

European Biofuel Policies

Ewout P. Deurwaarder – Energy research Centre of the Netherlands

EU motivations for biofuels

The European Union and its Member States have been active in the field of biofuels for some time. The motivation for the promotion of biofuels has always been threefold. The first motivation is global warming. The EU has signed up to the Kyoto protocol and biofuels can reduce greenhouse gas emissions. Transport accounts for 21% of the greenhouse gas emissions in the EU and this figure is growing rapidly. Further, the possibilities to reduce greenhouse gas emissions by transport are limited. The second motivation is the security of energy supply. The EU is for its oil for more than 80% dependent on imports and is becoming more and more dependent on the politically unstable Middle-East, which has the highest proven oil reserves. Interruptions of the natural gas supply in 2006 and the oil supply in January 2007 from Russia demonstrate the urgency to become less dependent on unreliable large suppliers. The third reason to use biofuels in Europe is the stimulation of the agricultural sector. The European Union has an overproduction of food, which is heavily subsidised. The Common Agricultural Policy is being reformed since 1992, but even today 45% of the EU budget is spent on agriculture. In order to continue to stimulate rural development, the EU is looking for new markets for agricultural products. Biofuels provide a good opportunity for this. Finally, air quality has not been an argument for biofuels on the EU level, but it is important for local policy makers.

EU policy on biofuels

During the 1990's the European Commission tried to stimulate biofuels by a proposals for tax exemptions for biofuels, but failed to get these approved by the Member States. Later, in 2003, the Biofuels Directive was introduced. It sets a target of 2% of biofuels in 2005 and 5.75% in 2010, as percentage of total petrol and diesel use. The Member States may deviate from these targets, but their reasons to do so should be motivated. The Directive was to be evaluated end 2006 and mandatory targets were considered. There is no general support scheme for biofuels on the EU level; the Member States had to introduce their own policy instruments. Only at the agricultural level, there is EU support for farmers producing energy crops. Since 1992 there is a set-aside policy, which requires a part of the land not to be used for food production, but it can be used for energy crops. Since 2003 farmers can also opt for a direct payment for the production of energy crops.

Current use of biofuels

In 2005 only Germany, with 3.75% of biofuels, and Sweden, with 2.2% achieved the target. A considerable number of countries had insignificant biofuels use. The average EU use of biofuels in 2005 is estimated at 1%. Most of the biofuel used in Europe is biodiesel, produced locally from rapeseed. Germany, France and Italy are the major producers of biodiesel, also on a worldwide level. Bioethanol is produced and used mostly in Spain and Sweden, mainly from grains as feedstock. There are also imports of bioethanol from South-America to Europe. The fact that the 2% target was not reached, is not in itself a failure of the Directive; the Directive will have to prove itself in the future. However, the fact that a 1% biofuel use was reached in 2005 is mostly to the credit of those countries that promoted biofuels already before the Directive was in place.

Initial development of biofuels in Europe

Several countries in Europe have already been active in biofuels for a long time. Austria started its research into alternative fuels after the first oil crisis and pursued it even when oil prices went to an all-time low. This resulted in the commercialisation of biodiesel in the 1990's and the emergence of several successful biodiesel technology suppliers. In France, a research programme was followed up by a large development programme involving all stakeholders, from farmers to the oil industry. Their main motivation for the promotion of biofuels was the reform of the EU Common Agricultural Policy and thus the need for new markets for agricultural products. In Germany a lobby by farmers convinced the car manufacturers to adapt their cars for pure biodiesel use. With the entrance of the Green party in the German government, biofuels received further stimulation. Sweden has been very active in bioenergy since the first oil crisis, replacing mostly oil used for heating. The stimulation of bioethanol came later, because of agricultural motivations.

Success factors

Several success factors can be identified from the countries that were successful in the introduction of biofuels. The first important factor was a party that initiates activities or lobbies strongly for biofuels. In most cases these have been farmers' organisations. Second, a good development and implementation programme is necessary involving several actors from different parts of the biofuel chain, including the private sector. Third, there needs to be a guarantee for the end-user that he or she can safely use the biofuel in their car, certainly in the case of the use of pure biofuels. This can be done by fuel quality standards and quality control. It also requires the car companies to be involved in the case of pure biofuels or the oil companies in the case of biofuels use in blends. Finally, favouring biofuel policies are necessary.

Biofuel policy

Biofuel policies only achieve their full effect when they are reliable, which effectively means that they should be clear and consistent for a longer period of time. Most important is a way to overcome the price difference between biofuels and fossil fuels, such as a tax exemption for biofuels. However, experience from Sweden and Germany has shown that a range of policy measures, rather than a single measure, is most effective. Both countries have stimulated the use of blended and pure biofuels. Further, both have stimulated domestic production of biofuels, but also allowed imports.

