

## **Open consultation on requirements for a sustainability scheme for energy uses of biomass**

The Commission is currently analyzing the need for a European-wide sustainability scheme for energy uses of biomass. This questionnaire seeks your views on key principles and criteria/indicators to be developed at EU level to ensure that the biomass for energy purposes comes from sustainable sources. Though the main target audience are EU citizens, comments from outside the EU will be welcome.

This consultation concerns sustainability criteria for energy uses of biomass *other than transport*. For transport, a public consultation has been carried out on the sustainability of biofuels. The results of that consultation fed into the Commission's proposal for a directive on the promotion of the use of energy from renewable sources (RES Directive), which is currently under consideration by the European Parliament and the Council.

The RES Directive is available at:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008PC0019:EN:NOT>

The public consultation documents on the sustainability of biofuels for transport are available at: [http://ec.europa.eu/energy/res/consultation/biofuels\\_en.htm](http://ec.europa.eu/energy/res/consultation/biofuels_en.htm)

Therefore, comments on sustainability criteria for biofuels should only concern potential areas of overlap with criteria for the use of biomass for electricity and heating.

The questionnaire covers five areas:

- A – General questions about the appropriateness and scope of a biomass sustainability scheme
- B – Consideration of the greenhouse gas methodology (based on the methodology proposed in Annex VII of the RES Directive)
- C – Consideration of end-use efficiency
- D – Consideration of other environmental sustainability criteria such as for sustainable forest management
- E – Verification

This questionnaire takes approximately 30 minutes to complete. The consultation closes on 30 September 2008.

For data protection reasons, the Commission will not process any specified personal data provided by respondents.

Responses can also be sent to [TREN-UNIT-D1@ec.europa.eu](mailto:TREN-UNIT-D1@ec.europa.eu) by 30<sup>th</sup> September 2008. This document exists only in English, but responses can be in any Community language.

If you have views on some questions and not others, do not hesitate to send an answer covering only these questions.

Contributions will be published, on [http://ec.europa.eu/energy/res/consultation/index\\_en.htm](http://ec.europa.eu/energy/res/consultation/index_en.htm)

*This document has been prepared by the Commission services as a basis for comments. It does not prejudice the final form of any decision to be taken by the Commission.*

## Background information

On 23rd January 2008 the Commission adopted a new **Energy and Climate Package**, including a proposal for a directive on the promotion of the use of energy from renewable sources (RES Directive<sup>1</sup>) which sets national binding targets for Member States in view of achieving an overall 20% EU share of renewable energy sources in energy consumption by the year 2020. The RES directive includes a proposal for a sustainability scheme for (a) biofuels for transport and (b) bioliquids used in other sectors (heating and electricity).

The projections made for the Renewable Road Map of January 2007<sup>2</sup> suggested that biomass has the potential to make a very significant contribution to reaching the 20% target. The growing use and production of biomass has created an international biomass market which is bound to expand. Concerns have been expressed that such an expansion may endanger efforts for sustainable provision of biomass and there are calls to regulate this through the introduction of a wider biomass sustainability scheme. The Commission does not have a definitive view on this question, but seeks to explore it through the present consultation exercise.

Article 15(7) of the RES Directive provides that the Commission should report on requirements to extend the proposed sustainability scheme to energy uses of biomass other than biofuels and bioliquids (notably solid and gaseous fuels in heating and electricity) by 31 December 2010.

The RES Directive provides that biofuels/bioliquids that do not fulfil the proposed sustainability criteria should not count towards the EU's renewable energy targets, not count towards "renewable energy obligations", nor receive financial support for consumption. The Commission is minded to retain this approach in relation to sustainability of energy uses of biomass.

Other considerations which the Commission deems important are that sustainability criteria should be defined in precise legal terms, to ensure clarity and common understanding of requirements by all stakeholders around the world, and the need to limit administrative burden in monitoring and complying with the criteria, while ensuring that effective environmental safeguards are put in place.

In the light of these considerations, Article 15 of the proposed RES Directive contains four distinct criteria for biofuels for transport and bioliquids:

- a minimum greenhouse gas savings of 35%, based on the data and methodology in the proposed Directive (see Annex VII of the proposed Directive)
- no raw material to be used from highly biodiverse lands such as undisturbed forest and nature protected areas
- raw material not to be obtained from conversion of land with high carbon stock land, such as wetlands and continuously forested areas.
- EU producers must meet the requirements of the EU's agricultural 'cross-compliance' regulations, which provide a standard for environmental management on farms.

