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**REPUBLIC OF BULGARIA**

**MINISTRY OF ECONOMY, ENERGY AND TOURISM**

**REPORT ON THE ACHIEVEMENT OF THE NATIONAL  
INDICATIVE TARGETS FOR THE USE OF BIOFUELS AND  
OTHER RENEWABLE FUELS IN THE TRANSPORT SECTOR IN  
2009**

**April 2010, Sofia**

This report has been drawn up in accordance with the requirements of Article 23(2) of the Renewable and Alternative Energy Sources and Biofuels Act ('ZVAEIB').

In pursuance of the provisions of 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 and other renewable fuels for transport, as well as pursuant to Article 5(1)(9) of the Renewable and Alternative Energy Sources and Biofuels Act and Article 6c(1) of the Ordinance on the contents, structure, conditions and procedure for the submission of information pertaining to the energy sector provided for in Community rules to the Community institutions (adopted by Decree No 332 of the Council of Ministers of 11 December 2006; promulgated: SG No 106 of 27 December 2006; in force on the date of entry into force of the Treaty concerning the accession of the Republic of Bulgaria to the European Union: 1 January 2007; amended: No 57 of 13 July 2007; amended: No 20 of 26 February 2008), the report on the achievement of the national indicative targets for the use of biofuels and other renewable fuels in the transport sector adopted by the Council of Ministers will be submitted to the European Commission.

## UNITS OF MEASUREMENT

<b>ktoe</b>	thousand tonnes of oil equivalent
<b>t</b>	tonne
<b>kt</b>	thousand tonnes
<b>h•</b>	hectare
<b>t/ha</b>	tonnes per hectare
<b>g I/100 g</b>	grams of iodine per 100 grams

## DEFINITIONS

- **Utilised agricultural area** refers to arable land, permanent pasture and meadows, land under permanent crops, family gardens and land under greenhouses.
- **Arable land** refers to the areas included in a crop rotation system, temporary meadows under grasses and forage legumes and fallow land.
- **Fallow land** means arable land which is set aside in the year of observation. Whether worked or not, the areas shall remain in this category for not more than two years.

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# **I. Policy on the promotion of the use of biofuels**

## ***I.1. Renewable and Alternative Energy Sources and Biofuels Act***

The Renewable and Alternative Energy Sources and Biofuels Act ('ZVAEIB') is the main national instrument laying down the general principles of the policy on the promotion of the production and use of biofuels in Bulgaria.

This instrument, transposing the provisions of Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market and Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport, was developed and adopted in 2007 by the 40<sup>th</sup> National Assembly.

It was the first instrument to lay down rules governing the public relations pertaining to the promotion of the generation and consumption of electricity, heat and/or energy for cooling purposes from renewable and alternative energy sources, as well as the production and use of biofuels, which should lead to reductions in the use of conventional fuels and in emissions of pollutants.

The compulsory blending of biofuels with mineral oil derivatives takes place only in tax warehouses authorised in accordance with the Excise Duties and Tax Warehouses Act.

Biofuels may be used in the transport sector in pure form or as a blending component in mineral oil derivatives for the operation of internal combustion engines.

Biofuels must comply with the technical and quality requirements for biofuels and their blends with mineral oil derivatives laid down in the Ordinance on the quality requirements for liquid fuels, the conditions, procedure and method of their control and in the relevant standards (for petrol – BDS<sup>1</sup> EN 228 and for diesel fuels – BDS EN 590).

In accordance with the Renewable and Alternative Energy Sources and Biofuels Act adopted in 2007, producers and importers of liquid fuels for the transport sector are under the obligation, in force on 1 January 2008, to place on the market biofuel blends of 5 %, as laid down in the ordinance referred to in Article 8(1) of the Clean Ambient Air Act.

In 2009, it was found that the statutory requirements relating to the compulsory blending of biofuels with mineral oil derivatives were not put into practice and that, thus, no progress was made towards the achievement of the national indicative target.

