



BIOFUELS NOT AS GREEN AS THEY SOUND

EEB Position Paper on the Draft Directive on the promotion of the use of biofuels for transport and the Draft Directive amending Directive 92/81/EEC with regard to the possibility of applying a reduced rate of excise duty on certain mineral oils containing biofuels and on biofuels, COM (2001) 547

Brussels, May 2002

Although the European Environmental Bureau (EEB) welcomes the Commission's intention to reduce greenhouse gas emissions from the transport sector, it does not think that the Commission's proposals for the promotion of biofuels represent the right way of tackling this problem.

The Commission proposes a minimum share of biofuels in the total consumption of motoring fuels of 2 percent in 2005, rising to 5.75 percent in 2010. To support this development, Member States will be allowed to reduce excise duties on pure biofuels or biofuels blended into other fuels by up to 50 percent, and under certain conditions can even make them tax exempt altogether. As the Explanatory Memorandum on the proposed new directive makes clear, it is expected that biofuels will mostly be produced from agricultural sources; i.e. specifically-grown energy crops.

The EEB is against the promotion of biofuels from dedicated agricultural plantations. This Position Paper sets out our opposition, firstly by investigating the environmental impacts of biofuels produced from agricultural crops, and secondly by exploring alternative methods of reducing greenhouse gas emissions from transport. A more elaborate discussion can be found in the EEB's background paper, which contains a comparison of several studies on environmental impacts of biofuels (see www.eeb.org, EEB Background Paper on the promotion of biofuels in transport).

Environmental impacts of biofuels

Firstly, something must be said about the type of biofuels promoted under the directive. The Commission seems to favour mostly those fuels which are usually produced from intensively farmed annual crops, such as rapeseed, sugar beet and wheat.

However, there are more sources available for biofuels, such as organic waste streams from the agriculture and forestry production chain. Although the Commission admits that organic waste material also constitutes a potential source, it does not consider this to be a substantial one. The EU should set up a plan for the development of new and promising technologies to produce biofuels, such as technological innovation, which enables the cost-effective production of ethanol from cellulose. The Commission contradicts itself by saying there is little scope for large-scale biofuel production under the existing system of set-aside land, while at the same time the

language it uses makes it clear that the goal of 5.75 percent in 2010 is to be attained by using exactly this method.

The Commission estimates that 8 percent of the fuel market can be substituted by biofuels when 10 percent of the agricultural area of the EU (corresponding to 14 million hectares of agricultural land) would be dedicated to the cultivation of biofuel crops. This includes land that was taken out of food production under the Common Agricultural Policy; the so-called set-aside land. The EEB thinks that the use of such an enormous amount of land for biofuel production cannot be justified when there are so many better uses for this land, such as fodder production for the Union's livestock to improve food safety, the extensification of agricultural production, or even the production of biomass for the generation of heat and power.

Given the predicted annual growth of the transport sector of 2 percent (and without a firm policy to improve fuel efficiency at the same rate) this maximum substitution of 8 percent would be offset in less than four years by the growth in transport volume!

Regarding biomass production for the purpose of incineration for heat and power generation, this would have to meet certain requirements concerning species (no exotic plants), pest management and fertiliser use. Multi-annual biomass crops would also give wildlife a better chance of survival and existence than annual crops – even in winter - with hiding places, nesting for birds and also, provided that insecticide use is kept low or at zero, invertebrates as food for insectivores. WWF has undertaken to formulate the requirements concerning fuels fit for combined heat and power. Finally, biomass does not need to undergo any further processing for use, except for some cutting.

CO₂ saving potential of biofuels

Besides the fact that there is only a little scope for the production of biofuels from agricultural land, the production and use of biofuels from conventional agricultural crops has some consequences which are undesirable from an environmental point of view.

As the Commission says in its Communication on alternative fuels for road transport, the alternatives must offer substantial reductions in greenhouse gas emissions, so this claim will be investigated first. Biofuels do indeed offer some reductions in greenhouse gas emissions, but these are by no means substantial, due to the fossil energy needed to produce the fuels. The most widely-used biofuel, Rapeseed Methyl Ester (RME), needs one unit of fossil fuel in order to produce 2.5 to 3 units of biofuel. Compared to biofuels produced from tree residues, this is very inefficient, as up to 17 units of biofuel can be produced from tree residues with one unit of fossil fuel. (See the afore-mentioned EEB Background Paper on the promotion of biofuels in transport for more details.)