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<sup>1</sup> COM(2008)19 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008PC0019:EN:NOT>

<sup>2</sup> COM(2006)848 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52006DC0848:EN:NOT>

The main challenges with any scheme would be that the sustainability criteria it establishes ought to be clear, quantifiable and verifiable, while avoiding unreasonable administrative burden for the industry and for verifiers. The procedures of verification must be reliable, providing evidence of fulfilling the sustainability criteria.

The Commission believes that it is essential to analyse the need for a sustainability scheme for energy uses of biomass with stakeholder involvement. A workshop which took place on 18 March 2008 was the first step in such consultation<sup>3</sup>. The basis of the discussion was a study prepared by the Biomass Technology group which provides an overview of already existing frameworks for biomass certification:

[http://ec.europa.eu/energy/res/sectors/bioenergy\\_publications\\_en.htm](http://ec.europa.eu/energy/res/sectors/bioenergy_publications_en.htm)

The study identifies the various voluntary schemes which exist for forest certification, energy crop certification, certification schemes in the power sector and certification schemes related to the Clean Development Mechanism (CDM) under the Kyoto protocol. These schemes vary widely and are not based on the same principles or processes of providing evidence and verification. It should be stressed that requirements laid down in voluntary schemes of this kind cannot automatically be taken over in mandatory sustainability schemes of the kind proposed by the Commission on sustainable biofuels, not least because they are privately developed, according to self-proposed standards, are often limited to single themes or a narrow range of issues and vary from country-to-country.

As a second step of consultations, the Commission is seeking the views of public authorities, businesses, non-governmental organisations and other interested parties on the need for a European wide and internationally applicable sustainability scheme for energy uses of biomass and specific key principles and criteria/ indicators to be developed at EU level to ensure that the biomass for energy purposes comes from sustainable sources.

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<sup>3</sup> [http://ec.europa.eu/energy/res/legislation/biofuels\\_sustainability\\_criteria\\_en.htm](http://ec.europa.eu/energy/res/legislation/biofuels_sustainability_criteria_en.htm)

## QUESTIONS

### **PART A – General questions and scope**

#### **Question A1**

Is there a need for a sustainability scheme for biomass for electricity and heating purposes?

- Yes  
 No

If yes, should such a scheme be introduced at:

- EU level, and as such to have a single scheme across the EU  
 Member State level

Please explain your choice(s):

#### **Question A2**

A biomass sustainability scheme should be:

- legally binding, where only biomass which meet the sustainability criteria would count towards the national renewable energy targets laid down in the RES-Directive (this is the approach followed in the biofuels sustainability scheme)  
 legally binding, where all electricity and heat producers with installed capacity above a certain size – say 25 kW – would be required to procure only sustainable biomass - this option would exclude small-scale purchasers of biomass (e.g. pellets used in biomass boilers in the household).  
 legally binding, where biomass producers (biomass from agriculture, forestry and waste) could only place sustainable biomass on the market  
 a voluntary scheme, where biomass producers and electricity, heating and cooling providers must inform consumers about the sustainability of biomass produced/ consumed with appropriate labelling/ information

Please explain how your choice could work in practice:

#### **Question A3**

Biomass is defined as/considered to be: the biodegradable fraction of products, waste and residues from biological origin, from agriculture (including vegetal and animal substances), forestry and related industries, as well as the biodegradable fraction of industrial and municipal waste.

Please indicate which of the following biomass for the production of heating and electricity should be considered by a biomass sustainability scheme:

Solid biomass:

- forestry harvesting residues (stems, tops, bark, branches, stumps, leaves and coarse roots)  
 forest-based produce such as fuel wood  
 wood-processing residues (sawdust, shavings, woodchips, wood briquettes and pellets)  
 energy crops  
 agricultural/ crop residues (cereal straws, bagasse, husks, cobs, nut shells, grains)

- recovered post-consumer wood
- biodegradable fraction of municipal waste
- other biodegradable fraction of industrial waste

Biogas derived from:

- animal manure
- slurry
- green waste
- waste food

Bioliquids derived from (the term bioliquids is used for electricity and heating purposes, whereas biofuels refers to transport uses):

- plants and vegetable oils
- tall oil
- black liquor

Please explain your choice(s):

#### Question A4

In your opinion, are there any types of biomass used for electricity, heating and cooling which should never be counted towards renewable energy targets for reasons of sustainability?

