# 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*

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Umeå Energi AB
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1.9. If your organisation is registered in the Transparency Register, please give your Register ID number.

(If your organisation/institution responds without being registered, the Commission will consider its input as that of an individual and will publish it as such.)

*200 character(s) maximum*

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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 | (●) | ( ) | ( ) | ( ) | ( ) |
| Biofuels from energy crops (grass, short rotation coppice, etc.) | (●) | ( ) | ( ) | ( ) | ( ) |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Biofuels from waste (municipal solid waste, wood waste) | ◉ | ○ | ○ | ○ | ○ |
| Biofuels from agricultural and forest residues | ◉ | ○ | ○ | ○ | ○ |
| Biofuels from algae | ◉ | ○ | ○ | ○ | ○ |
| Biogas from manure | ◉ | ○ | ○ | ○ | ○ |
| Biogas from food crops (e.g. maize) | ○ | ◉ | ○ | ○ | ○ |
| Biogas from waste, sewage sludge, etc. | ◉ | ○ | ○ | ○ | ○ |
| Heat and power from forest biomass (except forest residues) | ○ | ◉ | ○ | ○ | ○ |
| Heat and power from forest residues (tree tops, branches, etc.) | ◉ | ○ | ○ | ○ | ○ |
| Heat and power from agricultural biomass (energy crops, short rotation coppice) | ◉ | ○ | ○ | ○ | ○ |
| Heat and power from industrial residues (such as sawdust or black liquor) | ◉ | ○ | ○ | ○ | ○ |
| Heat and power from waste | ◉ | ○ | ○ | ○ | ○ |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Large-scale electricity generation (50 MW or more) from solid biomass | ○ | ○ | ◉ | ○ | ○ |
| Commercial heat generation from solid biomass | ◉ | ○ | ○ | ○ | ○ |
| Large-scale combined heat and power generation from solid biomass | ◉ | ○ | ○ | ○ | ○ |
| Small-scale combined heat and power generation from solid biomass | ◉ | ○ | ○ | ○ | ○ |
| Heat generation from biomass in domestic (household) installations | ◉ | ○ | ○ | ○ | ○ |
| Bioenergy based on locally sourced feedstocks | ◉ | ○ | ○ | ○ | ○ |
| Bioenergy based on feedstocks sourced in the EU | ◉ | ○ | ○ | ○ | ○ |
| Bioenergy based on feedstocks imported from non-EU countries | ◉ | ○ | ○ | ○ | ○ |
| Other | ◉ | ○ | ○ | ○ | ○ |

Please specify the "other" choice

*200 character(s) maximum*

We do not use the term ”food crops”. When agricultural crops are used for energy they are energy crops, regardless if they contain cellulose, starch, suger or oil, and should be promoted.

## 3. Benefits and opportunities from bioenergy

3.1. Benefits and opportunities from bioenergy

Bioenergy (biofuel for transport, biomass and biogas for heat and power) is currently promoted as it is considered to be contributing to the EU’s renewable energy and climate objectives, and also having other potential benefits to the EU economy and society.

Please rate the contribution of bioenergy, as you see it, to the benefits listed below (one answer per line):

| | of critical importance | important | neutral | negative | No opinion |
|---|---|---|---|---|---|
| Europe’s energy security: safe, secure and affordable energy for European citizens | ◉ | ○ | ○ | ○ | ○ |
| Grid balancing including through storage of biomass (in an electricity system with a high proportion of electricity from intermittent renewables) | ◉ | ○ | ○ | ○ | ○ |
| Reduction of GHG emissions | ◉ | ○ | ○ | ○ | ○ |
| Environmental benefits (including biodiversity) | ○ | ◉ | ○ | ○ | ○ |
| Resource efficiency and waste management | ◉ | ○ | ○ | ○ | ○ |
| Boosting research and innovation in bio-based industries | ◉ | ○ | ○ | ○ | ○ |
| Competitiveness of European industry | ◉ | ○ | ○ | ○ | ○ |
| Growth and jobs, including in rural areas | ◉ | ○ | ○ | ○ | ○ |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sustainable development in developing countries | ◉ | ○ | ○ | ○ | ○ |
| Other | ◉ | ○ | ○ | ○ | ○ |

Please specify the "other" choice

*200 character(s) maximum*

Short rotation energy crops like willows can be used for waste water treatment, soil improvement and protective areas for animals in agricultural areas.

