A sustainable bioenergy policy for the period after 2020

Fields marked with * are mandatory.

Introduction

EU Member States have agreed on a new policy framework for climate and energy, including EU-wide targets for the period between 2020 and 2030. The targets include reducing the Union's greenhouse gas (GHG) emissions by 40 % relative to emissions in 2005 and ensuring that at least 27 % of the EU's energy comes from renewable sources. They should help to make the EU's energy system more competitive, secure and sustainable, and help it meet its long-term (2050) GHG reductions target.

In January 2014, in its Communication on A policy framework for climate and energy in the period from 2020 to 2030,[1] the Commission stated that '[a]n improved biomass policy will also be necessary to maximise the resource-efficient use of biomass in order to deliver robust and verifiable greenhouse gas savings and to allow for fair competition between the various uses of biomass resources in the construction sector, paper and pulp industries and biochemical and energy production. This should also encompass the sustainable use of land, the sustainable management of forests in line with the EU's forest strategy and address indirect land-use effects as with biofuels'.

In 2015, in its Energy Union strategy,[2] the Commission announced that it would come forward with an updated bioenergy sustainability policy, as part of a renewable energy package for the period after 2020.

Bioenergy is the form of renewable energy used most in the EU and it is expected to continue to make up a significant part of the overall energy mix in the future. On the other hand, concerns have been raised about the sustainability impacts and competition for resources stemming from the increasing reliance on bioenergy production and use.

Currently, the Renewable Energy Directive[3] and the Fuel Quality Directive[4] provide an EU-level sustainability framework for biofuels[5] and bioliquids.[6] This includes harmonised sustainability criteria for biofuels and provisions aimed at limiting indirect land-use change,[7] which were introduced in 2015.[8]

In 2010, the Commission issued a Recommendation[9] that included non-binding sustainability criteria for solid and gaseous biomass used for electricity, heating and cooling (applicable to installations with a capacity of over 1 MW). Sustainability schemes have also been developed in a number of Member States.

The Commission is now reviewing the sustainability of all bioenergy sources and final uses for the period after 2020. Identified sustainability risks under examination include lifecycle greenhouse gas emissions from bioenergy production and use; impacts on the carbon stock of forests and other ecosystems; impacts on biodiversity, soil and water, and emissions to the air; indirect land use change impacts; as well as impacts on the competition for the use of biomass between different sectors (energy, industrial uses, food). The Commission has carried out a number of studies to examine these issues more in detail.

The development of bioenergy also needs to be seen in the wider context of a number of priorities for the Energy Union, including the ambition for the Union to become the world leader in renewable energy, to lead the fight against global warming, to ensure security of supply and integrated and efficient energy markets, as well as broader EU objectives such as reinforcing Europe's industrial base, stimulating research and innovation and promoting competitiveness and job creation, including in rural areas. The Commission also stated in its 2015 Communication on the circular economy[10] that it will 'promote synergies with the circular economy when examining the sustainability of bioenergy under the Energy Union'. Finally, the EU and its Member States have committed themselves to meeting the 2030 Sustainable Development Goals.

[1] COM(2014) 15.

[2] COM/2015/080 final.

[3] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140, 5.6.2009, p. 16).

[4] Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (OJ L 350, 28.12.1998, p. 58).

[5] Used for transport.

[6] Used for electricity, heating and cooling.

[7] Biomass production can take place on land that was previously used for other forms of agricultural production, such as growing food or feed. Since such production is still necessary, it may be (partly) displaced to land not previously used for crops, e.g. grassland and forests. This process is known as indirect land use change (ILUC); see http://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/land-use-change.

[8] See more details on the existing sustainability framework for biofuels and bioliquids in section 5.

[9] COM/2010/0011 final.

[10] Closing the loop – an EU action plan for the circular economy (COM(2015) 614/2).

1. General information about respondents

* 1.1. In what capacity are you completing this questionnaire?

- academic/research institution
- as an individual / private person
- civil society organisation
-

international organisation
- other
- private enterprise
- professional organisation
- public authority
- public enterprise

* 1.2. If you are a private or public enterprise, could you please indicate your principal business sector?

