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**Ministry of Environment and Social  
Structure**

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**Report pursuant to Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport**

This Memorandum is Sweden's second report pursuant to Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport.

**1) Measures taken to promote the use of biofuels**

*National target for 2005*

In accordance with information previously reported to the Commission, the Swedish Parliament has, through its decision on the 2005 budget (prop. 2004/05:1, utg.omr 21, report 2004/05:NU3, rskr. 2004/05:120) set the indicative target for the use of biofuels and other renewable fuels in Sweden. As from 2005, these fuels must make up at least 3% of total petrol and diesel consumption for transport operations, calculated on the basis of energy content.

*Taxation strategy for alternative fuels*

The notification of the taxation strategy described in last year's report is still not concluded.

However, the Commission recently approved part of the taxation strategy regarding reductions and tax exemption for pilot projects for alternative fuels.

#### *Production plant for black liquor gasification*

On 23 February 2005 a production plant for black liquor gasification was opened in Piteå in northern Sweden.

Black liquor gasification is a technology which uses black liquor, a by-product of paper pulp manufacturing. Gasifying the black liquor produces fuel and electricity and can improve the efficiency of the paper and paper pulp industries.

The Swedish Energy Agency (Statens energimyndighet) has already granted SEK 237.5 million to part-fund an investment programme to develop this new technology. A national research and development programme is being carried out between 2004 and 2006 in cooperation with local authorities, businesses, universities and colleges.

#### *Environmental policy for vehicles used by the national authorities*

In order to increase the proportion of environmentally sound vehicles used by the authorities, in December 2004 the Government adopted Ordinance (2004:1364) on local authority purchases and leasing of environmentally sound vehicles, which states that the equivalent of 25% of all vehicles owned by the national authorities purchased in 2005 must be environmentally sound. Vehicles which are fuelled, either wholly or in part, by biogas, ethanol or electricity are considered to be environmentally sound. This target has been increased to 35% for 2006.

#### *Congestion charge in Stockholm*

The trial run in Stockholm ("Stockholmsförsöket") aims to reduce traffic jams and improve the environment by introducing an environment charge and boosting public transport. As part of this project, preparation is underway for a trial congestion charge to be introduced on 3 January 2006 in Stockholm.

Some heavy vehicles, including emergency vehicles, taxis, buses weighing at least 14 tonnes, will be exempt from the congestion charge.

In order to promote environmentally sound vehicles, clean cars, i.e. those equipped to run wholly or partly on electricity, alcohol or a gas other than LPG will also be exempt from the congestion charge.

#### *Environmental tax adjustment*

Environmental tax adjustment means that taxes on activities which damage the environment are increased and labour tax is reduced. The purpose of this is to reduce carbon dioxide emissions which contribute to the greenhouse effect.

The 2004 budget includes an environmental tax adjustment totalling SEK 2 billion. This means that various environmental taxes will increase by SEK 2 billion while taxes for individuals and businesses will decrease by the same margin.

The decision means that carbon dioxide tax for example will increase by 18%, and that tax on diesel oil will rise by SEK 0.10 per litre.

In December 2004 Parliament adopted this year's budget. The ongoing environmental tax adjustment totalled SEK 3.4 billion for 2005. Tax increases again included petrol tax which went up by SEK 0.15/litre, and diesel tax, which rose by SEK 0.30/litre, excluding VAT.

At the same time road tax increased by SEK 340 for petrol-fuelled cars in the most common weight category, and by SEK 110 for diesel cars.

#### *Investigation into renewable vehicle fuels*

On 3 July 2003 the Swedish Government started an investigation which will propose targets and strategies for the ongoing introduction of renewable vehicle fuels.

As previously reported, on 30 January 2004 the investigation submitted an interim report<sup>1</sup> with proposals on areas such as the national indicative target for 2005.

On 12 January 2005 the investigator submitted his final report<sup>2</sup> to the Minister for the Environment. The report suggested measures such as raising the indicative target in Sweden to 5.75% by 2010. The investigator also advocates increasing the low admixture levels for ethanol in petrol and RME in diesel to 10% and 5% respectively so that the targets can be achieved in the most cost-effective way possible. The investigator also recommends continuing the investigation to look at the options for introducing a "green certificate" as an instrument for promoting the introduction of biofuels, and that it should therefore be possible to stop tax subsidies from 2008.

The final report is currently under consultation.

