# 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

* 1.4. If you are a professional organisation, which sector(s) does your organisation represent?

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

1.5. If you are a professional organisation, where are your member companies located?

- ☐ 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
- [ ] non-EU country(ies)

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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IWO (Institut für Wärme und Oeltechnik)
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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 | ◉ | ○ | ○ | ○ | ○ |

Please specify the "other" choice

*200 character(s) maximum*

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Power to liquid technology, power to heat technology, harmonized EU Market
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## 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 | ○ | ○ | ○ | ○ | ○ |

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

*2500 character(s) maximum*

## 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*

## 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*

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*

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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New regulations should be based on the excisting system.
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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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Research and development should be promoted, e.g. cost-effective production of
"power to liquid"
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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*

## 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 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

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*

## 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*

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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