directive

• Directive on the promotion of the use of biofuels or other renewable fuels for transport (2003/30/EG) – 8 May 2003

• Directive restructuring the Community framework for the taxation of energy products and electricity (2003/96/EG) – 27 October 2003

Legislative framework for Member States to promote biofuels (e.g. tax exemption, biofuel obligations)

Indicative Targets

• 2% by 2005
• 5,75% by 2010
Cleaner Transport – The Wider Context

• 1997 – EU White Paper, Energy for the future: Renewable sources of energy
  – Increasing the contribution of RE sources from 6% to 12% of EU gross energy consumption by 2010

• 2000 – EU Green Paper on the security of energy supply
  – Europe imports 50% of its total energy needs
  – Import dependence of the transport sector: 80%
  – Target of 20% substitution of conventional fuels by biofuels, natural gas and hydrogen by 2020
• 1997 – **Kyoto Protocol** on the reduction of GHG emissions
  (entered into force on 16 February 2005)
  – EU Commitment: 8% reduction of annual GHG emissions by 2010
    (compared with the 1990 level)
  – Transport sector: 28% of Europe’s CO₂ emissions
EU Biofuels Directive – Timeframe

Flexibility  Member States set their own indicative targets and develop national policies and measures (techn., financial, social choices)
Biofuels Directive - National Implementation

• Tax incentives for the production and use of biofuels in Austria, Belgium, Czech Republic, Estonia, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Poland, Spain, Sweden

• 100% exemption of petroleum tax in Austria, Belgium, Estonia, Germany, Hungary (ETBE, Biodiesel), Spain, Sweden

• Incentives planned in Greece, The Netherlands, Portugal, Slovakia, United Kingdom

• Critical view on biofuels in Denmark, United Kingdom, Finland (high production costs)
<table>
<thead>
<tr>
<th>Member State</th>
<th>Market share 2003</th>
<th>National indicative target for 2005</th>
<th>Targeted increase, 2003–2005</th>
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<tbody>
<tr>
<td>AT</td>
<td>0.06%</td>
<td>2.5%</td>
<td>+2.44%</td>
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<td>BE</td>
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<td>CY</td>
<td>0</td>
<td>1%</td>
<td>-1%</td>
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<td>CZ</td>
<td>1.12%</td>
<td>3.7% (2006)</td>
<td>+1.72% (assuming linear path)</td>
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<td>0.1%</td>
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<td>+0.4–0.6%</td>
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<td>+0.06%</td>
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<tr>
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<td>0.5%</td>
<td>1%</td>
<td>+0.5%</td>
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<tr>
<td>LA</td>
<td>0.21%</td>
<td>2%</td>
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<tr>
<td>LI</td>
<td>0 (assumed)</td>
<td>2%</td>
<td>+2%</td>
</tr>
<tr>
<td>LU</td>
<td>0 (assumed)</td>
<td>not yet reported</td>
<td>not yet reported</td>
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<tr>
<td>MT</td>
<td>0</td>
<td>0.3%</td>
<td>+0.3%</td>
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<tr>
<td>NL</td>
<td>0.03%</td>
<td>2% (2006)</td>
<td>+0% (promotional measures will come into force from January 2006)</td>
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<td>+1.24%</td>
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<td>SV</td>
<td>1.33%</td>
<td>3%</td>
<td>+1.67%</td>
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<td>UK</td>
<td>0.03%</td>
<td>0.3%</td>
<td>+0.27%</td>
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<tr>
<td>EU25</td>
<td>0.6%</td>
<td>1.4%</td>
<td>+0.8%</td>
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Biofuels - Progress at Nat. Level

Energy equivalent contribution to total fuel consumption
## EU Production of Liquid Biofuels

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<th>Bioethanol</th>
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<th>Biodiesel</th>
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<td>10</td>
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<td>Germany</td>
<td></td>
<td>20</td>
<td></td>
<td>450</td>
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<td>Spain</td>
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<td>160</td>
<td>194</td>
<td>366</td>
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<td>France</td>
<td>91</td>
<td>82</td>
<td>102</td>
<td>210</td>
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<td>Italy</td>
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<td></td>
<td>25</td>
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<tr>
<td>Lithuania</td>
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<td></td>
</tr>
<tr>
<td>Austria</td>
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<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Poland</td>
<td>66</td>
<td>60</td>
<td>36</td>
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<td>Slovak Rep.</td>
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<tr>
<td>Sweden</td>
<td>50</td>
<td>52</td>
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<td>1</td>
</tr>
<tr>
<td>UK</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>from interv. stocks</td>
<td>70</td>
<td>87</td>
<td></td>
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<tr>
<td>EU25</td>
<td>388</td>
<td>425</td>
<td>491</td>
<td>1134</td>
</tr>
</tbody>
</table>

Source: EurObservER 2005
World Bioethanol Production

Percent of 2003 Motor Gasoline Use:
World: 2.8%
US/Canada: 2.3%

[Graph showing bioethanol production over years from 1975 to 2000]

