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BIOFUELS IN THE TRANSPORT SECTOR IN AUSTRIA 2008

Summary of the data for the Republic of Austria
pursuant to Article 4(1) of Directive 2003/30/EC
for the 2007 reporting year

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SUMMARY

Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport (the Biofuels Directive) sets Member States indicative targets for the use of biogenic or other renewable fuels in the transport sector. Accordingly, since 2005, renewable fuels should replace 2% (calculated on the basis of energy content) of all fuels placed on the market, with the proportion rising to 5.75% in 2010.

The Directive was transposed into Austrian national law by an amendment to the Fuel Order (*Kraftstoffverordnung*) in November 2004. Since 1 October 2005, in accordance with Austrian legislation, those subject to the substitution requirement have had to ensure that biofuels replace 2.5% (energy content basis) of all petrol and diesel fuels placed on the market. This will increase to 4.3% on 1 October 2007 and to 5.75% on 1 October 2008.

Since October 2005, biofuels have been placed on the Austrian market primarily by blending around 4.7% biodiesel by volume with diesel. Since October 2007, also, similar quantities of bioethanol have been added to fossil petrol grades.

In total, 370 046 tonnes of biodiesel were placed on the market during the reporting year 2007, of which 298 828 tonnes were blended with fossil fuels and 71 218 tonnes were used in the transport sector in Austria as pure biofuel or as diesel with a higher, non-standard proportion of biofuel (e.g. through company filling stations belonging to fleet operators).

In the 4th quarter bioethanol was marketed chiefly by way of blending, the total used coming to some 20 400 tonnes of the biogenic fuel.

The total of vegetable oil used, increasingly in road haulage as well as in agricultural machinery, amounted to just under 18 000 tonnes in 2007.

Over the period of calendar year 2007 the substitution target of 2.95% (calculated on the basis of energy content) was achieved and appreciably exceeded at 4.23%¹ ((energy content basis).

¹ 97.34 TWh of fuel in total and 4.12 TWh of biofuels sold in the reporting year..

1 INTRODUCTION

1.1 Legal framework

In its White Paper *European transport policy for 2010: time to decide*, the European Commission expects CO₂ emissions from transport to increase by 50% between 1990 and 2010, reaching around 1 113 billion tonnes. The constantly expanding transport sector accounts for more than 30% of total energy consumption in the European Union. The White Paper calls for the transport sector to reduce its dependence on oil (currently 98%) by using alternative fuels (e.g. biofuels).

To this end, on 8 May 2003, the European Parliament and the Council adopted a Directive on the promotion of the use of biofuels or other renewable fuels for transport (Directive 2003/30/EC). The Directive is designed to promote the use of biofuels or other renewable fuels in the transport sector in each Member State as a replacement for diesel and petrol, thereby contributing to objectives such as meeting climate-change commitments, achieving environmentally friendly security of supply and promoting renewable energy sources.

Member States should ensure that a minimum proportion of biofuels and other renewable fuels is placed on their markets, and must set national indicative targets to achieve this.

The reference value for these targets, calculated on the basis of energy content, is 2% of all petrol and diesel placed on their markets by 31 December 2005 for use in the transport sector. By 31 December 2010, the reference value will be increased to 5.75% of all petrol and diesel.

In accordance with Article 4(1), the following information must be reported to the Commission each year:

- 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.
- The total sales of transport fuel and the share of biofuels, pure or blended, and other renewable fuels placed on the market for the preceding year. Where appropriate, Member States must 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.

2 BIOFUELS

The Austrian Fuel Order of 1999 was amended on 4 November 2004 (BGBl. [Official Journal of the Federal Republic of Austria] II No 417/2004) to transpose the Directive into national law and accordingly contains the following definitions:

2.1 Definition of biofuels and other renewable fuels

"Biofuels" are liquid or gaseous fuels produced from biomass and intended for use in vehicle combustion engines.

"Biomass" means the biodegradable fraction of products, waste or residues from agriculture and forestry (including vegetal and animal substances) and related industries, as well as the biodegradable fraction of industrial and household waste.

"Other renewable fuels" means renewable fuels other than biofuels. These fuels are produced from renewable, non-fossil energy sources – such as wind, solar, geothermal, wave, tidal or hydropower – and are intended for use in vehicle combustion engines.

