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## EU-25

## Bio-Fuels

## Biofuels Annual

## 2006

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EU-25

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**Report Highlights:**

The EU biofuel industry is developing very rapidly, however the EU has not yet managed to reach its goal of having biofuels account for 2 percent of the energy used in transportation. Biodiesel is the most important biofuel in the EU representing around 80 percent of the biofuels. Bioethanol accounts for the remaining 20 percent.

The total EU biodiesel production is estimated to grow from 2.98 million tons in 2005 to 6.1 million tons in 2007, and the production capacity is expected to increase even more. EU bioethanol production is also expected to increase from 0.8 million tons in 2005 to 2.5 million tons in 2007.

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Data in this report is based on FAS analysts in the EU and is not official USDA data.

Benelux = Belgium, the Netherlands and Luxembourg

BTL = Biomass to liquid

CEN= European Committee for Standardization (Comité Européen de Normalisation)

HA = Hectares

MS = Member State

MT = Metric ton

Mtoe = Million tons of oil equivalence

MS = Member State

MY = Marketing Year

RME = Rapeseed Methyl Ester

Toe= Tons of oil equivalence

### Executive Summary

The European Commission had set as the goal that by the end of 2005, biofuels should account for 2 percent of the energy used in transportation. This target should grow by 0.75 percent annually to reach 5.75 percent in 2010. At the end of 2005, the actual share of biofuels was 1.4 percent. The European Council has now suggested a new goal of 8 percent by 2015, with the hope of reaching 25 percent biofuels in 2030.

Currently less than 2 percent of the European farmland is cultivated with crops for biofuel production. To reach the 5.75 percent target it would take approximately 15 to 17 percent of the total arable land in the EU. The European Commission considers such huge amount of land for producing biofuel crops undesirable and proposes to produce half the biofuel from domestic crop and import the other half.

Biodiesel is the most important biofuel in the EU representing almost 80 percent of biofuel consumption. Bioethanol accounts for the remaining 20 percent. The EU is by far the biggest producer of biodiesel in the world. The reason for the big share of biodiesel is that the majority of the cars in the EU are diesel cars, and as such there is a diesel deficit. The EU counted 20 producer countries of biodiesel in 2005, compared to 11 producer countries in 2004. The production is increasing strongly and there was a growth in production of 65 percent between 2004 and 2005. The total EU production is expected to grow from 2.9 million tons in 2005, to 6.1 million tons of biodiesel in 2007.

The most important feedstock for EU biodiesel is rapeseed. EU standards do not allow more than 20-25 percent of soyoil to be used as biofuel. The EU standard will be revised in 2006.

The bioethanol production in the EU is also expected increase during the coming years. Production is forecast to almost double between 2005 and 2006, and to more than triple between 2005 and 2007. However, the EU bioethanol industry has had difficulties in competing with cheap imports of bioethanol. Most of the cheap imports have entered the EU through a loophole in Sweden. The loophole was closed in January 2006.

Detaxation systems present very strong incentives for biofuel production. Different EU Member States have different detaxation systems which affect the development of biofuels. Germany has been a pioneer in using tax incentives to promote the use of biofuels. This is one of the reasons why biodiesel has grown so significantly in Germany. However in June 2006, the German government decided to reduce the tax benefits for biofuels, and therefore the rate of production growth is expected to decrease.

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### Introduction

The European Commission had set the goal that by the end of 2005, 2 percent of the energy used in transportation should be biofuels. The use of biofuels would then to grow by 0.75 percent annually. The ambition is to have 5.75 percent biofuels in transportation by 2010.

The actual share of biofuels in European consumption for 2005 was 1.4 percent. The European Council has suggested setting a new goal of 8 percent biofuels by 2015, with the vision of reaching 25 percent of biofuels in 2030.

These goals are part of the main energy policy target of the EU which is to double the share of Renewable Energy Sources (RES) in gross inland consumption from 5.4 percent in 1997 to 12.0 percent by 2010, as a strategy to reduce greenhouse effect gas emissions in the context of the Kyoto Protocol. In order to reach the goal the Joint Research Center of the European Commission estimates biofuel consumption at 5.9 Mtoe (million tons oil equivalent) in 2005, and 18.2 Mtoe in 2010. One of the most compelling reasons for increasing the use of biofuels is supply security. The unstable situation in the Middle East and the gas conflict between Russia and the Ukraine earlier in 2006, and the subsequent high fossil oil prices, provides the impetus for using biofuels to help stabilize supply conditions.

Currently less than 2 percent of the European farmland is cultivated with crops for biofuel production. The EU target of 5.75 percent biofuels is equivalent to around 24 million tons of biofuel. If they were all produced from domestically grown crops, it would take approximately 15 to 18 million hectares of farmland to be planted with suitable crops, half for biodiesel and half for bioethanol. This represents roughly 15 to 17 percent of the total 103.6 million hectares of arable land in the EU25. The utilization of such a large amount of land for producing biofuels crops have been deemed undesirable by the European Commission, which has proposed to produce half the biofuel from domestic crop and to import the other half.