Quelle: F.O. Licht
World Biodiesel Production (Capacity)

Percent of 2003 Motor Distillate Use:
World: 0.2%
EU 1.0%

Quelle: F.O. Licht
Policy Aspects and Legislation in Germany

Mineral Oil Tax Law (Article 17, § 2a)

• Set into force on 1 January 2004
• Preferential tax for biofuels according to the proportion of biofuel admixed to the fossil fuel
• FAME (Fatty Acid Methyl Esters) are regarded as biofuel
• Annual reporting to the Parliament (first report submitted on 21 June 2005)
• Adaptation of the preferential tax when required
Policy Aspects and Legislation in Germany

Quality assurance by means of standards / norms

- European Biodiesel Standard DIN EN 14214 (FAME)
- Fossil diesel fuel norm DIN EN 590 permits admixing of up to 5% biodiesel to fossil diesel fuel without specific declaration

Inclusion of biodiesel in the 10th Regulation for Emission Control (BImSchV.)

- Sales of biodiesel in commercial trade to end users only under compliance with DIN EN 14214
Biodiesel – The German Market

Co-operation with car industry
- Serial approval (B100) by VW Group stopped since introduction of EURO 4 engines and self-regen. part. filter

- 55% Freight transport companies
- 25% Blends
- 20% Fuel stations

Marketing
- Until 2003: B100 only
- Since 2004: B5 and B100
- 4% contribution to diesel market
- Biodiesel up to 10 cent cheaper than diesel per litre
Biodiesel Production Sites in Germany
Biodiesel Fuel Stations in Germany

Marketing of about 20% of the Biodiesel via 1900 public fuel stations

Fuel Stations Overview:

• Union zur Förderung von Öl- und Proteinpflanzen e.V. (UFOP)
  http://www.ufop.de/2_2_1_3.html

• Biodiesel Partner-Tank
  www.biodiesel-partner-tank.de
Price Comparison Biodiesel-Diesel

Biodiesel Sales Price (www.ufop.de)
Feb. 2006: Biodiesel 101 ct –
Diesel 110 ct

Policy discussion on the future of biofuel tax incentives in Germany

Current Energy Tax proposal (August 2006)
• 10 cents tax per litre for B100, 15 cents for B5

2007: Mandatory B5 Blend without tax reduction
Bioethanol Production in Germany

Südzucker Bioethanol GmbH, Zeitz, since June 2005
- Feedstock: Sugar beet (39,000 ha), Cereals (94,000 ha)
- Capacity: 200,000 t/a

Mitteldeutsche BioEnergie GmbH (MBE), Zörbig, since Jan. 2005
- Feedstock: Cereals (36,000 ha; 30% regional)
- Capacity: 80,000 t/a

Nordbrandenburger BioEnergie GmbH, Schwedt, since Sept. 2005
- Feedstock: Cereals (Rye) (113,000 ha)
- Capacity: 180,000 t/a
Bioethanol Production in Zeitz

- Investment costs: 185 Mio. EURO
- Main feedstock: Wheat
- Production capacity: 200,000 t/a ethanol, 260,000 t/a DDGS (animal feed), 30 Mio. kWh electricity
- CO₂ reduction: 520,000 t/a
- Production start: June 2005
An EU Strategy for Biofuels


3 AIMS

• Further promote biofuels in the EU and developing countries, ensure positive environmental impact

• Improve cost-competitiveness through dedicated feedstock, R&D into ‘2nd generation’ biofuels and support for market penetration

• Explore the opportunities for developing countries for the production of biofuel feedstock and biofuels
The Biofuel Strategy – Seven Policy Axes

(1) Stimulating demand for biofuels
   • 2006 Review of the Biofuels Directive
   • tax incentives for biofuels
   • setting (mandatory) national targets for biofuels (obligations)
   • ensuring sustainable production
   • Promote public procurement of clean and efficient vehicles

(2) Capturing environmental benefits
   • Examine how biofuels can count towards CO\textsubscript{2} emission reduction
   • Examine the issues of limits of ethanol/biodiesel in petrol/diesel
(3) Developing the production and distribution of biofuels
  • Encourage Member States to take into account biofuels for their cohesion and rural development policies

(4) Expanding feedstock supplies
  • Examine linkages with CAP reform (e.g. energy crop premium)

(5) Enhancing trade opportunities
  • Maintain market access conditions for imported bioethanol no less favourable than by trade agreements currently in force (e.g. EBA for LDC, Cotonou Agreement with ACP countries, ‘GSP plus’ incentive scheme, Euro-Mediterranean Agreement)
  • On-going negotiations: Doha Round, Trade agreement between EU and Mercosur
(6) Supporting developing countries

• Develop a coherent Biofuels Assistance Package
• Assist in the development of national biofuels platforms and regional biofuels action plans

(7) Supporting research and development

• Support biofuels under FP7 (priorities: ‘bio-refinery’ concept and ‘2nd generation’ biofuels)
• Encourage the development of an industry-led ‘Biofuel technology platform’
THANK YOU
for your attention!

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