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<sup>1</sup> "Renewable vehicle fuels – national target for 2005 and how these fuel types can be made more accessible" (SOU 2004:4)

<sup>2</sup> "The introduction of renewable vehicle fuels" (SOU 2004:133)

*Low admixture of ethanol in petrol*

As referred to above, the investigation into renewable fuels recommends the increased addition of ethanol to petrol as a cost-effective way of quickly meeting the requirements of the EU Directive on biofuels.

Under the Directive on the quality of petrol and diesel fuels (98/70/EC, and the accompanying Directive 2003/17/EC), petrol may only contain 5% ethanol.

However, by 31 December 2005 the European Commission is to review the fuel specifications laid down in the Directive on fuel quality. The European Commission will look at factors such as how much ethanol may be added by volume.

Sweden is of the view that the European Commission should put forward proposals for a new Directive on fuel quality permitting petrol to contain 10% ethanol. Prior to the Environment Council of 24 June 2005, Sweden and Spain sent a letter on the matter to the Commissioner for the Environment, Stavros Dimas, and to Vice-President and Commissioner for Transport, Jacques Barrot.

*Tasks regarding the environmental classification of fuels*

During 2004 and 2005 the Government assigned several tasks to the Swedish Road Administration (Vägverket) involving work to promote the use of biofuels.

One of these tasks was to review the specifications for environmental class 1 diesel to make it possible for all diesel fuel to contain up to 5% RME. Part of this task is also to investigate the effects on the environment and health of vehicle emissions from class 1 diesel fuel with 5% RME added.

The Government has also asked the Swedish Road Administration to develop basic principles for the environmental classification of alternative fuels which can either wholly or partly replace class 1 diesel.

In addition, the Government has asked the Swedish Road Administration to examine the requirements for a Swedish regulation allowing the retrofitting of private cars. It must be possible for retrofitted private cars to be fuelled by alternative or renewable fuels without conflicting with the EU's producer responsibility for cleaner emissions.

A report on these tasks will be issued in 2005.

### *Filling stations*

A more comprehensive distribution network is needed for pure or almost pure biofuels to have a greater impact. The Government is currently working to increase the number of alternative fuel pumps.

## **2) National resources earmarked for the production of biomass for energy uses other than transport**

### *The biofuels market in Sweden*

Sweden has a fully commercial biofuels market.

In 2004 Sweden's total supply of biofuels, peat, etc. amounted to approx. 109 TWh<sup>3</sup>.

Most of these fuels are produced domestically and include ligneous fuels (wood, bark, chips and wood from short rotation forestry), spent liquor (by-products of chemical pulp production), peat and waste (industrial waste, refuse, etc.).

These fuels are mainly used within the forestry industry for heat (district heating) and to produce electricity.

## **3) Total fuel sales last year and the proportion of biofuels, etc.**

### *Vehicles powered by biofuels*

The number of vehicles powered by biofuels and other renewable fuels is continuing to rise<sup>4</sup>.

At the end of 2004 the number of Flexible Fuel Vehicles which can run on either petrol or E85 totalled 13 362, an increase of 67% or approximately 5 000 cars compared with 2003.

The number of light vehicles equipped to run on biogas/natural gas or petrol is also increasing, and currently stands at 4 519 compared with 3 439 in 2003.

The number of vehicles weighing over 3.5 tonnes is also increasing. Buses and lorries fuelled on natural gas or biogas has increased by 102 and now totals 779. However, the number of buses fuelled by ethanol has decreased by 20% compared with 2003 and now totals 382. Buses and lorries fuelled by ethanol or gas therefore make up 1.3% of the total number of vehicles over 3.5 tonnes.

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<sup>3</sup> Statistics Sweden Communication EN 20 SM 0502

<sup>4</sup> "Environmentally friendly vehicles and fuels 2004", Clean cars in Gothenburg, 31.3.2005.

	Number, December 2004	Change in 2004	Difference in percent	Proportion of newly registered vehicles	Proportion of total vehicles
<b>Private cars and light lorries &lt; 3.5 tonnes</b>					
Ethanol E85	13 362	+ 5 387	+ 67%	1.8%	0.3%
Natural gas/biogas & petrol	4 519	+ 1 080	+ 31%	0.4%	0.1%
<b>Heavy vehicles &gt; 3.5 tonnes</b>					
Natural gas/biogas buses & lorries	779	+ 102	+ 15%	2.5%	0.9%
Ethanol buses	382	- 20	- 5%	0.0%	0.4%

### *Number of filling stations*

In order to make it easier for the consumer to buy environmentally sound vehicles and find clean fuel in Sweden, the cities of Stockholm, Malmö and Gothenburg run a website on clean cars which is part funded by the EU's Trendsetter (Stockholm) and Tellus (Gothenburg) projects.