Estimations of the savings in greenhouse gas emissions vary widely. CO₂ savings found in studies and reports lie in the range of 25 to 80 percent for RME. This means that 25 to 80 percent less CO₂ is emitted using RME instead of fossil diesel for the same purpose. Taking this evidence into account, the Commission's estimate of 70 percent of CO₂ savings is rather on the optimistic side.

Besides CO₂, another greenhouse gas, N₂O, is emitted in the biofuel lifecycle, due to the application of nitrogen fertiliser. N₂O has a high potential factor for global warming; about 270 times higher than CO₂. N₂O emissions are highest for biofuels produced from rapeseed, because of the relatively high use of nitrogen fertiliser in rapeseed production. For RME, N₂O emissions result in a loss of about 10 to 15 percent of the equivalent CO₂ savings. Even if there is still a net benefit here, we have to relate this to the fact that the Commission is over-optimistic; the reduction in CO₂ gains increases the cost of the CO₂ savings and the environmental damage to ecosystems is not justifiable for this.

Costs of CO₂ savings

To assess the importance of these CO₂ savings, it is important to look at the reduction costs per ton of CO₂. Estimations for RME vary widely and are within the range of 37 to 235 EUR per ton of CO₂; reduction costs for other fuels, such as bio-ethanol, are even higher. The Commission uses an estimate of reduction costs of 100 to 150 EUR per ton, which is within the range found in reports. However, in the transport sector there are various alternatives, such as the promotion of public transport and technical adaptations in vehicles, which have the same - or lower - costs and a much larger potential for CO₂ reduction. CO₂ emission reductions in other economic sectors are even more attractive from an economic point of view. Measures such as the insulation of homes can even have negative costs, because of the energy savings they bring about.

Apart from these considerations, the loss in state income may also be relevant. The money that consumers (taxpayers) spend on achieving CO₂ savings must be used to fund measures which achieve the best possible results. However, we have already proved that CO₂ saving is too costly in the case of biofuels; and the reduction in state revenue from mineral oil taxes caused by tax-breaks on biofuels would also be very costly. This would all not be so significant if biofuels really were an environmentally friendly investment (such as the use of forest residues for the generation of heat and power and the insulation of housing, which not only save CO₂, but also save money). However, of all the possible measures to be considered for the purpose of CO₂ saving, biofuels are one of the least cost-effective alternatives. The accompanying monetary loss incurred by the state means that less money will be available for other government tasks, let alone for the costly measures required for CO₂ savings. From the above we can see that the savings to be made regarding greenhouse gases are not convincing; neither with regard to the climate gas gains to be expected, nor concerning the cost-effectiveness of the project. The German environmental protection agency, UBA, has presented a graph that indicates the costs of the different CO₂ saving strategies where biofuels score rather low. (see www.eeb.org : EEB Position Paper on the promotion of biofuels in transport (annex) for a table of costs on two different alternative policies).

Ecological effects

In addition to the low level of cost-efficiency and the limited potential for reductions in greenhouse gas emissions, there are also some environmental risks associated with the production of biofuels. The Commission promotes the cultivation of biofuel crops on land which is currently set-aside. In fact, this just means an extension of the area used for intensive farming, since the biofuel crops are among the most commonly used of food crops. On set-aside land, which is not

used for food production, the cultivation of energy crops will produce a greater environmental impact on soil and groundwater than leaving it fallow. When land is set aside, it recovers at least part of its soil life (invertebrates), but this will be reversed if the land is used once again for intensive production of agricultural crops.

Nutrients such as nitrogen and phosphorous, and pesticides used in intensive agriculture, can end up in soil, groundwater or surface waters. Here they can cause eutrophication or toxification of ecosystems, which have consequences for ecosystem health and biodiversity. For instance, pesticides kill invertebrates in the soil, thereby taking away the source of food for birds such as the grey partridge, corn bunting and skylark.

From this, we can see that the use of fertilisers and pesticides in the production of biofuels and the creation of mono-cultures can have detrimental effects on soil, groundwater, ecosystems and biodiversity. This is out of line with the EU's ambition to change towards environmentally sound agriculture. The EU has signed the Convention on Biodiversity and Agenda 21 of the United Nations Conference on Environment and Development, which aim at moving to less chemically-intensive agriculture. Following this, the Commission has issued a Communication on Indicators for the Integration of Environmental Concerns into the Common Agricultural Policy in the year 2000 (COM (2000) 20). This document sets out the first steps towards the completion of a set of ecological indicators for agriculture, particularly where indicators are poorly defined or where full data sets are missing. A Biodiversity Action Plan for Agriculture has also been published. With these documents, the EU has clearly declared its intention to move towards environmentally sound agriculture. The biofuels scheme, however, is in clear contrast to the EU's attempts to move in this direction.