- Yes, some types should not be counted
- No, all types should be counted

If yes, please explain your choice and indicate the types of biomass that should be excluded, and the circumstances under which they should be excluded:

### **PART B – Greenhouse gas methodology**

To measure compliance, the design of the scheme has to ensure that the sustainability criteria can be applied to individual consignments of biomass. For instance, requirements related to minimum greenhouse gas emissions savings can be checked from an individual consignment of biomass, by determining the origin of the biomass and any greenhouse gas emissions incurred in its cultivation, production or transport (life-cycle analysis). To assess life-cycle emissions, we need techniques which can efficiently be applied to individual consignments of biomass.

Article 15(2) of the proposed RES Directive contains a criterion for minimum greenhouse gas savings for biofuels of 35% relative to the replaced fossil fuel (petrol or diesel), based on the data and methodology in the proposed Directive (see Annex VII of the proposed Directive)

#### Question B1

The RES Directive proposes a required minimum greenhouse gas (GHG) savings for transport fuels (biofuels) of 35%. The methodology for calculating GHG savings is set out in Annex VII of the RES Directive.

The European Commission is working to establish data to calculate life-cycle GHG emission figures for all types of biomass used for electricity and heating. The following types of biomass are being analysed: processed wood fuel (pellets, wood briquettes, wood chips, sawdust), black liquor, fuel wood, timber and forest residues, i.e. stems, tops, branches, leaves, stumps and coarse roots etc.

The final methodology chosen to calculate greenhouse gas savings will allow for setting a specific cut-off figure (such as 35% for biofuels). Assuming that the methodology is the same for all types of biomass, in your opinion, the level of ambition for minimum greenhouse gas savings of biomass for heating and electricity purposes

- should be the same as for biofuels for transport
- should be higher than for biofuels for transport
- should be lower than for biofuels for transport
- should not have requirements for minimum greenhouse gas savings

Please give reasons for your view:

### Question B2

GHG methodology for biofuels allocates zero emissions to cultivation or collection of certain biofuel feedstocks. Annex VII, point 16, third paragraph, states that "**wastes, agricultural crop residues, including straw, bagasse, husks, cobs and nut shells, and residues from processing chains, other than biofuel processing chains, with no potential food or feed use shall be considered to have zero life cycle greenhouse gas emissions up to the process of collection of these materials**".

Please indicate which bio-wastes and residues should (in a greenhouse gas methodology) be considered to have zero greenhouse gas emissions at the point of collection:

- forestry harvesting residues (stems, tops, bark, branches, stumps, leaves and coarse roots)
- forest-based produce such as fuel wood
- wood-processing residues (sawdust, shavings, woodchips, wood briquettes and pellets)
- agricultural/ crop residues (cereal straws, bagasse, husks, cobs, nut shells, grains)
- recovered post-consumer wood
- biodegradable fraction of municipal waste
- other biodegradable fraction of industrial waste
- animal manure
- slurry
- green waste
- waste food
- black liquor
- Other (please list):

Please explain your choice(s):

### Question B3

The RES Directive also defines how to allocate greenhouse gas emissions to **co-products**, which are produced in processes and systems with multiple outputs (e.g. refineries, cogeneration of electricity and heat, production of rape meal as a co-product with biodiesel).

The allocation of greenhouse gas emissions in the biofuels sustainability scheme is done by allocation based on 'energy' values of co-products.

It is important to assess whether this approach is also appropriate for biomass in general. Please indicate what you consider to be co-products of electricity and heating production using biomass and if there are any co-products produced during any part of the production chain (cultivation, processing and fuel in use) which cannot be accounted for in terms of 'energy-allocation'?

#### **Question B4**

The sustainability criteria also consider land-use issues.

Articles 15(3) and 15(4) of the proposed RES Directive define certain categories of land that cannot be used for the production of biofuels and other bioliquids, to protect biodiversity and to avoid conversion of high carbon stock land for biofuel feedstock production, as follows:

Biofuels shall not be made from raw material obtained from land with high biodiversity values:

- a) forest undisturbed by significant human activity, that is to say, forest where there has been no known significant human intervention or where the last significant human intervention was sufficiently long ago to have allowed the natural species composition and processes to have become re-established;
- b) areas designated for nature protection purposes, unless evidence is provided that the production of that raw material did not interfere with those purposes;
- c) highly biodiverse grassland, that is to say grassland that is species-rich, not fertilised and not degraded.

