

## BIOFUEL ISSUES IN THE NEW LEGISLATION ON THE PROMOTION OF RENEWABLE ENERGY

### 1. How should a biofuel sustainability system be designed?

#### **Question 1.1** Do you think the "possible way forward" described above is feasible?

The "possible way forward" posited by the Commission is feasible. It does raise serious concern that it may not prove robust enough to effectively discourage or prevent the conversion of land with high biodiversity value, or the use of environmentally harmful systems for biofuel production. It may also not be robust enough to prevent biofuels that do not provide a significant greenhouse gas (GHG) saving being used. If this is the case then the reason for encouraging their use (reducing GHG emissions from transport) is negated.

The promotion of biofuels should be directly linked to a mandatory certification scheme that ensures sustainable production of the raw materials used. It must also be understood and clearly communicated that biofuels alone will not address the climate and air pollution aspects of road transport use in the EU. Any biofuels strategy must go hand in hand with robust measures in the field of energy efficiency and reducing total fuel consumption.

The proposal is helpful in that it is simple and provides a first step towards encouraging the use of biofuels that offer clear GHG savings. Whilst the sustainability system does not prevent unsustainable fuels being imported into the EU, it could help to encourage the development of biofuels from more sustainable routes.

The Biofuels Directive has the primary objective of reducing GHG emissions, but also has other objectives that include the provision of "environmentally friendly security of supply". In response to this it would be particularly beneficial if the sustainability criteria were expanded to include additional criteria such as wider environmental and social goals. These should include:

- ensuring the correct crops are grown in the correct regions;
- avoiding water pollution, avoiding loss of food crops;
- controlling the use of fertilisers;
- promotion of good land management practices such as crop rotation;
- fallow land regimes and avoiding or mitigating the impact of monocultures;
- as well as ensuring that populations are not displaced in order to utilise land for biofuels.

Whilst the development of a simple initial system is understandable; it is important for business, consumer and government confidence that the system is also clear, robust and effective. Notably missing from the information provided on the sustainability criteria is consideration of the system boundaries of the GHG assessment. Where these boundaries are set will have a significant impact on the robustness of the system for measuring the GHG emissions associated with the biofuels. To ensure legitimacy of the system all major sources of GHGs attributable to the production of the fuels must be included. In addition, to ensure that the fuels can be effectively compared it is essential that the boundaries set for the different biofuels are consistent. These should include as a minimum: land change, fertiliser inputs and the production process.

Measuring the full GHG emissions of any biofuel production process is difficult to achieve with any degree of certainty. There are a range of uncertain sources of emissions which are often omitted from studies but may have a significant effect. These include the measurement of nitrous oxide and methane emissions from agricultural land. The few studies that have factored in these emissions have needed to use default values. These default values are open to significant uncertainty due to the variability arising from the differing effects of climatic and environmental conditions. There is a need for further study to be undertaken by the EU to develop robust, agreed default values.

Incentives based on weak environmental safeguards will not ensure that the EU promotes the right kind of biofuels. Weak safeguards will increase demand for the cheapest biofuels available such as palm oil, soy or sugar cane. The production of these biofuels can have devastating consequences for important ecosystems such as the rainforest and the savannah. The production of these biofuels can also have major impacts upon local food availability in these regions and other social impacts.

**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).**

It is difficult to quantify the potential administrative burden, without more detailed information on the proposals. These should be covered by an appropriate Regulatory Impact Assessment (RIA). Irrespective of the final proposals it is clear that the administrative burden for such an approach will not be insignificant.

Bio-fuel producers, suppliers or end users will need to be regulated through a robust system of checks and measures to ensure the integrity of the scheme. These checks and measures can, depending on the implementation methodology, be some form of registration, a reporting mechanism and regulatory checks or inspections. For example, the checks and measures may mirror the system being developed in the UK for the renewable obligation certificates, or emission trading type allowances or other options. All calculations of greenhouse gas savings per ton of bio-fuel produced need to be fully backed by good science to ensure bio-fuel type GHG emission saving factors are accurate and support the integrity of the scheme.

**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 sustainably produced?**

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

The "possible way forward" clearly aims to develop a market for the most environmentally responsible biofuels. However, this proposal does not provide a high level of assurance that biofuels will be sustainably produced. Biofuels will be produced across the world and the checks and measures must be applicable to all fuels – not just those grown in the EU. It is not clear whether using these proposed environmental criteria would help to achieve sustainability or whether other forms of environmental degradation may result which would be an unwanted side effect of the biofuels target. It is difficult to assess this without further qualification on the methodology that would be applied to measure the sustainability criteria. We would prefer to see a scheme developed which is run by the European Commission to prevent variable levels of protection being set by individual schemes set up by each Member State.

**Question 1.4 Carbon stock differences between land uses would be taken into account under criterion 2. Should they also be taken into account under criterion 1? 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?**

One of the key drivers for using biofuels is stated to be the potential to make significant reductions in the level of GHG emissions resulting from transport. However, it must be noted that there is also the potential to make significant detrimental impacts to virgin land or land with high conservation value. There is also the potential for changes in the carbon content of soils or loss of carbon sinks (peatlands, forests etc) to offset some or all of the potential GHG savings.

As a first step in carbon stock accounting it should be determined what the use of the land was prior to biofuel production. For example, if land has been deforested prior to being used to grow biofuels it may not be the case that biofuels were the initial crop. Cattle grazing or subsistence farming may have been undertaken in the interim. However it is essential that the GHG emissions from recent land use

changes are taken into account and essential that the criteria is robust enough to significantly lessen the potential for further deforestation or loss of carbon sinks. Schemes reliant on sustainability criteria that already take such issues into account include the Forest Stewardship Council and the EurepGAP green coffee accreditation scheme.

The EurepGAP scheme requests a number of pieces of information relating to the site history and has a cut-off date for land use change of September 2004 (see Table 1). To achieve certification a new farm cannot be planted on areas of primary forest deforested after September 2004 or on areas of secondary forest without compensation. The Forestry Stewardship Council has an earlier cut off date of 1994 and states in its criteria for certification that “Plantations established in areas converted from natural forests after November 1994 normally shall not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the certification body that the manager/owner is not responsible directly or indirectly of such conversion.”<sup>1</sup>

**Table 1: Control Points and Compliance Criteria Integrated Farm Assurance Coffee (Green)<sup>2</sup>**

	<b>Site History</b>	<b>Compliance Criteria</b>
CO . 2 . 1 . 1	Has the new farm NOT been deforested after September 2004?	There is evidence that the farmed area has not derived from primary forest deforested after September 2004 nor from secondary forest without compensation.
CO . 2 . 1 . 2	Do new plantings comply with the relevant local and national regulation with respect to land use and bio-diversity conservation?	There is documented evidence that the new plantations comply with the relevant local and national regulation with respect to land use and biodiversity conservation.
CO . 2 . 1 . 3	In the absence of relevant regulation on land use and bio-diversity conservation, are new coffee plantings compatible with good resource conservation practise proven in comparable locations?	New coffee plantings are compatible with good resource conservation practise proven in comparable locations.

The demand for biofuels is already growing and there is concern from academics and Non Governmental Organisations (NGOs) that increased deforestation or undesirable land use change may occur. The Intergovernmental Panel on Climate Change (IPCC) reported in 2000<sup>3</sup> that where deforestation or land cover change (from a natural system to agricultural) occurs, the combustion or rapid decomposition of above ground biomass leads to one-off emissions of between 200 – 1000 tonnes of CO<sub>2</sub> per hectare. These levels mean that it would be over fifty years until GHG savings would begin to have a positive effect. To safeguard land, particularly that which is a carbon sink (forestry, wetlands, grassland etc), it is essential that a specified cut-off date is provided. This is to allow for the creation of a criteria that does not consider a biofuel to have met the sustainability criteria if it has been produced from land deforested etc after a certain date. It has been suggested that the most appropriate date to set should be 1990 as this is the reference date used for targets under the Kyoto protocol.

An independent central agency using tools such as LANDSAT<sup>TM</sup> or other satellite imagery could effectively verify the land use components of certification. As there is significant variation in the potential levels of GHG emissions released throughout the production stages of biofuels, it is essential that processes are reviewed and verified by a competent and independent body.

This consultation suggests that it should be Member States who are responsible for ensuring the criteria are respected. SEPA suggests that the verification of the criteria should be the responsibility of an

<sup>1</sup> Forest Stewardship Council [Principles & Criteria of Forest Stewardship](http://www.fsc.org/en/about/policy_standards/princ_criteria/12), Principle 10: Plantations, [http://www.fsc.org/en/about/policy\\_standards/princ\\_criteria/12](http://www.fsc.org/en/about/policy_standards/princ_criteria/12)

<sup>2</sup> CONTROL POINTS AND COMPLIANCE CRITERIA INTEGRATED FARM ASSURANCE | COFFEE (GREEN) Code Ref.: IFA 3.0 CP Version: V3.0-Mar07, Section: CO [http://www.eurepgap.org/documents/webdocs/EUREPGAP\\_CPCC\\_IFA-COFFEE-Final%20V3-Mar07\\_010307.pdf](http://www.eurepgap.org/documents/webdocs/EUREPGAP_CPCC_IFA-COFFEE-Final%20V3-Mar07_010307.pdf)

<sup>3</sup> IPCC Special Report on Land Use, Land-Use Change And Forestry (2000) [http://www.grida.no/climate/ipcc/land\\_use/index.htm](http://www.grida.no/climate/ipcc/land_use/index.htm)

independent European body, or independent third party verifiers. The consistent approach across Member States will enable confidence in the scheme and ensure that all Member States are applying the sustainability criteria equally. This is even more important where there is potential for increasing carbon emissions through significant land use changes.

The IPCC Guidelines and Good Practice Guidance could provide a good basis for calculating biofuel producer's GHG emissions. These documents outline the following key areas:

1. Differing emission sources are provided with several ways of calculating the emissions, referred to as tiers (e.g. Tier A, Tier B, Tier C), and each tier has an associated increasing level of detail and accuracy. Tier A data covers actual process data. Tier B is verified data such as information about the types of farming systems and processes that can provide a good estimate, and Tier C covers data such as default values.
2. "Default emission factors" are available for many different fuels and activities in order to evaluate GHG emissions but are considered to be less accurate than country- specific and, in turn, process-specific factors. Emission factors and data specific to a country or, better still, an industry or technology, should be used wherever available.
3. Highlights that most effort should be spent on quantifying emissions from the sources that are the most critical. These include those of highest quantity, those responsible for the greatest increase or decrease of carbon emissions or those providing the highest level of uncertainty.

**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?**

Yes – however it does not seem appropriate that the general public, governments or public authorities make the decision on what constitutes exceptional biodiversity. The Commission should refer to the definition provided by experts in the field. If the specific term 'exceptional biodiversity' has not previously been defined then the Commission should look to utilising biodiversity standards currently in use by respected international bodies. Using words such as exceptional may lead to a lack of clarity and a range of interpretations across Member States.

Simply considering land with exceptional biodiversity is not sufficient and would be remiss. The Commission should be looking to "anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at the source" as is stated in the Commission's COM (98)42 Communication of the European Commission on a European Community Biodiversity Strategy. The development of sustainability criteria should uphold – as a minimum – the aims of the Commission regarding biodiversity set out in 1998. The development of the biofuels industry to fulfill the Commission's aim of a 10% biofuel share should either be undertaken with the utmost care or set aside until a Strategic Environmental Assessment has been carried out.

**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?**

The Habitats Directive and The Birds Directive definitions of what constitutes habitats and species of European importance are scientifically based, transparent and non-discriminatory, in other words objective. These definitions could be used to determine exceptional biodiversity at a European level. In addition, there are also other conventions and international agreements that may have a bearing, such as the Ramsar Convention on wetlands of international importance, or the Convention on Biological Diversity (the "Rio Convention"). At a national level, there are two methods which could be considered for UK-relevant definitions of exception biodiversity if required at Member State level. These are the way

that the UK identifies biodiversity priorities for the UK Biodiversity Action Plan, and the criteria used to identify, in Great Britain, Sites of Special Scientific Interest.

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

Amongst the impacts that need to be carefully monitored are:

