Biodiesel in Greece

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Overview

- The Biofuels directive 2003/30 has been adopted by the Greek government as Law 3423/05.

- Biodiesel will be the main biofuel for the Greek transport sector with bioethanol playing a less important role until 2008.

- The current law imposes the obligatory use of all detaxed biodiesel in the existing refineries (in an up to 5% blend). Detaxed quantities are decided on an annual basis under a quota scheme.

- For 2006 14 investors have applied for detaxed biodiesel production amounting to the 91,000 m³ set for 2006 and 114,000 m³ for 2007. A much higher number of investors have expressed interest in the coming years.

- The market for pure biodiesel does not exist as yet.
Estimation of Biodiesel Required (2005 - 2010)
(1st National Annual Report on Biofuels [www.ypan.gr](http://www.ypan.gr))

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Automotive Diesel Consumption (‘000 tons)</th>
<th>Biodiesel used (%)</th>
<th>Biodiesel Required (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2.084</td>
<td>2,00</td>
<td>46.976</td>
</tr>
<tr>
<td>2006</td>
<td>2.125</td>
<td>3,00</td>
<td>71.851</td>
</tr>
<tr>
<td>2007</td>
<td>2.167</td>
<td>4,00</td>
<td>97.695</td>
</tr>
<tr>
<td>2008</td>
<td>2.208</td>
<td>4,50</td>
<td>111.986</td>
</tr>
<tr>
<td>2009</td>
<td>2.249</td>
<td>5,00</td>
<td>126.739</td>
</tr>
<tr>
<td>2010</td>
<td>2.290</td>
<td>5,75</td>
<td>148.407</td>
</tr>
</tbody>
</table>
Estimation of Bioethanol required (2005 - 2010)  
(1\textsuperscript{st} National Annual Report on Biofuels \texttt{www.ypan.gr})

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Automotive Gasoline Consumption (‘000 tons)</th>
<th>Bioethanol used (%)</th>
<th>Bioethanol Required (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>3.707</td>
<td>2.00</td>
<td>120.442</td>
</tr>
<tr>
<td>2006</td>
<td>3.800</td>
<td>2.50</td>
<td>154.329</td>
</tr>
<tr>
<td>2007</td>
<td>3.892</td>
<td>3.00</td>
<td>189.678</td>
</tr>
<tr>
<td>2008</td>
<td>3.984</td>
<td>4.00</td>
<td>258.883</td>
</tr>
<tr>
<td>2009</td>
<td>4.077</td>
<td>5.00</td>
<td>331.157</td>
</tr>
<tr>
<td>2010</td>
<td>4.169</td>
<td>5.75</td>
<td>389.424</td>
</tr>
</tbody>
</table>
Key points in the annual quota scheme

**In case of producing biodiesel**
- **Operation permit**, according to the Law 3325/2005 for the construction and operation of industrial plants
- **Installation permit**, according to the same Law
- **Detailed data on the resources used** (seed oils, contracts with farmers, etc) and the daily production capacity of the plant

**In case of importing biodiesel from abroad or other biodiesel plants in Greece**
- **Verified contracts** (duration of contracts, total quantities imported, provisions on a monthly basis)
Bottlenecks

✓ Annual quota scheme
  – Insecure conditions for investments
  – Competition

✓ Biodiesel quality
  – Biodiesel standards: EN 14214
  – Testing methods standards: EN 3170, or 3171, or 14275

✓ Biodiesel production year around
  – Obligating biodiesel provision to the refineries on a monthly basis
Support measures

There are two main financial-support instruments that provide substantial public subsidies to RES investment projects:

✓ **National Development Law** (Law 3299/2004). Subsidies vary from 40- 55% according to region and the type of the enterprise (in case of SMEs and specific regions they can reach up to 55%)

✓ **Greek Operational Programme for Competitiveness**, active until the end of 2006. Support on capital cost (up to 40%) for biodiesel plants was included in the 3rd Community Support Framework (Energy). The 4th Framework is under development and respective provisions are expected to be put forth.
Biodiesel producers
- In 2005, the first biodiesel plant ‘ELVI’ of 40,000 tpa was established in Kilkis (Northern Greece), while during 2006 three new plants were established.
  - in Fthiotida (Central Greece) ‘AGROINVEST’ with a capacity of 252,000 tpa,
  - in Patra (Peloponese) ‘PETAS’ with a capacity of 55,000 tpa, and
  - in Thessaloniki (northern Greece) ‘VERT OIL’ with a capacity of 40,000 tpa.