Biofuels should not count towards renewable energy targets or benefit from any support if the use of biofuels results in major reduction in carbon stocks through land use change, that is

- a) conversion of wetlands, that is to say land that is covered with or saturated by water permanently or for a significant part of the year, including pristine peatland
- b) conversion of continuously forested areas, that is to say land spanning more than 1 hectare with trees higher than 5 metres and a canopy cover of more than 30%, or trees able to reach these thresholds *in situ*;

A possible approach would be to argue that such land requirements should be identical, regardless of the types of biomass under consideration and that they should therefore also be applied to biomass. Please indicate whether you would share this approach and if not why not.

- Yes  
 No

Explanation:

#### **Question B5**

The greenhouse gas methodology for calculating emission savings when using biofuels and bioliquids also takes into account land use issues, by penalising conversion of high-carbon stock land to lower carbon stock land. The penalties are based on data for carbon stock of

certain land used for biofuel feedstock provisions on the basis of values provided by the International Panel on Climate Change (IPCC) as indicated below:

<b>land use</b>	<b>carbon stock (tons of carbon per hectare)</b>
oil palm plantation	189
permanent grassland, that is to say, rangelands and pasture land which have been under grassland vegetation and pasture use for at least 5 years and are not forested	181
lightly forested area (forest that is not continuously forested area)	181
arable (including grassland not considered as permanent; plantation of tree borne oil seeds; land that has been set aside in accordance with Article 2, paragraph 1 of Commission Regulation (EC) 796/2004 <sup>4</sup> and land that was tropical forest, was cleared before January 2008, and had the status of abandoned land in January 2008)	82
desert and semidesert	44

The wider use of biomass requires consideration of a broader range of feedstocks, including residues and bio-wastes. With IPCC data being valid mainly for land used by annual crops and forests, land used by feedstocks such as perennial grasses and short-rotation coppice may need to be added to the standard data list.

Please state which emission factors and calculation methods could be developed for perennial grasses and short rotation-coppice that are not covered by the above table:

**PART C – End use efficiency of biomass**

**Question C1**

The greenhouse gas methodology developed for biofuels does not take into account the end use of the energy, because it was developed for road transport, where most vehicles have similar end-use efficiencies.

However biomass can be processed at very different efficiency levels in different applications such as very low efficiency burning in small open fires and very high efficiency burning in some large co-generation plants, where the useful heat is delivered through district heating.

Please indicate whether you think the end use efficiency of biomass in electricity, heating and cooling should be accounted for in a sustainability scheme and if so, how?

End-use efficiency should not be part of the sustainability scheme

<sup>4</sup> Commission Regulation (EC) No 796/2004 of 21 April 2004 laying down detailed rules for the implementation of cross-compliance, modulation and the integrated administration and control system provided for in of Council Regulation (EC) No 1782/2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers Official Journal L 141, 30/04/2004 P.0018-0058

- End-use efficiency should be included in the greenhouse gas calculation methodology
- A bonus should be granted for efficient uses of biomass in national support schemes
- Inefficient uses of biomass should be banned
- Penalties for inefficient uses of biomass, such as not counting towards renewable energy targets

Please explain your choice:

### Question C2

The Commission proposed in Article 12(5) of the RES Directive that Member States should promote biomass conversion technologies that achieve a conversion efficiency of at least 85% for residential and commercial applications and at least 70% for industrial applications.

Please comment on whether you agree with these efficiency thresholds:

<b>D – Sustainable forest management</b>
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Forest biomass represent important sources of renewable energy that can reduce greenhouse gas emissions when they are used efficiently to replace fossil fuels and producing environmentally friendly products. Forests also provide habitats for a variety of animal and plant species (biodiversity) and serve economic and social functions. Substitution for fossil fuel is only one way in which forestry and the forest based industry contributes to the reduction of greenhouse gases. Other ways are through the carbon sink function of the forest, the sequestration of carbon in wood products and the substitution of energy intensive products.

Sustainable forest management has a long tradition in Europe and is the key objective of international processes, such as the Ministerial Conference on the Protection of Forests in Europe (MCPFE) and the United Nations Forum on Forests.

Sustainable forest management is defined by MCPFE as: *The stewardship and use of forests and forest lands in a way and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems.*

Sustainable forest management aims at producing an annual sustained yield of timber, fibre for energy while maintaining or increasing forest carbon stocks and other social and ecological benefits. Inside the EU, sustainable forest management practices and the enlargement of the forest area have resulted in increased availability of forest resources and expanded carbon stocks in the forest.

Wood can be used for several different purposes: either for energy, or as raw materials for pulp and paper production, construction, chemical industry and furniture or panel making etc.

Woody biomass from forests for energy generation besides traditional fuel wood often comes as a by-product of harvesting in forests for timber (bark, tops, branches, stumps, roots) or

from first thinning. The other important sources of wood for energy are wood residues from wood processing (sawdust, chips) and post consumer recovered wood.

