

# 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

\* 1.4. 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*

CEMA - European Agricultural Machinery Industry Association  
(www.cema-agri.org)

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

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

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

Please specify the "other" choice

*200 character(s) maximum*

### 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 checked="" type="radio"/>	<input type="radio"/>	<input 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduction of GHG emissions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Environmental benefits (including biodiversity)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resource efficiency and waste management	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boosting research and innovation in bio-based industries	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competitiveness of European industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Growth and jobs, including in rural areas	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sustainable development in developing countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Please specify the "other" choice

*200 character(s) maximum*

Energy-independent farming through direct, decentralized provision of energy - e.g. using bioenergy locally produced on the farm for powering machinery (pure plant oil or methane from a biogas plant).

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

*2500 character(s) maximum*

Several new innovative models already exist to power agricultural machines with bio-based energy produced directly in a decentralized manner on the farm. Apart from significant GHG emission reductions, such schemes have multiple secondary benefits for farmers and the world of agriculture (e.g. turning farmers into energy providers, providing farmers with valuable additional income streams, help bridging the gap that Europe has in locally sourced high-protein animal feed etc.).

Plant-oil powered tractor: certain tractor models today can already drive with either diesel, biodiesel, or pure plant oil. The machine automatically recognizes the fuel and the electronic control unit of the engine reacts accordingly so as to comply with the strict EU engine emission standards for off-road vehicles. Certain plant oil such as rapeseed oil is widely available across Central Europe and can often be sourced on the farm itself. Rapeseed plants not only provide food for the tractor but also feed for animals. Only one third of the rapeseed is made up of oil, the remaining two thirds can be turned into rapeseed press cake which is purely made up of vegetable protein and thus presents an equivalent alternative to soy feed. In other countries

and continents, sun flowers, soy or cotton could be used in a similar way. In the case for Germany, for instance, 1.6 million tons of diesel are used each year for agricultural purposes, around 5% of the overall consumption. If this amount was to be replaced by rapeseed oil, 1.5 to 1.8 million hectares of arable land would be required for rapeseed, around eight to ten percent of total arable land.

Biogas-powered tractor: prototypes for methane-powered tractors have been developed. The methane can be generated through renewable biomass produced in a biogas plant available on the farm. Methane propulsion technology offers various environmental advantages including emissions 80% lower than a standard diesel engine. When using bio-methane, the machine's carbon impact is virtually zero, and cost savings between 25% and 40% can be achieved when compared with conventional fuels.

## 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 type="radio"/>	<input checked="" 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 type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indirect land-use change impacts	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
GHG emissions from the 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on air quality	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on water and soil	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on biodiversity	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 type="radio"/>	<input type="radio"/>	<input checked="" 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please specify the "other" choice

*200 character(s) maximum*

The complexity of the issue of bioenergy carries the inherent risk that a proper holistic understanding and differentiation of the different dynamics involved is not being developed.

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

*2500 character(s) maximum*

It will be essential that different schemes of bioenergy production and use are adequately understood and researched in a sufficiently holistic way in order to determine their respective risks and opportunities. Regarding the use of bioenergy, the current allocation methodology - allocation by energy content - to by-products carries the inherent risk that it does not provide adequate insight in effects of by-product utilization on GHG emissions, and thus does not adequately reward (or penalize) different types of by-products utilization. This may lead to significant errors in the final assessments. The model should be replaced by the "substitution allocation methodology" because

it would allow a better CO<sub>2</sub> emissions calculation and the results would be much different. Take for instance, the case of the residual rapeseed cake considered a 'by product' of rapeseed oil to be used in e.g. agricultural machinery. The current methodology only considers the energy burning equivalent value of the cake, yet fails to consider that the high-protein cake is normally used as high-value animal feed and thus leads to considerable GHG emissions and sustainability benefits (soil health, anti-erosion effects due to permanent coverage, natural fertilizer effect of plant residue, nitrogen fixing etc.), particularly when replacing protein feed imported from overseas.

## 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<sup>[1]</sup> 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 type="radio"/>	<input type="radio"/>	<input checked="" 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact on soil, air and water	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any additional comments?

