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**Report to the European Commission for 2005 under Article 4(1)
of Directive 2003/30/EC of the European Parliament and of the
Council of 8 May 2003 on the promotion of the use of biofuels or
other renewable fuels for transport**

**Compiled by the Ministry for Economic Affairs with the cooperation of the Ministry for
Agriculture and Rural Development, the Ministry for Finance, the Ministry for
Science and Higher Education, the Ministry for Environment and the Ministry
for Transport**

Poland, July 2006

Report to the European Commission for 2005 under Article 4(1) of Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport

The report was drawn up by Poland to fulfil the obligation imposed on Member States under Article 4(1) of Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport.

The report covers the following subjects:

- I. Measures taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes;
- II. National resources allocated to the production of biomass for energy uses other than transport;
- III. Production and sales of transport fuel and biocomponents and the share of biocomponents in liquid fuels and liquid biofuels placed on the market;
- IV. Level of national indicative targets;
- V. Impact of fuel combustion on the volume of emissions of greenhouse gases in Poland.

I. Measures taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes,

I. 1. New legal provisions concerning the functioning of the market for biocomponents and biofuels

In 2005 two legal acts were issued which are important for the functioning of the market for biocomponents and biofuels:

- the Decree of the Minister for Economic Affairs and Labour of 19 October 2005 on quality requirements for liquid fuels (Official Gazette No. 216, item 1825)
- the Decree of the Minister for Economic Affairs and Labour of 19 October 2005 on quality requirements for biocomponents and on methods of biocomponent quality assessment (Official Gazette No. 218, item 1845).

In accordance with the above-mentioned decrees, there are no obstacles in Poland to use up to 5 per cent bioethanol supplement to engine fuels and up to 5 per cent supplement of fatty acid methyl esters to diesel fuel.

Also drawn up was a draft Decree by the Minister of Economic Affairs on quality requirements for liquid biofuels, setting out the quality requirements for two types of liquid biofuels:

- fatty acid methyl esters as an engine fuel in their own right,
- diesel fuel containing 20 per cent of the above-mentioned esters.

At present the above Decree is being notified to the European Commission.

In order to create better conditions for the development of the market for biocomponents and biofuels, a package of two draft Acts were drawn up and submitted to the Sejm (Polish Parliament) and on 20 June 2006 adopted by the Council of Ministers. The Act on liquid biocomponents and biofuels and the Act on a system of fuel quality monitoring and control. Among the most important issues covered by the above-cited draft Acts are the following:

- the introduction of simplified procedures allowing the production of biofuels by farmers for their own use,
- the introduction of the concept of a selected fleet, defined as a group of at least 10 vehicles, agricultural tractors or machines which do not use public roads, or a group of locomotives or vessels, equipped with engines adapted for the use of liquid biofuels, owned or used by a natural person carrying out business activity, a legal person or an organisational unit without legal personality, the aim being to enable the use in such vehicles or machines of biofuels with an increased volume of biocomponents,
- coverage by the provisions on biocomponents and biofuels (laid down in Directive 2003/30/EC) so far remaining outside Polish legal regulations, thus making it possible to place them on the market and use them in selected fleets, and for them to be produced by farmers for their own use,
- the introduction of an obligation to add a specified volume of biocomponents to fuels placed on the market.

I. 2. Promotion of the use of biocomponents in liquid fuels and liquid biofuels – the system of tax exemptions and tax relief

In Poland the use of biocomponents is promoted by means of economic incentives, first and foremost through a system of tax exemptions and tax benefits which is binding under the provisions contained in subsequent decrees by the Minister of Finance.

The Decree by the Minister of Finances of 26 April 2004 on exemptions from excise duty (Official Gazette 2006, No. 72, item 500 with later amendments) has been in force since 1 May 2004. In accordance with that Decree, biocomponents entitled to excise duty exemption are: bioethanol, including bioethanol contained in ethyl-tertio-butyl-ether or in methyl-tertio-amyl-ether, and methyl or ethyl esters of higher fatty acids, obtained in the processing of rape or of by-products and waste products, and esters which are engine fuels in their own right. The exemption covers biocomponents intended for liquid fuels and liquid biofuels made from agricultural raw materials, by-products and waste products which fulfil certain quality requirements.