The reasons for the non-compliance with the Renewable and Alternative Energy Sources and Biofuels Act ('ZVAEIB') as regards the compulsory biofuel component in conventional fuels

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<sup>1</sup> BDS – Bulgarian National Standard. [Translator's note]

are complex. The main reasons cited by stakeholders are given below:

- Ø Difficulties encountered in meeting the requirements of the EN 228 standard in the case of blends of bioethanol with petrol;
- Ø No tax incentives implemented in practice for the placing on the market of pure biofuels and biofuel blends;
- Ø Lack of laboratories accredited to check the quality and composition of biofuels and to determine with sufficient accuracy the biocomponent content in a given blend;
- Ø The time needed by producers and importers of liquid fuels to implement the investment programmes relating to the technical preparation of the distribution systems (to bring them into line with the Renewable and Alternative Energy Sources and Biofuels Act as regards the process of blending of biofuels with mineral oil derivatives);
- Ø Problems encountered in exercising control over the quality of pure biofuels and of biofuel blends offered on the market as well as the non-imposition of penalties in the case of non-compliance with the statutory blending requirements.

The reasons set out above constituted a determining factor for the failure to achieve the national indicative targets for 2008 and set the trend for 2009.

It was therefore necessary to take relevant measures in order to address the problems identified and ensure compliance with the blending requirements.

In December 2009, the National Assembly adopted an Act amending the Renewable and Alternative Energy Sources and Biofuels Act, introducing the following changes:

- Ø Requirements have been laid down for the phased compulsory blending of petrol and diesel fuels with biofuels;

Under the new amendments to the Act, persons placing on the market petroleum-derived liquid fuels for transport purposes are under the obligation, in the event of release for consumption, to offer fuels for diesel engines blended with biofuels in the following percentage terms:

- from 1 March 2010 – with a biodiesel content of at least 2 % by volume;
- from 1 September 2010 – with a biodiesel content of at least 3 % by volume;
- from 1 March 2011 – fuels for diesel engines with a biodiesel content of at least 4 % by volume and fuels for petrol engines with a bioethanol content of at least 2 % by volume;
- the biodiesel and bioethanol content in fuels for diesel and petrol engines must not exceed 5 % by volume.

The phased implementation scheme takes into account the need of producers and final distributors to acquire the technical capacity for blending and comply with the quality specifications for blended diesel fuels.

- Ø The supervisory body has been clearly indicated – the President of the State Agency for Metrology and Technical Surveillance or officials authorised by him;
- Ø Coercive administrative measures have been introduced, while the amounts of the penalties have been increased;
- Ø Equivalence of the terms used in the relevant legislation such as the Renewable and Alternative Energy Sources and Biofuels Act ('ZVAEIB'), the Clean Ambient Air Act ('ZCHAV') and the Excise Duties and Tax Warehouses Act ('ZADS') has been ensured in order to achieve clarity and ensure consistency in the designation of the obligated persons.

## ***1.2. Electricity production from biomass***

In order to promote electricity production from biomass, the Renewable and Alternative Energy Sources and Biofuels Act provides for the following incentives:

- Ø Priority connection of electricity producers to the transmission and/or distribution network;
- Ø Compulsory purchase of electricity produced from biomass;
- Ø Preferential purchase prices for electricity;
- Ø Time limit for connection which is no longer than the time period stated by the producer for putting the energy site into operation.

The period of validity of contracts with producers of electricity from biomass is 15 years.

The preferential prices are set by the State Energy and Water Regulatory Commission ('SEWRC') by 31 March each year.

In 2009, preferential purchase prices for electricity produced from vegetal or animal substances, municipal waste and domestic waste water were established.

The preferential prices for electricity produced from biomass are given in Table 1.

