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Ministry of Employment and the Economy

**REPORT
2 December 2008**

2008 Report pursuant to Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport in Finland

Introduction

In accordance with Article 4(1) 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 Finland has drafted the attached report 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 and other renewable fuels placed on the market for the preceding year.

1. New measures to promote the use of biofuels or other renewable fuels for transport purposes

Obligation to distribute biofuels

The law on promoting the use of biofuels in transport entered into force on 1 January 2008. The law obliges distributors of transport fuels to supply a minimum volume of biofuels annually for consumption. This minimum volume increases year-on-year so that in 2008 it will be at least 2% of the total energy content of biofuels, petrol and diesel supplied for consumption by a fuel distributor. In 2009 this share will be at least 4% and in 2010 and subsequent years it will be at least 5.75%. So the obligation satisfies the reference figure for 2010 in Directive 2003/30/EC. The entry into force of the 2010 obligation will be separately enacted by Decree of the Council of State. The obligation will enter into force if biofuel quality requirements enable the addition in 2010 of the biofuel percentages demanded by the obligation to petrol and diesel oil.

Research and development

Tekes - the Finnish Funding Agency for Technology and Innovation - launched the technology programme "BioRefine - New Biomass Products" in spring 2007. The programme will run from 2007 to 2012 and it has a total budget of EUR 137

million. The programme's specific objective is to promote significantly the development of second-generation biofuel production technologies for transport.

In close cooperation with the BioRefine programme, a special Tekes/Ministry of Employment and the Economy development programme is being implemented, the main thrust of which involves new technology pilot and demonstration projects. Under the programme EUR 9 million was allocated to launching a number of projects in 2007. The budget for 2008 is EUR 5 million.

2. National resources allocated to the production of biomass for energy uses other than transport

Bioenergy is the most important of the renewable fuel sources in Finland. It rests on a measurable domestic raw-materials base. The most important bioenergy sources are waste products from the wood processing industry, industrial timber waste such as sawdust and bark as well as wood chips and recycled fuels. Bioenergy is used for heat and power production for industry and society in general. In 2007 total bioenergy use, some 83 TWh, remained almost the same as the previous year. Similarly, the relative share of bioenergy remained unchanged at about 20% of primary energy.

The resources used to promote bioenergy are set out below:

Research and development

Tekes funding for bioenergy technology projects amounted to some EUR 24 million in 2007, which is about EUR 10 million more than the previous year. Overall funding of energy and climate research grew from EUR 62 million to about EUR 118 million.

The abovementioned Tekes "Biorefine - New Biomass Products" programme launched in spring 2007 is not just intended to promote the development of biofuels for transport, it is also intended, among other things, to cover energy production as a by-product of biofuel production and bioenergy production associated with industrial processes in general.

The new government's programme sees forest-based bioenergy as having the greatest potential for increasing the use of renewable energy sources. In order to achieve these objectives, the government programme lays down that research and development work on the use of renewable energy is to be increased significantly and forest energy technology is to be developed.

Aid for investments and other financing

With the energy support granted by the Ministry of Employment and the Economy to businesses and companies the aim is to bring about an increase in the use of renewable energy sources, promote the introduction of efficient energy technologies and reduce the production and use of environmentally damaging energy. In recent years wood for energy has been a significant support target.

Some EUR 30.7 million was granted in 2007 in energy support, including EUR 0.5 million (EUR 3.8 million in 2006) in the form of European Regional Development Fund (ERDF) appropriations. Support from the Ministry of Employment and the Economy amounted to EUR 12.2 million and from the Ministry of Trade and

Industry EUR 18.5 million. The support granted was EUR 4 million less than in 2006.

Table 1 shows the Ministry of Employment and the Economy's energy support activity in 2007.