This would mean that by 2010 around 8.25 million hectares of arable land would be under production of biofuel producing plants. Some of this land (about 4 million hectares) could be what is currently obligatory set-aside land, a further 3 million hectares could come from currently non-cultivated land, and the remaining land could come from available land following the implementation of the new EU sugar regime.

### Biodiesel

The European Union is the biggest producer of biodiesel in the world and biodiesel is the most important biofuel in the EU, representing about 80 percent of the share of biofuels. The largest part of the biofuel, about 80 percent is produced from rapeseed. The rest is produced mainly from sunflower oil and soybean oil. The reason for this big share of the market being biodiesel is that the car fleet in the EU is to large extent diesel cars, and there is a diesel deficit. The biodiesel sector has undergone a very rapid growth, with a 28.2 percent annual growth since year 2000.

Biodiesel is a generic name for fuels obtained by transesterification of a vegetable oil. This produces a fuel with very similar combustion properties to pure diesel, but with lower viscosity. With properties very similar to those of fossil diesel, biodiesel can go almost directly into existing diesel vehicles<sup>1</sup> and it mixes with fossil diesel in any ratio. Soybean oil

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<sup>1</sup> Only rubber parts such as pipes and gaskets may have to be adjusted because biodiesel is more aggressive than mineral diesel.

can be used up to 20-25 percent and still conform to the European standard that has a specification on the content of iodine. However the mix of palm oil and soybean oil seems to be getting quite some appeal and is expected to take some market share in the future. This change in feedstock would be triggered by the big price difference compared to rapeseed oil. The use of waste oils to produce biofuels is estimated to be about 50,000 tons, but has the potential of 300,000 tons. The production of biodiesel from tallow/animal fat is very little today, but has an estimated potential of about 200,000 tons.

The European Union counted 20 producer countries of biodiesel in 2005, compared to 11 producer countries in 2004. The biodiesel production was 2.9 million tons in 2005, compared to 1.9 million tons in 2004. This represents a growth of 65 percent in one single year. The largest biodiesel producing MS were Germany, France and Italy. However, in the future, the EU will not have the capacity to produce enough rapeseed to meet the production capacity, and oilseeds imports will be important. (See GAIN E36092)

<b>EU-25 Biodiesel situation (MT)</b>			
	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Production</b>	2,879,700	4,385,000	6,111,000
<b>Imports</b>	22,673	26,400	25,800
<b>Consumption</b>	3,033,714	4,210,861	5,560,168
<b>Exports</b>	67,059	117,060	387,080

Source: FAS posts EU25

<b>EU25 Estimated Biodiesel Production Capacity (MT)</b>				
	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2010</b>
<b>Production Capacity</b>	3,889,500	6,165,980	9,598,000	12,672,000

Source: Estimations by FAS posts EU25

If the EU will fully utilize its anticipated capacity for biodiesel production of 12.7 MMT in 2010 (see table above), it will need to produce or import an estimated additional volume of 5.7 MMT of rapeseed oil, 2.2 MMT of soybean oil and 0.9 MMT of palm oil. This estimation is based on a feedstock use for biodiesel production of 60-70 percent rapeseed oil, 20-30 percent soybean oil and 10 percent palm oil. Cross commodity interactions are not taken into account. This increased demand will basically mean that the EU will need to double its rapeseed oil and soybean oil production, or increase its imports (see consolidated Oilseed Annual E36092). It should, however, be noted that according the industry intentions to build plants and produce biodiesel, EU biodiesel production is going to exceed domestic demand in 2007. The most likely conclusion is that either not all investment plans will eventually go into effect or that this excess production will result in a decline of prices and drive the smaller producers out of the market.

The total EU production is expected to grow from 2.9 million tons in 2005 to 6.1 million tons in 2007. The largest growth is expected in Germany, which produced 1,660,000 MT in 2005, with biodiesel production estimated at 3,000,000 MT in 2007. The German waiver of the mineral oil tax for biofuels in the past was a major reason for the dynamic growth of the sector (see section on biofuels incentives). However, with changes in the German tax system, the use and consequently production increase are expected to flatten in the future. France and Italy also forecast a strong increase in biodiesel production.

In France, production is estimated to increase from 370,000 MT in 2005, to 550 000 MT in 2006 and 800,000 MT in 2007. The Government of France announced in September 2005 that France would accelerate biodiesel incorporation into total fuel consumption to 5.75

percent by 2008, which is two years earlier than required by the European Commission. France has set as a goal to have 7 percent biofuels by 2010, and 10 percent biofuels by 2015.

For Italy, the increase is expected to rise from 400,000 MT in 2005 to 500,000 MT in 2007. Italy is a big importer of oilseeds from other EU countries, to be processed into biodiesel and then in part re-exported to the EU.

Imports of biodiesel into the EU are not very big and expected to stay stable. There is however a lot of trade of biodiesel between the different MS. The trade numbers for biofuels are not exact since there are no strictly defined HS codes for biodiesel. However the most commonly used one is HS code 38249099. Although there is not a lot of imports of biodiesel there is an increasing import of the feedstock to produce biodiesel, namely oilseeds and vegetable oils, mainly rapeseed. The most important imports of feedstock are rapeseed from the Black Sea region, soybean oil from Argentina, Brazil and the US, and palmoil coming from Malaysia.