End users
- Biodiesel is used only in the transport sector.

International trade
- Biodiesel is quite new to the Greek fuel market and international trade issues are not monitored at the moment.
Biodiesel
2005 (2%) 47,000 tons
2010 (5.75%) 148,000 tons

Resources
✓ Vegetable oils (cotton seed oil, soy oil, etc.)
✓ sunflower
✓ rapeseed
✓ Tobacco seed
✓ Tomato seed

Facts
✓ Competition from food sector
✓ New CAP (Reg. 2003/1782/EC)
✓ Energy crops subsidy of 45/ha
✓ Imports from Balkan countries, Turkey, etc.
✓ Substantial quantities available in the Greek market
✓ Good yielding potential for sunflower & rapeseed.
Bioethanol
2005 (2%) 120,000 tonnes
2010 (5.75%) 390,000 tonnes

**Resources**
- ✓ Small grain cereals
- ✓ Corn
- ✓ Sugarbeets
- ✓ Sweet Sorghum

**Facts**
- ✓ High subsidy levels for cereals & corn cause market distortions
- ✓ New CAP (Reg. 2003/1782/EC)
- ✓ Energy crops subsidy of 45/ha
- ✓ Biorefineries in sugar industry, etc.
- ✓ High yields for sweet sorghum
Biodiesel

**Land required to meet 2005 target**
**Land required to meet 2010 target**
**Cultivated land (*) 100 ha**

**Biofuel production (tons)**

- **Target 2005**
- **Target 2010**
- **Sunflower**
- **Cotton seed**
- **Tomato seed**
- **Tobacco seed**
Bioethanol

Biofuel production (tons)
### Cost analysis of biomass production for biodiesel

<table>
<thead>
<tr>
<th></th>
<th>Ελαιοκράμβη Αρδ.</th>
<th>Ελαιοκράμβη Ξηρ.</th>
<th>Ηλίανθος Αρδ.</th>
<th>Ηλίανθος Ξηρ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Απόδοση (kg/στρ.)</td>
<td>300</td>
<td>180</td>
<td>300</td>
<td>175</td>
</tr>
<tr>
<td>Τιμή (€/kg)</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Ακαθάριστο εισόδημα (€/στρ.)</td>
<td><strong>60.00</strong></td>
<td><strong>36.00</strong></td>
<td><strong>60.00</strong></td>
<td><strong>35.00</strong></td>
</tr>
<tr>
<td>Ενοίκιο Γης (€/στρ.)</td>
<td>30.00</td>
<td>9.00</td>
<td>30.00</td>
<td>9.00</td>
</tr>
<tr>
<td>Κόστος Παραγωγής (€/στρ.)</td>
<td>77.80</td>
<td>67.80</td>
<td>56.94</td>
<td>46.94</td>
</tr>
<tr>
<td>Κέρδος προ επιδοτήσεων (€/στρ.)</td>
<td><strong>-47.80</strong></td>
<td><strong>-40.80</strong></td>
<td><strong>-26.94</strong></td>
<td><strong>-20.94</strong></td>
</tr>
<tr>
<td>Επιδότηση (€/στρ.)</td>
<td>18.50</td>
<td>18.50</td>
<td>18.50</td>
<td>18.50</td>
</tr>
<tr>
<td>Κέρδος προ φόρων και τόκων (€/στρ.)</td>
<td><strong>-29.30</strong></td>
<td><strong>-22.30</strong></td>
<td><strong>-8.44</strong></td>
<td><strong>-2.44</strong></td>
</tr>
<tr>
<td>Κέρδος (χωρίς το ενοίκιο γης) (€/στρ.)</td>
<td>0.70</td>
<td>-13.30</td>
<td>21.56</td>
<td>6.56</td>
</tr>
</tbody>
</table>
For more information:

Links:
www.ypan.gr
www.elke.gr
www.cres.gr

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