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

*2500 character(s) maximum*

The Swedish experience of a broad introduction of bioenergy can be a good case of Best Practice, illustrating the benefits and opportunities from bioenergy. Since 1980, the use of bioenergy in the Swedish energy mix has increased by 100 TWh, and bioenergy today is the leading energy source in the Swedish energy mix. At the same time, the use of fossil oil has decreased by two thirds. Bioenergy passed oil as the leading energy source in 2009, and bioenergy's share of the final energy consumption today is 35 percent. Since 1990, under the Kyoto Protocol, the emissions of greenhouse gases in Sweden have decreased by 25 percent, despite an increase in GDP by 60 percent. Increased use of bioenergy is a major reason for this decoupling of emissions and growth. The use of mainly domestic bioenergy has benefitted the economy by reducing the import of oil (better balance of trade), improved security of supply in the energy sector, and created jobs and new businesses. For sawmills and pulp mills, the value of by-products and waste has increased, and given new income when the fuels have been sold to heat plants, CHP:s and wood pellet factories. The forest industries have also increased their own use of by-products and residues, and substituted use of fossil fuels in their own boilers, reducing cost and increasing security of supply. Today, very small amounts of fossil fuels are used in forest industries in Sweden.
The production of biomass in forestry, such as slash (tops and branches) from fellings, and fuel wood from thinning operations, have given forest owners added income, and at the same time improved the quality of forest management.

Much of the biomass has been used in heat plants in district heating. Almost all use of fossil fuels (heating oil, coal and fossil gas) in district heating has been substituted with wood fuels and waste fuels (municipal household waste and recycled wood). In single homes, heating oil is practically gone today. With combined heat and power (CHP), and using flue gas condensation, the biomass energy can be used at an efficiency of close to 100 percent. A major benefit with bioenergy compared to other renewable energy sources is that the renewable energy is stored in the biomass or in the fuel, and can be used whenever needed. This enables us to use biopower both for base load electricity production and for balancing of variable electricity production.

## 4. Risks from bioenergy production and use

4.1. Identification of risks

A number of risks have been identified (e.g. by certain scientists, stakeholders and studies) in relation to bioenergy production and use. These may concern specific biomass resources (agriculture, forest, waste), their origin (sourced in the EU or imported) or their end-uses (heat, electricity, transport).

Please rate the relevance of each of these risks as you see it (one asnwer per line):

| | critical | significant | not very significant | non-existent | No opinion |
|---|---|---|---|---|---|
| Change in carbon stock due to deforestation and other direct land-use change in the EU | ○ | ○ | ○ | ◉ | ○ |
| Change in carbon stock due to deforestation and other direct land-use change in non-EU countries | ○ | ○ | ○ | ◉ | ○ |
| Indirect land-use change impacts | ○ | ○ | ◉ | ○ | ○ |
| GHG emissions from the supply chain (e.g. cultivation, processing and transport) | ○ | ○ | ◉ | ○ | ○ |
| GHG emissions from combustion of biomass (‘biogenic emissions’) | ○ | ○ | ○ | ◉ | ○ |
| Impacts on air quality | ○ | ○ | ○ | ◉ | ○ |
| Impacts on water and soil | ○ | ○ | ○ | ◉ | ○ |
| Impacts on biodiversity | ○ | ○ | ◉ | ○ | ○ |
| Varying degrees of efficiency of biomass conversion to energy | ○ | ○ | ○ | ◉ | ○ |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Competition between different uses of biomass (energy, food, industrial uses) due to limited availability of land and feedstocks and/or subsidies for specific uses | ○ | ○ | ○ | ◉ | ○ |
| Internal market impact of divergent national sustainability schemes | ○ | ○ | ○ | ◉ | ○ |
| Other | ○ | ○ | ○ | ○ | ◉ |