**Table 1:** Preferential prices for electricity produced from biomass<sup>2</sup>

	<b>Preferential price, BGN/MWh</b>
<b>Biomass boilers and stoves with an installed capacity of up to 5 MW:</b>	

<sup>2</sup> Source: Decision No TS-03/16.03.2009, Decision No TS-30/07.09.2009 and Decision No TS-31/07.09.2009 of the State Energy and Water Regulatory Commission. The preferential prices above do not include VAT.

waste wood	217.00
residues from agriculture	166.00
energy crops	187.00
<b>Indirect use of biomass from vegetable or animal substances:</b>	
plants with an installed capacity of up to 150 kW	197.90
plants with an installed capacity of more than 150 kW up to 500 kW	181.60
plants with an installed capacity of more than 150 kW up to 5 MW	165.30
<b>Indirect use of energy from municipal waste:</b>	
plants with an installed capacity of up to 150 kW	275
plants with an installed capacity of more than 150 kW up to 500 kW	264
plants with an installed capacity of more than 150 kW up to 5 MW	253
<b>Indirect use of energy from domestic waste water:</b>	
plants with an installed capacity of up to 150 kW	147
plants with an installed capacity of more than 150 kW up to 500 kW	132
plants with an installed capacity of more than 150 kW up to 5 MW	114

### ***I.3. Excise Duties and Tax Warehouses Act ('ZADS')***

The Excise Duties and Tax Warehouses Act (promulgated: SG No 91 of 15 November 2005, in force on 1 January 2006; last amended: No 95 of 1 December 2009, in force on 1 January 2010) lays down the legal provisions concerning the levying of excise duties and the control over the manufacture, use, storage, movement and holding of the goods subject to excise duty.

The Act introduced a total exemption from the excise duty on motor fuels for pure biodiesel and a reduction of the rate of excise duty for biofuel blends, which entered into force on 24 November 2009, following notification to the European Commission.

This notification was necessary in view of the fact that the reduced rates constitute State aid and as such, pursuant to Article 88(3) of the Treaty establishing the European Community, should be applied only after a favourable decision is taken by the European Commission on their compatibility with the common market.

The reduced rate of excise duty, which was approved by the European Commission, is

applicable to biofuel blends of 4 to 5 % inclusive. The reduced rates are valid for 2 years from the date of approval of the scheme notified.

#### ***1.4. Clean Ambient Air Act***

The Clean Ambient Air Act (promulgated: SG No 45 of 28 May 1996, in force on 29 June 1996; last amended: SG No 93 of 24 November 2009) lays down requirements for the quality of liquid fuels and the supervision of compliance with the quality requirements for liquid fuels when they are placed on the market, distributed, transported and used.

Under the Clean Ambient Air Act ('ZCHAV'), the Council of Ministers, acting on a proposal from the Minister of Economy, Energy and Tourism, the Minister of the Environment and Waters and the President of the State Agency for Metrology and Technical Surveillance, is required to adopt an ordinance laying down the technical and quality requirements for liquid fuels, the specifications for the lead content, the sulphur content and the content of other harmful substances in them, as well as the conditions, procedure and method of control of liquid fuels.

#### ***1.5. Ordinance on the quality requirements for liquid fuels, the conditions, procedure and method of their control***

The Ordinance on the quality requirements for liquid fuels, the conditions, procedure and method of their control, adopted by Decree No 156 of the Council of Ministers of 2003 (promulgated: SG No 66 of 2003; last amended: SG No 93 of 24 November 2009) lays down the conditions, procedure and method of quality control of liquid fuels after their production, on importation – after customs clearance, upon their distribution, including at filling stations and in tanks of combustion plants.

The Ordinance lays down the quality requirements for biodiesel, taking into consideration the BDS 14 214 standard. In view of the characteristics of the widely used low-oleic varieties of sunflower in Bulgaria, it sets a transitional period until 31 December 2010 in order to facilitate the transition from the iodine value of 140 g I/100 g to the standard value - 120 g I/100 g.

#### ***1.6. Ordinance on the conditions and procedure for providing support to producers of energy crops***

Ordinance No 9 of 2 May 2007 on the conditions and procedure for providing support to producers of energy crops was issued by the Ministry of Agriculture and Food (issued by the Minister of Agriculture and Forests; promulgated: SG No 37 of 8 May 2007; amended: No 4 of 15 January 2008). The Ordinance was adopted on the grounds of § 35 of the Support for Farmers Act

and lays down the conditions and procedure for granting direct payments per hectare of areas sown under energy crops.

The Ordinance transposes the provisions of Council Regulation (EC) No 1782/2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers, as well as those of Commission Regulation No 1973/2004 laying down detailed rules for the application of Council Regulation (EC) No 1782/2003 as regards the support schemes provided for in Titles IV and IVa of that Regulation and the use of land set aside for the production of raw materials.