- Agriculture
- Automotive
- Biotechnology
- Chemicals
- Energy
- Food
- Forestry
- Furniture
- Mechanical Engineering
- Other
- Printing
- Pulp and Paper
- Woodworking

* 1.3. If you are a private or public enterprise, could you please indicate the size of your company?

(Medium-sized enterprise: an enterprise that employs fewer than 250 persons and whose annual turnover does not exceed EUR 50 million or whose annual balance-sheet total does not exceed EUR 43 million.
Small enterprise: an enterprise that employs fewer than 50 persons and whose annual turnover and/or annual balance-sheet total does not exceed EUR 10 million.
Micro-enterprise: an enterprise that employs fewer than 10 persons and whose annual turnover and/or annual balance-sheet total does not exceed EUR 2 million.)

- large enterprise
- medium-sized enterprise
- small enterprise
- micro-enterprise
- I don't know

1.8. If replying as an individual/private person, please give your name; otherwise give the name of your organisation

200 character(s) maximum

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Göteborg Energi AB
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1.9. If your organisation is registered in the Transparency Register, please give your Register ID number.

(If your organisation/institution responds without being registered, the Commission will consider its input as that of an individual and will publish it as such.)

200 character(s) maximum

1.10. Please give your country of residence/establishment

- ○ Austria
- ○ Belgium
- ○ Bulgaria
- ○ Croatia
- ○ Cyprus
- ○ Czech Republic
- ○ Denmark
- ○ Estonia
- ○ Finland
- ○ France
- ○ Germany
- ○ Greece
- ○ Hungary
- ○ Ireland
- ○ Italy
- ○ Latvia
- ○ Lithuania
- ○ Luxembourg
- ○ Malta
- ○ Netherlands
- ○ Poland
- ○ Portugal
- ○ Romania
- ○ Slovakia
- ○ Slovenia
- ○ Spain
- ◉ Sweden
- ○ United Kingdom
- ○ Other non-EU European country
- ○ Other non-EU Asian country
- ○ Other non-EU African country
- ○ Other non-EU American country

* 1.11. Please indicate your preference for the publication of your response on the Commission's website:
(Please note that regardless the option chosen, your contribution may be subject to a request for

access to documents under Regulation 1049/2001 on public access to European Parliament, Council and Commission documents. In this case the request will be assessed against the conditions set out in the Regulation and in accordance with applicable data protection rules.)

- (●) Under the name given: I consent to publication of all information in my contribution and I declare that none of it is subject to copyright restrictions that prevent publication.
- ( ) Anonymously: I consent to publication of all information in my contribution and I declare that none of it is subject to copyright restrictions that prevent publication.
- ( ) Please keep my contribution confidential. (it will not be published, but will be used internally within the Commission)

Perceptions of bioenergy

2.1. Role of bioenergy in the achievement of EU 2030 climate and energy objectives

Please indicate which of the statements below best corresponds to your perception of the role of bioenergy in the renewable energy mix, in particular in view of the EU's 2030 climate and energy objectives:

- (●) Bioenergy should continue to play a dominant role in the renewable energy mix.
- ( ) Bioenergy should continue to play an important role in the renewable energy mix, but the share of other renewable energy sources (such as solar, wind, hydro and geothermal) should increase significantly.
- ( ) Bioenergy should not play an important role in the renewable energy mix: other renewable energy sources should become dominant.

2.2. Perception of different types of bioenergy

Please indicate, for each type of bioenergy described below, which statement best corresponds to your perception of the need for public (EU, national, regional) policy intervention (tick one option in each line):

	Should be further promoted	Should be further promoted, but within limits	Should be neither promoted nor discouraged	Should be discouraged	No opinion
Biofuels from food crops	(●)	( )	( )	( )	( )
Biofuels from energy crops (grass, short rotation coppice, etc.)	(●)	( )	( )	( )	( )