Consumption of the biodiesel is expected to continue to increase strongly, however there is a large difference between the uses of biodiesel in the different MS. This is normally associated with the grade of detaxation in the specific MS. In Belgium and the Netherlands the use of biodiesel as transportation has been almost negligible compared to some other MS such as France and Germany. This is because of the limited use of subsidies the Belgian and Dutch governments are providing. However recent legislation will begin subsidizing biofuels to be used as transportation fuel.

In Germany and France it is now possible to use pure vegetable oil as fuel on the farm. France introduced this measure in 2006, however the French government is very wary that farmers' use of vegetable oil may represent a major revenue loss from reduced taxes since it doesn't have any control over on-farm fuel use. The French on-farm use of biofuels is expected to be limited in 2006, even though it is exempt from tax. One of the main reasons is that profitability depends on the farmers' ability to use rapeseed meal on the farm as a source of animal feed. Without the on-farm use of rapeseed meal, the cost of crushing would simply be too expensive. However, the potential of using pure vegetable oil as a tax-exempt fuel has created new opportunities for forming cooperatives as farmers pool resources to purchase crushing equipment. These cooperatives must fully utilize their own production since they are not allowed to sell the pure vegetable oil fuel commercially. However, German farmers are allowed to sell both vegetable oils and oilseed meal.

Germany will introduce a mandatory biodiesel quota starting in January 2007. The current proposed mandate will require biodiesel to account for 4.4 percent of all diesel sales in Germany. The quota is based on energy content<sup>2</sup> and translates into 5 percent of volume. However, suppliers will not be forced to fill these 4.4 percent themselves as they will be able to trade the quota with other suppliers.

In Germany there is an increasing use of pure vegetable oils as transport fuels for trucks. It is considered that the truck motors might not perform for as many kilometers as if they used conventional diesel, but that the use of pure vegetable oils will be economically viable anyway, because of the lower price on pure vegetable oil caused by tax exemption.

In the Czech Republic the rapeseed methyl ester (RME) is used in a mixed fuel with 31 percent RME and 69 percent mineral fuel. The Czech Republic produces about 120,000 MT of

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<sup>2</sup> Fuels differ in energy content. It takes 1.1 liters of biodiesel to replace 1 liter of diesel and 1.3 liters of bioethanol to replace 1 liter of gasoline.

RME annually, however most of it is exported to Germany and Austria. Currently the Minister of Agriculture is working on three different possibilities how to support biofuel production. The three different options are excise tax relief, no support or support to producers, the last one being the most likely one.

In Poland there is a very strong interest for developing the RME industry. Currently there is one modern facility with production capacity of 150,000 MT annually. However, there are several other companies that are planning to start new facilities each of 50-250,000 MT of RME. If materialized, the total production capacity would reach over a million tons in the end of 2007.

The strong growth in biodiesel production, and hence crushing of oilseeds, is producing an increasing amount of oilseed meal. Oilseed meal is a product, which is rich in proteins and used in the compound feed production. The massive increase in oilseed crushing has led to an increase in rapeseed meal production. Studies indicate that soybean meal can easily be replaced by rapeseed meal in dairy cow feed rations with 1 kg of soybean meal being equivalent to 1.5 kg of rapeseed meal. In some MS, namely Germany and France, the industry has done promotion to overcome farmer bias against the use of rapeseed meal in livestock production. This bias stems from the time when rapeseed, and consequently rapeseed meal, still contained high amounts of eruric acid and glucosinulates, which caused animals to stay away from the feed or resulted in digestion problems. However, with the new varieties of rapeseed this is no longer the case, and farmers can increase the use of rapeseed meal in the feed without these adverse consequences.

Relatively small demand for cattle and dairy compound feed results that in Poland large amounts of rapeseed meal are exported (about 40 percent of produced meal). However as intensive beef and dairy production will increase the demand for rape meal will increase too.

### **Bioethanol**

Bioethanol represents close to 20 percent of the biofuels being used in transport in the EU. It is mainly produced by fermentation from crops rich in sugar and starches. The most common crops for ethanol production in the EU are cereal crops and sugar beets. The main feedstock in the EU used to be molasses from sugar production. As new plants start to produce ethanol the main feedstock is turning to be cereals, mainly wheat. One reason for using cereals is that the molasses from the sugar production in the EU is already contracted and there is no molasses available on the market. It is possible that the sugar reform in the EU will change the situation and more sugar or molasses will be available for bioethanol production.

Bioethanol is normally blended with gasoline in any proportion up to 5 percent, and this blend can be used in modern spark-ignition engines without modification. Modified engines, such as those used in so-called flexi-fuel vehicles, can run on E85, an 85 percent ethanol blend, as well as on pure bioethanol and conventional petrol.



<b>EU25 Bioethanol situation (MT)</b>			
<b>Year</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Production</b>	830,976	1,401,992	2,507,737
<b>Imports</b>	426,063	609,100	824,100
<b>Consumption</b>	1,439,374	2,349,492	3,871,237
<b>Exports</b>	46,677	17,500	22,500

*Source: Estimations by FAS posts EU25*

From the table can be concluded that the EU ethanol production will not be sufficient to meet the demand. Compared to biodiesel, the EU industry has apparently been slower in investing in ethanol production. As a result, bioethanol imports are expected to increase in 2006, 2007, and will likely continue through 2010.

