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Fifth national report on the implementation of Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport

2007

Preliminary remarks

The fifth report under Article 4(1) of Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport must be submitted to the Commission by 1 July 2007.

In 2007, Germany again achieved well in excess of the 2010 target increase in the proportion of biofuels to 5.75% of total fuel consumption. In 2007, biofuels accounted for 7.3% of total fuel consumption in relation to energy content (see Section 3).

1. Measures to promote the use of biofuels or other renewable fuels for transport

1.1 Biofuel Quota Act

The Biofuel Quota Act (*Biokraftstoffquotengesetz*) entered into force on 1 January 2007. It largely replaced the exemption from energy tax for biofuels with a regulatory provision. This was achieved by means of an omnibus act introducing the required amendments to tax legislation and pollution control legislation.

The key points are as follows:

- firms which market petrol and diesel are, from 2007, obliged to market a legally prescribed minimum percentage of such fuels (quota) in the form of biofuels. Compliance with this quota requirement may be delegated to third parties which place biofuels on the market.
- The level of this quota in relation to the energy content of the fossil fuel concerned, plus that of the biofuel that replaces it, is 4.4% for diesel and 2.0% for petrol. The quota for petrol will be raised to 2.8% in the coming year.

- In 2009, the Federal Pollution Control Act (*Bundes-Immissionsschutzgesetz*, BImSchG) will introduce an overall quota of 6.25%, based on total sales of petrol and diesel plus the biofuels that replace them.
- a degressive tax incentive will be retained for a transitional period until the end of 2011 for pure vegetable oil and pure biodiesel outside the quota. (Before the Energy Tax Act entered into force on 1 August 2006, tax relief on pure fuels was limited to the end of 2009),
- Second-generation biofuels, biogas and pure bioethanol in the form of E85 benefit from a tax incentive until 2015, having due regard to the overcompensation arrangement. No tax is currently levied on such fuels.

The following table gives the rounded tax rates for biodiesel and vegetable oil in cents per litre, as currently provided for in the Energy Tax Act

| | 2008 | 2009 | 2010 | 2011 | from 2012 |
|--|-------|-------|-------|-------|--------------|
| Pure biodiesel (from 1 January 2007 only for biodiesel outside the quota) | 14.88 | 21.41 | 27.42 | 33.33 | 45.06 |
| Vegetable oil (from 1 January 2007 only for vegetable oil outside the quota) | 9.86 | 18.46 | 26.44 | 33.33 | 45.06 |
| Added biodiesel | 47.04 | 47.04 | 47.04 | 47.04 | 47.04 |

With the entry into force of the Biofuel Quota Act, support for biofuels was coupled with compliance with fuel standards:

- fatty acid methyl esters (biodiesel) are considered to be biofuels only if they meet at least the requirements of DIN EN 14214 (as at November 2003),
- bioethanol is considered to be biofuel only if it meets at least the requirements of draft standard DIN EN 15376 (as at May 2006),
- vegetable oil is considered to be biofuel only if it meets at least the requirements of preliminary standard DIN EN 51605 (as at July 2006).

Under current legislation, biofuels produced wholly or partially from or animal oil or fat will, moreover, no longer be taken into account from 2012 for the purposes of meeting the quota requirement.

1.2 Research and development activities

Given the potential importance of BTL fuels, they have been a focus of support over the past five years. In the field covered by the Specialist Agency for Renewable Resources (Fachagentur Nachwachsende