Biofuels from waste (municipal solid waste, wood waste)					
Biofuels from agricultural and forest residues					
Biofuels from algae					
Biogas from manure					
Biogas from food crops (e.g. maize)					
Biogas from waste, sewage sludge, etc.					
Heat and power from forest biomass (except forest residues)					
Heat and power from forest residues (tree tops, branches, etc.)					
Heat and power from agricultural biomass (energy crops, short rotation coppice)					
Heat and power from industrial residues (such as sawdust or black liquor)					
Heat and power from waste					

Large-scale electricity generation (50 MW or more) from solid biomass	◉	○	○	○	○
Commercial heat generation from solid biomass	◉	○	○	○	○
Large-scale combined heat and power generation from solid biomass	◉	○	○	○	○
Small-scale combined heat and power generation from solid biomass	◉	○	○	○	○
Heat generation from biomass in domestic (household) installations	◉	○	○	○	○
Bioenergy based on locally sourced feedstocks	◉	○	○	○	○
Bioenergy based on feedstocks sourced in the EU	◉	○	○	○	○
Bioenergy based on feedstocks imported from non-EU countries	◉	○	○	○	○
Other	○	○	○	○	○

3. Benefits and opportunities from bioenergy

3.1. Benefits and opportunities from bioenergy

Bioenergy (biofuel for transport, biomass and biogas for heat and power) is currently promoted as it is considered to be contributing to the EU's renewable energy and climate objectives, and also having other potential benefits to the EU economy and society.

Please rate the contribution of bioenergy, as you see it, to the benefits listed below (one answer per line):

	of critical importance	important	neutral	negative	No opinion
Europe's energy security: safe, secure and affordable energy for European citizens	◉	○	○	○	○
Grid balancing including through storage of biomass (in an electricity system with a high proportion of electricity from intermittent renewables)	◉	○	○	○	○
Reduction of GHG emissions	◉	○	○	○	○
Environmental benefits (including biodiversity)	◉	○	○	○	○
Resource efficiency and waste management	◉	○	○	○	○
Boosting research and innovation in bio-based industries	◉	○	○	○	○
Competitiveness of European industry	◉	○	○	○	○
Growth and jobs, including in rural areas	◉	○	○	○	○
Sustainable development in developing countries	◉	○	○	○	○
Other	◉	○	○	○	○

Please specify the "other" choice

200 character(s) maximum

Biogas production often enables efficient recirculation of phosphorous and other nutrients.

3.2. Any additional views on the benefits and opportunities from bioenergy? Please explain

2500 character(s) maximum

In addition to all benefits and opportunities from bioenergy mentioned in question 3.1, it should be emphasized
that we will need bioenergy in order to meet the 1,5 degree target. Meeting the 1,5 degree target is one of the
biggest challenges of our time, and there is still no clear answer to how it can be done. In that context it would
be inappropriate to continue with an extended discussion on whether or not biofuels should play a dominant
role in the renewable energy mix. Using bioenergy will substantially improve our ability to meet the 1,5 degree
target, and that is probably one of the most important benefits from bioenergy. In fact, there seems to be no
practical way of meeting the target without using bioenergy as part of the solution.
Biomass can yield many benefits, often simultaneously. In the case of anaerobic digestion, volatile solids turn
into methane gas, which can then be used as a source of renewable electricity and heat or as a transport fuel.
The remaining material coming out of a digester is rich in nutrients, water and organic carbon, making an
excellent organic fertiliser.

In addition to reducing GHG emissions through the substitution of fossil fuels by renewable energy, anaerobic
digestion also mitigates climate change by:
- Replacing mineral fertilisers. At the moment European agriculture relies heavily on industrially manufactured
fertilisers, where nutrients are sourced from mining as well as from energy intensive processes (e.g. the Haber-
Bosh process fixes most Nitrogen used in agriculture by taking 3-5% of the world’s natural gas consumption).
- Avoiding GHG emissions from decomposing organic waste. Landfilling and open manure storage are amongst
the biggest sources of methane emissions (a GHG at least 23 times more potent than CO2). By introducing an
anaerobic digestion step in the management of this waste, virtually all methane emissions are avoided.
- Use the soil as a natural carbon sink. Organic fertilisers produced via anaerobic digestion have substantial
amounts of organic carbon. Once applied into the soil, this organic carbon increases its fertility and also stores
it in its structure (serving as a carbon sink)
The production of bioenergy can enable other advanced use of biomass, such as the production of biochemicals in biorefineries.