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*

When assessing the risks as well as benefits and opportunities with bioenergy, it can be helpful to share the experience from countries with long experience of using large volumes of biomass for energy, like Sweden and Finland.
In the 1980.s the first combined heat and power plants were built. Expansion took place gradually, and the volumes of biomass fuels increased step by step. Using bark and other wastes and residues meant that less of these materials were taken to landfills, which eliminated much water pollution. The environmental benefits from using waste in forests industries was evident. When more and more biomass was harvested in the forests (primary biomass like harvesting residues, small trees from thinning, etc), there were some concerns for soil and water quality, nutrient balance, biodiversity, and other risks and issues. An extensive programme for research was introduced, and through the years massive research has been done in all aspects and for all risk factors. During the last years, a broad research programme has been carried out concerning harvesting of stumps, to give one example. This research has been funded mainly by the Swedish Energy Agency and carried out by universities and other institutions. The results of the research and the current state of scientific knowledge are reported in ”Synthesis Reports” from the Swedish Energy Agency. The general conclusion is that it is possible to produce large quantities of biomass in managed forestry and in agriculture with limited environmental risks, given that the proper methods and stragies are implemented. Many strategies and methods to avoid risks and negative impacts have been developed. The Swedish Forestry Agency has made regulations and guidance for harvesting practicies for bioass for energy from forests. When harvesting slash, certain kinds of soils are avoided, like dry, sandy soils and very wet areas. A certain part of the slash is left in the forest to

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decompose and add to the soil carbon pool. Coarse dead wood, dry trees, and
many broad leaf species, are left on the harvesting sites. Stumps are not used
at all today, but a share of the stumps may be used in the future, with
limited impact on biodiversity.
With the existing forestry legislation and practises, there is no risk for
harm for the environment by producing biomass for energy from the Swedish
forests. We are happy to share these experiences with others.
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## 5. Effectiveness of existing EU sustainability scheme for biofuels and bioliquids

In 2009, the EU established a set of sustainability criteria for biofuels (used in transport) and bioliquids (used for electricity and heating). Only biofuels and bioliquids that comply with the criteria can receive government support or count towards national renewable energy targets. The main criteria are as follows:

- Biofuels produced in new installations must achieve GHG savings of at least 60 % in comparison with fossil fuels. In the case of installations that were in operation before 5 October 2015, biofuels must achieve a GHG emissions saving of at least 35 % until 31 December 2017 and at least 50 % from 1 January 2018. Lifecycle emissions taken into account when calculating GHG savings from biofuels include emissions from cultivation, processing, transport and direct land-use change;
- Biofuels cannot be grown in areas converted from land with previously (before 2008) high carbon stock, such as wetlands or forests;
- Biofuels cannot be produced from raw materials obtained from land with high biodiversity, such as primary forests or highly biodiverse grasslands.

In 2015, new rules[1] came into force that amend the EU legislation on biofuel sustainability (i.e. the Renewable Energy Directive and the Fuel Quality Directive) with a view to reducing the risk of indirect land-use change, preparing the transition to advanced biofuels and supporting renewable electricity in transport. The amendments:

- limit to 7 % the proportion of biofuels from food crops that can be counted towards the 2020 renewable energy targets;
- set an indicative 0.5 % target for advanced biofuels as a reference for national targets to be set by EU countries in 2017;
- maintain the double-counting of advanced biofuels towards the 2020 target of 10 % renewable energy in transport and lay down a harmonised EU list of eligible feedstocks; and
- introduce stronger incentives for the use of renewable electricity in transport (by counting it more towards the 2020 target of 10 % renewable energy use in transport).

[1] Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources (OJ L 239, 15.9.2015, p. 1).

5.1. Effectiveness in addressing sustainability risks of biofuels and bioliquids

In your view, how effective has the existing EU sustainability scheme for biofuels and bioliquids been in addressing the risks listed below? (one answer per line)

| | effective | partly effective | neutral | counter-productive | No opinion |
|---|---|---|---|---|---|
| GHG emissions from cultivation, processing and transport | ◉ | ○ | ○ | ○ | ○ |
| GHG emissions from direct land-use change | ◉ | ○ | ○ | ○ | ○ |
| Indirect land-use change | ○ | ○ | ○ | ○ | ◉ |
| Impacts on biodiversity | ◉ | ○ | ○ | ○ | ○ |
| Impact on soil, air and water | ○ | ○ | ◉ | ○ | ○ |

Any additional comments?

*2500 character(s) maximum*

A number of aspects are well covered by the directive. Biodiversity is handled by no go-areas, carbon losses by restrictions on fuels from deforested areas and wetlands, etc.
But the effectiveness of the Directive must also be questioned, on two grounds:
1. As it is based on thresholds it does not reward the best solutions, but only minimum requirements.
2. The complexity of the scheme punishes small and medium size businesses, with administrative burden and considerable cost, and favours large actors with higher administrative capacity. This has been shown in a recent study by the Swedish Energy Agency. On top of this, the ILUC reasoning is not based on reality, but on questionable modelling. Policies should be directly addressing existing problems in the concerned countries.
In combination with the current interpretation of state aid rules, the EU policies now threaten to kill the market for many of the biofuels on the Swedish market, with higher GHG emissions as a result.
Lower GHG emissions related to cultivation, processing and transport would be better incentivised by introducing efficient carbon pricing in fertilizer production, farming and in the transport sector. This would also affect all agricultural production, not only production of biofuels. In general, carbon pricing is a better tool to reduce GHG emissions than administrative regulation.
GHG emissions related to land use change is best handled by combating deforestation in the concerned countries. In Europe, deforestation and other

negative land use changes, is not an issue, except when it comes to urban expansion on farmland and productive forestland.
Indirect land use change (ILUC values) are based on modelling using historic data. The numbers used for deforestation the Amazon region are outdated, which give unfairly high ILUC values. Assumptions for yields and yield potentials are often too low. The models also fail to include abandoned and under-utilised agricultural lands, both in Europe and in developing countries, in their simplified categorisations. ILUC modelling is an interesting academic exercise, but it should not be used for political regulation.
The cap on biofuels from agricultural energy crops (wrongly called ”food-crops”), is counter-productive and harmful. Europe has large potentials to produce more crops on farmland, both inside EU, and in East Europe. EU has at least 10 million hectares of set-aside land, and even more abandoned and under-utilised land.

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*

In our opinion the term ”advanced biofuels should be used for all biofuels that reduce the greenhouse gas emissions more than 75 percent compared to fossil transport fuels. Regulation should be used primarily to reduce climate impact, not to discriminate among feedstocks. We have shown in Sweden that it is possible to produce so-called first generation ethanol, using grain as feedstock, with a reduction of GHG emissions by 95 percent (Norrköping/Agroetanol). This is a truly advanced factory producing a very climate friendly transport fuel. For the Swedish forest industry, producing biofuels from cellulose, lignin, tall oil, and other feedstocks offers a great opportunity. This also widens the raw material base for biofuels. The most important factor for this development to take place is that there are long-term, stable incentives, like favourable tax incentives, guaranteeing a market for these products. Also, it is essential that a market for biofuels in general is in place and not limited by political restrictions. The so called ”ILUC decision” was very detrimental in this regard. Is showed that EU can change the rules of the game by amending existing directives. Is put a cap on

the market (as a rule, the same companies are active both in first and second generation biofuels). It introduced a bureaucratic system of double counting, which opens up to sub-optimal solutions and fraud.
The regulation put restrictions on biofuels in general, but did not give any extra incentives or supports to so-called advanced biofuels, except the double-counting.
The support through NER300 has not been successful. A number of projects have been granted support, but very few have been carried forward to investments. There are several reasons for this. One is the uncertainty created by the ILUC debate and the ILUC decision. A major problem is the conditions attached to the support scheme. The private investors and banks have not been willing to take the risks associated with these often very large projects. Uncertainty associated with the implementation of state aid rules is another factor. As a result of these shortcomings, Europe is loosing momentum in the global race to develop new biofuels based on cellulose and waste. At the same time EU is blocking the possibility to use resources in agriculture to produce biofuels with proven GHG emissions reduction capacity. As a result, climate action in the transport sector is delayed.

### 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*

A recent study by the Swedish Energy Agency shows that the sustainability criteria for biofuels and bioliquids have resulted in extra costs for the producers and distributors of biofuels and bioliquids. The administrative burden is considerably higher for small actors than for big actors on the market, seen as cost per litre of fuel. This is logical, as all actors have to present identical paper work, regardless of volumes. Also, big actors have better access to expertise and better administrative capacity in general.
There is no threshold in the regulation of biofuels in RED.
It should be noted that suppliers of fossil fuels have no criteria at all. They are not even required to declare the orogin of their products, and they do not inform their costumers about the environmental harm of their products (compare to tobacco!). This gives biofuels an extra disadvantage on the market compared to fossil transport fuels.
If and when similar legislation, as in RED for biofuels and bioliquids, is

introduced on the market for solid biofuels, the lesson learned is:
. There needs to be a threshold for reporting to protect small and medium enterprises.
. There needs to be criteria also for fossil fuels, and at least a system for declaration of origin and for green house gas emissions for different categories of fossil fuels, as the climate impact varies greatly between different sources (different oil fields, deep sea oil, tar sand oil, etc).
For biofuels and bioliquids, a threshold should also be considered to protect small actors from undue administrative burden.

### 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 Sweden, where bioenergy has taken over a major part of the energy supply, the lesson learned is that a carbon tax is a very strong incentive to promote all kinds of development and deployment of bioenergy technologies, and to do this i a cost-efficient way. Among technologies that have been deployed:
. Efficient combined heat and power production (CHP), for district heating and cooling, using primarily unrefined wood fuels such as wood chips, bark, and residues from forestry (tops, branches, small trees from thinning, etc).
. Flue gas condensation enabling use of biomass with relatively high moisture content with high energy efficiency.
. Efficient pellet boilers and stoves, both small-scale applications for private homes, and middle and large-scale for industries (breweries, dairies, green houses, asphalt production, etc.). Very low emissions.
. CHP combined with wood pellet production, to increase electricity production by extensing running times of turbines.
. Efficient combined production in forest industries producing wood and fiber products together with electricity, heat för district heating, and refined fuels (pellets and dried fuels). These plants can now be further developed to produce chemicals, textiles, new materials, and biofuels.
. Efficient ethanol production using biomass as process energy and optimal utilisation of by-products (protein and carbon acid) with a GHG emission reduction of 95 percent compared to fossil fuels.
The development of new processes, such av gasification for bio-metane, methanol, DME, pyrolysis oil, torrefied pellets and charcoal, and production of ethanol, ethane and other chemical products, will need large investments in coming years. The most important factor to facilitate this development is a stable framework of general incentives, such as carbon tax and ETS. Direct economic support is needed for research, development, demonstration and market introduction. It is important that EU state aid regulation is adapted to this situation, and that general incentives like carbon taxation can be fully implemented. The interpretation of the state aid rules today works as a protection for fossil fuels on the transport fuel market.
NER300 has not worked well to promote these investments. Very few projects

have been realised. General incentives creating a long-term market for biomass, biofuels and bioheat- and cooling, are more important than direct support schemes.

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

6.1. In addition to the non-binding criteria proposed by the Commission in 2010, a number of other EU policies can contribute to the sustainability of solid and gaseous bioenergy in the EU. These include measures in the areas of energy, climate, environment and agriculture.

In your view, how effective are current EU policies in addressing the following risks of negative environmental impacts associated with solid and gaseous biomass used for heat and power? (one answer per line)

| | effective | partly effective | neutral | counter-productive | No opinion |
|---|---|---|---|---|---|
| Change in carbon stock due to deforestation, forest degradation and other direct land-use change in the EU | ◉ | ○ | ○ | ○ | ○ |
| Change in carbon stock due to deforestation, forest degradation and other direct land-use change in non-EU countries | ○ | ◉ | ○ | ○ | ○ |
| Indirect land-use change impacts | ○ | ○ | ○ | ○ | ◉ |
| GHG emissions from supply chain, e.g. cultivation, processing and transport | ○ | ◉ | ○ | ○ | ○ |
| GHG emissions from combustion of biomass (‘biogenic emissions’) | ◉ | ○ | ○ | ○ | ○ |
| Air quality | ◉ | ○ | ○ | ○ | ○ |
| Water and soil quality | ◉ | ○ | ○ | ○ | ○ |
| Biodiversity impacts | ◉ | ○ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Varying degrees of efficiency of biomass conversion to energy | ○ | ○ | ◉ | ○ | ○ |
| Competition between different uses of biomass (energy, food, industrial uses) due to limited availability of land and feedstocks | ○ | ○ | ◉ | ○ | ○ |
| Other | ○ | ○ | ○ | ○ | ◉ |

