

1. How should a biofuel sustainability system be designed?

The Commission intends to bring forward a proposal for a simple incentive/support system for biofuels. Its objective is to further increase the greenhouse gas benefits of EU biofuel policy and to minimise environmental risks. The system could discourage:

- the conversion of land with high biodiversity value for the purpose of cultivating biofuel feedstocks;
- the use of environmentally harmful systems for biofuel production.

It should avoid any discrimination between domestic production and imports and should not act as a barrier to trade. Its operation should be monitored with a view to making it more sophisticated in future.

A possible way forward

One option for the initial design of the scheme (before it is reviewed and steps are taken to make it more sophisticated) would be as follows:

a) The legislation would list the "sustainability criteria" to be fulfilled by the biofuels that are used to fulfil the biofuels target.

There could be three of these criteria (see box 1).

b) Biofuels that failed to meet one of these criteria would not count towards national biofuel targets. They would not count towards national "biofuel obligations"⁴. They would not be eligible for tax reductions and similar types of financial support.

c) Member States would be responsible for ensuring that the criteria were respected. The legislation would set out some procedural requirements (for example on reporting, verification and monitoring).

The legislation would define types of evidence that Member States would have to accept as evidence that the sustainability criteria were fulfilled (see box 2).

⁴ *Biofuels obligation*: a measure requiring a fuel supplier to incorporate a given proportion of biofuel in the fuel it sells.

BOX 1

POSSIBLE ENVIRONMENTAL SUSTAINABILITY CRITERIA FOR BIOFUELS

Sustainability criterion 1 – achieving a minimum level of greenhouse gas savings

Biofuels used to fulfil the requirements of the legislation should not emit more greenhouse gases in production than they save by avoiding the use of petrol or diesel – or (to give a safety margin) should achieve at least a given amount of greenhouse gas savings (for example 10%). The directive would define 'default values' for net greenhouse gas savings from different types of biofuel. These could, for example, be based on the ranges given in the JRC/EUCAR/Concawe "well-to-wheel" study.⁵ They would cover greenhouse gases in general, not just carbon dioxide. Biofuel suppliers could choose to use these default values, or to provide more precise information on the savings from their particular production process.

Sustainability criterion 2 – avoiding major reduction in carbon stocks through land use change Biofuels used to fulfil the requirements of the directive should not use raw material from land that was in certain land uses before a certain date (for example, the date of the Commission proposal).⁶ These land uses would be those that are associated with high carbon stocks (for example, wetlands). IPCC guidelines⁷ could be used to identify them. The directive would define the land uses in question.

Sustainability criterion 3 – avoiding major biodiversity loss from land use change
Biofuels used to fulfil the requirements of the directive should not use raw material from land that was in certain land uses before a certain date (for example, the date of the Commission proposal). These land uses would be those that are associated with exceptional biodiversity. The directive would define the land uses in question.

⁵ <http://ies.jrc.cec.eu.int/wtw.html>. The study shows that the main factors influencing biofuels' greenhouse gas balances are the raw material used, the energy source used in the transformation process and (in some cases) the use made of by-products.

⁶ This wording is not meant to rule out different verification systems being used. Examples include:

- "track and trace", under which a certificate accompanies the raw material/biofuel from farm to filling station;
- "book and claim", under which raw material/biofuel producers acquire certificates and fuel sellers have to obtain them, but the certificates are not necessarily transmitted along with the biofuel;
- "mass balance", based on figures for the proportion of material meeting the sustainability criteria that is contained in each load of raw material/biofuel.

⁷ Intergovernmental Panel on Climate Change

BOX 2

POSSIBLE TYPES OF EVIDENCE TO SHOW THAT ENVIRONMENTAL SUSTAINABILITY CRITERIA ARE RESPECTED

1. Some EU Member States and other countries are developing national schemes to measure greenhouse gas impacts. Once accredited for EU use through a comitology process, these would be evidence of greenhouse gas emissions in production (for sustainability criterion 1). The same approach could apply to international schemes that may be developed.