Growth in bioethanol production will undoubtedly be strong during the coming years. Production is forecast to almost double between 2005 and 2006, and to more than triple between 2005 and 2007. However, at the same time, imports are also expected to increase, although not as strongly as domestic production. Almost all of the MS report that they are planning new production capacities to come in line either in 2006 or in 2007.

One reason for this strong growth in bioethanol is that it hasn't been very strong until recently. Since a majority of the cars in the EU are diesel cars and there has been a diesel deficit the focus has been on biodiesel. However bioethanol has the advantage over biodiesel that it can be produced from a much larger variety of different feedstock.

Furthermore, the bioethanol industry in the EU has also had problems to compete with cheap imports of bioethanol. These cheap imports have made it very difficult for the industry to grow strong and manage without subsidies. Most of the cheap imports have come through a loophole in Sweden. This loophole was closed in January 2006, and there are now an enormous amount of planned bioethanol production plants in the EU. Brazil's bioethanol sales price varies in the range of €200-300/ton of oil equivalent (toe), compared to about €400/toe for the US and €750-850/toe for the EU. Transport and distribution costs are increasing in Brazil, which adds an extra €150-200/toe. The import duty to the EU adds an additional €300/toe making the costs of Brazilian bioethanol comparable to European production costs. The most important sources for undenatured ethyl alcohol imported to the EU are Brazil, Guatemala and the Ukraine.

Spain is the biggest producer of bioethanol in the EU with an annual production of 257,000 MT in 2005 and an estimated 415,000 MT in 2006. Abengoa is the most important producer. However at this point Abengoa reports that it will not invest in a fourth plant in Spain. Abengoa deems the biofuels legal framework currently in place in Spain inadequate to justify further expansion in the domestic biofuel market, and is instead investing abroad. Abengoa is the key shareholder of Abengoa Bioenergy France, which has just started construction of a plant on France. This will be the first plant in the EU producing bioethanol from corn.

France is the second largest producer of bioethanol in the EU with a production of 207,000 MT in 2005 and an expected production of 305,000 MT in 2006. However the production capacity for 2006 is expected to be 540,000 MT. In France the most important feedstock is still sugar beet, however more cereals, mainly wheat, will be used as production increases. The byproduct, distiller's grain, from the French bioethanol production goes into the feed industry. There has been no problem with this so far and some even see the byproducts as a good and GM-free competitor to oilseed meals.

Germany is also an important producer of ethanol with a fast growing production. The production increased from 200,000 MT in 2005 to an expected 400,000 MT in 2006 and 580,000 MT in 2007. The main feedstocks in Germany are wheat and rye, and the ethanol plants are normally constructed in grain surplus areas, which are relatively distant to port locations, and so they are using domestic feedstock

Sweden was in 2005 the biggest consumer of bioethanol in the EU with a consumption of 296,000 MT. The consumption of ethanol is expected to increase in 2006 and 2007 due to a growing number of ethanol busses for public transportation and increasing sales of clean cars. The Swedish government is seeking to have the European Commission change the current EU fuel directive that requires 5 percent ethanol blend to a higher 10 percent compulsory blend. Should this go through, the demand for ethanol in Sweden would increase by about 200,000 MT per year.

The greatest potential for increased domestic ethanol production in Sweden lies in wood ethanol. Etek's pilot project has resulted in the construction of a pilot plant which begun operating in early 2005. Production costs are currently high but are expected to decline substantially in the future, though not lower than the cost of producing ethanol in Brazil. Further expansion in Swedish production capacity for wood ethanol is expected to take place in about five years.

In the Benelux there is not yet any ethanol production, but there are six plants planned, most of them starting their production in 2007. They will use either molasses or wheat as feedstock, and the Benelux will need to import feedstock. Wheat will be imported from EU Member States and molasses will partly be imported from non-EU origin such as Thailand.

Hungary used to be a big producer of vodka that was exported to Eastern Europe, Russia and the Ukraine. These industries are no longer in full use and Hungary is planning to use two of these already existing plants and start to produce bioethanol.

In the production of ethanol there are two important by-products. Vinasse, which is a by-product from ethanol production using sugar beet as feedstock, and distiller's grain which is a by-product when using grains for the production. Both products can be used as feed. Distiller's grain is a product that contains an important amount of proteins and could possibly agitate the feed protein market as the production increases, especially considering that this is a by-product that ethanol producers would possibly just want to dispose of. However, at present none of the MS reports any related problem.

#### **ETBE**

Ethyl Tertiary Butyl Ether (ETBE) is produced by mixing ethanol and isobutylene, and reacting them with heat over a catalyst. ETBE can be blended with gasoline to make it burn cleaner it increases the octane rating and reduce knocking. ETBE eliminates many of the historical impediments to the greater use of ethanol such as increased volatility of gasoline and incompatibility with gasoline pipelines.

