

# A sustainable bioenergy policy for the period after 2020

Fields marked with \* are mandatory.

## Introduction

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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<sup>[10]</sup> 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

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\* 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

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

*200 character(s) maximum*

ENEA: Italian National agency for new technologies, Energy and sustainable economic development

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*

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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

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### 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Biofuels from energy crops (grass, short rotation coppice, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Biofuels from waste (municipal solid waste, wood waste)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biofuels from agricultural and forest residues	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biofuels from algae	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biogas from manure	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biogas from food crops (e.g. maize)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Biogas from waste, sewage sludge, etc.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heat and power from forest biomass (except forest residues)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heat and power from forest residues (tree tops, branches, etc.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Heat and power from agricultural biomass (energy crops, short rotation coppice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Heat and power from industrial residues (such as sawdust or black liquor)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heat and power from waste	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Large-scale electricity generation (50 MW or more) from solid biomass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Commercial heat generation from solid biomass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Large-scale combined heat and power generation from solid biomass	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small-scale combined heat and power generation from solid biomass	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heat generation from biomass in domestic (household) installations	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bioenergy based on locally sourced feedstocks	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Bioenergy based on feedstocks sourced in the EU	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bioenergy based on feedstocks imported from non-EU countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 3. Benefits and opportunities from bioenergy

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#### 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	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grid balancing including through storage of biomass (in an electricity system with a high proportion of electricity from intermittent renewables)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduction of GHG emissions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Environmental benefits (including biodiversity)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Resource efficiency and waste management	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boosting research and innovation in bio-based industries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Competitiveness of European industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Growth and jobs, including in rural areas	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sustainable development in developing countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

*2500 character(s) maximum*

Point by point: energy security is increased by biomass domestically sourced, however, given the current harvest ratio of the EU's forests Net Annual Increment, a further increase would lead to overexploitation and/or competition with other uses. Energy crops cultivation is much cheaper in other countries, there would not be an improvement in security. Safety: 40000 europeans die every year because of biomass burning (data from European Respiratory Society). Costs: while other renewables have still large reduction margins (being mostly related to capex for the installation), biomass beside the capex has opex (feedstock) dependant on other markets, therefore the costs do not profit much from technological development. Grid balancing: the already high costs of power from biomass would increase if the biomass power plants would not work at full capacity, and in any case they are not very fast and effective in following the demand, they can be considered similar to base load power plants, such as coal plants. At the point of combustion biomass is more GHG intensive (and polluting) than any other fuel. All the scenario analyses which have included all carbon pools (LULUCF) and market mediated impacts have shown that, in policy relevant time scales, a bioenergy back-off scenario is more effective in reducing GHG emissions. Environment and biodiversity: an increase in bioenergy production would surely negatively impact air quality, water cycle and quality, biodiversity. Resource efficiency: only the valorisation of residual streams and waste can be considered resource efficient, the increase in dedicated production of biomass for bioenergy only would compete with other uses. Bio-based industries would have to face higher feedstock prices with an increase of bioenergy production. Bioenergy should be a by-product of these industries. Research and innovation: there could be synergies, but the main target should be the production of high added value products to replace the fossil ones. Competitiveness: other renewables and energy storage and carriers have a much brighter future than combustion based technologies; the EU should look in that direction not to lose an opportunity and get stuck with old and polluting technologies. Growth and jobs: there are other uses of biomass (materials, food, feed, fibers) with much higher added value and job intensity than combustion. Developing countries: we shall not repeat the mistake with the 2009 biofuels policy.

## 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 answer 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	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Change in carbon stock due to deforestation and other direct land-use change in non-EU countries	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indirect land-use change impacts	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GHG emissions from the supply chain (e.g. cultivation, processing and transport)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GHG emissions from combustion of biomass ('biogenic emissions')	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on air quality	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on water and soil	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on biodiversity	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Varying degrees of efficiency of biomass conversion to energy	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competition between different uses of biomass					

(energy, food, industrial uses) due to limited availability of land and feedstocks and/or subsidies for specific uses	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal market impact of divergent national sustainability schemes	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

