

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

* 1.6. If you are a civil society organisation, please indicate your main area of focus.

- Agriculture
- Energy
- Environment & Climate
- Other
- Technology & Research

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

200 character(s) maximum

Stichting Fern

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

40538475090-82

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	<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 type="radio"/>	<input checked="" 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 type="radio"/>	<input checked="" 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 type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Heat and power from forest residues (tree tops, branches, etc.)	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heat and power from waste	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 checked="" type="radio"/>	<input 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 type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bioenergy based on locally sourced feedstocks	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please specify the "other" choice

200 character(s) maximum

Energy conversion of separated bio-based waste could be promoted to a limited extent but not as part energy generation from mixed waste.

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	<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 type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Boosting research and innovation in bio-based industries	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competitiveness of European industry	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input 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

Today, EU renewable energy policies allow for many different types of biomass to be used to meet a variety of energy demands. Projections warn us that if bioenergy would provide 20 to 50 per cent of the world's energy needs in coming decades this would require doubling or tripling of the total amount of the current global plant harvest. This is not sustainable, particularly because demand for biomass for other uses is projected to rise as well (e.g. food, fibre, feed, etc.).

Currently, wood is used to produce around 70 per cent of the bioenergy in the EU, and accounts for over 40 per cent of the renewable energy target. Between 2002 and 2012 use of biomass as a source of energy doubled. Incentives have already led to increased demand for forest biomass resources, approaching the limit of what the EU can supply domestically at sustainable levels. It has been widely acknowledged there are limits to the amount of (woody) biomass that can be supplied sustainably from domestic sources (EEA, EU Wood, et al).

Woody biomass could have a limited role to play in the renewable mix, at least in regions where there is potential for sustainable supply, at restricted levels and only as a transitional solution towards a truly low-carbon energy

sector. The sustainability of biomass depends on specific characteristics of the region and biomass production process. Exceeding sustainable levels of supply, using certain high-carbon biomass feedstock, or a very intense or low efficient production process, can immediately nullify these potential benefits, because of intensification of forest management or increasing emissions.

It is therefore important that bioenergy production is restricted to levels that can be sustainably supplied and used in the most efficient way only. Generally however, the EU is advised to first reduce energy consumption (especially in heating, which demands a large proportion of biomass resources) and to develop and deploy other renewables, before considering burning biomass - which is in the end still burning carbon. The EU should also implement strict sustainability criteria, and prioritise those types of bioenergy that have co-benefits. Examples include anaerobic digestion of waste-based biomass which also allows nutrients to return to the soil, and use of biomass that is harvested for nature conservation purposes.

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 type="radio"/>	<input checked="" 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 checked="" type="radio"/>	<input 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please specify the "other" choice

200 character(s) maximum

Forests: intensification management, expansion intensively managed plantations, impact climate resilience; Land use conflicts, human right abuses; Barrier for efficient use of wood / circular economy.

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

2500 character(s) maximum

There is an high risk that bioenergy incentives lead to demands for biomass in excess of sustainable supply limits. The EC stated that if Member States were to reach their renewable energy plans by 2020 this would require the total EU wood harvest of 2013 and reliance on imports for 15-30 per cent of total energy use. This shows that a lot of biomass is needed for a relatively small

amount of energy and that there is a potential pressure on wood supply for material uses.

The EC website optimistically states that sustainably realisable potential of wood for energy from EU forests can be as high as 675 million cubic meters, provided intensive wood mobilisation efforts are applied.' But this completely disregards EU nature objectives and studies that project sustainable levels of wood harvest at around 590 - 620 million cubic meters for all uses. The EEA has warned energy demands for biomass can lead to intensification of forest management and trade-offs with other functions forests provide, e.g. loss and degradation of forest habitats and species and a reduction in the ability of forests to sequester and store carbon. The EEA also warned about deforestation elsewhere in the world, due to the EU's increasing reliance on imports.