Reducing greenhouse gas emissions from transport

While it has been possible (at least partly) to break the links between increasing industrial production and CO₂ emissions, the emissions in the transport sector are still increasing. This is a problem of a transport policy that has failed to set an adequate framework to guarantee transport services and respect ecological needs at the same time. Relative costs for fuel have hardly changed since the 1970s. This has given the false impression of an unlimited growth potential for the transport sector, while at the same time the global atmosphere showed signs of being overburdened.

The EU has done little to influence greenhouse gas emissions from transport. It would be much more effective if the Commission looked into the opportunities for managing the volume of the transport sector, instead of promoting the use of biofuels. **The EEB demands within 30 years a stabilisation of the total distances travelled, and a 50 percent reduction of total energy consumption in the transport sector, compared to the year 2000 (see: the EEB's "Ten Benchmarks for EU Sustainable Development", October 1999), available on the EEB's website at www.eeb.org .**

To really tackle environmental problems, we need more structural changes, such as support for public transport, switching from road transport to rail or waterways, and stimulating people to use their car less.

Another option for reducing the greenhouse gas emissions from transport is to improve the efficiency of fuels and engines. Technologies to do this are available on the market. Think of the recently-launched Volkswagen prototype which runs 100 kilometres on one litre of diesel. The existence of these kinds of technologies is recognised by the Commission, but up to now only an unambitious voluntary agreement with the car industry has been used to promote more efficient technologies. Thus, while the technical potential for more energy-efficient road vehicles has not yet been fully exploited, the Commission has proposed one of the more expensive and less efficient ways of reducing CO₂ emissions; the use of biofuels.

Conclusion

To sum up, the Commission's directive will promote an extension of the area used for intensive agriculture, and provides an inefficient solution for the tackling of climate change. Biofuel plantations require intensive farming with high-chemical input, will use large amounts of land, will burden soil and groundwater, and will decrease biodiversity. Regarding climate change, the benefits are very uncertain and the reduction costs are high. Therefore, the proposal does not make much sense, neither from an economic, an energy, nor an ecological point of view.

The EEB thinks it is much more rational to promote promising and innovative technologies to convert organic waste from the agriculture and forestry production chain into biofuels, rather than to rely on biofuels from intensively farmed crops which, anyway, only have a small potential for replacing fossil fuels. Among the fuels and fuel additives mentioned in the Directive on the reduced rate of excise duty, the following are missing: biogas, DME, oils and derivatives from animal slaughter house waste and pyrolysis oils. This will block the eligibility of these fuels to tax reduction. Instead of giving them a chance to become competitive, they are excluded.

The Commission Proposal should not result in efforts to increase renewable energy use in the transport sector being turned into an environmentally destructive, and economically unreasonable, agricultural subsidy policy. Vegetable oils should therefore, in principle, not be eligible for reductions in excise duty.

Furthermore, the EEB would like to stress again the urgent need to develop a modernisation and stabilisation policy for transport, in order to tackle structurally the environmental problems caused by the transport sector.

EEB Proposals to amend the directives:

Promotion Directive:

Biofuels from agricultural products should not be eligible for any reduction of excise duty. This would mean that the definition of raw material has to be changed in the two first indents of Article 2. We propose to change the definition of biomass in the directive, by deleting the word "agricultural products".

Directive concerning reduction of excise duty:

1. The EEB proposes to amend the Commission Proposal on excise duty reduction in such a way that biofuels from agricultural production are excluded from the scope of the scheme.
2. Fuels originating from waste of the agricultural and forestry chain should be added to the list under Articles 1 and 8b, namely biogas, DME, oils and derivatives from animal slaughterhouse waste and pyrolysis oils from waste from the agricultural and forestry chain. For reasons of transparency, the fuel types envisaged for reduction of excise duty should not only appear as CN code but also with their full names.
3. Codes 1507 to 1518 should be deleted,
4. The time the scheme remains in force should be limited to six years

The directives will then constitute adequate instruments to promote the utilisation of residues and, in the long run, to introduce energy forestry. Such production will make it possible to keep people employed in rural areas and provide some opportunities for the biodiversity of the varied cultural landscape.

EEB
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