2.2 Types of biofuels

In accordance with the draft report on the amendment of the Fuel Order, the term "biofuels" includes at least the following products, provided that they are used as fuels or as a component of fuels for combustion engines:

- "**Bioethanol**" is an ethanol produced from biomass and/or the biodegradable fraction of waste.
- "**Fatty acid methyl ester**" (FAME or biodiesel) is a methyl ester produced from vegetable or animal oil or fat.
- "**Biogas**" is a gas produced from biomass and/or the biodegradable fraction of waste by means of pyrolysis or fermentation.
- "**Biomethanol**" is a methanol produced from biomass and/or the biodegradable fraction of waste.
- "**Biodimethylether**" is a dimethylether produced from biomass.
- "**Bio-ETBE**" (**ethyl-tertio-butyl-ether**) is an ETBE produced on the basis of bioethanol and is calculated to have a biofuel content of 47% by volume.
- "**Bio-MTBE**" (**methyl-tertio-butyl-ether**) is an MTBE produced on the basis of biomethanol and is calculated to have a biofuel content of 36% by volume.
- "**Synthetic biofuels**" are synthetic hydrocarbons or mixtures of synthetic hydrocarbons which have been produced from biomass.
- "**Biohydrogen**" is a hydrogen produced from biomass and/or the biodegradable fraction of waste.
- "**Pure vegetable oil**" is oil produced from oil crops through pressing, extraction or comparable procedures. It may be crude or refined, but is chemically unmodified.

3 INFORMATION ON BIOFUELS IN AUSTRIA

3.1 Measures to promote the use of biofuels in the transport sector

3.1.1 Rates of duty

By Decision of the National Council of 24 April 2007 the 1995 **Mineral Oil Duty Act (*Mineralölsteuergesetz*)** (BGBl. No 630/1994), as last amended by Federal Act BGBl. I No 180/2004), was amended by means of the 2007 Finance Act (*Budgetbegleitgesetz*, BBG 2007). The following rates of duty per 1 000 litres were laid down therein:

Petrol

- after 31 December 2004 and before 1 July 2007
 - with a sulphur content of no more than 10 mg/kg: €417
 - with a sulphur content of more than 10 mg/kg: €432
- after 30 June and before 1 October 2007
 - with a sulphur content of no more than 10 mg/kg: €447
 - with a sulphur content of more than 10 mg/kg: €462
- after 30 September 2007
 - containing at least 44 l of biogenic substances and with a sulphur content of no more than 10 mg/kg: €442
 - other: €475

Diesel

- from 31 December 2004 to 1 October 2005
 - with a sulphur content of no more than 10 mg/kg: €302
 - with a sulphur content of more than 10 mg/kg: €317
- after 30 September 2005 and before 1 July 2007
 - containing at least 44 l of biogenic substances and with a sulphur content of no more than 10 mg/kg: €297
 - other: €325
- after 30 June 2007
 - containing at least 44 l of biogenic substances and with a sulphur content of no more than 10 mg/kg: €347
 - other: €375

Biofuels

- Pure biofuels are completely exempt from mineral oil duty.

3.1.1.1 Bioethanol Blending Order

The Bioethanol Blending Order (*Bioethanolgemischverordnung*) (BGBl. II No 378/2005), as last amended by Order BGBl. II No 260/2007, reads as follows:

"For blends produced in a tax warehouse within the tax territory in accordance with Section 25(2) of the 1995 Mineral Oil Duty Act (Mineralölsteuergesetz) and with a bioethanol content of at least 65% and at most 75% by volume from 1 October to 31 March (autumn and winter) and of at least 75% and at most 85% by volume from 1 April to 30 September (spring and summer), €0.442 of the mineral oil duty levied on the blend shall be refunded for each litre of blended bioethanol at the request of the tax warehouse keeper."

The Order entered into force on 1 October 2007.

3.1.2 Substitution requirement

The Biofuels Directive (2003/30/EC) was transposed into national law by an amendment to the Fuel Order on 4 November 2004 (BGBl. II No. 417/2004). This stipulates that, from 1 October 2005, the proportion of biofuels or other renewable fuels placed on the market by those subject to the substitution requirement must be 2.5% (calculated on the basis of the total energy content of the petrol and diesel placed on the market in the transport sector each year by those subject to mineral oil duty in Austria), and from 1 October 2007 this proportion will increase to 4.3%. The Biofuels Directive's target of 5.75% for 2010 will be reached as early as 1 October 2008, i.e. much earlier than foreseen in the Directive.