2. There are voluntary, international schemes setting standards for the production of agricultural and forest products. Some include requirements that would prevent land use change of the types described by criteria 2 and/or 3. Once accredited for EU use through a comitology process, these would be evidence that these criteria have been respected.

3. The European Community could negotiate bilateral or multilateral agreements with third countries, confirming that these countries have in place procedures to ensure that the types of land use change described by criteria 2 and/or 3 do not happen. The existence of such an agreement would be evidence that these criteria have been respected.

4. In the absence of these types of evidence, it would be for Member States to determine how to verify the fulfilment of the criteria. The directive could lay down minimum requirements for how this should be done.

This option is put forward as a starting point for discussion and to give an indication of how a system could work in practice.

General questions

Question 1.1:

Do you think the "possible way forward" described above is feasible?

Yes!

To our opinion there are 2 "sustainability criteria" forming a general basis of acceptance of biofuels.

1. The "eco-balance"
2. The "energy-balance"

1a: How much GHG is saved (from well to wheel) in comparison to fossil fuels.

2a: How much (fossil energy) energy is saved to produce/distribute biofuels?

European. Pure Plant Oil Org. : PPO.EU. 5

All aspects concerning land use, methods of cultivation, primary energy use etc. etc., will be subject to investigation and judgement and should be an integrated part to comply with these 2 basic criteria. A tool to measure these parameters should be implemented as to cover all available and future biofuels based on these 2 basic criteria. This tool should be used and be instrumental for all biofuels, whatever their origin, substance or capacity, and should be valid for all European member states. It is in fact a simple and effective instrument, based on practical data, easy to adjust to changes or alterations if so required. Using such a method could be feasible and acceptable, as everyone has a guideline to adhere to, easy to understand and easy to control.

Question 1.2

What do you think the administrative burden of an approach like the "possible way forward" would be? (If possible, please quantify your answer.)

None of the biofuel producers/suppliers is waiting for an additional administrative burden. It will encounter resistance and may lead to evasion. Some member states where biofuels are made available have already started to make their own controlling systems. This should be replaced by a uniform European framework, easy to understand and easy to adhere to. Under all circumstances it should be avoided that new rules, laws or other measures should lead to complicated and conflicting administrations, which inevitably will bring the costs of biofuels to a higher level and as a result will slowdown the process of biofuel developments. Certification of biofuels based on LCA (Life Cycle Analysis) parameters, where the "eco balance " and the "energy balance" may show a positive picture in comparison with fossil fuels could be a basis for acceptance and support for each viable biofuel. A tool to establish such a method would be a perfect instrument to measure the benefits Of each individual biofuel, and can give it a ranking. We recommend a uniform system for all member countries, where all original European raw materials used for biofuel purposes would get the same (supporting) administrative treatment. At the same time cheap/subsidised, non-conforming imports should be differently dealt with, in order not disturb and jeopardize a starting new European biofuel development.

Question 1.3

Please give your general comments on the "possible way forward", and on how it could be implemented. Does it give an adequate level of assurance that biofuels will be sustainable produced?

Speaking for PPO only: (Pure Plant Oil: derived from rapeseed in North-Western European territories), we find in Europe larger oil mills (hot crushing process), and some 350 rural located small-and medium sized oil mills. Basically these oil mills are crushing the rapeseed in a so-called "cold crushing "process. Generally owned by farmers and environmental dedicated individuals, these mills are located in rural areas where rapeseed is grown, using mainly the crops of the surrounding farmers in that particular area to feed the oil mills and/or purchasing raw material from other European sources. As a habit, most of the farmers, (everywhere around the globe), are using artificial fertilizers to generate a max. yield. These fertilizers are used for practically all sorts of crops meant for nutrition purposes. This includes also the rapeseed cultivation in North-Western Europe. The cultivation of rapeseed, serves 2 purposes.

1.-Generating (non-GM-modified) rapeseed "cake", as a new discovered European high protein feedstock source, thus replacing imported (G.M. = Genetic modified) soybean or rapeseed meal from non-European origin. The cake, from rural located oil mills contains a minimum percentage of 10% oil. This cake and oil are containing the important Omega-3 fatty acids, also it leaves the natural vitamins A and E unharmed! These additional features are considered to be an asset and appreciated contribution to the human food chain. In this respect the rural produced and processed rapeseed also supports the healthy European food and feedstock situation.