Table 1:

	Support (EUR million)	Share of energy support (%)
Wood for energy		
- energy production	14.1	46
- production of fuel wood	2.7	9
Wind power	4.5	14
Other renewable energy sources		
-biogas	0.8	
-small-scale hydroelectric power	1.6	
-solar energy/heat pumps/fuel cells	0.8	
-recyclable fuels/biomass/biofuels for transport	1.6	
Energy savings and efficiency	3.1	11
Studies		
- on energy savings	1.2	4
- on renewables	0.3	1
Total	30.7	100

Aid for logging and chipping of fuel wood

The Ministry of Agriculture and Forestry pays support in accordance with the current law on forestry financing for the harvesting and forestry transport of timber sold for fuel as part of the management of young plantations. The aid for harvesting fuel wood is EUR 7 per solid cubic metre. Support of EUR 1.7 per loose cubic metre may also be obtained for chipping fuel timber. A total of EUR 5.7 million was spent in 2007 on fuel-timber harvesting and chipping support, i.e. EUR 0.2 million more than the previous year. The amount of funding was the same in 2008 as in the preceding year.

3. Overall sales of transport fuels and market share of pure and mixed biofuels and other renewable fuels

Use of biofuels for transport rose in 2007 from 0.034 PJ the previous year to 0.076 PJ.

The share of bioethanol was 0.071 PJ, which means an increase of 0.037 PJ compared with 2006.

The share of biodiesel, which was not used at all in previous years, was 0.005 PJ.

Table 2 below shows the consumption of transport fuels in 2000-07, including the share of biofuels.

Table 2

	Total fuels for road transport PJ	Motor petrol PJ	Diesel oil PJ	Biofuels	
				PJ	%
2000	152.9	76.4	76.5	-	-
2001	155.5	77.4	78.1	-	-
2002	158.6	78.8	79.8	0.033	0.02
2003	161.1	79.1	81.9	0.176	0.1
2004	166.1	80.4	85.5	0.186	0.1
2005	166.5	80.3	86.2	-	-
2006	169.0	80.0	88.9	0.034	0.02
2007	174.3	80.0	94.3	0.076	0.04

Source: Statistics Finland

Biofuels production

Neste Oil Oyj is the most significant producer of biofuels for transport in Finland; it has started production of NExBTL diesel from renewable raw materials at its Porvoo processing plant. The plant produces biodiesel equivalent in its characteristics to good-quality diesel fuel via a process developed by the company itself, which is based on hydrogen-treated plant oils and animal fats. The capacity of the plant, which was completed in 2007, is around 170 000 tonnes of biodiesel a year. Neste Oil is also building a second plant similar to the Porvoo one, and construction work has begun on NExBTL plants in both Singapore and Rotterdam. Neste Oil has processed ETBE since 2004. The ETBE plant's production capacity is 100 000 tonnes a year. The ethanol contained in ETBE is imported from Brazil and the end-product is mixed with petrol for export.

Work is ongoing on several fronts to develop biofuel production technologies in Finland. Neste Oil and the forest industry company Stora Enso have launched a joint project to build a trial plant owned by both firms at Stora Enso's Varkaus factory. The idea is to produce raw biodiesel from raw timber at the trial plant, and then process it into commercial fuel at Neste Oil's Porvoo processing plant. The trial plant will be ready in 2009.

The St1 oil company also started to produce bioethanol in Lappeenranta in autumn 2007. The factory produces 85% alcohol, which is concentrated to 99.8% in the dehydration plant. The normal capacity of Etanolix plants will vary between 1 000 and 2 000 m³ of absolute ethanol a year. The plant is about one hundredth of the size of a traditional first generation biofuel plant. Initially, food industry waste, scrap and by-product flows are being used as raw materials.

In June 2008 the first integrated Etanolix plant was opened in Närpiö. The bioethanol plant is connected to a potato flake factory and the waste side stream from the production

process discharges directly into the bioethanol production unit. Output will be 1 400 m³ a year and the bioethanol from this plant is also transported to the dehydration plant.

The dehydration or absolute ethanol plant opened in June 2008 in Hamina. The plant's capacity is 44 million litres of 99.8% bioethanol a year, which will be blended with petrol. The investment in the plant together with ancillary activities is some EUR 10 million. The Ministry of Employment and the Economy supports the project to the tune of 20% of the new technology equipment, the production facilities and the bioboiler producing process heat.