#### **MTBE**

Methyl tertio-butyl ether (MTBE) is a chemical compound that is manufactured by the chemical reaction of methanol and isobutylene. When in groundwater MTBE moves more quickly than other fuel components. The World Health Organization (WHO) has made the finding that MTBE is a carcinogen and induces liver lesion in animals

### Wine Alcohol

In the framework of Community Wine Management, the European Commission buys and sells wine alcohol on the European market to be transformed into bioethanol. This wine alcohol can be sold in one of the MS, transformed into bioethanol in another MS and then again sold on the market to a third MS. This is a method of dealing with the excess wine surplus that is being produced in the EU, and called crises distillation procedure. This process of crises distillation, which was introduced as an emergency measure by the Commission to help wine producers in times of need has become "too commonplace" in recent times, according to EU officials. The Commission is currently planning a major overhaul of the EU wine regime, which could see the end of the controversial crises-distillation process in favor of directing EU funds towards better promotion and marketing of EU wines.

### Biogas

Biogas is a result of anaerobic fermentation of organic matters, such as manure, sewage sludge and waste. The gas produced is a mixture of 40-80 percent methane and the rest mainly carbon dioxide. To be able to use the gas as a fuel in transportation it has to be purified until it is 96-98 percent. Biogas can be used in motors that can use natural gas. Currently only a very small proportion of the biogas production is used in transports. Most of the biogas is used in the production of electricity and heating.

<b>EU Biogas production (Thousand of toe)</b>		
	<b>2003</b>	<b>2004</b>
<b>U.K</b>	1,253	1,473
<b>Germany</b>	1,229	1,291
<b>France</b>	344	359
<b>Spain</b>	257	275
<b>EU Total</b>	3,912	4,265

Source: EurObserver 05

### Biofuel Incentives

One of the major tools to increase the use of biofuels has been a reduction in taxes for biofuels at the consumer level. The EU directive on the taxation of energy products gives the MS a legal framework to differentiate taxation between biofuels and conventional fuels. Given that biofuel production costs are currently much higher than conventional petroleum fuels, it is essential to provide some kind of financial aid for the biofuel production to make it competitive. Reducing the tax burden would also be a mean to encourage investments as well as consumer take-up. If a MS applies a tax break for its territory, the use of this tax break has to be reported to the Commission every year. This is done to make sure there is no overcompensation.

Complying with the EU biofuels goals is easier for the big agricultural countries where biofuel development contributes new outlets and new job opportunities in a sector that has been in a difficult situation for many years. These advantages are expected to partially compensate for the tax loss linked to development of biofuels. Biofuels are taxed at a lower rate than petroleum fuels and taxes on fuels represent a sizeable element in MS budgets. This could explain why some member states are hesitant to use this tool and is potentially one reason why a significant number of MS will not succeed in reaching the objectives of the European Directive on biofuels.

Germany was a pioneer in using tax incentives to promote the use of biofuels. In Germany, pure biodiesel was traditionally except from the 47 cents per liter mineral oil tax. Since 2004 this pertains to all biofuels and also to the biofuel portion in a blend. In combination with the

high diesel price, this has resulted in a notable increase in the consumption and imports of biodiesel from other EU member states. However, in June 2006 the German government decided to reduce the tax benefits for biofuels. There will be partial tax on pure biodiesel and pure vegetable oil, combined with some mandatory blending. Biodiesel in blends will no longer enjoy a tax reduction. This was done in part to avoid overcompensation and in part to take pressure from the tight German budget. The change will likely reduce the attractiveness of biodiesel in the German market.

Starting in August 2007, the tax waiver for biodiesel and pure vegetable oil will gradually be reduced until they will be fully taxed in 2012 (for details see table below.) For bioethanol the details are still being discussed.

<b>German tax on Biodiesel and Pure Vegetable oil (Euro cents/liter)</b>		
	<b>Biodiesel</b>	<b>Pure Vegetable Oil</b>
<b>2006-2007</b>	9 for pure biodiesel 15 for biodiesel in blends	0
<b>2008</b>	15	10
<b>2009</b>	21	18
<b>2010</b>	27	26
<b>2011</b>	33	33
<b>2012</b>	45	45

Source: FAS Berlin

In addition, Germany will introduce a mandatory biofuel quota starting in January 2007. The current proposed mandate would establish a 4.4 percent quota for biodiesel. For bioethanol a 2 percent quota is planned for the years 2007 through 2009, increasing to 3 percent from 2010 onwards. The quota applies to all fuel suppliers and is based on the energy content. This translates into a 5 percent quota by volume. The biofuel that is used to fill this quota will be fully taxed. Biodiesel above this quota will benefit from a reduced tax until 2012 with the tax levels set in 2006. The taxation of above quota bioethanol is still in discussion.

"Second generation" biofuels, biomass-to-liquid (BtL) will continue to benefit from tax reductions until 2015 in Germany.

The French government has offered financial incentives for biofuel production since 1993 following implementation of the first reformed CAP. Each year, the government announces a quota for biofuels that will qualify for a reduced domestic tax when sold on the French market. The biofuel currently does not have to be produced in France to benefit from this tax rebate. For 2005, the French government established a 517,500 MT quota (417,000 for biodiesel, 100,000 for bioethanol) for tax relief, however, total tax relief claims, including bioethanol, ETBE and vegetable oil methyl esters, only reached 504,000 MT (up from 467,500 MT in 2004). In 2006 the tax cut for biodiesel in France is 25 cents per liter (down from 33 cts/liter in 2005), and 33 cts/liter for bioethanol and ETBE (down from 37 cts/liter respectively in 2005). As the cost of supporting biofuel production results in lower tax gains for the Governments budget, tax cuts for biofuels were reduced in 2006 from 2005.