There are also social risks. Bioenergy production can lead to land grabs, land right conflicts, and negatively impact on livelihoods of local communities, e.g. volatility of biomass prices and food/fiber/fuel security. This consultation has not given enough space for the latter risks to be raised and considered appropriately.

There is also an urgent danger that energy incentives will lead to market distortion, because the energy sector pulls biomass resources away from material uses, which are more climate-friendly than burning wood. Certain sectors are already using alternative (carbon-intensive) materials or importing biomass because of a tight EU market. Increased biomass demands may thus form a barrier for an efficient use of wood and displacement effects, which may lead to indirect emissions as well.

The EU's current renewable policy does not ensure that bioenergy reduces emissions and is based on the flawed theory that bioenergy is carbon neutral. Impacts on carbon stocks and indirect emissions are not taken into account. Re. (4.1.) risks of decreasing carbon stocks are also due to time delay in the (assumed) recapture by biomass growth (decades or even centuries), and because of increased harvesting for energy.

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	<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

The biofuels sustainability scheme of 2009 ignored land use impacts, food security and emissions from indirect land use change (ILUC). Allowing the development and deployment of biofuels with high ILUC emissions have resulted in the support to biofuels with potentially higher GHG emissions than the fossil fuels they meant to replace. This flaw in the biofuels sustainability policy has made the policy counter-productive towards the aim of reducing emissions.

The revision of the sustainability scheme in 2015 by implementing a seven per cent cap on food based biofuels towards the renewable transport target is expected to partly address ILUC emissions and excessive land use. However this is still not effective enough because the policy (i) still allows the production of and support to land based biofuels until 2020 and even allows for a growth, as the seven per cent cap is higher than current consumption levels, (ii) does not cover all land-based crops, hence allowing for land expansion from other crops, (iii) does not effectively account for ILUC emissions, and (iv) is not expanded to the Fuel Quality Directive.

Existing sustainability criteria have been partly effective in preventing direct land use change and other negative impacts, but the criteria lack requirements on social and human rights, and the criterion on biodiversity (Art 17(3)) has been difficult to implement because of unclear or loose definitions of areas such as primary forests, high biodiversity grasslands etc.

Compliance of the sector with existing criteria cannot be claimed since the verification systems used to enforce these are often not sufficiently robust. The European Commission has failed to set strict requirements for the quality of verification systems for checking compliance with the legal sustainability criteria, which has allowed for a race to the bottom rather than the promotion of best practices regarding verification of compliance.

Lastly, the policy has failed to address the sustainability of advanced biofuels. Fern is in particular concerned with the use of ligno-cellulosic material (notably woody resources) for the production of fuels, because this can lead to trade-offs with other functions that forests provide (besides wood mobilisation), wood can be used in much more efficient applications, and because it has been shown that wood use for the production of biofuels will not lead to carbon reductions (because of the intensive production process).

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 seven per cent cap on food based biofuels (as agreed in the ILUC decision of 2015) should be maintained and extended to land based biofuels after 2020. At the same time, the EU should phase out land based biofuels completely as soon as possible between 2020 and 2030.

Advanced, non-land based biofuels could play a role in the phase-out of land based biofuels but other measures to decarbonize the transport sector (e.g. reduction, efficiency and electrification) should be prioritized. The use of wood for the production of fuels should be disincentivised, because it does not actually lead to emission reductions and wood can be used much more efficiently for the production of materials in the bioeconomy or in other energy applications (e.g. heat). Using wood to produce liquid fuel is a waste of a valuable resource.

There should be no volume / percentage target for advanced (or any other) biofuels, as such a target would risk promoting sources and uses of biofuels that harm the environment, people, other (material) sectors or the climate. Comprehensive sustainability criteria for advanced biofuels, based on the feedstock in question, should be developed.

There should be a level playing field for all forms of bioenergy, including advanced biofuels, which would apply the same sustainability requirements for all bioenergy (see response 8.2) and provide a consistent and more secure policy framework for investments.