According to this website there are currently 232 filling stations in Sweden where clean fuels are available<sup>5</sup>.

29 public filling station for ethanol E85 were added in 2004<sup>6</sup>, bringing the total to 131 at the start of the year. In 2004 the number of public filling stations for natural gas and biogas increased from 35 to 47.

### *Use of biofuels in Sweden*

The biofuels widely used in Sweden are bioethanol, rapeseed methyl ester (RME) and biogas. Very small quantities of some other types of biofuels are also used.

As requested by the Government, the Swedish Energy Agency has drawn up a list of indicators which can be used as the basis for an annual review of energy policy targets. This year's edition<sup>7</sup> for the first time gives an indicator which is in line with the national indicative targets for biofuels laid down in Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels and other renewable fuels for transport.

<sup>5</sup> [www.miljofordon.se](http://www.miljofordon.se)

<sup>6</sup> "Environmentally friendly vehicles and fuels 2004", Clean vehicles in Gothenburg, 31.3.2005.

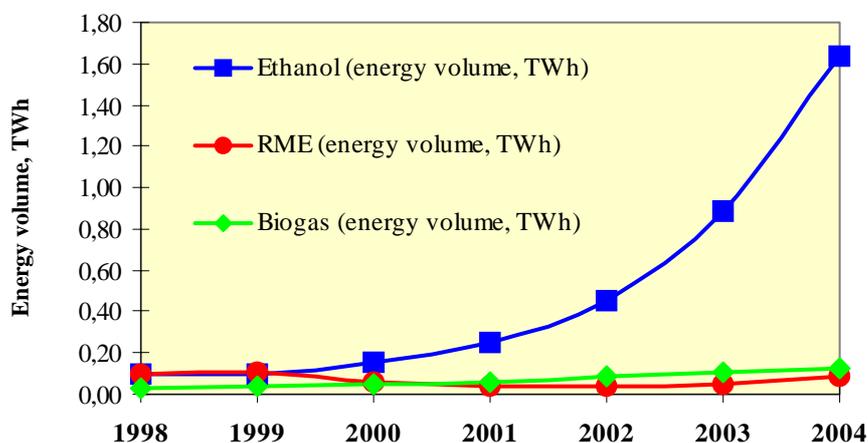
<sup>7</sup> "Energy indicators 2005" Swedish Energy Authority, 2005, in press

Fuel		1998	1999	2000	2001	2002	2003	2004
Petrol	(energy volume, TWh)	48.96	49.18	48.36	48.63	49.28	48.81	47.75
Diesel for transport	(energy volume, TWh)	24.79	25.10	24.44	24.84	28.49	29.83	33.99
Ethanol	(energy volume, TWh)	0.09	0.09	0.16	0.25	0.45	0.88	1.64
RME	(energy volume, TWh)	0.09	0.11	0.06	0.03	0.04	0.05	0.09
Biogas	(energy volume, TWh)	0.03	0.04	0.05	0.06	0.09	0.11	0.13
Proportion of fuels based on energy content		0.3%	0.3%	0.4%	0.5%	0.7%	1.3%	2.3%

The energy indicators for 2005 show that biofuel use in 2004 averaged 2.3% of all petrol and diesel used for transport purposes, calculated on the basis of energy content. It is therefore clear that, even in 2004, the use of biofuels in Sweden exceeded the reference level laid down in the Directive on biofuels. The use of biofuels must keep increasing if the national target of 3% is to be achieved in 2005.

The increase in the use of ethanol, RME and biogas is also shown in the diagram below.

**Use of certain biofuels**



As shown above, ethanol is the most widely used biofuel. In 2004 ethanol accounted for almost 90% of biofuel use, calculated on energy volume. Biogas and RME make up most of the remainder, although substances such as hydrogen from renewable electricity are also used.

Most bioethanol (around 90%) is used for admixing with petrol, but the volumes used in pure or almost pure form are also increasing.

In Sweden ethanol is produced from grain by Agroetanol and from by-products of paper pulp production by SEKAB in Örnsköldsvik.

The sharp increase in imported ethanol noted in 2003 has continued to rise. In 2004 four times more ethanol was imported than produced domestically. It is imported mainly from Brazil and other parts of South America, but also from France, Spain and Italy.

The reason is partly that Swedish plants are not able to produce enough to meet demand, and partly that imported ethanol is usually significantly cheaper than that produced in Sweden.