

A sustainable bioenergy policy for the period after 2020

Fields marked with * are mandatory.

Introduction

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

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

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

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

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

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

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

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

[1] COM(2014) 15.

[2] COM/2015/080 final.

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

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

[5] Used for transport.

[6] Used for electricity, heating and cooling.

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

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

[9] COM/2010/0011 final.

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

1. General information about respondents

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

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

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

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

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

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

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

Small enterprise: an enterprise that employs fewer than 50 persons and whose annual turnover and/or annual balance-sheet total does not exceed EUR 10 million.

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

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

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

200 character(s) maximum

Enerkem Inc.

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

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 checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Biogas from manure | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Biogas from food crops (e.g. maize) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Biogas from waste, sewage sludge, etc. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Heat and power from forest biomass (except forest residues) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| Heat and power from forest residues (tree tops, branches, etc.) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Heat and power from agricultural biomass (energy crops, short rotation coppice) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| Heat and power from industrial residues (such as sawdust or black liquor) | <input checked="" type="radio"/> | <input 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 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 type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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

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 checked="" 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 type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" 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 checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Resource efficiency and waste management | <input checked="" type="radio"/> | <input 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 checked="" 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 checked="" type="radio"/> | <input type="radio"/> |
| | | | | | |

| | | | | | |
|-------|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|
| 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

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

2500 character(s) maximum

With GHG emissions from transportation accounting for 22% of all emissions in the EU (Eurostat, 2015), the use of bioenergy in the transportation sector—advanced biofuels in particular—must be a priority for Europe. The production and use of advanced biofuels result in significantly lower lifecycle emissions than the production and use of fossil fuels (Public data from the UK Department of Transport show that GHG emission savings are achieved of 60% and over depending on the feedstock). Biofuels produced from certain wastes, such as municipal solid waste (MSW), also help reduce GHG emissions by diverting these wastes from landfill and thus reducing emissions of methane, a potent greenhouse gas.

Bioenergy production also complements other bioindustrial processes and enables more efficient use of resources. Biorefineries, which can produce chemicals, materials, energy or fuel, optimize the use of resources by producing higher value products for various applications. The multi-product approach allows to capture greater value from biomass resources and to mitigate market risk. It is important that European policy recognize and encourage the growing convergence of the biofuels and chemicals industries, as more companies develop integrated biorefineries to produce biofuels as well as biobased chemicals.

Advanced biofuels production can also benefit Europe economically in terms of additional jobs and investment. As an example, each Enerkem facility represents approximately €65 million in private investment and an annual regional economic benefit of €42 million, and creates over 600 direct and indirect jobs during construction and over 150 direct and indirect jobs during operations.* With an estimated 50 million tonnes per year of municipal solid waste being sustainably available as a biofuels feedstock in Europe, according to a study published by ICCT, IEEP and NNFCC, the economic opportunity from advanced biofuels production from MSW alone is vast.

*Based on an independent economic analysis completed by Doyletech Corporation on a standard 2-gasifier Enerkem system.

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 type="radio"/> | <input checked="" 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 type="radio"/> | <input checked="" type="radio"/> | <input 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 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 type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| Impacts on air quality | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" 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 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 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 type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

Please specify the "other" choice

200 character(s) maximum

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

2500 character(s) maximum

Risks from bioenergy production associated with land use, use of resources in crop production and use of food crops are minimized or eliminated when waste biomass is used as a resource. Residual municipal and industrial wastes, after separation and recycling activities have been implemented to the extent reasonably practicable, are a particularly sustainable feedstock choice given that there are no competing uses for these resources. Bioenergy production from post-sorted municipal and industrial wastes provides a sustainable alternative to landfill but also to incineration which is not always the most energy efficient use of disposing of MSW or industrial waste, while providing a locally-produced biofuel which does not use land or compete with food. Biofuels produced from such materials not only reduce GHG emissions by displacing use of fossil fuels but also reduce GHG emissions from landfill. The sustainable bioenergy policy should therefore encourage the use of post-sorted municipal and industrial wastes as a sustainable bioenergy feedstock.

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

Any additional comments?

2500 character(s) maximum

Double counting for biofuels from wastes provides a strong signal to advanced biofuels producers and investors on the demand for advanced biofuels in the EU. However, the lists of materials eligible for double counting in each Member State (MS) are quite restrictive, vary greatly from one MS to another and largely favour less innovative fuels such as biodiesel produced from used cooking oil and animal fats. For example, very few MS include post-sorted municipal waste as an eligible feedstock for double counting, creating an obstacle to the deployment of innovative municipal waste-to-biofuels technologies across Europe.

Advanced biofuels sub-targets have significant potential to drive production and use of innovative advanced biofuels in Europe but in order to be effective, must be designed in such a way as to ensure that innovative and sustainable advanced biofuels such as bioethanol from MSW, which meet the GHG and other sustainability criteria, are eligible for this sub-target. European policy must clarify the definition of advanced biofuels and limit MS's ability to further restrict eligibility for the sub-target to certain feedstocks or technology pathways.

A continued cap on biofuels from food crops is necessary to drive investment in advanced biofuels and to minimize environmental risks associated with biofuels production and use.

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

Technologies for advanced biofuels production have advanced to a stage where commercial roll-out is possible given the right policy signals. Advanced biofuels projects are still perceived to have many risks given that they are new technologies being brought to market, investment can only come with market certainty, hence policy stability and certainty. Binding mandates—fixed for at least ten years to allow investors to return their investment—are essential to reduce the market risk.