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 biofuels policy has taught us that biofuel production can lead to significant impacts on the environment, the climate and people. In the past years civil society, the scientific community and international leaders have opposed the biofuels policy reasons around the expansion of land use and associated impacts on food security and carbon emissions.

Hence, future bioenergy policy should be approached with great caution, to avoid increasing impacts of bioenergy production from all sources and for all applications. A precautionary measure would do justice to all the scientific knowledge that warns us that the expansion of bioenergy production will require vast volumes of biomass and land, leading to severe impacts on ecosystems and communities in the EU and abroad.

The experience of the biofuels policy should be a starting point to the design of the wider bioenergy policy as well. The biofuels debate has taught us that sustainability policies need to go beyond regulating land and forest management practices, and that the concern actually lies in the negative impacts that are caused by the volumes of biomass that are required for (only a small portion) of energy production, and in a world with rapidly growing demand for land and resources for other uses. Also in the case of solid biomass for heating and electricity, increasing demands can lead to (direct and indirect) increasing emissions, environmental damage, and affects the use of land and limited available resources by people or other sectors.

It follows from this analysis that a volume limit should be extended to bioenergy in general, forest and agricultural biomass for all applications. Plus, a robust, coherent and binding sustainability policy for all forms of bioenergy (biofuels, solid and gaseous bioenergy) is needed at the EU level to ensure truly low-carbon and sustainable use of bioenergy across the EU. Such a policy should include strict sustainability criteria that ensure greenhouse gas reductions over the entire life cycle of bioenergy production (taking into account indirect emissions and carbon debt), avoid market distortion and increasing competition of biomass resources and further negative impacts on environment and people.

The EU should further adopt more specific and strict requirements for the different verification systems for checking compliance with the sustainability policy that support a promotion of best practices rather than a race to the bottom.

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

In the context of forest biomass, it should be acknowledged that burning wood is not - to say the least - an innovative practice, and innovation potential here is limited.

Today, policies allow for many different types of biomass to be used to meet a variety of energy demands. Considering solid biomass is a limited resource, there is a specific challenge of redirecting limited availability of biomass towards more innovative and resource-efficient applications, in the material and energy sector. Taking into account EU objectives on emission reductions, biodiversity protection, resource efficiency, and reducing global deforestation, it is key that only the sustainable sources and most efficient and climate-friendly uses are allowed.

This triggers two subsequent questions that are fundamental here: (i) what bioenergy practices support the aims of a renewable energy policy and are also sustainable?, and (ii) which of these practices are expected to still rely on public support post 2020? These questions should be answered taking into account the existing capacity of the developed bioenergy utilities in the year 2020, to assess whether there is still room for expansion of (sustainable) biomass use.

This means that also in the context of a bioenergy policy, environmentally harmful subsidies should be avoided. In this context, we have already recommended to limit bioenergy use post 2020 to levels that can be sustainably supplied. However, the EU should also ensure through sustainability criteria that bioenergy use is genuinely reducing emissions, resource efficient and not leading to severe negative environmental and social impacts.

The potential for innovation in solid biomass applications, and also more effectively towards mitigating climate change, lies mainly in efforts towards reducing energy demand, such as energy efficiency activities - e.g. insulation of houses or efficiency of energy systems (while most solid biomass is used in heating). In the context of sustainability criteria the EU should direct the limited amount of available sustainable biomass to those applications with the highest conversion efficiency, e.g. in certain heating systems when a conversion to efficient heat pumps and solar thermal is not feasible. In that light it would be recommended to limit the use of wood for the production of electricity-only or of liquids, as these are very inefficient uses of a valuable biomass feedstock.