The French government had announced that France would accelerate the biodiesel incorporation into total fuel consumption. However, if raw materials necessary to produce biodiesel are imported from outside of the European Union the preferential tax system benefiting biofuels may be revised. IN addition, E85 experimentation in captive fleets of flex fuel vehicles was authorized by the French Government for the first time in early June 2006. In a number of captive fleets, biodiesel is already used at up to 30 percent blend rate with diesel, while the blend is lower for other vehicles, five percent maximum.

In Poland, biofuels can be added to fuels in a rate up to 5 percent. Currently there is a new legislation prepared by the Ministry of Economy and it is likely to be approved in June 2006. This new legislation would make it obligatory to use 4-5 percent of RME or bioethanol in fuels as of 2007. There would be tax exemptions, and farmers would be allowed to produce biofuels on the farm for their own use, which would be tax-free.

In Hungary the biodiesel content is maximum 5 percent. The same piece of legislation sets the rules regarding annual tax refund for biodiesel and bioethanol. Eligible distributors can claim back maximum 2 percent of the excise tax of fuels they sold in 2005. This ceiling of tax refund grows by 0.5 percent annually, and will be 2.5 percent in 2006 and 3 percent in 2007. Tax refunds in Hungary can be claimed on domestically produced as well as imported biofuels.

In Austria the existing law provides a gasoline tax credit of 0.5- 29.7 cents per liter diesel with a minimum mixture of 4.4 percent biodiesel. In return the tax for biodiesel without admixture of biodiesel increases by 0.8 cent per liter. Pure biodiesel is exempt from gasoline tax.

In the Netherlands and Belgium the governments just recently finished legislation on subsidizing biofuels as transportation fuel. The Belgian government decided to lift the tax on biodiesel blended in diesel with a minimum of 2.45 percent. In the Netherlands the government will reduce the tax on diesel by 0,61 cent per liter providing these fuels contain at least 2 percent of biodiesel. In the Netherlands the government is preparing legislation to make 2 percent blending with biodiesel compulsory starting January 2007.

### **Imports of Biofuels into the EU**

Data on imports of biofuels into the European Union are difficult to obtain since there is no strictly defined HS code on either bioethanol or biodiesel. Furthermore, the EU not only imports biofuels but also imports feedstock to produce the biofuels.

Although the import statistics are unreliable it is clear that Sweden has imported Brazilian bioethanol for direct blending applications, while imported bioethanol in France and Spain is used for ETBE.

According to a Commission report, the HS code for biodiesel is often questioned by the different Member States customs authorities, as well as by the market traders themselves. The European Biodiesel Board (EBB) is of the opinion that Chapter 3824 of the Custom Headings is inappropriate for covering biodiesel and that a more specific and independent custom code for biodiesel should be defined. EBB has requested that the Commission change the present HS code for biodiesel or find a more precise custom definition. However, after discussions between the Commission services, DG TAXUD, Eurostat and the biodiesel industry, it was decided to leave the custom classification of biodiesel unchanged.

The current custom duties in force are:

- |                          |                      |                      |
|--------------------------|----------------------|----------------------|
| • Biodiesel              | Custom Code 38249099 | Import Duty 6.5%     |
| • Bioethanol denatured   | Custom Code 22072000 | Import Duty €10.2/hl |
| • Bioethanol undenatured | Custom Code 22071000 | Import Duty €19.2/hl |

The above import duties do not apply to imports from countries that are part of the Generalized System of Preferences (GSP) program or from countries that have concluded Association Agreements with the EU, such as neighboring Mediterranean countries, Mexico and The Association of South East Asian Nations (ASEAN) or the African, Caribbean and Pacific (ACP) countries.

**Preferential imports of bioethanol into the EU**

The preferential imports of bioethanol into the EU basically comes under two regimes: GSP, including the Everything But Arms (EBA) initiative, and the Cotonou Agreement.

<b>Import conditions under code 2207 under EU's main preferential agreements</b>				
	<b>GSP normal</b>	<b>GSP+</b>	<b>EBA</b>	<b>Cotonou</b>
<b>Duty reduction</b>	15% up to 12/31/05 0% as of 01/01/06	100%	100%	100%
<b>Quantitative Restrictions</b>	NO	NO	NO	NO
<b>Beneficiaries</b>	All GSP beneficiaries if not graduated	Bolivia, Colombia, Costa Rica Ecuador, Guatemala, Honduras, Panama, Peru, El Salvador, Venezuela, Georgia, Sri Lanka, Mongolia and Moldova	LDCs	ACP's

Source: European Commission

The GSP regulation that applies from 1, January 2006 to 31, December 2008, no longer applies for any tariff reduction for either denatured or undenatured under HS code 2207, however it is still classified as a sensitive product. The GSP regulation put in place a special incentive arrangement for sustainable development and good governance, called the GSP+ incentive scheme. The GSP+ scheme has been in force on a provisional basis since July 1, 2005, and applies on a permanent basis from January 1, 2006, to 31, December 2008. This incentive arrangement grants unlimited and duty-free access to denatured alcohol under code 2207. It includes all the countries that already benefited from the previous drugs scheme. The new arrangement also includes Georgia, Sri Lanka, Mongolia and Moldova, which have not so far exported bioethanol to the EU. Moreover, a special arrangement for the LDC's offers unlimited duty-free access to denatured and undenatured alcohol under code 2207.