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*

Change of carbon stock in EU is not a problem. Every single member state has a growing stock of biogenic carbon in forests, and this is recorded in positive LULUCF numbers. The European forests are aging, and a higher share of the yearly increment could be used for wood products and energy. When the forests age, the uptake of carbon dioxide decreases, and the risk for large releases of carbon by large-scale disturbances, like infestation, forest fires and storm felling, increases. The forgone substitution and the subsequent higher emissions from fossil fuels, when the available biomass is not used for energy, must also be considered.
Higher mobilisation of wood, and more use of forest fuels, is a necessary part of a European climate strategy.
The existing national forest legislations in EU member states guarantee replanting of forests after harvest. Change of carbon stock in countries from which EU imports biomass for energy is also in general positive. This is true for the U.S. and for Canada, as for all other developed countries.
Indirect land use change is in general not an issue for solid biofuels. Short rotation coppice production can take place on lands that are not in demand for regular agricultural crops, e.g. on abandoned farmland, set-aside land, and ecological focus areas.
GHG emissions in the supply chain should be taken care of by carbon pricing, reducing the use of fossil fuels, and stimulating farming, forestry and the bioenergy industry to use bioenergy for their own energy needs. These emissions are reported in other sectors, and double counting should be avoided.
GHG emissions from biomass use are carbon neutral, and biomass combustion is rightly counted as zero in RED calculations. Other emissions are handled in

air quality directives.
Varying degrees of efficiency is in general an issue for the market actors to handle, and strong general incentives will promote efficient use as well as conversion away from fossil fuels. For small-scale technologies the Ecodesign directive is sufficient.
The issue of competition between different uses is also an issue for the market, once the environmental cost has been paid according to polluter pays principle (PPP). Allocation of feedstock and raw materials should not be regulated in a market economy, but must be taken care of by the economic actors.

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

7.1. In your view, what should be the key objectives of an improved EU bioenergy sustainability policy post-2020? Please rank the following objectives in order of importance: most important first; least important 9th/10th (you can rank fewer than 9/10 objectives):

| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
|---|---|---|---|---|---|---|---|---|---|---|
| Contribute to climate change objectives | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Avoid environmental impacts (biodiversity, air and water quality) | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ |
| Mitigate the impacts of indirect land-use change | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ |
| Promote efficient use of the biomass resource, including efficient energy conversion | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| Promote free trade and competition in | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| the EU among all end-users of the biomass resource | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| Ensure long-term legal certainty for operators | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Minimise administrative burden for operators | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Promote energy security | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| Promote EU industrial competitiveness, growth and jobs | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| Other | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

7.2. Any other views? Please specify

*2500 character(s) maximum*

Several of the alternatives have no relation to the issue of sustainability, and are handled by other EU or national policies. One example is energy security. It is taken care of in national policies for promotion of domestic energy sources, or are an indirect effect of carbon pricing, which will favour domestic renewable energy sources, like biomass. Strict sustainability criteria may limit the use of domestic biomass, if they lead to high administrative burden and added cost. At the same time, reasonable sustainability criteria may improve the public perception of biomass for energy, and lead to higher acceptance and more use.
The overbearing purpose of all promotion of renewable energy sources is to contribute to the climate policy and reduce the emissions of greenhouse gases, first and foremost the release of fossil carbon dioxide.
The purpose of EU-common sustainability critera is to show that the biomass used for energy has been sourced in an environmentally responsible way. This is mainly regulated in EU or national legislation, e.g. in member states forestry legislation, in the common agricultural policy CAP, and in environmental legislation. But a common set of criteria will guarantee that the same rules apply for all actors on the common market. Different criteria in different member states may create trade barriers. At the same time, it is essential to avoid unnessecary administrative burdens, especially on small and medium size enterprises. The biomass will be delivered both by large forest owners like companies and state forests, but also by millions of small-scale forest owners. A bureaucratic system will make it difficult to mobilise forest products and bioenergy from the forests. Already today, the pay for biomass for energy to the forest owner is very low. With a burdensome sustainability system the biomass will stay in the forest, and more fossil fuels will be used with continued high emissions of fossil carbon dioxide as a result.