Under this Ordinance, farmers receive per hectare payments for the production of energy crops, which are intended for the production of energy products and in respect of which the Minister of Agriculture and Food has approved representative yields. The aid amounted to 45 €/ha<sup>3</sup> in 2009.

## **II. National targets for the use of biofuels**

In accordance with the provisions of the Renewable and Alternative Energy Sources and Biofuels Act, by resolution under item 2 of minutes n<sup>o</sup> 43 of the meeting of the Council of Ministers held on 15 November 2007, a national long-term programme for the promotion of the use of biofuels in the transport sector for 2008-2020 was adopted. The programme sets national indicative targets for the promotion of the use of biofuels in the country for the period 2008-2020.

The following national indicative targets for the use of biofuels in the transport sector have been set: 2008 – 2 %, 2009 – 3.50 %; 2010 – 5.75 %; 2015 – 8.00 % and 2020 – 10.00 %.

By amendments to the Renewable and Alternative Energy Sources and Biofuels Act adopted in 2009, lower compulsory requirements for the biofuel content in conventional fuels were introduced in order to ensure realistic conditions for the business to acquire the technical capacity for blending and comply with the quality requirements for blended fuels.

The forthcoming legislative action related to the amendment of the Renewable and Alternative Energy Sources and Biofuels Act, the Clean Ambient Air Act and the relevant regulations arising from the transposition of Directive 2009/28/•• on the promotion of the use of energy from renewable sources and the development of the National Action Plan for Energy from Renewable Sources up to 2020 should ensure the gradual achievement of the Community targets for 2020, in the context of the specific national conditions.

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<sup>3</sup> State Fund for Agriculture: <http://www.dfz.bg/bg/direktni-plashtania-na-plosht/shemi-i-merki/podpomagane-proizvoditelite-na-energijni-kulturi/>

### III. Production and use of biofuels in Bulgaria in 2009

The consumption of biofuels in Bulgaria is low. The data provided by the National Statistical Institute concerning the use of biodiesel, petrol and diesel fuels in the transport sector in 2006, 2007 and 2008, respectively, are given in Table 2.

**Table 2:** Consumption of biodiesel, petrol and diesel fuels - 2006, 2007 and 2008<sup>4</sup>

<b>Types of transport fuels</b>	<b>Unit of measurement</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Biodiesel	t	9 431	4 036	4 260
Biodiesel	ktoe	5	2	4
Petrol and diesel fuels	ktoe	2 049	1 977	2 118
<b>Share of biodiesel in the consumption of petrol and diesel fuels in the transport sector</b>	%	<b>0.2%</b>	<b>0.1%</b>	<b>0.18 %</b>

The quantities of biodiesel used in 2008 were 4 260 t, including 1 964 t marketed as a blending component and 2 296 t – as pure biodiesel.

According to the preliminary figures of the Ministry of Economy, Energy and Tourism, the quantities of biodiesel produced in 2009 were 18 455.5 t, of which 350 t were used for domestic consumption and the remaining quantities exported. The final figures for the consumption of biofuels, petrol and diesel fuels in Bulgaria will be released in the Energy Balances for 2009 by the National Statistical Institute at the end of 2010.

The following conclusions may be drawn from the figures set out above:

- Ø Biodiesel production increased in 2009.
- Ø The consumption of biofuels in the transport sector is still low, despite the statutory requirement in force from 1 January 2008 for the blending of liquid fuels with biofuels.
- Ø As a result, the target of 3.5 % for the share of biofuels in the consumption of petrol and diesel fuels, set for 2009, will most likely not be achieved.

**In order to reverse this negative trend, the following measures were taken in 2009:**

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<sup>4</sup> Source: Energy Balances for 2008, National Statistical Institute.