4. Risks from bioenergy production and use

4.1. Identification of risks

A number of risks have been identified (e.g. by certain scientists, stakeholders and studies) in relation to bioenergy production and use. These may concern specific biomass resources (agriculture, forest, waste), their origin (sourced in the EU or imported) or their end-uses (heat, electricity, transport).

Please rate the relevance of each of these risks as you see it (one asnwer per line):

	critical	significant	not very significant	non-existent	No opinion
Change in carbon stock due to deforestation and other direct land-use change in the EU	○	○	○	◉	○
Change in carbon stock due to deforestation and other direct land-use change in non-EU countries	○	○	◉	○	○
Indirect land-use change impacts	○	○	◉	○	○
GHG emissions from the supply chain (e.g. cultivation, processing and transport)	○	○	◉	○	○
GHG emissions from combustion of biomass (‘biogenic emissions’)	○	○	○	◉	○
Impacts on air quality	○	○	◉	○	○
Impacts on water and soil	○	○	○	◉	○
Impacts on biodiversity	○	○	◉	○	○
Varying degrees of efficiency of biomass conversion to energy	○	○	◉	○	○

Competition between different uses of biomass (energy, food, industrial uses) due to limited availability of land and feedstocks and/or subsidies for specific uses	○	○	◉	○	○
Internal market impact of divergent national sustainability schemes	◉	○	○	○	○
Other	○	○	○	○	○

4.2. Any additional views on the risks from bioenergy production and use? Please explain

2500 character(s) maximum

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In Sweden, and other Member States with a long tradition of bioenergy
production and use, there is legislation in place that safeguards sustainable
methods in forestry, farming or other activities where bioenergy is a part of
the activities.
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5. Effectiveness of existing EU sustainability scheme for biofuels and bioliquids

In 2009, the EU established a set of sustainability criteria for biofuels (used in transport) and bioliquids (used for electricity and heating). Only biofuels and bioliquids that comply with the criteria can receive government support or count towards national renewable energy targets. The main criteria are as follows:

- Biofuels produced in new installations must achieve GHG savings of at least 60 % in comparison with fossil fuels. In the case of installations that were in operation before 5 October 2015, biofuels must achieve a GHG emissions saving of at least 35 % until 31 December 2017 and at least 50 % from 1 January 2018. Lifecycle emissions taken into account when calculating GHG savings from biofuels include emissions from cultivation, processing, transport and direct land-use change;
- Biofuels cannot be grown in areas converted from land with previously (before 2008) high carbon stock, such as wetlands or forests;
- Biofuels cannot be produced from raw materials obtained from land with high biodiversity, such as primary forests or highly biodiverse grasslands.

In 2015, new rules[1] came into force that amend the EU legislation on biofuel sustainability (i.e. the Renewable Energy Directive and the Fuel Quality Directive) with a view to reducing the risk of indirect land-use change, preparing the transition to advanced biofuels and supporting renewable electricity in transport. The amendments:

- limit to 7 % the proportion of biofuels from food crops that can be counted towards the 2020 renewable energy targets;
- set an indicative 0.5 % target for advanced biofuels as a reference for national targets to be set by EU countries in 2017;
- maintain the double-counting of advanced biofuels towards the 2020 target of 10 % renewable energy in transport and lay down a harmonised EU list of eligible feedstocks; and
- introduce stronger incentives for the use of renewable electricity in transport (by counting it more towards the 2020 target of 10 % renewable energy use in transport).

[1] Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources (OJ L 239, 15.9.2015, p. 1).