The substitution requirement applies to any person first placing petrol or diesel on the Austrian market or importing it into Austria, other than in the fuel tank of a vehicle.

3.2 National resources for the production of biomass

3.2.1 Biodiesel

According to ARGE Biokraft,² the Austrian association of liquid-biofuel manufacturers, there were 14 biodiesel plants operating in Austria in 2007, with a total capacity of approximately 468 500 tonnes. Capacity is expected to increase to 676 500 tonnes in 2008 as one new plant will start production and four existing plants are set to increase their capacity.

According to the information provided by ARGE Biokraft's members, 241 381 tonnes of biodiesel were produced in Austria in 2007 (by nine biodiesel producers). Of this amount, 161 467 tonnes were sold in Austria, 102 531 tonnes of which were supplied to the mineral oil industry for blending. Disregarding any variations in stocks, some 80 000 tonnes of biodiesel were exported in 2007. 59 000 tonnes were used in the Austrian transport sector either as pure biofuel or as diesel with a higher, non-standard proportion of biofuel.

3.2.2 Bioethanol

The only plant for bioethanol production (Pischelsdorf, Lower Austria) was completed in autumn 2007. The plant, which according to information provided by the operator³ is to produce approximately 240 000 m³ of ethanol per year (an annual output of about 190 000 tonnes), did not go into production immediately as planned, however, due to the high cost of raw materials.

In the fourth quarter the plant was brought into service for test runs. According to the operator a total of 12 189 tonnes of bioethanol were produced in 2007, some 10 000 tonnes of which were supplied to the mineral oil industry for blending.

² ARGE Flüssige Biokraftstoffe was officially founded on 18 December 2006 in accordance with the Chamber of Commerce Act (*Wirtschaftskammergesetz*).

³ Source: <http://www.agrana.com>

3.2.3 Biogas

In Austria, almost all of the biogas produced from biomass is used to generate electricity and heat. As at 31 March 2006,⁴ there were 325 licensed biogas plants in Austria with a total maximum capacity of 80.96 MW. In 2006, 358 GWh of electricity from biogas and 52 GWh of electricity from landfill gas or sewage gas were fed into the grid.

There is no information available on the amount of biogas actually produced, because, in practice, the engine generator draws the gas straight out of the digester vessel for burning. According to experts' estimates,⁵ the total amount of biogas produced in Austria is between 265 and 414 million cubic metres.

Austria's first biogas pilot plant (Pucking, Upper Austria) capable of purifying biogas and feeding it into the natural-gas grid became operational in 2005.

3.2.4 Vegetable oil

In recent years, the use of vegetable oil as a fuel has been increasing. However, it is difficult to estimate the quantities involved, as the records of the quantities produced cannot be sufficiently distinguished according to purpose of use. Another problem is the fact that there are various different distribution channels for this fuel, e.g. sale through private fuel pumps.

It can nevertheless be assumed on the basis of the regional distribution patterns that the 3 578 tonnes of vegetable oil used in agriculture are from domestic production.

3.2.5 Biomass

In 2004, gross domestic energy consumption in Austria was 1 283 PJ.⁶ With 300 PJ, renewable energy accounted for 23.4% of this. More than half of this renewable energy (52.3% or 157 PJ) was produced from bioenergy.⁷ Solid biomass accounted for 130 PJ, while 27 PJ were used in gaseous or liquid form.

Wood fuel, which accounts for approximately 38% of bioenergy, remains the most important biogenic energy source. Logwood and industrial timber are used primarily in the sawmill and wood-processing industries and in district heating plants, while pellets are increasingly being used primarily in household heating systems. Bark and waste liquors and sludge from paper mills are used to generate electricity and heat for use in the paper and pulp industry. Other waste and refuse is burned in district heating plants or to generate heat for industrial use or electricity.

⁴ Due to the specific legal situation, no new plants were built in 2007. For that reason no new studies were made either, so 2006 data are taken as representative for 2007 as well.

⁵ IFA Tulln (Institute for Agrobiotechnology).

⁶ Also includes gas, oil and coal.

⁷ The remainder was produced primarily from hydropower (131 PJ) with some produced using photovoltaic cells, heat pumps, wind energy, solar thermal energy or geothermal energy.

