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## **REPORT**

### **on the promotion of biofuels or other renewable fuels for transport**

#### **Estonia, 2005**

Article 4 of Directive 2003/30/EC of the European Parliament and of the Council on the promotion of the use of biofuels or other renewable fuels for transport lays down that the Member States are to report to the Commission by 1 July each year on:

- the measures taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol 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, and other renewable fuels placed on the market in the preceding year. Where appropriate, Member States are to report on any exceptional conditions in the supply of crude oil or oil products that have affected the marketing of biofuels and other renewable fuels.

#### **1. Measures to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes**

The chapter on an overview of the sector in the “Long-term national development plan for the fuel and energy sector up to 2010”, endorsed by a decision of Parliament on 15 December 2004, states that on the basis of Directive 2003/30/EC Estonia’s objective is to ensure an indicative proportion of biofuels and other renewable fuels placed on the market for transport purposes of 2% in 2006 and 5.75% in 2011, calculated according to the energy content of the fuels.

The underlying objective of the “Estonian environment strategy up to 2010”, which was approved by a decision of Parliament on 26 October 2005, is to ensure a healthy environment to people’s satisfaction and the necessary resources for developing the economy without seriously harming nature, while preserving the diversity of landscapes and biotopes and taking into account the level of economic development.

One objective is to reduce the negative environmental impact of the energy sector, step up energy savings and extend the use of renewable sources of energy, increase mobility and the share of public transport, and give priority to electrical and rail transport.

Increasing the share of biofuels in the consumption of petrol and diesel to 2% in 2005 and 5.75% in 2010 is one task in achieving that objective.

Under the Alcohol, Tobacco and Fuel Excise Duty Act, now that permission has been granted by the European Commission biofuel is free of excise duty until that permission expires. Biofuel for which the first four digits of the CN code are 4401 or 4402 is exempt from excise duty without any conditions. Permission to exempt biofuel from excise duty was received from the European Commission in a letter dated 27 July 2005. The number of the permit for the exemption of biofuel from excise duty is 314/2005, with a period of validity of six years.

Within the meaning of the above-mentioned Act, biofuel is fuel:

- 1) for which the first four digits of the CN code are 1507–1518

- 2) which is produced from biomass – 3824 90 99; agricultural products, including vegetable and animal substances, the biodegradable fraction of products, waste and residues from forestry and the biodegradable fraction of industrial and municipal waste are deemed to be biomass;
- 3) for which the eight digits of the CN code are 2207 20 00 or 2905 11 00 and which are not of synthetic origin;
- 4) which is produced from biomass, including fuel for which the first four digits of the CN code are 4401 or 4402.

If biofuel is added to fossil fuels, the portion of biofuel contained in such fuel is exempt from excise duty until the permit expires.

A biofuel permit gives the right to produce biofuel, import it into Estonia and release it for consumption free of excise duty.

To obtain a biofuel permit, a written application must be submitted to the Tax and Customs Board, stating the applicant's name, address of the place of residence or registered office, address and contact details of the place of business, designation and CN code of the biofuel to be handled, and the planned annual quantity of biofuel to be produced, imported into Estonia or released for consumption. In the case of the production of biofuel a technological description of the production process is also to be submitted.

A biofuel permit is issued for a period of up to six years.

The holder of a biofuel permit is required to present to the Tax and Customs Board by 1 March each year a biofuel report giving details concerning the preceding calendar year. The report must contain the following:

- 1) the designation, CH code and quantity of the biofuel released for consumption;
- 2) the value of the biofuel released for consumption and calculations on the production process, including the value of the raw material for biofuel and additives and a calculation of production costs;
- 3) the energy content of the biofuel released for consumption.

Requirements for fuel have been laid down in a Regulation of the Minister for Economic Affairs and Communications, according to which fuel to be used for transport purposes must comply with the requirements of standards EVS-EN 228/2004, EVS-EN 590/2004 and EVS-EN 14214/2004.

In accordance with a Regulation of the Minister for the Environment, at the point of sale the marking "E" must be used for petrol and the marking "BIO" for diesel, together with the percentage content of the biofuel component, if the percentage of biofuels mixed with petroleum derivatives in the case of fatty-acid methyl ester (FAME) or bioethanol exceeds the 5% threshold.