*2500 character(s) maximum*

Point by point: LULUCF in EU: there is no risk of deforestation in EU, however, the difference in carbon sink with and without bioenergy production is significant, and equivalent to emissions. With any LULUCF accounting there will still be the risk of not fully capturing this difference. LULUCF non EU: any additional demand of land, being for biomass for energy or not, does generate additional pressure on forest, and thus, deforestation. ILUC: is a fact, see the deforestation in south-east Asia for palm oil. Supply chain GHG emissions: they are always significant and often underestimated. Biogenic carbon emissions shall be accounted for both at the point of combustion and at the point of absorption to get a comprehensive accounting and avoid leakages. Air quality: biomass combustion is polluting, causes deaths and high costs to society for respiratory diseases (see European Respiratory Society). Water and soils: energy crops cultivation surely increases pressure on water and soils, but also the use of residues (agricultural or forest) may have a negative impact, depending on specific local conditions. Biodiversity is generally negatively affected by bioenergy production. However there are specific conditions in which biomass production may enhance biodiversity. Efficiency: several studies report that the best use of biomass is direct combustion for heat (or electricity in a CHP). With the processing in biofuels more than half of the energy content is lost. A cascaded use would in any case increase the efficiency of biomass use, with the combustion at the end of life. Competition: this is the key aspect of biomass sustainability: all the other uses have better performances in all areas, better economics, better environmental performances, higher job intensity. Other renewables have a much higher efficiency for energy: PV has about 10 times higher solar light conversion efficiency than algae in perfect growing conditions (which need more energy than they produce), 100 times the efficiency of crops, 1000 times the efficiency of forests. Wind power land use is negligible compared to biomass. Land, water and fertile soils are the limited resources that mankind shall not waste for energy production. Only waste, or residual biomass shall be used for bioenergy (including marginal or abandoned land, even though the definition may be tricky). To conclude, the EU should raise its ambition and pave the way towards a combustion free society, rather a green one.

## 5. Effectiveness of existing EU sustainability scheme for biofuels and bioliquids

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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	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GHG emissions from direct land-use change	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indirect land-use change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Impacts on biodiversity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Impact on soil, air and water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Any additional comments?

*2500 character(s) maximum*

By creating additional demand, the EU policy has generated additional supply chain emissions. The current sustainability criteria may be theoretically effective in discouraging the worse performing pathways. However, the gaps in legislation implementation, chain of custody and reporting have hindered the efficacy of the sustainability scheme. Only the cap on first generation biofuels has actually discouraged the production of biofuels with high environmental impacts. The methodology for direct LUC emissions is only partially effective because the amount of Soil Organic Carbon (SOC) is not evaluated. Therefore the SOC of cropland which remains cropland but loses SOC, (and therefore fertility and water retention properties) is not accounted for. The same happens to carbon in the forest with the above and below ground carbon. ILUC: only the 2015 directive has addressed the issue, putting a cap on first generation biofuel. However, the lignocellulosic materials used for second generation biofuels may suffer of the very same problem of first generation biofuels. Ambitious target for second generation biofuels will move the competition with food, feed and fibres crops from the commodity market to the land market. Even though the current sustainability criteria forbid the use of high biodiverse areas, the same problem of ILUC apply to biodiversity. Even if the biomass comes from land or forests already under management, the additional demand creates additional demand of land at the expenses of natural habitats for the production of food, feed and fibres.

The impacts on soil, air and water have not been considered at all in the current sustainability criteria. Actually the result is conflicting messages from EU legislation. On one hand there are policies aimed at fighting desertification (loss of fertile soil), on the other hand policies aiming at overexploiting the soil by removing the residues for bioenergy. There are policies aimed at fighting air pollution, and policies incentivising the combustion of biofuels. The EU policies should have a more holistic and integrated approach. Sectorial and conflicting messages should be avoided.

## 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*

The sustainability framework has failed in differentiating the feedstock with other possible uses with the actual waste. In practice the whole system is not following a cascaded approach, incentivising first the uses of biomass with higher added value and job intensity and lower GHG emissions. the whole policy should be redefined following the principle of the circular economy. the mistake is in the definition of advanced biofuels itself.

## 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*

The system is rather effective, the administrative burden is minimal. However, rather than GHG calculation, specific black, or white lists, shall be defined locally, together with production targets. They would be clearer and easier, and at the end, they would be the same as default values, but with less complications, and may take into account local specificities, such as the risk

of desertification or eutrophication, forest age structure and wood market and many other parameters. Biomass sustainability depends on local conditions, and has to be defined locally.