The Decree also sets out the rules governing excise duty exemption for the inclusion of a specified volume of biocomponents in liquid fuels and liquid biofuels. At present the following are exempted from excise duty:

- liquid fuels containing between 2% and 5% biocomponents – exempt in the amount of 1.5 Zloty (PLN) for each litre of biocomponents added to these fuels,
- liquid biofuels containing above 5% and up to 10% biocomponents – exempt in the amount of 1.8 PLN for each litre of biocomponents added to these fuels,
- liquid biofuels containing above 10% biocomponents – exempt in the amount of 2.2 PLN for each litre of biocomponents added to these fuels,

However, the exemption must not exceed the due excise amount for the sale of these fuels.

In 2005 exemptions from excise duty for use of biocomponents in fuels amounted to 118.671.7 PLN. It should be stressed that this is the amount of relief on sales of petrol containing bioethanol, including bioethanol contained in ethyl-tertio-butyl-ether (ETBE) and diesel containing fatty acid methyl esters (FAME).

I. 3. Financial support for research relating to biofuels

Poland supports research into biofuels by financing research projects and subsidising projects with specific goals.

Research projects relating to biofuels with completion deadlines between 2006 and 2009

The 8 research projects listed below are currently being carried out. Their completion deadlines are in the period 2006-2009. The funding allotted for these projects amounts to 1 601 700 PLN.

1. Use biofuels as reburning fuel for reducing nitrous oxide emission from industrial furnaces using primary methods.
2. Research into the impact of the addition of esters of rapeseed oil fatty acids to diesel fuel on the working process of a self-ignition engine
3. Development of a method and equipment for measuring rapeseed esters content in biofuel used in the compression-ignition engine
4. Assessment of potential for using vegetable oils (liquid biofuels) in sources of heat for power generation purposes and of the impact on the natural landscape
5. Reduction of intensity of microbiological corrosion of various types of steel in a diesel environment with addition of fatty acid methyl esters (FAME)
6. Development of a method for utilisation of glycerine waste products in the production of biofuel with the use of micro-fungi
7. Analysis of selected operational parameters of a high-performance diesel engine powered by biofuels
8. Waste glycerol from the production of biofuels as a substrate for the biosynthesis of citric acid using *Yarrowia lipolytica* yeast

Targeted projects relating to biofuels carried out between 2003 and 2005

Between 2003 and 2005, within the framework of the "Programme of the Polish Federation of Engineering Associations – Special Purpose Projects for Small and Medium Size Enterprises", two special purpose-projects, related to the start-up of biofuel production, were carried out. They were subsidised in the amount of 271 500 PLN:

1. Implementation of no-waste-product technology for bioethanol production and residue feedingstuffs for livestock made from pickled sweet corn

2. Development of techniques for the purification and refinement of rapeseed oil methyl esters as biofuel for the needs of small farmer's refineries

II. National resources allocated to the production of biomass for energy uses other than transport,

One good means of stimulating the development of renewables is financial support for investment in this field. This is particularly beneficial in the first stage as a start-up mechanism when new technology is introduced. In Poland, there is a long tradition of financial support for investment in renewable sources of energy and it comes mainly from the resources of:

- the National Environmental Protection and Water Management Fund and regional, district and local environmental protection and water management funds. These funds consist of the revenue from fines and charges for use of the environment, including fees and charges connected with the functioning of the green certificates system. These resources, in accordance with the Environment Protection Act of 27 April 2001 (Official Gazette No. 62, item 627), are intended for the promotion of the use of local sources of renewable energy and support for the introduction more environmentally friendly energy sources.
- the EkoFundusz Foundation, which uses funds from the conversion of Polish debt for action in the field of environment protection.

The granting of state aid for renewable energy sources is regulated by the Decree of the Council of Minister of 27 April 2004 on the specific conditions for granting state aid for investments related to renewable energy sources (Official Gazette No. 98, item 996 with later amendments).