2. - Generating: "PPO", Pure Plant Oil, serving as pure (natural) biofuel , or to be used as cooking oil, or if required as basic raw material for the production of FAME (biodiesel). Each ton rapeseed generates approx. 2/3 ton of rapeseed cake used as feedstock, and 1/3 ton of Pure Plant Oil Currently field tests are in process, to increase the production of rapeseed per hectare, using organic fertilizers

instead of artificial fertilizers. Especially countries like the Netherlands/Belgium/Germany/Austria having surpluses of organic fertilizers (manure) could benefit from cultivating rapeseed using organic fertilizers. For some of these countries it may help to solve the problem of how to get rid of organic fertilizer surpluses. The above information/explanation, underlines the fact that the cultivation of rapeseed in no way does affect the general food supply situation. Moreover, rapeseed is a “crop rotation” culture, as it can only grow every 3 -4 years on the same piece of land, serving as an accommodating and supporting culture to rotating grain cultivations. Taking all these aspects in consideration, there is no need to differentiate between food – and non-food- or set-aside land to grow rapeseed! Rapeseed cultivations generally do not affect land with a high biodiversity, in fact it just does the opposite, rapeseed attracts all sorts of insects, birds and other animals, and it also improves the soil structure. Rapeseed cultivations are highly appreciated by beekeepers, rendering an excellent honey quality. German studies* observe a considerable advantage following the method of using organic fertilizers to reduce GHG, in the Well to Wheel approach for the use of PPO as biofuel. Testing on larger scale will be time absorbing, as it will take another 3-4 years to make a complete assessment, but in principle it is a step towards the implementation of a further reduction of GHG starting right at the source.

****The German report is available under the name:***

Gesamtenergiebilanz von dezentral produziertem Rapsöl in Abhängigkeit von unterschiedlichen Landbauformen.

Abstract

With regard to the finiteness of fossile energy source the search for alternative possibilities of energy supply has gained exceedingly higher value than ever before. Considering this fact the use of regionally available organic substances will make an essential contribution to a supply of energy which is ecologically harmless and in (total) balance with the environment. In Germany it is the oil plant RAPE which – because of climatic conditions – is of special importance. Rape seed oil (PPO) as natural preserved energy source can be produced from the crop by means of simple cold or warm pressing and in this way rape seed oil can replace the fossil diesel and respectively heating oil. In this dissertation an energy balance for cold-pressed rape seed oil is drawn. The whole expenditure of energy which is necessary for the different variants of cultivation (conventional, ecological etc.) are listed up and assessed. The influence of special parameters on the end result is documented in different ways. In order to facilitate a comparison an additional energy balance of diesel fuel is faced with the one of rape seed oil. This work makes it possible to give statements about the energetic efficiency of rape seed oil as replacement for the fossil diesel fuel and heating oil.

Source: Fachhochschule Aachen , Solar-Institut Jülich , Studiengang :Maschinenbau , Studienrichtung : Energie- und Umweltschutztechnik

Suggestion:

For PPO as pure biofuel there are 2 different approaches is measuring its sustainability:

(No matter what sort of arable land is used.)

1. Growing rapeseed with help of artificial fertilisers.
2. Growing rapeseed with organic fertilizers.

For processing there are 2 different approaches:

1. Rural production by local/regional oil mills using “coldpress”processing.
2. Centralised major oil crushing plants, using “hotpress”processing.

The latter however will probably get (part or whole) of its raw material from non-European sources, and will probably have difficulties in presenting a clean bill on fertilizer use, or presenting solid proof of other elements of sustainability, and/or GMfree origin (Genetically Modified). (In principle all rapeseed cultivations in Europe are GM-free!)

If you think the problem should be tackled in a different way, please say how, giving details of the procedures that would be used.

An assessment

Questions relating to individual criteria in box 1

Question 1.4

Carbon stock differences between land uses would be taken into account under criterion

Should they also be taken into account under criterion 1?