Under the Cotonou agreement, ACP countries qualify for duty-free access for denatured and undenatured alcohol under code 2207 with the sole exception of South Africa.

Other countries with preferential agreements are Egypt that has unlimited duty-free access to the EU under the Euro-Mediterranean Agreement. Norway has been granted duty-free access to the EU under the system of Tariff Rate Quotas (TRQ) since the mid-nineties.

### **Closing of the Swedish Ethanol Loophole**

Under the now closed loophole, ethanol imported to Sweden could be classified under the "other chemicals" tariff line by mixing the ethanol with 20 percent gasoline. "Other chemicals" are subject to a lower tariff (about €2.5 per hl) than plain ethanol (€19.2 per hl). Ethanol imported under the "other chemicals" tariff code could also benefit from Swedish tax relief for biofuels. Reportedly, all Swedish ethanol importers took advantage of this loophole.

Effective January 1, 2006, tax relief is only available for ethanol imported under the higher €19.2 per hl duty. The import price is eventually expected to rise by about €16 per hl as a result of the closed loophole. On January 2, 2006, one of Sweden's largest petrol suppliers announced a price increase of €5 per hl due to the higher tariff.

Closing the loophole will probably not have a huge effect on domestic ethanol production in the short run. However, a price increase for imported ethanol of €16 per hl will substantially improve the competitiveness of domestic production. The cost to produce one hl of ethanol made from wheat in Sweden is estimated at €47. Prior to closure of the loophole, import prices were about €38 per hl – approximately a 20 percent advantage. At the higher tariff



rate following closure of the loophole, import prices are expected to settle around €48 per liter – slightly higher than the cost of domestic production.

### **Carbon Credits**

The CAP Reform of 2003 introduced the so-called Carbon Credit, which grants a payment of €45/ha to growers of energy crops, including crops grown for the production of biodiesel and bioethanol. Carbon credit is available for all agricultural crops except hemp, as long as they are used for approved energy uses, and have a contract for this. EU farmers cannot get carbon credit for energy crops on set-aside land. Currently farmers in the NMS are not eligible for the carbon credits however there is a proposal that they should be able to get this support as of 2007. No decision has yet been taken.

The €45/ha subsidy, due to its low level, is expected to have little impact in the short run on EU production of energy crops. However the Parliament has proposed that this support should be raised to €90/ha. The Commission is currently looking into changing the Carbon Credits and is expected to present a proposal at the end of 2006.

### **The Commission strategy for Biofuels**

The Commission has Communicates "An EU Strategy for Biofuels". The communication looks at the role biofuel could have in the role of addressing the EU's overdependency on imported oil and gas and to develop a coherent approach, based on a robust economic, environmental and social impact analysis on how to progressively reduce this dependency.

In 2006 the Commission will bring forward a report on the implementation of the Biofuels Directive, with a view to a possible revision. This report will among other things address the issue of: national targets for the market share of biofuels, using biofuel obligation and requiring that, only biofuels whose production in the EU and in third countries complies with minimum sustainability standards will count towards the target.

There are seven policy axes in the Biofuel Strategy:

- Stimulating demand for biodiesel
- Capturing environmental benefits
- Developing the production and distribution of biofuels
- Expanding feedstock supplies
- Enhancing trade opportunities
- Supporting developing countries
- Supporting research and development

The Commission sees multiple benefits in the increased use of biofuel. It will reduce Europe's dependence on fossil fuel imports, something that is of increasing importance after the recent scare when Russia turned off the gas pipe of gas from Russia coming through the Ukraine. Around 20 percent of the natural gas needs of Europe come from Russia.

Currently the Commission has opened a public consultation on the " Biofuels Directive Review and Progress Report". The biofuels directive asks the Commission to make a progress report before the end of 2006 and the Commission is now trying to get the view of interested parties on questions regarding the biofuels directive and how to deal with the system of targets in the future.



### Export possibilities for the US

For biodiesel, there are no significant imports into the EU, since the EU is by far the biggest producer. However since there is a huge demand for oilseed and vegetable oil to produce the biodiesel, and there is a clear an increasing import trend of these products into the EU. Should there be a change in the CEN standard that would accept a higher iodine value, there would probably be a growing market for soybeans and soyoil in the EU biofuel market.

The iodine number is an indication of the content of unsaturated fatty acids. Due to the low content of unsaturated fatty acids, and low iodine number, palm oil has a high melting point, which makes it unusable for the climate in Europe.