- Soil erosion: Row crops like corn and soya are thought to cause significantly more soil erosion than sod crops as the soil between the rows can wash or blow away. Crops grown on unsuitable soils may also cause soil degradation or erosion.
- Soil quality: Particularly in view of plans to increase the use of stubble or crop 'wastes'. Crop residues are essential for soil nutrition, water retention, and soil carbon. For example, producing cellulosic ethanol from crop residues such as the stalk, roots, and leaves can remove water, carbon, and essential nutrients from the soil. This increases the requirement for additional fertiliser use and resulting in poorer soil quality.
- Biodiversity loss.
- Set aside land: To preserve soil and land quality and to avoid problems of soil erosion, soil loss and loss of nutrients it is essential that set aside land (particularly in the UK/Europe context) is maintained. It is essential that the farmers are still able to manage land effectively and observe good land management practices such as crop rotation and fallow land.
- Water quality: Pollution of surface and groundwater with pesticides and/or fertiliser runoff that depletes oxygen from water bodies, and the impact of soil erosion upon water bodies (soil erosion can cause waterways to become clogged with sediment and hence be unviable).
- Water use: Unsustainable use of water resources.
- Food security: careful monitoring must be undertaken to ensure that nations do not risk allowing biofuel crops to compete with food crops to the detriment of indigenous populations. This may be even more important for the fuels sourced from outside Europe.

**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.**

SEPA would support the development of standards based upon the UK Biofuels Environmental Standard proposed by the Low Carbon Vehicle Partnership (LowCVP) which sets out Principles, Criteria and Indicators<sup>4</sup> that describe and mitigate the principal environmental impacts of biofuel cultivation and production. These are listed below:

- Conservation of Carbon
  - Protection of above-ground carbon
  - Protection of soil carbon
- Conservation of Biodiversity
  - Conservation of important ecosystems and species
  - Basic good biodiversity practices
- Sustainable Water Use
  - Efficient water use in water critical areas
  - Avoidance of diffuse water pollution
- Waste Management
  - Waste management complies with relevant legislation
  - Safe storage and segregation of waste
- Maintenance of soil fertility

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<sup>4</sup> Low Carbon Vehicle Partnership (2006) Response of the UK Low Carbon Vehicle Partnership to the Review of the EU Biofuels Directive.  
<http://www.lowcvc.org.uk/assets/viewpoints/LowCVP%20response%20to%20EU%20Review%20of%20Biofuels%20Directive%20-%20Sept%202006.pdf>

- Protection of soil structure and avoidance of erosion
- Maintain nutrient status
- Good fertiliser practice
- Good Agricultural Practice
  - Use of inputs complies with relevant legislation
  - Use of inputs justified by documented problem
  - Safe handling of materials
- Planning, Records & Improvement
  - Environmental plan for production unit
  - Records maintained for operations, training and environmental impacts
  - Improvement cycle based on planning and records

**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.**

No.

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

Second generation fuels may perform better than most - but not all – first generation fuels so incentives must be based upon GHG-savings on a well to wheel basis for all feedstock. Further study, including lifecycle assessment, needs to be undertaken to assess the true GHG emissions associated with potential second generation fuels. There is also the opportunity to promote the use of wastes such as tallow and used cooking oil for the production of biodiesel or the reprocessing of municipal waste. Some second generation biofuels would not have to compete with food production as they could be produced from agricultural, forestry and municipal waste co-products.

Innovative methods, such as these, should be promoted as development of the biofuel market. Any consideration of what to promote should be undertaken with an awareness of an increasing global population and the effects of climate change on food production globally. Depending on the prices available to producers, there may be temptation, both in Europe and globally, to switch from food production to grow energy crops. It is essential that the implications for food production, for biodiversity and from the environmental impact of agrochemicals are considered.

It must also be noted that not all “wastes” are equal. Second generation biofuels are capable of extracting increased efficiency from a range of “wastes” and in some instances this is stated to include forest “waste” and agricultural wastes such as straw stubble etc. It is important to ensure that a balance in utilising these types of wastes is maintained. This is because organic matter left in forests and fields is essential to maintain soil quality and fertility, to protect against erosion and soil loss and also to maintain biodiversity. Utilising municipal and commercial waste to produce biofuels should be promoted to each Member State.

**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)?**

It is generally accepted that second generation biofuels are bioethanol, biobutanol and fuels produced from synthesis gas such as gasoline and diesel that are derived from lignocellulosic biomass (such as cereal straw, trees, waste paper, etc.).

**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.**

SEPA does not agree that there is adequate environmental reason to discriminate in favour of second-generation biofuels. Fuels should be considered based on their GHG savings and not on the technology required to produce them.

**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?**

Yes. If any fuel does not achieve a defined level of GHG savings, within a system that provides a clear level of environmental protection, it should not benefit from the advantages afforded to sustainable fuels. Many of the second-generation fuels, that are currently in development, are not only prohibitively expensive but are also very energy intensive to produce. These impacts must be taken into account.

SEPA  
4 June 2007