Yes,

If so, what method should be used to determine how the land in question would have been used if it had not been used to produce raw material for biofuels?

A method should be found to assess the carbon validity of non-arable and arable land. Non-arable land in principle should remain non-arable!

Question 1.5

As described in the "possible way forward", criterion 3 focuses on land uses associated with exceptional biodiversity. Should the criterion be extended to apply to land that is adjacent to land uses associated with exceptional biodiversity? If so, why? How could this land be defined?

No. Under the assumption that the adjacent land is arable land, it should remain its function as arable land as biodiversity is not limited to land with exceptional biodiversity. Coexistence in landscaping diversity should prevail

Question 1.6

How could the term "exceptional biodiversity" (in criterion 3) be defined in a way that is scientifically based, transparent and non-discriminatory?

There is no uniform or general way to describe "exceptional biodiversity". Each country implements its own standards to exceptional biodiversity. Under the present changing climate conditions biodiversity will change as well, Spanish butterflies, and Italian plants have been spotted already in North-Western European territories, because of climate changes! It may be expected that this trend will continue for some time ahead.

2. How should overall effects on land use be monitored?

The problem

Two of the sustainability criteria in the "possible way forward" in section 1 relate to the direct conversion of land for biofuel production from other uses. Increased demand for biofuels is also likely to have an indirect effect on land use, leading to an increase in the total amount of land devoted to forestry and crop production. This land use change will be associated with greenhouse gas savings from biofuel use. It will have other environmental effects. These could be positive or negative. The environmental effect of using land that would otherwise have been used for an out-of-town housing development is different from the effect of using land that would have been a biodiverse habitat. It seems clear that these indirect effects cannot be linked to individual consignments of biofuel. But they should still be monitored.

Possible way forward

The legislation could ask the Commission to report regularly on:

- how land use would have developed if biofuel use had remained constant;
- how land use has in fact developed; and
- the estimated effect on overall land use of increasing biofuel use.

Question 2.1:

Please give your comments on the "possible way forward" described above. If you think

the problem should be tackled in a different way, please say how.

In principle those areas designated as "non-arable land" should remain intact for the purposes their respective governments have chosen! At the same time governments should be prudent and hold back to declare arable land to be converted to other forms of land use.

Question 2.2

Do you think it is possible to link indirect land use effects to individual consignments of biofuel? If so, please say how.

Possible yes, necessary No.!

3. How should the use of second-generation biofuels be encouraged?

The Commission intends to bring forward a proposal to encourage the production and use of second-generation biofuels.

Question 3.1:

How should second-generation biofuels be defined? Should the definition be based on:

a) the type of raw materials from which biofuels are made (for example, "biofuel from cellulosic material")?

b) the type of technology used to produce the biofuel (for example, "biofuels produced using a production technique that is capable of handling cellulosic Material")?

c) other criteria (please give details)?

Basically the introduction and use of second generation of biofuels should be measured considering all aspects which apply to the first generation of biofuels. As long as it is not clear or proven if second generation biofuels show an advantage in terms of eco-balance and energy-balance in comparison with the first generation biofuels i.e. FAME, PPO and Ethanol, there will be no need for encouragement in whatever form. However if advantages do exist and can be substantiated, then suitable pre- conditions can be introduced to enable a smooth access to market introduction, under the condition that it will not affect or discriminate a further development of the first generation of biofuels.

Possible way forward

The legislation could require Member States to give an advantage to second-generation biofuels in their support systems. For example,

. Under national biofuel obligations, second-generation biofuels would count extra (for example, double) – this would mean that an obligation to achieve a 2% share of first-generation biofuels could be fulfilled, instead, with a 1% share of second-generation.

. The legislation would confirm that second-generation biofuels may receive higher subsidies than first-generation biofuels (subject to Community state aid rules and applicable Community tax legislation).

Question 3.2:

Please give your comments on the "possible way forward" described above. If you think the problem should be tackled in a different way, please say how.

This approach may give reason to misunderstanding, and misinterpretations and may be considered as discriminatory , especially when GHG and other parameters for the second generation will be worse than those known for the first generation of Biofuels , i.e. Ethanol, PPO and FAME. As a basis the recognised parameters as laid down in the eco-balance and energy-balance will prevail for all biofuels irrespective of their origin, substance or capacity.

Question 3.3

Should second-generation biofuels only be able to benefit from these advantages if they also achieve a defined level of greenhouse gas savings?

No!

4. What further action is needed to make it possible to achieve a 10% biofuel share?

The problem

The proposed target for biofuels is a 10% share, by energy content, in 2020. The easiest way to get biofuels into the market is by blending them directly with ordinary fuel and using them in low blends in ordinary vehicles. The most widely available biofuels today are ethanol (replacing petrol) and biodiesels (replacing diesel) - although other petrol and diesel replacers exist. The fuel quality directive (directive 98/70/EC) limits the direct blending of ethanol in petrol to 5% by volume. This equates to 3.4% by energy content.

The diesel standard (EN590) limits the direct blending of biodiesel in diesel to 5% by volume. This equates to 4.4% by energy content. If the 10% (energy content) target is to be met mainly by direct blending of ethanol and biodiesel, these limits will need to be changed. They will also need to be changed if the existing 5.75% (energy content) target for 2010 is to be met mainly by direct blending of these fuels.

The current situation

As a first step, the Commission has proposed amending the fuel quality directive to increase the maximum blending of ethanol in petrol to 10% by volume (6.8% by energy content). This proposal is under consideration by the Council and the European Parliament. The Commission has given the European Committee on Standardisation (CEN) a mandate to amend the diesel standard to allow a 10% biodiesel blend (8.8% by energy content). This process may take a long time – perhaps 4 years – and may not lead to widespread availability of fuel containing 10% biodiesel.

Question 4.1:

Should the legislation include measures to ensure that diesel containing 10% biodiesel (by volume) can be placed on the market, and is in fact placed on the market?

No!

The legislation should be limited to the target only. i.e. to replace 10% of mineral fuels by biofuels. Choosing all the options which in terms of GHG reduction and energy saving shows the best results! It means also that (B-100) (PPO-100) and (E-85) should be fully recognised and admitted to the market, as they are giving the highest results in GHG reductions in comparison with blending, which is, as we understand, one of the pillars and major causes for the introduction and use of biofuels. Raising blending percentages may just be one of the options to support reaching the target, if technically feasible, or from cost-effectiveness point of view, acceptable.

Other options for solving the problem

Even if the changes described in the last section come to fruition, they will not be enough for the 10% target to be met – if it is to be met mainly by direct blending of ethanol and biodiesel.

^a The term "biodiesel" in this section refers to the fuel also known as FAME (Fatty Acid Methyl Ester). The target could be met through other means than the direct blending of ethanol and biodiesel:

1. More ethanol can be added to petrol in the form of the fuel additive ETBE. However, limits on ETBE blending in the fuel quality directive mean that even with maximum use of ETBE, the 10% target will not be reached.
2. Ethanol and biodiesel can be used in high blends – 85% or 95% ethanol, 100% biodiesel, for example – outside the scope of the fuel quality directive and the diesel standard. However, unlike low blends, these fuels need specialised vehicles and distribution systems.
3. Other biofuels that can be used are biomethane (made from biogas), methanol (made from biomass-based synthesis gas) and dimethyl ether (DME). However, these fuels also need specialised vehicles and distribution systems.
4. New types of biofuel or ways of using them could avoid the blending constraints in the fuel quality directive and the diesel standard. An example is the second-generation biofuel "BTL" ("Biomass-to-liquid" or Fischer-Tropsch diesel). However, it is not certain when or if these fuels and technologies will come onto the market on a wide scale.

Question 4.2:

Should the legislation include measures to encourage the use of ethanol and biodiesel in high blends? If so, what?

Yes!

