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Sixth 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

2008

Preliminary remarks

The sixth 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 2009.

In 2008, Germany again achieved in excess of the 2010 target increase in the proportion of biofuels to 5.75% of total fuel consumption. In 2008, biofuels accounted for about **5.9%** 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 Statutory measures

Since 2007 firms which market petrol and diesel are obliged to market a legally prescribed minimum percentage of such fuels in the form of biofuels. In 2008 the level of this quota in relation to the energy content of the fossil fuel concerned, plus that of the biofuel that replaces it, was 4.4% for diesel and 2.0% for petrol.

The Biofuel Promotion Restructuring Act (*Gesetz zur Änderung der Förderung von Biokraftstoffen*) passed by the Bundestag on 23 April 2009 adapts the existing rules in the Federal Immission Control Act (*Bundes-Immissionsschutzgesetz*) on the biofuel quota and those in the Energy Tax Act (*Energiesteuergesetz*) on the tax promotion of biofuels. The main features are:

- The overall quota for 2009 is lowered to 5.25% and the overall quota for the years 2010 to 2014 to 6.25%.

- The tax rate for pure biodiesel outside the quota will only rise to about 18 cents per litre in 2009 instead of about 21 cents per litre as previously planned, and thereafter by about 6 cents per litre, as previously decided.
- For the first time, biomethane will be able to count towards the petrol quota and the overall quota, provided that the requirements of the Fuel Quality Regulation (*Kraftstoffqualitätsverordnung*) are met.
- From 2015 the benchmark for biofuel quotas will be converted from the present energetic evaluation to the net greenhouse gas reduction.
- In addition, the basis for authorisation to adopt a sustainability regulation in the Federal Immission Control Act and the Energy Tax Act has been adapted.

The sustainability criteria for biofuels agreed at European level under the Renewable Energy Directive and the Fuel Directive are to be transposed into national law in the short term.

1.2 Research and development activities

There are a large number of research projects in Germany on the sustainability of biofuels including, for example, the ongoing projects “Nature conservation standards for biomass cultivation” (a systematic overview, quantification and modelling of the previous and future impact of biomass cultivation on nature conservation interests in Germany), “Acreage-effective bioenergy use from a conservation point of view” (an analysis of the impact of the extended and more intensive cultivation of energy crops on the environment and landscape), and “Developing strategies and sustainability standards for certifying biomass for international trade” (development of sustainability standards for bioenergy to prevent conflicts with climate-protection and nature-conservation objectives).

Further research is needed, especially into suitable methods of recording and where possible minimising the indirect effects of biomass production (e.g. indirect land-use changes), and into the impact on food security of the cultivation of biomass for biofuels, in particular in developing countries, and on international biodiversity, especially in highly biodiverse areas such as the tropical rainforest or species-rich grasslands.

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), 67 BTL fuel projects in the biogenic fuels sector were supported in the 2008 financial year, to the tune of around €10 million, 39 of which were BTL fuel projects, including provision of the raw materials with total funding of €7.5 million. Under this funding, 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 in 2008 of around €3 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 the Karlsruhe Research Centre's "bioliq" process, which allows an additional level of decentralisation through the production of a biomass slurry. This is an alternative to the provision of the raw materials for gasification as a preliminary step for the familiar Fischer-Tropsch synthesis. In this process straw is processed decentrally, in a pyrolysis step, to an intermediate product, i.e. slurry, and then transported for synthetic gas production in a central plant. BTL fuels can, for example, be made from the original product, i.e. synthetic gas, using the Fischer-Tropsch synthesis.

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

2.1. The Renewable Energy Act – *Erneuerbare-Energien-Gesetz (EEG)*

The EEG is one of the central instruments for the increased development of renewable energy in the power sector in Germany. The EEG entered into force on 1 April 2000 and replaced the Electricity Feed-in Act (*Stromeinspeisegesetz*) which had been in force since 1991. The EEG was thoroughly overhauled in 2004 and 2009. With a share of 14.8%, the original national development target for the power sector for 2010 of 12.5% was already far exceeded in 2008.

The Bundestag passed the recast Renewable Energy Act on 6 June 2008 and it entered into force on 1 January 2009. The tried-and-tested basic structure of the EEG 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 exacting quality requirements have been introduced for heat recovery. The introduction of increased feed-in payments where biogas plants use a high proportion of liquid manure (at least 30% liquid manure by mass at all times) will result in the increased use of liquid manure for biogas production and lessen potential competition for land use. The increased use of liquid manure will further improve the position of biogas in terms of its impact on the climate. The use of vegetable oils in district heating plants using cogeneration continues to be promoted by the EEG, in particular the decentral use of vegetable oils in smaller plants. The sustainability of the energy use of liquid biomass in EEG plants must in future be in accordance with the requirements of Directive 2009/28/EC on the promotion of the use of energy from renewable sources, which are being transposed step by step in Germany in the draft Biomass Electricity Sustainability Regulation (*Biomasse-*

Stromnachhaltigkeitsverordnung). 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 2008, renewables already accounted for 14.8% of gross electricity consumption (final energy).