5.1. Effectiveness in addressing sustainability risks of biofuels and bioliquids

In your view, how effective has the existing EU sustainability scheme for biofuels and bioliquids been in addressing the risks listed below? (one answer per line)

	effective	partly effective	neutral	counter-productive	No opinion
GHG emissions from cultivation, processing and transport	○	●	○	○	○
GHG emissions from direct land-use change	○	○	○	○	●
Indirect land-use change	○	○	○	○	●
Impacts on biodiversity	○	○	●	○	○
Impact on soil, air and water	○	○	●	○	○

Any additional comments?

2500 character(s) maximum

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The directive itself has not helped the increase of biofuel production in
Sweden at all, because of the, for the Swedish situation, very low ambition.
Hence, the sustainability criteria has not had any actual impact in Sweden.
Again, the existing legislation in Sweden already deals with the potential
risks listed, better than the directive.
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5.2. Effectiveness in promoting advanced biofuels

In your view, how effective has the sustainability framework for biofuels, including its provisions on indirect land-use change, been in driving the development of 'advanced' biofuels, in particular biofuels produced from ligno-cellulosic material (e.g. grass or straw) or from waste material (e.g. waste vegetable oils)?

- ○ very effective
- ○ effective
- ○ neutral
- ◉ counter-productive
- ○ no opinion

What additional measures could be taken to further improve the effectiveness in promoting advanced biofuels?

2500 character(s) maximum

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The concept of double counting towards the target is counterproductive, in the
respect that it in practice lowers the target even more. No policy instruments
or support schemes in Sweden, recognizes double counted biofuels by giving
them any advantages. If any form of double counting should be used (which we
think is highly questionable), it would have been a better idea to count less
advanced biofuels as half of that of advanced biofuels, or, one better, count
it according to CO2 reduction. Then the target would not be watered down, as
is now the case.
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5.3. Effectiveness in minimising the administrative burden on operators

In your view, how effective has the EU biofuel sustainability policy been in reducing the administrative burden on operators placing biofuels on the internal market by harmonising sustainability requirements in the Member States (as compared with a situation where these matter would be regulated by national schemes for biofuel sustainability)?

- ○ very effective
- ○ effective
- ◉ not effective
- ○ no opinion

What are the lessons to be learned from implementation of the EU sustainability criteria for biofuels? What additional measures could be taken to reduce the administrative burden further?

2500 character(s) maximum

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The complexity of the scheme punishes small and medium size businesses, with
administrative burden and
considerable cost, and favors large actors with higher administrative
capacity. This has been shown in a recent
study by the Swedish Energy Agency. The new EU sustainability policy should
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include a threshold for reporting
to protect small and medium size enterprises.
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5.4. Deployment of innovative technologies

In your view, what is needed to facilitate faster development and deployment of innovative technologies in the area of bioenergy? What are the lessons to be learned from the existing support mechanisms for innovative low-carbon technologies relating to bioenergy?

2500 character(s) maximum

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As long as fossil fuels prices are as low as they are, bioenergy will need
some form of support.
Specifically for transport, where the value chain is typically long, because
most biofuels require special infrastructure, and vehicles, there is a need to
address the whole value chain. The Directive for Alternative Fuels
Infrastructure is a good initiative for safeguarding available infrastructure
for biomethane (compressed and liquefied) and electricity.
Support schemes must be sufficiently long term predictable, in order to make
the large investments necessary possible.
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6. Effectiveness of existing EU policies in addressing solid and gaseous biomass sustainability issues

6.1. In addition to the non-binding criteria proposed by the Commission in 2010, a number of other EU policies can contribute to the sustainability of solid and gaseous bioenergy in the EU. These include measures in the areas of energy, climate, environment and agriculture.