*2500 character(s) maximum*

The EU has the world’s most stringent sustainability scheme for biofuels. Yet the policies and incentives related to biofuels and bioliquids have not always been very effective. For instance, the policy debate around ILUC (Indirect Land Use Change) has created a high level of uncertainty which has hampered investments in the sector. In addition, possible methodological shortfalls and flaws in the sustainability criteria will need to be reviewed and refined further. It will be essential that different schemes of bioenergy production and use are adequately understood and researched in a sufficiently holistic way in order to determine their respective risks, benefits, and opportunities. This should include that the current allocation methodology - allocation by energy content - to by-products be replaced by the “substitution allocation methodology”. The sustainability scheme should clearly support the uptake of the best-performing schemes and models regarding the production and use of bioenergy.

### 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*

EU sustainability criteria need to avoid an undifferentiated 'one size fits all approach' approach to biofuels. It will be essential that different schemes of bioenergy production and use are adequately understood and researched in a sufficiently holistic way in order to determine their respective risks, benefits, and opportunities. This should include that the current allocation methodology - allocation by energy content - to by-products be replaced by the "substitution allocation methodology".

In the end, the sustainability criteria need to ensure that products and use models which could greatly contribute to climate mitigation - such as the use of pure plant oil in machinery - are thoroughly supported and promoted while biofuels production and use models which are harmful are not. This has not been the case in the past.

#### 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*

Future funding schemes for research and uptake of innovative bioenergy technologies will be of critical importance to ensure such schemes are being developed and used in farm production processes. For the purchase of plant-oil based tractors, various regions in Germany have devised dedicated tax-deduction schemes. Such schemes should be complimented by new investment mechanisms for sustainable bioenergy-related production tools to be included in the EU's Common Agricultural Policy (CAP). As regards research into alternative, bio-based energy provision models for agricultural machinery, further funding should be made available under the EU's Horizon 2020 Programme.

## 6. Effectiveness of existing EU policies in addressing solid and gaseous biomass sustainability issues

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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 type="radio"/>	<input checked="" 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 type="radio"/>	<input checked="" 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 type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
GHG emissions from combustion of biomass ('biogenic emissions')	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Air quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Water and soil quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Biodiversity impacts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Varying degrees of efficiency of biomass conversion to energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 type="radio"/>	<input checked="" type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Please specify the "other" choice

*200 character(s) maximum*

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

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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 type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoid environmental impacts (biodiversity, air and water quality)	<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"/>
Mitigate the impacts of indirect land-use change	<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 efficient use of the biomass resource, including efficient energy conversion	<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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ensure long-term legal certainty for operators	<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"/>	<input type="radio"/>
Minimise administrative burden for operators	<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"/>
Promote energy security	<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 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please specify the "other" choice

*200 character(s) maximum*

Energy-independent farming through direct, decentralized provision of energy - e.g. using bioenergy locally produced on the farm for powering machinery (pure plant oil or methane from a biogas plant).

7.2. Any other views? Please specify

*2500 character(s) maximum*

Including circular economy aspects into agriculture through the production and use of bioenergy in farming processes should be a specific objective of an improved EU bioenergy sustainability policy post-2020.

## 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*

EU sustainability criteria need to avoid an undifferentiated 'one size fits all approach' approach to biofuels and leave sufficient space for the development of new innovative models for the production and use of bioenergy. It will be essential that different schemes of bioenergy production and use are adequately assessed in a sufficiently holistic way in order to determine their respective risks, benefits, and opportunities. This should include that the current allocation methodology - allocation by energy content - to by-products be replaced by the "substitution allocation methodology".

## 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 proper production and use of bioenergy in European farming processes can have manifold positive consequences such as, for instance:

- Sustainable and low LUC/ILUC bioenergy production in Europe is possible and can make a very strong contribution to reducing GHG emissions from transport and to achieving EU 2030 transport decarbonisation goals.
- Reduction of Europe's dependency on fossil fuel imports
- Reduction of Europe's dependence on imported animal feed
- Additional income stream for European farmers
- Stimulation of jobs, regional development, and rural industry in Europe etc.

Including circular economy aspects into agriculture through the production and use of bioenergy in farming processes should therefore be a specific objective of an improved EU bioenergy sustainability policy post-2020.

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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