- Ø On 11 December 2009, the National Assembly adopted an Act amending the Renewable and Alternative Energy Sources and Biofuels Act ('ZVAEIB');
- Ø The State Agency for Metrology and Technical Surveillance was provided with testing equipment for pure biofuels, financed by the national budget;
- Ø A zero rate of excise duty for pure biodiesel and pure bioethanol as well as a reduced rate of excise duty for biofuel blends of 4 to 5 % inclusive entered into force on 24 November 2009;
- Ø In view of the low popularity of biofuels with the general public and in order to overcome the initial scepticism surrounding their introduction, a number of media events, interviews, presentations, workshops, round tables and meetings with the representatives of the business circle concerned, potential investors and other stakeholders were held with the support of the Ministry of Economy, Energy and Tourism in 2009, aiming to promote and raise public awareness of the European and national policies in this field;
- Ø A project for the development and distribution of a media product for the public promotion of the use of biofuels in the transport sector was launched at the beginning of 2009. The project was successfully completed in March with the implementation of an information campaign in 19 large cities in Bulgaria and the distribution of over 1 million leaflets.

## IV. Bulgaria's potential for production of energy crops and biofuels

### IV.1. Growing energy crops

The prevailing weather conditions in Bulgaria are favourable for growing oilseeds and cereals. Studies show that Bulgaria has enough areas to ensure adequate supply of raw materials for the production of biofuels without adversely affecting the food industry.

A forecast of the production of biofuels and the areas required to grow the necessary energy crops<sup>5</sup> is given in Table 3.

**Table 3:** Forecast of the production of biofuels and the areas required to grow the necessary energy crops

Biofuels	2008		2009		2010		2015		2020	
	kt	Areas,	kt	Areas,	kt	Areas,	kt	Areas,	kt	Areas,

<sup>5</sup> Source: National Long-Term Programme for the Promotion of the Use of Biofuels in the Transport Sector for 2008-2020, Ministry of Economy and Energy and Ministry of Transport.

		ha		ha		ha		ha		ha
Bioethanol	9.7	8 767	16.0	14 497	24.5	22 664	33.4	30 924	37.0	34 238
Biodiesel	34.2	58 524	63.3	108 290	108.7	185 925	185.2	316 862	277.5	474 763
<b>Total</b>	<b>43.9</b>	<b>67 297</b>	<b>79.3</b>	<b>122 787</b>	<b>133.2</b>	<b>208 589</b>	<b>218.6</b>	<b>347 786</b>	<b>314.5</b>	<b>509 001</b>

In order to achieve the national indicative target for 2009, the consumption of biofuels must reach 79.3 kt, while the areas required for their production amount to 122 787 ha. The areas required to achieve the national indicative target of 5.75 % for the share of biofuels in 2010 amount to 208 589 ha, which constitutes 6.7 % of the arable land (3 122 516 ha) in 2009<sup>6</sup>.

Bulgaria has excellent natural conditions for the development of the agricultural and forestry sector. The favourable conditions for the production of various crops, the availability of agricultural land and the existence of long established traditions contribute to the well-developed plant and livestock production.

The total utilised agricultural area in 2009 was 5.03 million hectares or 45.3 % of the territory of the country. The arable land area in 2009 was about 3.12 million hectares or 62.1 % of the utilised agricultural areas in the country. In 2009, fallow land was 196 336 hectares or 6.3 % of the arable land and 3.9 % of the utilised agricultural areas, which is less than in 2008 by 14.4 %.

The overall yield of the main agricultural crops<sup>7</sup> in 2009, part of which was used as a raw material for the production of biofuels in the country, was as follows:

- Ø Wheat – The areas down to wheat in 2009 were 1 254 151 ha. An increase by 12.5 % has been observed compared to 2008. Wheat is the crop that occupies the highest percentage of arable land in the country – 40.2 %. The estimated production of wheat as at 1 July 2009 was 4.0 ÷ 4.6 million tonnes. The estimated yield of wheat for 2009 was 4.35 t/ha.
- Ø Maize is the second most important crop after wheat. The areas under maize amounted to 303 881 ha in 2009, which constitutes 9.7 % of the arable land and 6 % of the utilised agricultural areas of the country.
- Ø In 2009, sunflower was planted on 687 209 ha. These represent 22.0 % of the arable land, 85.7 % of the areas sown to oilseeds and 13.7 % of the utilised agricultural areas of the

<sup>6</sup> Source: Survey on the Agricultural and Economic Situation in Bulgaria ('BANSIK') 2009 – Final Figures on Employment and the Use of the Territory of Bulgaria in 2009, Agricultural Statistics Department, Ministry of Agriculture and Food.