Therefore, it could be justified not to require sustainable forest management criteria simply to be applied to energy uses of biomass, because much of the biomass used for energy comes as by-product from other harvesting or industrial processes. Due to such integrated production it may also be questionable that sustainable forestry criteria can be developed for energy uses of wood only.

Moreover, as forests are managed not only to provide wood for energy purposes but for other purposes too, it is likely that any criteria developed for use of wood for bioenergy, may lead to the application of sustainability criteria for the use of wood for other purposes, and it is not the objective of this consultation to consider sustainability criteria for non-energy uses of wood.

### **Question D1**

Taking the above into account, in your opinion, should sustainable forest management criteria for forest biomass for energy purposes be developed?

- Yes  
 No

Please explain your response:

### **Question D2**

If the EU decides to develop sustainable forest management criteria, a common understanding is needed with common criteria.

The European Community is committed to sustainable forest management (SFM) through several international processes, including the Ministerial Conference on the Protection of Forests in Europe (MCPFE), which led to the development of sustainable forest management principles and indicators (to help governments report on sustainable forest management).

The Pan-European Operational Level Guidelines for Sustainable Forest Management, as endorsed by the Lisbon Ministerial Conference on the Protection of Forests in Europe (2 to 4 June 1998) and improved by the MCPFE expert level meeting in Vienna in October 2002, are based on the following principles/ indicators:

- a) Maintenance and Appropriate Enhancement of Forest Resources and their Contribution to Global Carbon Cycles (such as maintenance and enhancement of forest area, forest per capita, maintenance of age structure and / or diameter distribution and carbon stock)
- b) Maintenance of Forest Ecosystem Health and Vitality (such as control of deposition of air pollutants, maintenance of soil conditions)
- c) Maintenance and Encouragement of Productive Functions of Forests - Wood and Non-Wood (such as balance between net annual increment and annual felling of wood, quantity of marketed roundwood and non-wood goods)
- d) Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems (such as maintenance of tree species composition, maintenance of

share of natural regeneration and share of planting and seeding and maintenance of naturalness of forest, protection of threatened forest species

- e) Maintenance and Appropriate Enhancement of Protective Functions in Forest Management (notably soil and water i.e. prevent erosion and protect water supplies
- f) Maintenance of Other Socio-Economic Functions and Conditions (such as contribution of forest sector to GDP and existence of occupational safety and health requirements and accessibility for recreation and maintenance of cultural and spiritual values

The six principles from the MCPFE are insufficiently precise to serve as clear criteria, and as a result, the application of these principles varies from region to region. In contrast, the sustainability scheme for biofuels and other bioliquids includes very precise criteria, which is to prohibit the use of raw material from undisturbed/ primary forests (i.e. highly biodiverse forests), but the biofuel/ bioliquid scheme does not say anything about harvesting from other types of forests.

Today, the most common way to apply the principles of MCPFE is through certification schemes, which today all work on a voluntary basis and include the Programme for the Endorsement of Forest Certification (PEFC), the Forest Stewardship Council (FSC), the American Tree Farm system, Malaysian Timber Certification Council and the Dutch Keurhout and the majority of the forests certified through these schemes are either in Europe or North America.

In view of this, please indicate options for precise and measurable criteria for sustainable forestry which could be applied globally and which would comply with the MCPFE principles:

### Question D3

These six MCPFE criteria presented in Question D2 are currently implemented through market based voluntary certification initiatives. There are other options which can be considered. Please choose one option:

To develop harmonised operational common sustainability criteria to be applied to all forests (globally) and to ensure that only biomass which comes from sustainably managed forests should count towards renewable energy targets. This would warrant the development of common sustainability criteria, and proof of compliance could be through certification or through other methods, such as bilateral agreements etc.

EU could develop minimum requirements for forest certification schemes on the basis of which forest certification schemes would be accredited and the certificate would be the only possible proof of compliance.

EU should not take action on sustainable forestry for energy purposes, but instead promote the already existing voluntary schemes globally.

EU should require Member States to develop long-term, e.g. 10 year period, planning tools for sustainable forest management for forest in their own territory (this would exclude any requirements for non-EU forest)

Please explain your choice and how your choice could best be applied in practice, paying particular attention to countries where there are no existing schemes for SFM:

<b>E – Verification</b>
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It will be necessary to verify compliance of claims about sustainability of biomass.  
Please indicate any instruments/ standards or schemes which could be used to verify compliance: