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**HELLENIC REPUBLIC**  
**MINISTRY OF DEVELOPMENT**  
**DIRECTORATE-GENERAL FOR ENERGY**  
**DIRECTORATE FOR RENEWABLE ENERGY SOURCES**  
**AND ENERGY-SAVING**

**EXTENSIVE SUMMARY**

**First national report in accordance with Article 4 of Directive 2003/30/EC on the  
promotion of the use of biofuels and other renewable fuels for transport  
purposes in Greece for the period from 2005 to 2010**

Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 aims at promoting the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes in each Member State, with a view to contributing to objectives such as meeting climate change commitments, environmentally friendly security of supply and promoting renewable energy sources. In the framework of that principle the Member States should ensure that a minimum proportion of biofuels and other renewable fuels is placed on their markets and set national indicative targets.

The Directive lays down a reference value for those targets of 2%, calculated on the basis of energy content, of all petrol and diesel for transport purposes placed on their markets by 31 December 2005. The percentage must have risen to 5.75% by 31 December 2010.

In addition, under Article 4 of the Directive, the Member States are required to submit a report to the Commission, before 1 July each year, on the measures taken to promote the use of biofuels to replace fossil fuels for transport purposes, the national resources allocated to the production of biomass for energy uses other than transport and the total sales of transport fuel and the share of biofuels, pure or blended, placed on the market for the preceding year, and to report on any exceptional circumstances that have affected the marketing of biofuels. In their first report the Member States are required to indicate the level of their national indicative targets for the first phase, and in the report covering the year 2006 they should indicate their national indicative targets for the second phase.

For the purpose of transposing the said Directive into national law by 31 December 2004, so that biofuels or other renewable fuels can be introduced on to the Greek market, the competent Directorate for Renewable Fuels and Energy-Saving of the Ministry of Development, assisted by the Fuels and Lubricating Oils Laboratory of

the National Technical University of Greece and the Centre for Renewable Energy Sources, has initiated a series of contacts with all the parties in Greece which have involvement with fuels and biofuels (the Ministry of Economic Affairs and Finance, the Ministry of Rural Development and Food, the State General Laboratory, Hellenic Petroleum (EL.PE), Motor Oil, the Association of Petroleum Product Marketing Companies, companies which produce biofuels or are interested in doing so, et al) and with biofuels specialists in various European countries.

The following main points have emerged from that process.

- Of the biofuels listed as possibilities in Directive 2003/30/EC, the most convenient ones for Greece are biodiesel and bioethanol.
- The handling of biodiesel presents no technical difficulties, so the fuel can be marketed through the existing market infrastructure for motor diesel without any problems. In the first phase it will be blended with motor diesel at the refineries in the percentage of 5% by volume (as provided for also by the EN 590:2004 technical standard which is being adopted) and marketed through the existing motor diesel distribution channels.
- By contrast, the blending of bioethanol with petrol does present technical difficulties, the most significant of which are the separation of water which appears in cold conditions and high vapour pressure (RVP), particularly in the summer specification petrols. For that reason it is preferable to convert bioethanol into ETBE (ethyl-tertio-butyl-ether) at the refineries and to use the latter as an ingredient for blending with petrols, instead of MTBE (methyl-tertio-butyl-ether) which is used at present. The blending percentage of ETBE in petrol can be up to 15% by volume, whereas the percentage for bioethanol can be only up to 5% by volume (as provided for also by the EN 590:2004 technical standard which is being adopted).
- Bioethanol can be converted into ETBE at the existing MTBE production units of the refineries after the making of slight modifications. This technique is applied widely in Spain, Italy and France and other European countries.
- In 2002 the consumption of motor fuels amounted to 1 925 000 tonnes of transport diesel and 3 492 000 tonnes of petrol (2 572 000 tonnes of unleaded and 92 000 tonnes of LRP). The figures for 2003 are not yet available (they are expected in October 2004).
- The estimate for the consumption of motor diesel in the period from 2005 to 2010, based on regression analysis, indicates that 47 000 tonnes of biodiesel will

be required for meeting the indicative target of 2% for 2005 and that 148 000 tonnes will be required for the indicative target of 5.75% for 2010.