The document "Poland's Energy Policy up to 2025" stipulates, that, in order to ensure the proper position of renewables in the energy sector, certain actions ought to be taken. Regarding the development of biomass use for energy purposes, the most crucial actions are as follows:

- ensuring the stability of support mechanisms for the use of renewable energy sources, while creating conditions for safe investment in renewables. Continued monitoring of support mechanisms is planned, as well as their enhancement, if needed. Any substantial

amendments to these mechanisms will be implemented with appropriate notice, in order to guarantee stable conditions for investment,

- use of biomass in electricity and heat generation. Given the conditions prevailing in Poland, biomass will remain the fundamental line of development of renewables, but the use of biomass for energy purposes must not bring about shortages of wood in the timber, cellulose/paper and timber processing industries. Under the Decree of the Minister of Economic Affairs of 19 December 2005 on the specific scope of responsibilities as regards obtaining and presenting for redemption certificates of origin, payment of substitute fees and purchase of electric energy and heat produced from renewable energy sources (Official Gazette No. 261, item 2187) mechanisms promoting the use of biomass other than obtained from forest base production were introduced). It is assumed that biomass for this purpose will be obtained to a significant extent from energy crops and also from industrial and communal waste products, not only from plant and animal production. Moreover, development of the use of renewable energy sources results in the creation of new jobs in areas of high unemployment by stimulating the development of agricultural production, increasing employment and developing industry and services for the needs of the renewable energy sector.

Energy Policy will be carried out using mechanisms for promoting the use of renewable energy sources. The basic legislative instrument, regulating energy companies' activities aimed at the increased use of renewables is the Energy Act of 10 April 1997 (Official Gazette 2003, No. 153, item 1504 as amended). This Act specifies the main promotion mechanism, namely an obligation on the part of energy companies selling energy to end users, to obtain and present for redemption to the Head of the Energy Regulatory Office a specified number of certificates of origin of electric energy produced from renewable energy sources, or of payment of substitute fees.

The promotion system introduced in Poland in a form of green certificates is a market mechanism supporting optimum development and competition. The introduction of certificates of origin of electric energy produced from renewable energy sources as opposed to certificates relating to energy itself, made it possible on 1 October 2005 to trade in propriety rights deriving from these certificates on the Warsaw Commodity Exchange (WGT).

III. Total production and sales of transport fuel and biocomponents and the share of biocomponents in liquid fuels and liquid biofuels placed on the market,

III. 1. Sales of transport fuel and share of biocomponents placed on the market between 2000 and 2005

Analysis of the data provided by the Central Statistical Office, the Ministry of Finance and the Energy Market Agency on the use of petrol and diesel fuel shows that the share of biocomponents in transport fuels between 2000 and 2005 was as follows:

Year	Petrol (in thousands of tonnes)	Diesel (in thousands of tonnes)	Bioethanol (in thousands of tonnes)	Esters (in thousands of tonnes)	Share based on energy content
2000	4841	2343	40.6	0	0.35%
2001	4484	2562	52.4	0	0.46%
2002	4109	2940	65.3	0	0.57%
2003	3941	3606	60.1	0	0.49%
2004	3953	3886	38.3	0	0.30%
2005*	3919	4747	42.8	17.1	0.48%

* estimated value

III. 2. Number of registered undertakings producing or storing biocomponents

In accordance with Article 3(1) of the Act on Biocomponents Used in Liquid Fuels and Liquid Biofuels of 2 October 2003 (Official Gazette No. 199, item 1934 as later amended) business activity in the field of production or storage of biocomponents is a regulated activity within the meaning of the Act on Freedom of Economic Activity of 2 July 2004 (Official Gazette No. 173, item 1807 as later amended), and must be entered in the register of undertakings producing or storing biocomponents.

On 19 June 2006, 85 undertakings were registered in the register of undertakings producing or storing biocomponents before, including:

- 27 undertakings producing and storing bioethanol (including 7 undertakings only storing bioethanol); 20 registered undertakings declared annual bioethanol production capacity totalling 618.00 million litres (487.60 thousand tonnes)¹,
 - 63 undertakings producing and storing esters (including 18 undertakings only storing esters); 45 registered undertakings declared annual ester production capacity totalling 528.13 million litres (464.75 thousand tonnes)²,
- 5 undertakings registered storage of both bioethanol and esters.

III. 3. Bioethanol production

In 2005 around 54.2 million litres (42.8 thousand tonnes) of bioethanol were placed on the fuel market. Petrol consumption decreased by nearly 400 millions litre compared with the previous year. The use of bioethanol in petrol between 1994 and 2004 and the preliminary data for 2005 are shown below.