Mandates need to be specific for technologically advanced biofuels and with a high enough buy-out price to ensure that the cost of noncompliance for obligated parties is sufficiently high. This has been demonstrated in the

United States, where specific mandates for cellulosic ethanol and advanced biofuels ensure market access for these low-carbon fuels, and in California where the Low Carbon Fuel Standard, which creates strong demand for lower-carbon fuels, have been effective at expanding use of advanced fuels in the transport sector. The buy-out or penalty option has also been demonstrated to be effective in Germany, France and the UK to give some examples. Capital support is also needed to reduce high capital costs for the first wave of commercial-scale facilities, given that advanced biofuels projects are based on innovative technologies not yet mature and therefore perceived to have risks. Funding for demonstration-scale facilities is not enough to support commercialization. Increase of project scale is necessary to achieve a significant cost-reduction per volume of product; this increases overall CAPEX and thus the need for investment support. Fiscal support can also play a helpful role as a supporting measure in the early commercialisation of advanced biofuels, to increase the return on investment.

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 policy has not been effective. Member States, especially for advanced biofuels, have put up their own rules which has hampered free trade of biofuels.

One of the lessons learned is that the Commission needs a) be much more descriptive in what the Directives mean in term of harmonised transposition, for example by issuing explanatory communications and b) to police for more actively if the Directives are applied in a harmonised and consistent way. In this respect the importance of CARES (Concerted Action on Renewable Energy Sources) cannot be underestimated.

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?

The Renewable Energy Directive (RED) created two key support mechanisms for advanced biofuels: an advanced biofuels sub-target and double counting for biofuels from wastes and residues. However, the addition of an advanced biofuels sub-target in 2015, with implementation only after 2017, came much too late to drive investment in advanced biofuels in Europe, given lead times of several years for the development of facilities and policy uncertainty in the post-2020 timeframe. Double counting has also had limited effectiveness in facilitating the development and deployment of innovative advanced biofuels given that in certain cases the MS's lists of materials eligible for double counting do not favour the most innovative advanced biofuels technologies. The double counting instrument has encouraged the production of biofuels from used cooking oil and animal fats, but few MS include municipal waste as an eligible feedstock for double counting.

The RED was also unsuccessful in lowering the level of investment risk for renewable fuels, and particularly for innovative advanced biofuels, due to the policy uncertainty and investment risk created by the ILUC debate and lack of assurance on policy support for renewable fuels post-2020.

Restrictive EU measures on state aid for projects and the limitation of EU funding mechanisms to research and demonstration-scale projects (ex. Horizon 2020) or to certain technology pathways (ex. BBI-JU) has meant that public funding was not available to help overcome the financing risk for commercial-scale projects.

To facilitate faster development and deployment of innovative advanced biofuels technologies, binding mandates on MS or economic operators for the use of advanced biofuels are essential. As liquid fuels fully depend on traditional fuel suppliers to distribute their products, a mandatory obligation on fuels suppliers is the only way to ensure a market for these fuels. The absence of a binding mandate on MS or economic operators for the use of advanced biofuels will eliminate market access for advanced biofuels and shut down investment in advanced biofuels in Europe at this critical moment in the commercialisation of these fuels.

Capital support for innovative commercial-scale projects is also needed in order to reduce high capital costs for the first wave of commercial-scale facilities. Programme eligibility should focus on environmental benefits rather than technology, to avoid excluding innovative technologies.

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 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 type="radio"/> | <input checked="" type="radio"/> |
| GHG emissions from supply chain, e.g. cultivation, processing and transport | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" 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

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 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"/> |
| 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 type="radio"/> | <input type="radio"/> |
| Promote efficient use of the biomass resource, including efficient energy conversion | <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"/> |
| Promote free trade and competition in | | | | | | | | | | |

| | | | | | | | | | | |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------|----------------------------------|-----------------------|-----------------------|-----------------------|
| the EU among all end-users of the biomass resource | <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"/> |
| Ensure long-term legal certainty 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"/> |
| Minimise administrative burden for operators | <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"/> |
| 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 type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7.2. Any other views? Please specify

2500 character(s) maximum

The key objectives of an improved EU bioenergy sustainability policy post-2020 should be to incentivize and encourage the development and commercial deployment of environmentally sustainable bioenergy sources. While restrictions on less sustainable or higher risk bioenergy sources are important (ex. cap on food-based biofuels), these must be complemented by strong policy incentives for the use of more sustainable bioenergy sources, such as innovative advanced biofuels from municipal and industrial wastes. Strong and long-term policy signals are needed to overcome the climate of uncertainty and loss of investor confidence wrought by the ILUC debate and policy uncertainty post 2020.

An improved EU bioenergy sustainability policy should also aim to support a fair energy taxation system between renewables and fossil fuels based on CO2 performance and energy content whilst allowing for tax incentives for advanced biofuels.

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

- Binding mandate for advanced biofuels on MS or economic operators.
- Advanced biofuels target with clear definition of advanced biofuels and limited flexibility for MS to limit the application to a more restrictive list of feedstocks or technologies.
- Maintain key biofuels sustainability criteria including GHG savings threshold, land and biodiversity criteria, cap on biofuels from food crops and target for advanced biofuels in order to provide policy stability and to encourage production and use of more sustainable biofuels.
- Promote synergies with the circular economy by favouring the use of waste biomass - particularly post-sorted municipal and industrial waste which would otherwise be destined to landfill or incineration - as a bioenergy resource.
- The policy should guide improved capital support programs for

innovative commercial-scale projects. Programme eligibility should focus on environmental benefits rather than technology types, to avoid excluding innovative technologies.

9. Additional contribution

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

5000 character(s) maximum

Finally, you may upload here any relevant documents, e.g. position papers, that you would like the European Commission to be aware of.

Thank you for participation to the consultation!

Contact

✉ SG-D3-BIOENERGY@ec.europa.eu