In your view, how effective are current EU policies in addressing the following risks of negative environmental impacts associated with solid and gaseous biomass used for heat and power? (one answer per line)

	effective	partly effective	neutral	counter-productive	No opinion
Change in carbon stock due to deforestation, forest degradation and other direct land-use change in the EU	○	○	○	◉	○
Change in carbon stock due to deforestation, forest degradation and other direct land-use change in non-EU countries	○	◉	○	○	○

Indirect land-use change impacts	○	○	○	○	◉
GHG emissions from supply chain, e.g. cultivation, processing and transport	○	◉	○	○	○
GHG emissions from combustion of biomass (‘biogenic emissions’)	○	○	○	○	◉
Air quality	◉	○	○	○	○
Water and soil quality	◉	○	○	○	○
Biodiversity impacts	◉	○	○	○	○
Varying degrees of efficiency of biomass conversion to energy	○	○	◉	○	○
Competition between different uses of biomass (energy, food, industrial uses) due to limited availability of land and feedstocks	○	○	◉	○	○
Other	○	○	○	○	○

6.2. Any additional views on the effectiveness of existing EU policies on solid and gaseous biomass? Please explain

2500 character(s) maximum

Much of the above is covered by existing legislation in Member States. The concept of "biogenic emissions" is not relevant where bioenergy use is a cyclic process, where growing plants or trees take up the CO2 released in combustion. This is elementary biology and should not be part of a serious debate.

7. Policy objectives for a post-2020 bioenergy sustainability policy

7.1. In your view, what should be the key objectives of an improved EU bioenergy sustainability policy post-2020? Please rank the following objectives in order of importance: most important first; least important 9th/10th (you can rank fewer than 9/10 objectives):

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Contribute to climate change objectives	●	○	○	○	○	○	○	○	○	○
Avoid environmental impacts (biodiversity, air and water quality)	○	○	○	○	○	●	○	○	○	○
Mitigate the impacts of indirect land-use change	○	○	○	○	○	○	○	○	○	○
Promote efficient use of the biomass resource, including efficient energy conversion	○	○	○	○	●	○	○	○	○	○
Promote free trade and competition in										

the EU among all end-users of the biomass resource	○	○	○	○	○	○	○	○	○	○
Ensure long-term legal certainty for operators	○	◉	○	○	○	○	○	○	○	○
Minimise administrative burden for operators	○	○	○	○	○	○	○	○	○	○
Promote energy security	○	○	○	○	○	○	◉	○	○	○
Promote EU industrial competitiveness, growth and jobs	○	○	◉	○	○	○	○	○	○	○
Other	○	○	○	◉	○	○	○	○	○	○

Please specify the "other" choice

200 character(s) maximum

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Contribute to an improved trade balance in the EU by reducing imports of
fossil fuels.
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7.2. Any other views? Please specify

2500 character(s) maximum

8. EU action on sustainability of bioenergy

8.1. In your view, is there a need for additional EU policy on bioenergy sustainability?

- (●) No: the current policy framework (including the sustainability scheme for biofuels and bioliquids, and other EU and national policies covering solid and gaseous biomass) is sufficient.
- ( ) Yes: additional policy is needed for solid and gaseous biomass, but for biofuels and bioliquids the existing scheme is sufficient.
- ( ) Yes: additional policy is needed on biofuels and bioliquids, but for solid and gaseous biomass existing EU and national policies are sufficient.
- ( ) Yes: a new policy is needed covering all types of bioenergy.

8.2. In your view, and given your answers to the previous questions, what should the EU policy framework on the sustainability of bioenergy include? Please be specific

5000 character(s) maximum

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Acknowledge the fact that natural environments, the role of bioenergy in the
economy, national legislation and sustainability challenges vary wildly
between Member States, and sometimes within Member States. Therefore:
- Focus on specific problems, in specific areas where there are known problems
or known risks, rather than imposing legislation across the whole market,
where it may not contribute anything, or even be counterproductive.
- Use existing legislation as a starting point. Typically, national
legislation in Member States is well suited to safeguard the specific
challenges for sustainability that may exist nationally.
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9. Additional contribution

Do you have other specific views that could not be expressed in the context of your replies to the above questions?

5000 character(s) maximum

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Development of bioenergy often involves creation of rural jobs. This in itself
contributes to the social aspect of the sustainability. The increasing trend
of urbanisation poses a threat to the continued existence of many rural
communities across Europe, not least in Sweden.
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Finally, you may upload here any relevant documents, e.g. position papers, that you would like the European Commission to be aware of.

Thank you for participation to the consultation!

Contact

✉ SG-D3-BIOENERGY@ec.europa.eu