Expansion of the area under energy crops is supported by the direct aid set out in Articles 88–92 and 107 of Council Regulation No 1782/2003/EC of 29 September 2003, which lays down common rules for direct support schemes under the common agricultural policy and establishes certain support schemes for farmers. The last-mentioned Article will be implemented in Estonia after the transition to the single-payment scheme. Aid is given under the CAP for growing energy crops. In 2004 single area payments were made for energy scrub on 10 hectares in the sum of EEK 4140.

## **2. Renewable energy resources available for energy production in Estonia**

Estonia's renewable-energy potential lies primarily in the co-generation of electricity and heat from biofuels and in wind energy, while small-scale hydro-electric energy is being

developed, with a total technically usable resource of around 40MW. Special mention should also be made of waste, above all with regard to the implementation of Directive 2000/76/EC on the incineration of waste. The competitiveness and the relative importance of solar energy are also growing. The share of renewable energy sources in Estonia's energy balance sheet as a whole is increasing.

**Biofuels.** Already a large part of the firewood being felled and wood-processing residues is used in processes for converting primary energy into energy (mainly production of heat). One factor holding back the development of the cogeneration of electricity and heat from biomass is the smallness of the heating load and the fact that in districts with a favourable heating load new facilities producing only heat have already been installed. Development is also limited by the large-scale exporting of biofuels, because of which local energy producers suffer a lack of resources. More extensive development of the various types of bioenergy requires project-related cost-effectiveness calculations. Establishing plantations of either energy forest or energy grass is not at present economically viable, even though in the light of existing farming techniques the necessary techniques for cultivating and harvesting energy grass could be used. It is also technically possible to use straw for energy production, but in economic terms this is restricted by the distance of carriage. Wetland plants are a resource that can be used, after refining, as an additive to wood chips, for example. The possibility has not been excluded of starting up an integrated system for treating manure in individual large farms to obtain energy and fertiliser and reduce environmental pollution.

**Wind energy.** The most promising areas for harnessing wind energy are above all in the islands of western Estonia and along the coast of north-western and southern Estonia, but also on the north coast of Estonia and the shores of Lake Peipsi. Having regard to the present state of the electricity grid it is possible to install wind generators in Estonia amounting to 90–110 MW, but that would involve a qualitative degeneration in the performance of the grid. Without negative side-effects windmills could be put up to generate 30–50 MW. In addition to the grid considerations, wider use of the wind resource is restricted by the relatively small power load and the large unit capacity and poor manoeuvrability of plant in the existing power stations. The problem is alleviated by the Estonian electricity grid's strong link (connection capacity) with the Latvian and Russian grids, which makes it possible to cover unevennesses in wind energy. The technical limit on the connection of wind generators to the Estonian power grid is 400–500 MW. That, however, would require investment in electricity grids and power stations, to ensure the transfer and regulation of wind energy and the necessary reserve capacity."

Of the supply of **primary energy in 2004**, wood fuels made up approximately 10%. The use of wood fuels has remained at that level over the last few years. Most firewood is consumed in households (1 416 000 m<sup>3</sup> in 2004), while wood waste and wood chips are used for the production of heat (628 000 m<sup>3</sup> in 2004). Wood fuels account for 27.4% of the heat produced in boilerhouses.

Likewise, in 2004 209 000 t of wood briquettes and pellets were imported into Estonia, but most of this amount was exported (197 000 t). Local consumption is held back by the weak logistics network and the high price due to the market prices dictated by the Scandinavian countries.

[pie-chart: see original]

gas 14.70%; liquid fuels 13.36%; hard coal and coke 0.26%; oil shale 61.13%; peat 0.88%; wood 9.67%

Fig. 1: Supply of primary-energy fuels in 2004

The share of electricity produced from renewable sources in gross domestic consumption in 2004 was less than 1%, although in 2003 there was an increase by a factor of 2.7 in the production of hydroelectric and wind energy compared with 2002, from 7GWh to 19GWh. It was estimated that at the end of 2005 the share of electricity produced from renewable sources in gross domestic consumption would be 1.3%. The main renewable sources of energy used in Estonia are biomass and wind, while the hydroelectric resource is limited, with a theoretical potential of 30 to 40 MW.

On the basis of the 2005-2015 development plan for the Estonian power industry approved by the Government in December 2005, the resources balance for power generation from renewable sources looks like this:

	2005	2010	2015
Wind	1.0%	2.2%	4.5%
Biofuels	0.2%	2.5%	3.0%
Other	0.3%	0.4%	0.5%

Increasingly, sources of energy specially produced in agriculture and by-products of food production are finding a use in the energy sector. Most of the crops grown in Estonia are suitable for the production of biofuel. Modern technology for the production of biofuel allows a very wide range of biomass to be used as raw material.

