The refining sector in Greece: Contribution to the Economy and Prospects  
(IOBE Danchev, Maniatis, 2014)

<table>
<thead>
<tr>
<th>Company</th>
<th>Refinery</th>
<th>Refining capacity</th>
<th>Nelson complexity factor</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Million tones per year</td>
<td>Thousand barrels per day</td>
<td></td>
</tr>
<tr>
<td>Hellenic Petroleum</td>
<td>Aspropyrgos</td>
<td>7.5</td>
<td>145</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>Elefsina</td>
<td>5.0</td>
<td>100</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>Thessaloniki</td>
<td>3.5</td>
<td>70</td>
<td>7.3</td>
</tr>
<tr>
<td>Motor Oil</td>
<td>Korinthos</td>
<td>9</td>
<td>180</td>
<td>10.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>25</strong></td>
<td><strong>495</strong></td>
<td><strong>9.6 (EU: 7.6)</strong></td>
</tr>
</tbody>
</table>

*Source: Ministry/IOBE*
The demand for oil products has fallen sharply in Greece and in the wider region since the start of the economic crisis.

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2012</th>
<th>2013</th>
<th>2013/12</th>
<th>2013/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic market (%) Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other products</td>
<td>3214</td>
<td>1748</td>
<td>1717</td>
<td>-2%</td>
<td>-47%</td>
</tr>
<tr>
<td>Heating oil</td>
<td>2457</td>
<td>1863</td>
<td>908</td>
<td>-51%</td>
<td>-63%</td>
</tr>
<tr>
<td>Diesel oil</td>
<td>2976</td>
<td>1925</td>
<td>2009</td>
<td>4%</td>
<td>-32%</td>
</tr>
<tr>
<td>Gasoline</td>
<td>4059</td>
<td>2943</td>
<td>2670</td>
<td>-9%</td>
<td>-34%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>12706</strong></td>
<td><strong>8479</strong></td>
<td><strong>7304</strong></td>
<td><strong>-14%</strong></td>
<td><strong>-43%</strong></td>
</tr>
<tr>
<td>International market</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine heavy fuel oil</td>
<td>2815</td>
<td>2064</td>
<td>1912</td>
<td>-7%</td>
<td>-32%</td>
</tr>
<tr>
<td>Marine Diesel</td>
<td>339</td>
<td>264</td>
<td>281</td>
<td>6%</td>
<td>-17%</td>
</tr>
<tr>
<td>Jet fuel oil</td>
<td>965</td>
<td>641</td>
<td>656</td>
<td>2%</td>
<td>-32%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>4119</strong></td>
<td><strong>2969</strong></td>
<td><strong>2849</strong></td>
<td><strong>-4%</strong></td>
<td><strong>-31%</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16825</td>
<td>11448</td>
<td>10153</td>
<td>-11%</td>
<td>-40%</td>
</tr>
</tbody>
</table>

Source: Ministry

- **Key drivers of the demand contraction**
  - Economic recession
  - Tax hikes on oil products
  - Weather conditions

Source: Eurostat/Petder

*South Europe here includes Greece, Italy, Spain, Portugal, Turkey, Cyprus, Malta, Bulgaria, Romania, Slovenia and Croatia.*
The domestic production has rocketed due to stronger exports

Source: Eurostat
Trade surplus of petroleum products since 2009, with 86% of the exports going to non-EU markets

Trade balance of petroleum products

Main export destinations for petroleum products

Turkey: 2.1
Lebanon: 0.7
Libya: 0.6
FYROM: 0.5
Gibraltar: 0.5
Singapore: 0.5
Israel: 0.5
Bulgaria: 0.4
USA: 0.4
Cyprus: 0.3
Saudi Arabia: 0.3
Italy: 0.2
Egypt: 0.2
UAE: 0.2
Montenegro: 0.1
Other: 2.8

Third countries: 86%
EU 28: 14%

Source: Eurostat
The cost of capital has increased, with a negative impact on the profitability of the sector.
The Gross value added approached 1 bn € with significant impact on employment

Gross value added

GVA of industry sectors

Industrial Production Index (2005=100)

Total employment

Source: EL.STAT.
Investments totaling 2,7 billion € in 2009-2012 when GDP contracted by more than 20%.

- Large part of the operating surplus is reinvested
- Investment intensity index exceeded 28% on average for the period 2005-2011

Source: EL.STAT 2011/Data processing IOBE
Refineries’ activity contributed about 3,8 bn € in 2012 (2% GDP)

Source: IOBE
The key EU legislation that has a real or potential impact on the competitiveness of the refining sector

|-------------------------------|-------------------------------------|-----------------------------|
| • Estimated cost of direct emissions 2013-2020 and current protection (Refining finally included in carbon leakage list till 2020, but still risk for post 2020):  
  - 5€/tCO₂ : €108 million  
  - 30 €/tCO₂ : €648 million  
  • Higher carbon leakage risk from indirect emissions in Greece:  
  - High cost of indirect emissions (electricity prod. Mix),(own produced products instead of gas)  
  - High trade intensity i.e. >50% (significantly higher than EU - 38%)  
| • The recently adopted BREFs for refineries (Oct14)  
  • Impose compliance with stricter BAT-ELVs  
  • Provide tools for a cost-effective reduction for air emissions, i.e. bubble concept for SO₂ and NOₓ  
  • Compliance cost estimated at €70-300 million per refinery (Europia 2013)  
| • Reduction of the carbon footprint, increased use of bio fuels and specification changes (e.g. sulphur, aromatics etc)  
| • Adjustment cost for the refineries:  
  • Additional processing requirements  
| • Substitution of fossil-based fuels with bio fuels  
| • Potentially higher CO₂ emissions during the production process  

**Source:** IOBE/Ministry
# Measures that could be taken to safeguard the competitiveness of the refining sector

## EU level

- **ETS – Carbon leakage:**
  - Allocation of allowances to the refining sector after 2019 as well
- Balanced approach in the implementation of policy measures on climate, energy and the environment
- Take into account impact on competitiveness
- Take into account the fitness check’ conclusions before deciding on changes in the legislation that affect the refining sector
- Avoid unilateral EU measures
- Push for global agreement in COP Paris 2015 on greenhouse gas reduction

## Domestic level

- **Measures for Energy cost reductions:**
  - Excise duty on electricity (2,5 €/Mwh) and natural gas (5,4 €/Mwh)
  - Contribution to RES (ETMEAR) (2,23 €/Mwh),
  - Indirect CO$_2$ emissions cost (electricity) 4,44 €/Mwh
  - Public Service Obligations (YKO) (4,14 €/Mwh)
- Fully implement the adopted measures for the elimination of the illicit fuel trade (trade oil product sector)

**Source:** IOBE/ Ministry
Thank you for your attention

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