- Two plants for the production of biodiesel are being built in Greece at the present time, one in Kilkis by ELVY SA, with a yearly capacity of 40 000 tonnes, which is expected to begin production in December 2004, and the other at Volos by ELINOIL SA, with the same yearly capacity, which is expected to begin production in May 2005. Finance for the construction of both plants is being provided from the “Competitiveness” operational programme which is drawing funds from the 3rd Community Support Framework. Both plants will have the potential to double their capacity within one year.
- Three other companies – so far – have expressed an interest in building biodiesel plants with low to medium yearly capacity (10 000 to 30 000 tonnes) in various parts of the country, with production starting by the end of 2005 at the earliest. In addition it is expected that small quantities of biodiesel will be imported (up to 10 000 tonnes in 2005).
- The motor biodiesel marketed in Greece will be required to meet the specifications of EN 14214.
- The estimate for the consumption of petrol in the period from 2005 to 2010, based on regression analysis, indicates that 128 000 tonnes of bioethanol will be required for meeting the indicative target of 2% for 2005 and that 390 000 tonnes will be required for the indicative target of 5.75% for 2010.
- At present bioethanol is produced or imported only for the preparation of alcoholic beverages, and not for use as a transport fuel. BIEN SA has recently expressed interest in building a plant to produce bioethanol for use as a transport fuel.
- It is pointed out that the European Committee for Standardisation (CEN) has not yet issued specifications for motor bioethanol, but is expected to do so around the end of 2005.
- Labelling with ETBE, as in other European countries, is the preferred way of forestalling attempts to adulterate motor bioethanol (in all likelihood untaxed) with the cheaper chemically produced ethanol, given that the difference is very hard to spot, especially after blending with petrol.
- As regards the production processes, biodiesel is produced by esterification from vegetable oils (but also from animal oils) and methanol, with glycerine as a by-

product, and bioethanol is produced by fermentation from raw materials rich in hydrocarbons.

- The two biodiesel plants under construction will use mainly imported oils as raw material (chiefly rape-seed oil and soya oil). Domestic oils (chiefly cotton-seed oil and old cooking oils) will play a smaller part.
- We should mention that Greece today has a large number of crops which can be made available for the production of biodiesel, of which sunflower oil and cotton-seed oil are expected to play an important role, along with rape-seed oil (when there is systematic domestic cultivation of that crop for the oil). Tobacco oil and tomato oil are very promising raw material alternatives. Sweet sorghum, which has a higher bioethanol yield per hectare than sugar beet, is expected to play an important role in the production of bioethanol, and trials have shown that it thrives in all parts of the country.
- The State General Laboratory has commenced the procedure for incorporating the following necessary technical standards in national law to permit the placing of biofuels on the Greek transport fuels market:
  - EN 590:2004, for motor diesel
  - EN 228:2004, for petrols
  - EN 14214 for the specifications of motor biodiesel.

It is expected that the procedure will be completed by the end of 2004.

- In the case of bioethanol, the State General Laboratory is waiting for the European Committee for Standardisation to issue the specifications around the end of 2005 before proceeding with the adoption of a corresponding technical standard. In consequence the introduction of bioethanol on to the Greek transport fuels market is not expected to begin before 2006 at the earliest.
- In order to promote the use of biofuels it will be necessary to give them tax exemption in the first phase so that they can compete with fossil fuels, given that the ex-factory price is twice as high (without including taxes). Consequently, various scenarios for the total or partial tax exemption of biofuels on the basis of Directive 2003/96/EC will have to be examined in cooperation with the Ministry of Economic Affairs and Finance, and the end price to the consumer will also have to be considered. It goes without saying that the environmental, technical and economic, social and other repercussions of the use of biofuels will also have to be taken into account in the final policy on tax exemption.

- The final legislative arrangements for the transposition of Directive 2003/30/EC into national law and the adoption of measures to promote the use of biofuels for transport purposes (which it is proposed should be included in the planned amendment to Law 3054/2002) are expected to be completed in the autumn of 2004. After that they will have to be notified to the Commission, together with the final national indicative targets for the first phase of the implementation of the Directive.

Athens, July 2004