The production from energy crops of the raw material for biodiesel or ethanol is on the increase.

A large part of the waste from agricultural production can be used for the production of energy. Waste arising in the fields (cereal straw, tops of root crops etc.), together with livestock waste (slurry, manure), can be used in full for energy production, either directly as fuel or through conversion into biogas or liquid biofuels.

According to figures from Statistics Estonia, in 2004 there were 518 095 ha of arable land. Natural grassland cannot be used for growing energy crops, as in accordance with Regulation (EC) No 1782/2003 it must be maintained as permanent pasture. Considering that the area of agricultural land in Estonia was once around 1.2 million hectares, the cultivated area can in theory be extended by up 400 000 hectares. At the same time it has to be taken into consideration that land that has not been in agricultural use for a long time will have become scrubland, the drainage system will have been ruined and therefore bringing the land into use will involve major expenditure.

The cultivation of energy scrub is expanding rapidly (2004: 10ha; 2005: 50ha). The growing of hemp as an energy crop is being tested.

Estonia has free land for the agricultural production of energy crops.

### 3. Consumption of fuel in Estonia in 2004

No pure or blended biofuel was sold or consumed for transport purposes in Estonia in 2004.

Light fuel oil and diesel fuel	558 000 t
Petrol	287 000 t
Liquefied gas (LPG for transport)	200 t

(Source: *Eesti Statistikaameti aastakogumik Energiabilanss 2004*)

In the publications of Statistics Estonia no distinction is made between the consumption of diesel fuel and that of light fuel oil.

In comparison with 2003, the consumption of petrol stayed at the same level, while that of diesel fuel and light fuel oil rose by 3%. Roughly two thirds of the petrol was consumed by households. Of the diesel fuel and light fuel oil, nearly 60% was consumed by the transport sector, 12% by agriculture, 17% by industry, 8% by households and 3% by the business and public services sector.

As at 1 January 2006, four biofuel permits have been issued. Information on the permits can be obtained from the Tax and Customs board: <http://www.emta.ee>.

According to the figures presented by companies to the Tax and Customs Board in applying for biofuel permits and excise warehouse activity licences, the expected annual output of companies producing biofuel is 3 460 800 kg (3 914 400 litres) of various biofuels. These are the forecast figures submitted by companies that have just started producing biofuel.

According to figures from the Tax and Customs Board, in 2005 (as at 18 November 2005) 11 694 kg (13 228 litres) of various biofuels were released for consumption in Estonia, and 47 736 kg (approx. 53 990 litres) were dispatched to EU Member States with a temporary exemption from excise duty.

#### **4. Factors influencing the placing on the market of other liquid biofuels**

In accordance with Directive 2003/30/EC, blends with a low biofuel content can be used without any problems in vehicles presently in use in Europe, so that the sale of fuel meeting the standards in question does not require the addition of any special marking. At the same time it should be noted that according to the Estonian Association of Motor Vehicle Importers (*Eesti Autode Maaletoojate Liit – AMTEL*) at the moment many motor manufacturers are taking a very cautious view of the use of biodiesel. The 5% standard for biodiesel was introduced only in 2003, and manufacturers do not yet have appropriate test results on its long-term effect on engine fuel systems. For example it is not permitted to use biodiesel in recently built HGVs and busses, in which performance corresponding to the EURO 2 and EURO 3 environmental requirements can be achieved only with an electronic fuel management system. They point to the danger of damage to fuel injection systems and the clogging of filters, increased fuel consumption and reduced service intervals – in other words there is no economic advantage to be gained with this measure. For that reason many manufacturers discontinue the warranty if biodiesel is used. Some manufacturers allow the use of biodiesel only in engines manufactured after 1 January 2003, pointing to the fact that the heavy metals used in the injectors of engines manufactured before that date decay under the influence of organic fuel, while others again do not allow it to be used precisely in newer engines. Some motor manufacturers allow the use of fuel containing biofuel only in vehicles having the appropriate supplementary equipment. A few accept blends that comply with the standard, and so on. In other words the disparities introduced by the manufacturers do not allow fuel containing biofuel to be used on a unified basis in the transport sector as a whole.'