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.

2.2 Renewable Energy Heat Act – *EEWärmeG*

The heat market accounts for roughly half of Germany's total energy requirements. The renewables share of this is now 7.7%. The Federal Government's objective is to increase the renewables share in the overall heat supply to at least 14% by 2020. To this end, on 6 June 2008 the Bundestag passed the Renewable Energy Heat Act (*Erneuerbare Energien Wärme Gesetz - EEWärmeG*), which entered into force on 1 January 2009.

The Renewable Energy Heat Act requires owners of residential and non-residential property to use a share of renewable heat generation methods in newly constructed buildings. It also enshrines in law the promotion of measures to use heat from renewables for heating, hot water systems and the generation of cooling and process heat. The Federal authorities will make up to €500 million available for this in the period 2009 to 2012.

The obligation to use renewables for new buildings can be fulfilled by various measures. The range of technologies covered by and available under the Act include solar thermal installations, biomass plants, geothermal installations and heat pumps. The technologies used must cover differing proportions of the heating requirements of the building. The energy must also be generated and used as efficiently as possible, and this is ensured by means of exacting technical requirements for the installations.

Alternatively, substitute measures can be taken, including using heat from cogeneration plants, using waste heat, or going beyond what is strictly required under the statutory rules on thermal insulation.

Substitute measures may also be combined with one another or with the use of renewable energy sources.

2.3. Market incentives programme for renewable energy sources

The 'market incentives programme' imposed in conjunction with the Environmental Tax Reform is one of the Federal Government's central instruments for promoting renewable energy sources on the heat market. The programme is split into two parts: grants towards the investment costs of solar thermal installations, biomass plants and efficient heat pumps are provided by the Federal Office for Economics and Export Controls – *Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA)*. And, under the 'Renewable Energy (Premium)' programme run by the Reconstruction Loan Corporation (*Kreditanstalt*

für Wiederaufbau – KfW), soft loans with repayment grants are provided for large solar thermal installations, large biomass plants, installations for processing biogas to natural gas grade, pipelines for unprocessed biogas, deep geothermal energy plants, local heat networks for heat from renewables and large heat storage systems for heat from renewables. In 2008, at approx. €36 million, considerably more funding was provided than in 2007, when it was approx. €150 million. Between the time the programme started and the end of 2008, the market incentives programme has supported approx. 950 000 projects with funding totalling approx. €1.2 billion, triggering an investment volume of about €10 billion.

The Guidelines on the Promotion of Measures on the Use of Renewable Energy Sources on the Heat Market of 20 February 2009 introduced changes to funding under the market incentives programme with effect from 1 March 2009. Essentially, the new guidelines implement the provisions of the Renewable Energy Heat Act (*EEWärmeG*), which entered into force on 1 January 2009.

3. Sales of biofuels and other renewables in Germany in 2008

In 2008, biofuels accounted for around 5.9% of total fuel consumption in Germany in terms of energy content. By type of biofuel, biodiesel once again achieved by far the greatest market potential in 2008. At roughly 2.7 million t, biodiesel sales were about 600 000 t down on the previous year. Blending with conventional diesel rose from 1.4 to 1.6 million t, while sales of biodiesel as pure fuel fell to 1.1 million t. In 2008, 401 000 t of vegetable oil fuel were used – down on the 2007 figure of 838 000 t. Sales of ethanol in 2008 rose to 626 000 t (as against 460 000 t in 2007). More than 98% of the ethanol sold in Germany is blended with petrol. Pure-fuel ethanol (E85) still plays a minor role, with sales at 8 450 t. The exact quantities by fuel type are shown in the following table. The figures for biofuels sold in 2008 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 2008 (source: Official mineral oil data of the Federal Office of Economics and Export Control)

	Quantity (1 000 t)	Quantity (1 000 m ³)	Energy content (MJ/l)	Energy content (PJ)	% of energy content
Fuel consumption	51 959	65 275		2 228	100
Petrol	19 944	26 987	32.48	877	39.4
Diesel	28 293	33 985	35.87	1 219	54.7
Biofuels	3 723	4 303		130	5.9
including:					
Biodiesel	2 695	3 066	32.65	100	4.5
Vegetable oil	401	436	34.59	15	0.7
Bioethanol	626	800	21.06	17	0.8