3.3 Sales of fuel in Austria in 2006

In accordance with the Oil Stockholding and Registration Act (*Erdöl-Bevorratungs- und Meldegesetz*),⁸ the quantity of fuel sold is determined by the Federal Ministry of Economic Affairs and Labour on the basis of a notification requirement. In addition to the quantities of fuel sold in 2007, the figures for 2001-06 are also shown for comparison.

Table 1: National sales of mineral oil products with or without biofuel blend in the transport sector in Austria (in tonnes)⁹

Type of fuel	Total national sales 2001 (tonnes)	Total national sales 2002 (tonnes)	Total national sales 2003 (tonnes)	Total national sales 2004 (tonnes)	Total national sales 2005 (tonnes)	Total national sales 2006 (tonnes)	Total national sales 2007 (tonnes)
Regular unleaded petrol (91•RON<95)	599 831	603 783	597 989	563 869	545 331	512 703	512 703
Regular unleaded petrol (91•RON<95) with biofuel	-	-	-	-	-	-	104 714
Unleaded petrol (super) (95•RON<98)	1 311 286	1 444 538	1 530 973	1 492 409	1 467 054	1 423 229	1 423 229
Unleaded petrol (super) (95•RON<98) with biofuel	-	-	-	-	-	-	294 538
Unleaded petrol (super plus) (98•RON)	87 038	93 445	93 519	77 039	61 054	56 096	56 096
Unleaded petrol (super plus) (98•RON) with biofuel	-	-	-	-	-	-	7 528
Diesel without biofuel	4 674 751	5 175 368	5 741 610	5 935 601	5 755 597	353 169	232 339
Diesel with biofuel	-	-	-	-	1 508 539	5 801 416	6 063 719

⁸ Federal Act of 21 October 1982 on the holding of emergency reserves of petroleum and petroleum products and on reporting obligations for securing energy supply (1982 Oil Stockholding and Registration Act); BGBl. No 546/1982.

⁹ Source: Federal Ministry of Economic Affairs and Labour (2007).

4 QUANTITIES OF BIOFUELS

In 2007, a total of 6 296 057 tonnes of diesel was sold, 96.3% of which (6 063 717 tonnes) had an average of 4.7% by volume of biodiesel added. Altogether, 288 828 tonnes of blended biodiesel were placed on the market. Furthermore, 71 218 tonnes of biodiesel in the pure form or diesel with a higher biogenic component were sold through producers and dealers in Austria.¹⁰ So the amount of biodiesel placed on the market in 2007 came to a total of 370 046 tonnes.

Blending of bioethanol with petrol started in the last quarter of 2007. In the reporting year a total of 1 966 086 tonnes of petrol was sold, including 406 780 tonnes with a biogenic content averaging 4.7% by volume. Therefore, with the addition of the quantities marketed as superethanol, 20 401 tonnes of bioethanol were sold.

As in the previous year, 3 578 tonnes of vegetable oil were used in the agricultural sector in 2007.¹¹ Apart from its use in agriculture, increasing use is being made of vegetable oil in Austria's road haulage industry. Judging by the number of grant applications received for converting vehicles to run on vegetable oil, a figure of at least 14 403 tonnes of vegetable oil seems likely, indicating an assured total of 17 981 tonnes of vegetable oil for fuel purposes in the reporting year.

Under the Fuel Order the substitution target for energy content was 2.5% for the period from 1 January to 20 September 2007 and 4.3% from 1 October to 20 September 2007. For the year as a whole that is equivalent to a substitution target of 2.95%.

According to the reports submitted by the persons subject to the substitution requirement under Section 6a of the Fuel Order on the quantities of biofuels placed on the market or used by them in calendar year 2007, the 2.95% substitution target for that year was reached and substantially exceeded at 4.23%. As much as 4.85% of fossil fuels was replaced by biofuels in the last quarter of 2007.

A considerable effort will have to be made to increase biofuel use if the 5.75% target for the share of biofuels in the total energy consumption for transport by 1 October 2008 is to be achieved. As the Fuel Standard currently limits the proportion of biofuels that can be blended to 5% by volume, the target will have to be achieved through increased use of pure biodiesel or higher concentration blends.

¹⁰ Statistical basis: ARGE Flüssige Biokraftstoffe and Fachverband Energiehandel (Energy Trade Association).

¹¹ Data taken from Bundesverband Pflanzenöl Austria (research at oil mills), www.pflanzenoel-austria.at [Josef Breinesberger]. These data relate only to the member firms and do not include individual farmers with oil presses for making their own supplies.

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