Not only high blends, but also biofuels in pure form should be encouraged. High blends and 100% biofuels are providing a max. contribution and result to the targets of reducing GHG, it should include PPO (Pure Plant Oil) and other new biofuels like Pure Plant Oil from algae. (At present in experimental stages). The first generation of biofuels already offers the opportunity to use biofuels in 100% pure form (FAME, B-100) PPO (PPO-100) and in 85% pure form (Ethanol =E-85). This possibility has been disregarded, even ignored and neglected by some countries. To facilitate and, support the use of a maximum percentage of biofuels would definitely help to reach the targets set by the EU. Even if adjustments or modifications to engines would be necessary to use pure biofuels or high blends, this should be preferred to facilitate and reach the targets. It would bring a new and favourable element in the transition to alternative fuels and would give a boost to new technical developments and innovations. (Brazil!) Many new engine toolkits have been developed by small-and medium sized companies to be applied to engines to run on pure biofuels, but also some car factories have started already to modify engines for this purpose.

Question 4.3:

Should the legislation include measures to encourage the use of biomethane, methanol and DME in transport? If so, what?

As long as "bio-based" is included in the assessments every option should be investigated. Methanol, a finite fossil commodity, has nothing to do with biofuels. is definitely not an option, as it is a chemical substance All non-bio based fuels should be banned from the biofuel list.

Possible way forward

If none of these methods can be relied on to ensure that the target will be met, it will be necessary to allow a further increase in the share of ethanol that can be blended in ordinary petrol – up to 20%, for example – and perhaps also to allow a further increase in the share of biodiesel that can be blended in ordinary diesel – up to 15%, for example. For manufacturers to take these requirements into account in designing the vehicles that will be on the roads in 2020, a decision should be made soon.

Question 4.5:

Should the legislation ask the Commission to review, by a given date, whether it is possible to be confident that the 10% target can be achieved through:

**a) rules that allow 10% blending by volume of ethanol in ordinary petrol, plus
b) rules that allow 10% blending by volume of biodiesel in ordinary diesel, plus
c) the four options listed under 'other options for solving the problem'; If so, what should the date be?**

See answers given above!

In addition all options should be given a fair chance, and more emphasis should be given to initiatives not connected or linked to the oil industry or car manufacturer industry (the Cartels), dominating and dictating the fuel markets. Up to now these conglomerates have not shown a major interest to endorse initiatives for cleaner (bio) fuels and other forms of (bio) energy. Their roots, history and interests are different from those who are actually strongly involved to establish a biofuel based society.

If the review were to conclude that the target is unlikely to be met, what action should the Commission take?

Question 4.6

More generally, what role should taxation play in the promotion of biofuels (considering different situations such as low blends, high blends and second-generation biofuels)?⁹

⁹ See also the Green Paper on market-based instruments for environment and related policy purposes, COM (2007) 140

As a number of member states are currently looking for new income sources, biofuels have become subject to taxation or will be taxed under present legislation! It meets high resistance amongst existing and starting biofuel producers/suppliers leading already to a halt of production of biofuels and

cancellation of pending biofuel investments. It threatens both production facilities and biofuel consumers who are losing their interest and confidence to switch to biofuels. Public biofuel awareness is fading away !!! Uncertainty about the future developments of biofuels, has already led to demonstrations and protest letters to several governments. Some member states are using European legislation as an excuse to implement taxes, stating they are not allowed maintaining tax exempt or tax reductions for PPO, FAME (Biodiesel) and Ethanol, explaining this would be state-aid. At the same time they wish the so-called "second generation" biofuels to be tax exempt for many years to come. Even natural gas, a fossil product, in some countries, has been given better fiscal conditions than biofuels! This is a controversy no one understands. Our advice is not to implement taxes or raise the administrative burden for biofuels, for some time ahead, but instead assist, facilitate and support the European small-and medium sized companies, " the trailblazers" , who are the actual "innovators " in the biofuel sector. To basically avoid or raise taxes on biofuels, until fossil oil prices have reached the same cost price level as those for biofuels. As a reference: "Oil companies in their starting stage have not been taxed either, this benefit should also be applied to the biofuel developments." The European Union has always claimed that the "Polluter should pay "(fossil fuels!), and cleaner fuels be respected and promoted. Unfortunately some member states ignore this advice because a uniform European biofuel strategy laid down in an overall framework does not exist.