Year	Petrol consumption ³ - (in thousand of m3)	Including bioethanol (in thousand of m3)	% share of volume
1994	7 325	27.0	0.37
1995	8 332	63.0	0.76
1996	6 174	100.9	1.63
1997	6 691	110.6	1.65
1998	6 672	99.8	1.50
1999	7 770	83.2	1.07
2000	6 808	51.4	0.75
2001	6 233	66.4	1.07
2002	5 645	82.8	1.47
2003	5 453	76.2	1.40
2004	5 564	48.5	0.87
2005	5 166	54.2	1.05

III. 4. Ester production

¹⁾ specific density of bioethanol – 0.789 kg/l

²⁾ specific density of methyl ester – 0.880 kg/l

³⁾ The petrol consumption figure provided by the Central Statistical Office in thousands of tonnes was converted applying petrol density= 0.76 kg/l

The sole producer of fatty acid methyl esters is Rafineria Trzebinia S.A. In 2005 this company produced around 73.1 million litres of esters (64.3 thousand tonnes). With a large part of production being sold on foreign markets, only 19.4 million litres (17.1 thousand tonnes) were used in Poland. At the same time consumption of diesel fuel, at 5,698.7 million litres, was much higher (by 1 034⁴ million litres) than in the previous year. The percentage share of esters in diesel fuel used in 2005 was thus 0.34%.

IV. Level of national indicative targets.

The national indicative targets, based on the energy content of transport fuels, are:

- 2005 – 0.5%,
- 2006 – 1.5%,
- 2007 – 2.3%,

Indicative targets for 2008-2010 will be set by 15 June 2007.

In setting the indicative target for the subsequent years, the level will be systematically increased, so as to bring Poland up to the level set in Directive 2003/30/EC, i.e. 5.75% in 2010.

In calculating the target level for 2007 account was taken of the funding available from the state budget, of production potential in terms of agricultural raw materials for fuel purposes, and of the fact that the level set must be attainable for both biocomponents and fuel producers. Also, the following premises were taken into account:

- according to the data provided by the Ministry of Finance and the Energy Market Agency, in the first quarter of 2006 the use of biocomponents in liquid fuels grew by around 70% compared with the corresponding period in 2005.
- it is assumed that, from the beginning of 2007, new regulations on the functioning of the market for biocomponents and biofuels will enter into force, which will be a significant stimulus for the further development of this market.
- it is expected that the Decree of the Minister of Economic Affairs on the Quality Requirements for Liquid Biofuels, which is currently being notified to the European

⁴Assuming that the density of diesel fuel is 0.833 kg/l

Commission, will come into force in the second half of 2006, allowing the wider use of fatty acid methyl esters.

- biocomponent production capacity in Poland is currently being upgraded.
- existing capacity for the production of biocomponents and their use In liquid fuels and biofuels allows a higher indicative target level to be set for 2007 than for 2006.

V. **Impact of fuel combustion on the volume of greenhouse gas emissions in Poland**

Estimates put greenhouse gas emissions in 2004 at:

- Net CO₂ emissions (taking account of absorption): 290 541.27Gg,
- CO₂ emissions without taking account of absorption: 316 700.05 Gg,
- CH₄ – 1858.43 Gg,
- N₂O – 96.79 Gg,
- Industrial gases (HCF, PFC, SF₆), actual emissions as CO₂ equivalent:2334.01 Gg.

Compared with 2003, net CO₂ emissions decreased from 293 424.41 Gg to 290 541.27 Gg in 2004 (i.e. by 0.98%).

In the fuel consumption subsector, which is the chief source of CO₂ emissions, transport emissions accommodated for 11.60% in 2004. At the same time, 48.5 million litres of bioethanol were used in the transport sector. Consumption of conventional fuels in an amount having the same energy content as the bioethanol used would have produced 74 820.4 tonnes of CO₂ emissions. This compares with zero emissions produced when using bioethanol, assuming a closed cycle. Therefore, the said amount can be deducted from overall national emissions. This means, that, thanks to the use of biofuels, national emissions of CO₂ were reduced by 0.026% in 2004.