#### Iodine numbers for some vegetable oils

	Iodine Number (g/100g)	Melting Point (°C)
<b>Soybean oil</b>	125-140	-12
<b>Sunflower oil</b>	125-135	-18
<b>Rapeseed oil</b>	97-115	5
<b>Palm oil</b>	44-58	30-38

Source: FAS the Hague

For bioethanol there is already a strong increase in imports to the EU. Most of the imports are coming from Brazil, Pakistan, Guatemala, and the Ukraine. The ethanol imports are strongly price driven.

In the EU there is no deficit of feedstock for producing bioethanol. There is a surplus of grains and with the recent sugar reform there are anticipations that some of the area that was under production of sugarbeets for sugar will turn to production of feedstock for the ethanol industry, either producing sugar beets or another crop.

However the grain-processing sector in the Netherlands anticipates increased third country imports of grains such as wheat and corn as the acreage for the production of wheat for bioethanol and of rapeseed for biodiesel is expected to expand in the EU. The US could also supply feedstock for the second generation of ethanol production such as cottonseed meal and peanut residues.

Another possibility of US export would be to export the technology for bioethanol production.

Summary table implementation of Directive 2003/30

	Total fuel cons. Mln tons	Biofuels Volume		BioDiesel Ktons	EtOH Ktons	Tax incentive €/hl + (%)		Time frame detaxation	Outlook
		Ktons	%			Biodiesel	EtoH		
Germany (2005)	52.0	2050	3.4	1700 (Includes 150,000 MT vegetable oil for fuel use)	200	47.04 (100%)	65.45 (100%)	2004 – 2011 Gradual phase out of tax benefits starts in August 2006	Mandatory quotas Biodiesel 4.4 % Bioethanol 2.0% (2007-2009) Bioethanol 3.0% starting 2010 Total quotas 5.7 % (2009) 6% (starting 2010)
France* (1)	52	481 (2005)	0.93	370 (2005)	111 (2005)	2005: 33 (79%) 2006: 25	2005: 38 (64.5%) for ETBE, 37 (62.7%) for EtOH 2006: 33	1991-2015	2005: 1.01% biodiesel, 0.82 percent bioethanol (objective: 2 %) 2008: 5.75% 2010: 7% 2015: 10%
UK* (2)	48.0	10.8	0.03	10.8	0	29 (42%) (3)	33 (42%)	2005 - 2008	2005: 0.3% UK gov sets target for 2010 in 2005
Spain*	28.7	267	0.92	65	202	100%	100%	Until 31/12/2012	2005: 2%
Netherlands(2005)	12.4	4	0.03	4	0	31 (100%)	51 (100%)	2007-2010	2% as of 2007 - 2010: 5.75%
Sweden*	6.45	148.4	2.3	1.4	147	36 (100%)	52.50 (100%)	2004 - 2008	2005: 3%
Austria** (3)	7.9	55	0.07	55	0	29 (100%) Up to 2% blends	Not yet decided	?	1/4/2005: 2.5%, 1/4/2007: 4.3% 1/4/2008: 5.75%
Poland* (2005)	11.3	61.9	0.5	2.1	59.8	0	Depends on % of bio component	To be reviewed yearly	2005: 0.5%, 2006: 1.5% 2010: 5.75%
Greece***	5.4	0	0	0	0	Not yet decided	Not yet decided	?	?
Portugal**	5.1	0	0	0	0	1% of fuel market 100% exempted	1% of fuel market 100% exempted	?	2005: 1.15%
Czech Republic*	6.0	47	1.35	47	0	31.7 (100%)	Not yet decided	2006-2013	2006: 8%, 2010: 9.7%
Belgium*	7.9	0	0	0	0	35 (100%)	60 (100%)	2006-2011	2010: 5.75%
Denmark***	4.8	45	0	45	0	No CO2-tax	No CO2-tax	?	0
Hungary(2005)	4.5	6	0.13	2	4	36 (100%)	42.7 (100%)	2004-2010	2008: 4.4%
Finland**	3.7	0	0	0	0	0	0	?	2005: 0.1%
Ireland* (6)	3.6	0	0	0	0	100%	100%	?	2005: 0.06%, 2006: 0.13%
Slovakia**	1.8	3.0	0.29	3.0	0	Not yet decided	Not yet decided	?	2005: 2%
Lithuania*	1.15	4.1	0.35	2.2	1.9	100%	100%	2004-2010	2006: 2%, 2011: 5.75%
Estonia*	0.85	0	0	0	0	100%	100%	2005-2010	2006: 2.0%, 2011: 5.75%
Latvia*	0.97	2.5	0.3	2.5	0	Unclear	Unclear	2003-2010	2005: 2%, 2010: 5.75%
Cyprus**	0.6	0	0	0	0	Not yet decided	Not yet decided	?	?
Malta*	0.18	0.18	0.1	0.18	0	100%	100%	?	2005: 0.3%

Source: e-BIO, updated- by FAS

Year of data: \* 2004; \*\* 2003; \*\*\* 2002

(1) The volume for direct blending is capped to 20 mln litres/yr; France has introduced beginning 2005 a penalty system in case biofuels are not used by oil companies.

(2) The UK duty reduction is 20 pence a litre.

(3) Austria produced in 2003 around 55 Ktons biodiesel 90% of which was sold to Germany and Italy.

(4) In the CZ the law doesn't allow more than 31% RME to be blended into diesel.

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