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 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 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

availability of land and feedstocks					
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Please specify the "other" choice

200 character(s) maximum

Social impacts, e.g. land tenure rights, human rights and food security; potential indirect emissions by displacement of wood by more carbon-intensive materials/fuels; efficient use of limited resource

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

2500 character(s) maximum

Unrestricted, incentivised demands led to increasing pressure on forests in and outside Europe, impacts on resource efficiency and the climate:
fern.org/flames

1. The EEA warns growing biomass demands are putting an increasing pressure on forests in the EU and elsewhere. Biodiversity levels in EU forests are still abominable, despite EU objectives in this regard. Reports from NGOs working in the USA, the main provider of biomass to the EU, show severe impacts on high-carbon stock and high-biodiversity forests. Bioenergy production is also worsening air quality.
2. The use of wood for energy already has a negative impact on a resource efficient use of wood. Since the implementation of the RED, a larger share of the total wood harvest has been allocated to energy purposes and several wood-based industries in the EU and elsewhere have complained about market distortion. Science has also warned energy demands can lead to displacement of wood use in other sectors or by local communities. This may lead to increasing indirect emissions. A recent report by Mondi/WWF confirms market distortion in several countries and indicates that growing energy demands could lead to a supply deficit and that bioenergy subsidies form a barrier for resource efficiency.
3. Current policies ignore that forest harvests for bioenergy negatively impact forest carbon stocks and sinks. The bioenergy policy is in effect an 'offsetting scheme' which allows current emissions from biomass combustion (sometimes higher than burning fossils), on the presumption that these will be compensated by future growth. Science has shown that emissions from bioenergy can be significant, and can even cancel out emission savings from the deployment of other renewables. Current EU climate and energy policies do not ensure GHG reductions from bioenergy production and also not account for bioenergy emissions correctly.

In the absence of sustainability criteria for solid and gaseous biomass, most Member States have relied upon existing domestic policies on sustainable forest management (SFM), agriculture (CAP, rural development) or waste

management. However, such policies do not address the ‘scalability of bioenergy’, and lack any rules to ensure reduction of greenhouse gas emissions or resource efficiency – issues that cannot be tackled through SFM. Plus, policies that aim to address sustainable sourcing of biomass are insufficient: across the EU SFM rules, practices and enforcement are diverging.

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

Please specify the "other" choice

200 character(s) maximum

Avoid increasing land use and negative impacts on food security and land conflicts; ensure land tenure rights and human rights.

7.2. Any other views? Please specify

2500 character(s) maximum

EU policy treats bioenergy as a carbon-neutral energy source. It justifies this due to two main assumptions: (i) CO₂ emissions from bioenergy combustion will be fully compensated by future growth of biomass; and (ii) emissions from biomass harvest are fully accounted for in the land use sector (LULUCF). Research has already shown that the first assumption cannot 'a priori' be relied upon, in particular when harvesting for bioenergy decreases the amount of carbon stored in plants and soils, or reduces ongoing carbon sequestration. The second assumption on LULUCF accounting also comes with large caveats. LULUCF policy - regardless of its improvements - will not ensure that bioenergy use delivers 'robust and verifiable greenhouse gas savings':

Fern briefing LULUCF

Fern report Burning Matter

1. Countries can include harvests for bioenergy in their projections for decreasing forest carbon stocks in their forest management reference level (FMRL), meaning that bioenergy emissions can be counted for as credits and the atmosphere is seeing more emissions than are being accounted for;
2. Since LULUCF is the net result of several activities, any debits that countries may incur in the forest management category due to high bioenergy production, while being hidden in the FMRL, can be cancelled out by credits from afforestation, which is generously credited. This leaves existing forests vulnerable as this means they can be 'traded' for newly planted forests;
3. Emissions from harvests for EU bioenergy production occurring in third countries are often neither covered in those countries nor in EU carbon accounting systems.

Currently energy producers benefit from the zero carbon rating of bioenergy via credits in carbon markets and bioenergy subsidies, while the burden of proof (to account for emissions via biomass harvest) lies solely with the land sector, who accrue debits (unless they are included in the projected reference level set by Member States). To ensure that bioenergy production is reducing emissions, bioenergy sustainability criteria are required that ensure only wood that makes large GHG savings should be burnt, e.g. waste and residues. The EU Emission Trading Scheme (ETS) and LULUCF rules should be aligned with such as sustainability policy. In addition, to ensure emissions from bioenergy are accurately measured, the onus should be on those benefiting from the zero carbon rating i.e. on the energy sector rather than on the land sector.