<sup>7</sup> Source: Yields of Agricultural Crops – the 2009 Harvest Survey, Ministry of Agriculture and Food.

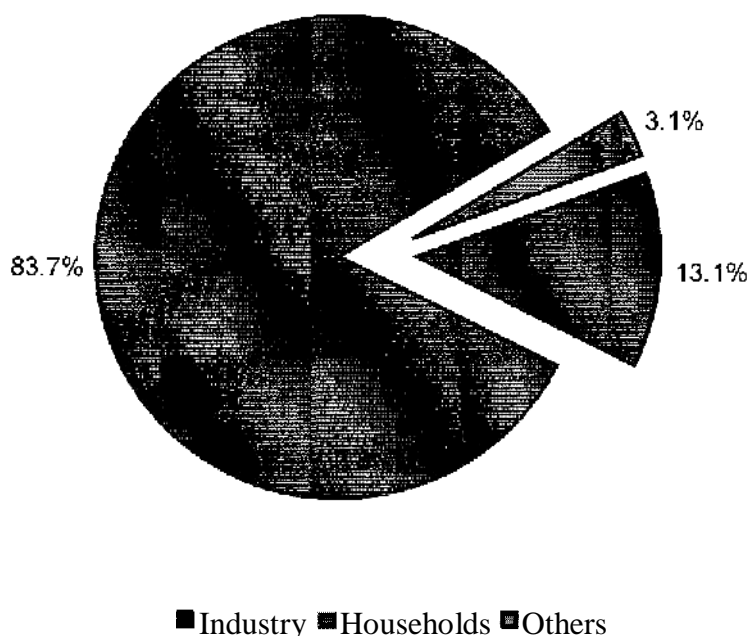
country. Sunflower grown on fallow land was 3.3 % in 2009. The areas sown with sunflower have decreased by 5.1 % compared to the previous year.

- Ø The areas under rape in the 2008/2009 crop year amounted to 10 130 ha, representing a very small percentage of the arable land in the country.

#### ***IV.2. Production of biomass for energy uses***

In the period 1997-2008, the use of biomass in the country increased almost 3 times and reached 772 ktoe<sup>8</sup> in 2008. The types of biomass used for energy purposes (excluding biofuels) were, for the most part, wood fuels, industrial waste wood and vegetable waste. Wood fuels consisted almost entirely of fuel wood (over 99 % of the total quantity of wood fuels). The use of waste from the pulp and paper, wood-processing and food-processing industries has increased in recent years.

In 2008, biomass accounted for 7.2 % of the final energy consumption in the country.



**Figure 1**

#### ***IV.3. Production capacities for biofuels***

Bulgaria has production capacities for 368 100 tonnes of biofuels<sup>9</sup> per year, which included installed capacities for the production of 338 100 tonnes of biodiesel and 30 000 tonnes of bioethanol per year in 2008.

<sup>8</sup> Source: Energy Balances for 2008, National Statistical Institute.

<sup>9</sup> Source: National Biofuels Association in Bulgaria.

## **V. Conclusion**

The production of biofuels relies on local raw materials, which would help to improve security of supply. For Bulgaria, biofuels provide an alternative to petrol and diesel fuels, which would allow it to reduce its dependence on fuel imports and contribute to the security of its energy supply.

The substitution of petroleum-derived fuels by biofuels affords the possibility of realising the energy potential of renewable sources in the country, biomass in particular. This would promote the more rational use of arable land and the utilisation of desolate land in the country. At the same time, the whole process of growing energy crops up to the distribution and consumption of biofuels would further employment, especially in the economically less developed regions of the country.

The greater use of biofuels in various sectors such as urban transport, internal transport in production plants and ports would lead to a reduction in the overall greenhouse gas emissions, improve the environmental conditions and the quality of life in regions with high levels of emissions in the ambient air.