#### 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*

Considering the biomass carbon neutral has hindered the development of innovative technologies. Innovative low carbon technologies are those who actually cause a decrease in carbon in the atmosphere. A low carbon technology is a technology which increases the carbon absorption, stores the carbon in the SOC or in the forest, produces materials which replace fossil ones or valorises the energy content of biomass at its end of life. In cutting and burning a forest, or cultivating a piece of land and burning the crop, there is nothing innovative or low carbon, does not matter which process or end product is used.

## 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Change in carbon stock due to deforestation, forest degradation and other direct land-use change in non-EU countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Indirect land-use change impacts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
GHG emissions from supply chain, e.g. cultivation, processing and transport	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
GHG emissions from combustion of biomass ('biogenic emissions')	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Air quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Water and soil quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Biodiversity impacts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Varying degrees of efficiency of biomass conversion to energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Competition between different uses of biomass (energy, food, industrial uses) due to limited availability of land and feedstocks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

*2500 character(s) maximum*

In few words, according to the current sustainability scheme, if all the forest in EU are cut and burnt, there is less CO2 in the atmosphere, because all the biomass combustion produces GHG savings. This is clearly an exaggeration; however, even the definition of SFM (Sustainable Forest Management) does not require anything on forest carbon stock. Indirect Land Use Change is an issue as well. If EU economic operators are paid to burn biomass the result is that the production of materials is delocalised towards countries with lower labour costs and environmental protection, leading to deforestation. EU citizens lose three times. EU citizens pay the incentives. EU citizens get the pollution from bioenergy combustion (solid or biofuels). EU citizens lose the high added value and job potential from material production. And the EU pulp and paper industry is already moving towards South America. On environmental impacts the same as biofuels apply: the impacts on

soil, air and water have not been considered at all in the current sustainability criteria and there are conflicting messages from EU policies, e.g. lower air pollution but more biomass combustion, protecting biodiversity but more land under human management, preserve fertility but burn the agricultural residues etc.. Again, the main issue is finding the best use of biomass and establishing a priority list for the use of biomass and land. What is recommended in the circular economy with the cascaded use.

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

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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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoid environmental impacts (biodiversity, air and water quality)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mitigate the impacts of indirect land-use change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote efficient use of the biomass resource, including efficient energy conversion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote free trade and competition in										

the EU among all end-users of the biomass resource	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Ensure long-term legal certainty for operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minimise administrative burden for operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Promote energy security	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
Promote EU industrial competitiveness, growth and jobs	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## 7.2. Any other views? Please specify

*2500 character(s) maximum*

All the objectives are important, and a strategy to maximise them all is a 'cascaded' use of biomass: firstly high added value products (food, feed, fibers and materials in general); secondly biomass should be recovered and recycled (second life, nutrients) and finally, if no other uses are possible, biomass is used for energy production.

Any policy framework not following this scheme would distort the market and have counterproductive effects.

## 8. EU action on sustainability of bioenergy

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### 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*

The EU policy should refrain from implementing policies distorting the market in favour of the energy use of biomass. The approach to be adopted should follow 'cascaded' use of biomass: firstly high added value products (food, feed, fibers and materials in general); secondly biomass should be recovered and recycled (second life, nutrients) and finally, if no other uses are possible, biomass is used for energy production.

The sustainability of biomass depends on local conditions, the criteria should be local.

Bioenergy use of biomass has the lowest added value and job intensity and the highest environmental impact when compared to other uses.

The main mistake of the past EU policies was the assessment of the impact of EU energy policies with market models limited to the energy market, therefore excluding the material sectors, and excluding the land use emissions. This approach has led to an overestimation of the GHG savings and economic performances of bioenergy policies.

## 9. Additional contribution

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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*

The EU has already all the scientific basis to underpin a post 2020 biomass policy (and not anymore bioenergy policy) based on a cascaded use of all kind of biomass and learn from the past mistakes.

See:

<https://ec.europa.eu/energy/sites/ener/files/documents/EU%20Carbon%20Impacts%20of%20Biomass%20Consumed%20in%20the%20EU%20final.pdf>

<http://bookshop.europa.eu/en/the-impact-of-biofuels-on-transport-and-the-environment-and-their-connection-with-agricultural-development-in-europe-pbQA0415069/>

<http://bookshop.europa.eu/en/carbon-accounting-of-forest-bioenergy-pbLBNA25354/>

<http://bookshop.europa.eu/en/estimates-of-indirect-land-use-change-from-biofuels-based-on-historical-data-pbLDNA26819/>

and many others

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

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