Rohstoffe e.V., FNR), six BTL fuel projects were supported in the biogenic fuels sector in the 2007 financial year, to the tune of EUR 4.66 million. The funds disbursed in the 2007 financial year amounted to EUR 0.48 million. Other support measures (Verbünde EVA, BioLog) relevant to BTL fuels involved the breeding, cultivation, harvest, supply and logistics of energy crops, with an overall budget of around EUR 7.1 million. As well as the environmental and economic assessment of BTL processes, support focuses on the implementation of different BTL production processes. Well-known firms from the plant engineering, energy supply and car industries have supported the development of a BTL process centred around the High Temperature Winkler (HTW) carburettor at the Technische Universität Bergakademie Freiberg and the bioliq process at Karlsruhe Research Centre (Forschungszentrum Karlsruhe), which allows an additional level of decentralisation through production of a biomass slurry. This is an alternative to the familiar Fischer-Tropsch (FT) synthesis, namely biosynthetic fuel production with methanol as an intermediate product. One example of biosynthetic fuel production via methanol is the MtSynfuels process developed by Lurgi GmbH, which can be used to produce not only diesel but also petrol and kerosene. In the 2007 financial year, the German Energy Agency (dena) presented a feasibility study for an industrial-scale BTL plant, with funding from the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), the Federal Ministry of Transport, Building and Urban Affairs (BMVBS), the Federal Environment Ministry (BMU) and industry. This covers questions of biomass availability, comparison of different BTL technologies, biomass logistics and possible financing tools.

2. Use of resources for generating biomass for uses outside the transport sector

Around 70% of the renewable energies generated in 2007 were derived from biomass. Of the total amount of bioenergy produced in 2007, heat recovery accounted for about 55%, power generation for about 15%, and fuels (or final energy) for about 30%. To date, wood has been the main raw material used in Germany for heat and power generation from solid biomass. Power generation has been largely based on the use of waste wood. In December 2007, there were some 3 760 biogas installations operating in Germany, mainly for power generation. The raw materials they use are mainly renewables (47%, of which 80% maize) slurry and other animal by-products, as well as biogenic residues and waste from the food and catering industries.

In Germany there is no direct additional promotion of biomass production beyond the measures applicable in the framework of the common agricultural policy. Indirectly, the production of biomass for energy generation is stimulated by the following instruments:

2.1. Renewable Energy Act

The Renewable Energy Act (Erneuerbare-Energien-Gesetz, EEG) is one of the central instruments for increased development of renewable energy in Germany.

The Act entered into force on 1 April 2000 and replaced the Electricity Feed-in Act (Stromeinspeise-Gesetz), which had been in force since 1991. It was overhauled in 2004. One of the legislative purposes of the revision is to raise the proportion of renewable energy in Germany's

electricity supply to at least 12.5% by 2010 and to at least 20% by 2020. With a 14.2% share, Germany already far exceeded its 12.5% national target for this increase in 2007.

The Act has proved itself as an instrument for bringing electricity from renewable sources onto the market. The European Commission, too, recognises that well-designed feed-in systems such as that provided for in the Renewable Energy Act are effective and efficient in economic terms. The revision of the Act in 2004 substantially improved the conditions for power generation from biomass. Increased feed-in payments (bonuses) for using renewable materials from agriculture and forestry, for cogeneration and for using innovative technologies has opened up new bioenergy potential and made for a more efficient use of biomass. There were special incentives for growth in the biogas sector.

On 6 June 2008, the German Bundestag adopted a recast Renewable Energy Act, which is to enter into force on 1 January 2009. The tried and tested basic structure of the Act has been retained, but with greater differentiation in the arrangements for payments for electricity production from biomass. The incentives for cogeneration have been further enhanced, whilst demanding quality requirements have been introduced for heat recovery. The introduction of increased feed-in payments where biogas plants use a high proportion of slurry (still at least 30% slurry by mass) will result in increased use of slurry for biogas production and lessen the competition between use for bioenergy and use for food and feed production. The increased use of slurry will further improve the position of biogas in terms of its impact on the climate.

The recasting of the Renewable Energy Act serves to raise the share of renewables in electricity production to at least 30% by 2020, steadily increasing thereafter. In 2007, renewables already accounted for 14.2% of gross electricity consumption (final energy).