Looking in more detail into the German biofuel policy, it can be observed that Germany did never levy tax on pure biofuels, although initially this had only minimal effect since the production costs of biodiesel were still too high. From 1999 the government decided to boost biodiesel by increasing the tax for fossil fuels. At the same time the price of oil started to rise and the consumer price at the pump for biodiesel became lower than diesel. This resulted in a huge boom for biodiesel and 3.75% use of biofuels in 2005, almost twice the amount required by the EU Directive. Now, however, the subsidy has started to cost the government too much money and biodiesel was even over-subsidised, thus a new policy came into effect in 2007. The German government has introduced an obligation for fuel suppliers to bring to the market a minimum amount of biofuels. This obligation has some flexibility as quota can be traded between suppliers; it also includes penalties for non-compliance. The

tax exemption for blends is directly cancelled because fuel suppliers are obliged to blend biofuels. The tax exemption for pure biofuels is not cancelled directly as this could be the end of a successful sector. It will be gradually reduced to zero in 2012. This shift in policy basically means that instead of the government, i.e. society, now the motorists, i.e. the polluters, pay the extra costs for biofuels.

Biofuel policy instruments

There are several policy instruments to support biofuels. A subsidy for the production of energy crops exist in Europe on a EU level. This is especially useful when farmers need to be persuaded to grow a new type of crop. Secondly, investment subsidies for biofuel production plants are possible, but in Europe when these involve significant amounts they have to be approved by the European Commission to prevent distortion of competition. Further, the use of biofuel vehicles can be stimulated by subsidies and favourable policies for parking. Using biofuels in government vehicles and public transport is also a good stimulant. However, the main instruments in Europe are tax exemptions and obligations. Tax exemptions have been used in most European countries and are very effective in an early market. However, they require a considerable state budget if not limited by a tender-system and might cause overcompensation, especially for certain groups of low-costs producers. Further, they do not stimulate producers to reduce costs and it is not guaranteed that set targets will be met. Obligations on the other hand are more effective in achieving targets and do give incentives to reduce costs. However, they might not be effective in an early market, where there will be only a few market players and most actors still quite unfamiliar with biofuels. It seems that in the initial phase of biofuel development tax exemptions work best, but in later stages obligations suit better, as was chosen in Germany.

New EU developments

In February 2006 the European Commission published a 'Strategy for biofuels' with proposed measures necessary for large-scale use of biofuels in the EU. It included seven policy axes: stimulating demand, capturing the environmental benefits, developing the production and distribution, expanding feedstock supplies, enhance trade opportunities, supporting developing countries and supporting R&D. Each of the policy axes was accompanied by several concrete measures, including a review of the Directive, stimulating high-blend vehicles, ensure sustainability of biofuels feedstocks, enhancing the position of biofuels in rural development programmes and agricultural policy, a campaign to inform farmers about energy crops, pursue a balanced approach of both domestic production and imports, develop a coherent 'biofuels assistance package' for developing countries and R&D for stimulate 'second-generation biofuels'.

In the fall of 2006, the European Commission has executed an impact assessment of the Biofuel Directive, including a public consultation. There were approximately 150 responses to the consultation, from industry, governments, NGOs and citizens. The respondents found the objective of the Directive still valid, although NGOs would like the use of biofuels to be assessed as part of an overall energy policy. The respondents agreed that the 2010 objective would not be met under current policies and policy measures. They suggested that the current system be changed by inclusion of mandatory targets, sustainability criteria and that there should be better harmonisation of targets and measures between Member States in order to create a common market.

The latter is, however, not supported by the Member States. They mentioned that targets beyond 2010 are required. Further, industries competing for the same resources as the biofuel industry, such as food and chemical industries expressed their concern over rising prices and availability of feedstocks.

In January 2007, the European Commission launched its 'Energy policy package' under the name 'Energy for a changing world'. It is based on the need to combat climate change, to strengthen the security of energy supply and to enhance the EU's competitiveness. It sets a 20% target for the reduction of the EU's greenhouse gas emissions by 2020 compared to 1990 with the aim to increase this to 30% if other developed countries sign up to this figure. It aims to improve the EU's energy efficiency with 20% by 2020 and proposes a 20% binding target for renewable energy in the EU by 2020. Biofuels are recognised as a very important measure to reduce the dependency on oil. It is expected that biofuels could make up 14% of total transport fuel use by 2020, but a coordinated effort will be necessary from the European Commission. It is recognised that Member States should have some freedom to optimise their renewable energy mix according to the circumstances in their countries. At the same a legally binding minimum for biofuels is deemed necessary and a figure of 10% is proposed. Member States should lay down in National Action Plans a clear long-term path to meet the targets. Further specific measures for biofuels will be brought forward later in 2007 in the 'Renewables legislative package'.