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

<http://www.fern.org/publications/briefing-note/bioenergy-briefing-note-1-limited-availability-wood-energy>

Instead of relying on bioenergy, the EU should focus on reducing energy demand to mitigate CO2 emissions, by measures such as increasing energy efficiency. For example, it would be more effective to promote the insulation of buildings or improve the efficiency of energy systems than to support the increased use of wood for heating, which still leads to CO2 emissions.

Using wood to replace carbon-intensive materials, rather than burning it, would be a more effective way of mitigating climate change. Renewable technologies such as wind, solar and geothermal power must develop more quickly to create a shift to a low-carbon economy.

For the limited extent that bioenergy could play a role in towards 2030 renewable energy targets, an EU sustainable bioenergy policy should cover four main safeguards:

1. A volume cap to limit the use of biomass for energy production to levels that can be sustainably supplied from domestic sources. Member States should be required to assess the availability of biomass for energy generation from regional sources at sustainable levels, while taking into account demands for material use/production and potential for a more resource efficient use of biomass, and adapt their renewable energy plans accordingly;
2. Verifiable greenhouse gas savings; EU climate and energy policies should further ensure correct carbon accounting for biomass, as LULUCF accounting is not sufficient;
3. An efficient and optimal use of biomass resources, in line with the principle of cascading use;
4. Comprehensive binding sustainability criteria to mitigate other negative impacts on the environment or people.

More concretely, the policy should result in exclusion of the kinds of biomass

sources that have the highest risk of negative impacts on the climate, the environment, people and resource efficiency. Increased land use for agricultural crops has led to emissions from indirect land use change and indirect deforestation, and impacts on food security. Increased forest biomass had led to emissions from decreasing forest carbon stocks and sinks, higher atmospheric emissions and further pressure on forests, notably in the EU itself.

To mitigate risks, the EU is advised to as a principle not allow biomass extraction for energy purposes from areas designated for nature protection, or from lands with high biodiversity value or high carbon stock. It should also not allow biomass harvests from converted forest lands.

In both the agricultural and forest area, science supports the identification of high-risk feedstocks. On the agricultural side, it is advised that bioenergy from land-based crops is capped and phased out completely by 2030. On the forest side, subsidies for bioenergy from biomass directly sourced from forests should be halted. Bioenergy counted towards the renewables target should not be produced from stem wood, and not from residues exceeding sustainable harvest levels. A future bioenergy policy should focus on the use of waste and residues, but also here provide strict limits, such as respecting the waste hierarchy. Such a feedstock-based approach does not only serve the aim of ensuring carbon reductions from bioenergy production, but could also benefit resource efficiency and protect forest ecosystems.

To further promote an efficient use of wood as a limited resource, a future sustainability policy should also provide that biomass can only be used in the most efficient installations, e.g. by implementing a minimum threshold for conversion efficiency. This means, in principle, that liquids or electricity-only production with biomass should not be encouraged.

Some Member States have already applied a 'feedstock-based approach' to limit impacts on market distortion, the climate and forests, by limiting the use of roundwood. Other countries have applied a minimum threshold for conversion efficiency, to make sure wood is used only in the most efficient installations. All these examples go beyond criteria for the sourcing of the material, and put the burden of proof for constituting sustainability of bioenergy production on the energy producer itself. After six years of experience under the current policy, that is highly needed.

'Social criteria' need to ensure (i) respect for tenure and usage rights of individuals and communities to land, water and forests, and Free Prior and Informed Consent (FPIC), (ii) food security, and (iii) respect for basic human and labour rights. Social criteria need to cover indigenous people's rights, but also other communities that could be affected by bioenergy production.

The EU should further adopt more specific and strict requirements for the different verification systems for checking compliance with the sustainability policy that support a promotion of best practices rather than a race to the bottom.