## 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*

. The criteria must be clear and simple and not add to the administrative burden, especially for the small and medium operators on the market. A bureacratic and costly system will add to the cost of bioenergy and make it less competitive with fossil fuels. A high administrative burden and cost will also make it harder to mobilise feedstock from the millions of small-scale forest owners around Europe.
. The criteria must rely on existing legislations and control systems, or build on existing voluntary certifiation schemes, and avoid new separate administrative structures.
. The criteria must be the same for different end uses of biomass from forestry and agriculture. The forest owner delivering wood to the market doesn't always know where the wood will end up, and for what end use.
. The criteria must be similar or the same for biomass used for electricity, heat, and for transport fuels. In the future, much more solid biomass will be converted to liquid and gaseous fuels, as well as to heat and electricity in common plants (biorefineries, forestry industries, CHP.s).
. Similar regulation must be introduced also for fossil fuels. Information should be given to the costumers about the origin and the climate harm of these fuels, the same way as tobacco and alcohol users are informed about the negative health effects of these products.
The criteria already set in the Renewable Energy Directive for biofuels and bioliquids may be used as a starting point. These criteria are developed primarily for agricultural feedstocks, and not entirely suitable for forestry biomass.
To protect small and medium size actors from high costs and administrative burden, there has to be a threshold for reporting. Small heat plants use locally sourced biomass in relatively small quantities. The sustainability issues are minor on this level, and can be handled by existing forestry and environmental legislation.
We propose that the threshold should be 20 MW energy output. This is the same level as the threshold in ETS.
For agricultural biomass, the regulation in RED is sufficient, relying on the cross compliance regulation in CAP. For forest biomass, a risk assessment approach could be used. A competent body could make a risk analysis of a country or a region and assess if the existing legislation and practices are sufficient to guarantee sustainable sourcing. Such a model would make it possible to rely on existing sustainability schemes in national forestry legislation.
For feedstock from areas where the risk assessment shows deficiencies, voluntary systems can be used. Such systems can be authorized by the EU commission the same way as currently for biofuels and bioliquids. The existing possibility in RED to make bilateral agreements with countries outside EU could also be considered.

## 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*

The use of bioenergy is a major reason why Sweden reached its 2020 renewable target in 2012, eight years ahead of time. With now around 54 percent renewable energy, Sweden is by far the EU member state with the highest share of renewable energy. Sweden and Finland are the only two member states that have reach the renewable target in the transport sector, due to large-scale deployment of biofuels.

Any regulation that will limit the use of bioenergy will threaten this development, and will be harmful to Sweden's energy system, our climate policies, and our economy. The restrictions on biofuels introduced in the ILUC decision are already a threat the further development of our climate actions in the transport sector.

Despite our current large use of biomass for energy, there is still a large potential for increased production and use. In our estimation, the supply of biomass for energy could double in Sweden, mainly by better use of residues and by-products in forestry and agriculture, and by using abandoned or poorly used farmland for energy crops. Numerous estimates have been made through the years, showing these potentials.

With the right incentives, Sweden can produce large quantities of advanced biofuels (by our definition, all biofuels with a GHG reduction of more than 75 percent), also for export to the rest of EU.

The main reason for Sweden's succesful deployment of bioenergy is the carbon dioxide tax introduced in 1991. Other factors contributing factors behind the Swedish big use of biomass for energy are the green certificats för renewable electricity, the tax exemption for biofuels in transport, and the extensive district heating systems, in almost all Swedish minucipalities.

The best way to promote efficient bioenergy solutions is to introduce strong general incentives like the carbon dioxide tax and an improved ETS.

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

**Thank you for participation to the consultation!**

## Contact

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