2.2. Market incentives programme for renewable energies

The market incentives programme to promote measures for exploiting renewable energies, imposed in conjunction with the Environmental Tax Reform, primarily serves the expansion of heat production from biomass, solar and geothermal energy. Around EUR 213 million were set aside for this in 2007. EUR 142 million has actually been disbursed. Since the start of the programme, funding had been provided for 650 000 solar collector installations and 132 000 biomass plants by the end of 2007. The Reconstruction Loan Corporation (*Kreditanstalt für Wiederaufbau*, KfW) additionally granted promotion loans in the case of biogas plants, major solid biomass combustion plants and plants for the exploitation of deep geothermal energy. Between 2000 and 2007, 3 300 loans were granted for a total of over EUR 911 million. All in all, the market incentives programme has funded more than 788 000 investment projects for renewable energy exploitation since it started. The EUR 965 million in aid handed out has generated a total investment volume of EUR 8.2 billion since the programme started in 2000, including some EUR 5 billion for solar collectors and EUR 2.2 billion for small biomass plants. The funding rates for the market incentives programme were last changed in January 2008.

2.3 Renewable Energies Heat Act

The heat market accounts for roughly half of Germany's total energy requirements. The renewables share of this is now 6.6%. The Federal Government's objective is to increase the renewables share in the overall heat supply to at least 14%. To this end, the Federal Government adopted the draft of the Renewable Energies Heat Act (*Erneuerbare Energien Wärme Gesetz - EEWärmeG*) on 5 December 2007. The Bundestag adopted the act on 6 June 2008, which means that it can now enter into force on 1 January 2009, as scheduled.

The Renewable Energies Heat Act comprises two pillars. The first is an obligation to use heat from renewables in new buildings and the second is the promotion of measures to use heat from renewables on the heating market via the market incentives programme, especially in older buildings.

The obligation to use renewables for new buildings can be fulfilled by means of a variety of measures. The range of technologies covered by the Act include solar thermal installations, biomass installations, geothermal installations and heat pumps. The energy sources concerned must cover a different proportion of the heating requirements of the building, depending on the technology used. These energy sources must also be used efficiently, and this is ensured thanks to demanding technical requirements and performance criteria. Alternatively, other equally climate-friendly measures, such as using heat from cogeneration plants, waste heat, or thermal insulation in excess of what is mandatory.

The Act provides for up to EUR 500 million to be made available by the federal authorities to meet needs regarding the use of renewable energy for heating, hot water supply and the production of cooling and process heat in the period 2009–2012. This is aimed at increasing the share of heat from renewables in the total heat demand to 14% by 2020.

3. Sales of biofuels and other renewable fuels in Germany in 2007

In 2007, biofuels accounted for around 7.3% of total fuel consumption in Germany in terms of energy content. Hence, as in 2006, Germany achieved well in excess of its goal of increasing the proportion of biofuels to 5.75% of total fuel consumption by 2010.

By type of biofuel, biodiesel once again achieved by far the greatest market potential in 2007. The exact quantities are shown by fuel type in the following table.

The figures for biofuels sold in 2007 were taken from the Official Mineral Oil Data of the Federal Office of Economics and Export Control.

Table:

Fuel use in the transport sector in Germany in 2007 (source: Official mineral oil data of the Federal Office of Economics and Export Control)

| | Quantity (1 000 t) | Quantity 1 000 m ³ | Energy (MJ/l) | Energy (TJ) | % of energy content |
|-------------------------|-----------------------|----------------------------------|------------------|----------------|---------------------------|
| Fuel consumption | 53 089 | 66 666 | | 2.273.7 | 100 |
| Petrol | 20 837 | 28 197 | 32.48 | 915.8 | 40.3 |
| Diesel | 27 635 | 33 196 | 35.87 | 1.190.7 | 52.4 |
| Biofuels | 4 616 | 5 273 | | 167.1 | 7.3 |
| including: | | | | | |
| Biodiesel | 3 318 | 3 775 | 32.65 | 123.3 | 5.4 |
| Vegetable oil | 838 | 910 | 34.59 | 31.5 | 1.3 |
| Bioethanol | 460 | 588 | 21.06 | 12.4 | 0.5 |

Communication

from the Government of the Federal Republic of Germany

to the Commission of the European Communities

... October 2008

Report from the Federal Republic of Germany under Article 4(1) of Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport

Enclosure: Fifth national report on the implementation of Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport

The Government of the Federal Republic of Germany has the honour of submitting to the European Commission its report under Article 4(1) of Directive 2003/30/EC.