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

Promoting the use of wood for energy at the current scale is not sustainable and conflicts with EU objectives to protect biodiversity, reduce deforestation and forest degradation, decrease carbon emissions, and create a circular economy and a sustainable bioeconomy. Neglecting any of these policy objectives can easily lead to discrediting of the future sustainability policy.

Growing demands for energy will further harm forest biodiversity, water and soil quality, and the ability of forests to sequester and store carbon. It hampers the replacement of carbon-intensive materials in other sectors, where there are fewer alternatives, and slows down the development of real renewable energy solutions such as wind and solar power. Further imports will also lead to an increase in deforestation globally, and the loss of agricultural land needed for food production.

Burning biomass increases carbon emissions in the atmosphere, an effect that is bigger if harvesting the biomass decreases the amount of carbon stored in plants and soils, or reduces ongoing carbon sequestration of forests. In fact, emissions from biomass burning could ultimately be higher than burning fossil fuels. It has been widely acknowledged by the scientific community that only 'additional' biomass can potentially reduce emissions, without displacing other ecosystem services. Lowest emissions are associated with scenarios that have the lowest share of bioenergy, i.e. scaling down after 2020 peak. Highest emissions are associated with the highest share of imported forest biomass.

Sustainable Forest Management (SFM) doesn't ensure that biomass for energy is sustainable in the light of all EU objectives mentioned above. SFM objectives, requirements and verification methods differ widely across the EU, while forest management is regulated at national level with little scope for the EU to intervene. More importantly, focusing on SFM disregards the problem of increased demand and limited supply (scalability). Nor do SFM criteria necessarily address bioenergy-specific issues such as greenhouse gas impact, land use effects, resource efficiency or imported biomass. Currently, aggressive incentives from EU renewable energy policies to rely more heavily on biomass are in direct tension with the soft law measures to promote SFM.

Beyond 2020, we need to ensure that bioenergy use contributes to climate change mitigation, the circular economy and resource efficiency without negative impacts on the environmental or on land use and human rights. Since 2009 the EU has provided the energy sector with a 'carte blanche' regarding the use of forest biomass, and now it is high time that tide is turned. The burden of proof for proving sustainable production of bioenergy needs to be on the energy and fuel producer.

With regard to sustainability, we reiterate it is important to look both at quantity and quality of bioenergy production. Studies have shown that the EU is already reaching the limits of biomass that forests and agricultural land can sustainably supply, and this should be a red flag for policy makers. The EU should carefully take into account the sustainable potential of domestic biomass supply, while respecting competing (material) uses, EU nature objectives - and adopt a volume cap to the use of biomass for energy accordingly.

The EU needs to look beyond sustainable sourcing of biomass, and acknowledge that biomass is a limited resource. Most importantly, the EU should ensure a bioenergy policy does not lead to increasing demands for land and biomass resources, or negatively impact the environment and people. Biomass should only be used for energy in its most efficient applications and only where it has the greatest climate benefits.

Concrete recommendations that Fern has brought forward towards those aims, are:

- End subsidies for burning biomass that is directly harvested from forests, and restrict the amount of biomass that EU Member States can use towards their renewable energy targets to levels that can be sustainably supplied.
- Only allow bioenergy to count towards res targets when robust GHG emissions savings have been proven, and make sure bioenergy emissions are correctly accounted for.
- Ensure that wood is not burned for energy when it can still serve other purposes, hence ensuring the policy doesn't counter objectives of a 'circular economy'.
- Implement strict, binding sustainability criteria to avoid impacts on the environment and people, while ensuring strong verification methods.
- On woody biomass, Fern further concretely recommends excluding the use of stem wood and stumps for energy purposes, and limit the use of residues to sustainable levels. This would not only be a way of excluding feedstocks that have the highest risk of increasing carbon emissions, but would also benefit resource efficiency and nature objectives. In addition, Fern recommends adopting a minimum threshold for conversion efficiency.

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!

