Background note on measures and policies for sustainable bioenergy supply

How can sustainability measures for bioenergy be inserted in EU agricultural, energy and environmental policies

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1 Introduction

Due to the three pressures of climate change, increasing scarcity of fossil energy sources and uncertainty of supply, bioenergy has attracted growing interest from policy makers in Europe. Bioenergy offers promising opportunities to provide energy in an environmentally friendly way and to advance economic development in rural areas.

In order to further support bioenergy use, a great deal of European legislation has been passed in recent years. The most important supporting targets for the bioenergy market are set by:

- the European Commissions' energy and climate package of January 10, 2007, which established a "minimum target" of 10 percent of the petrol and diesel market to be represented by biofuels by 2020;
- the target of 20 percent of all EU energy consumption to come from renewable sources (including bioenergy) by 2020; and
- the revision of the European Fuel Quality Directive[1], containing a target to reduce GHG emissions from transport fuels by one percent each year from 2011 onwards and increasing the current limit for the incorporation of biofuels in fossil fuels from 5% by volume up to 10%. According to Environment Commissioner Dimas, this policy should "open the way for a major expansion in the use of biofuels".[2]

Yet, despite the various opportunities, the shift from fossil fuels to biomass feedstocks can also create serious risks and may counteract sustainable development. The substantial rise in the use of biomass from agriculture, forestry and waste for producing energy can result in negative ecological impacts, changing land-use patterns, socio-economic impacts and additional GHG emissions. Moreover, since meeting the ambitious EU bioenergy targets will require a considerable amount of imports[3], the European bioenergy policy has to take the impacts on international level into account

At the March summit in 2007 the European Council, therefore, bound the 10% biofuel target on the condition that biofuels are produced sustainable.

The workshop will pick up the controversial debate on a more sustainable production of bioenergy by discussing how a policy framework should be designed to ensure that the European targets for bioenergy are met in a sustainable way.

The discussion will build on the findings of a survey report that has been compiled within the first stage of the Agrinergy project. It outlines the measures and policies that have been undertaken or are currently being developed to design the bioenergy boom in a sustainable way. It identifies gaps in regulation and analyses what measures and instruments can be modified or newly introduced to contribute to the objective of sustainable bioenergy supply.

[1] Directive of the European Parliament and of the Council amending Directive 98/70/EC; Council Directive 1999/32/EC and repealing Directive 93/12/EEC. European Commission, Brussels, 31 January 2007

[2] Euractiv. EU aims at oil firms on way to low-carbon future. published: 1 February 2007, updated: 29 June 2007

[3] The EU Biofuels Directive proclaims that "a well balanced relation between domestically produced biomass and biomass imports" is needed.

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2 Key findings

The sustainability of biomass production is driven by several policies

Since biomass provides not only the feedstock for bioenergy but also competes with other uses such as food, feed and material use, the EU bioenergy policy interacts with many other policy fields. Bioenergy cropping from agriculture and forestry also competes with other land use requirements, such as nature protection areas, infrastructure, organic farming, recreation areas etc.
Therefore, the measures applied by sectoral policies also influence the sustainability performance of producing bioenergy feedstocks. The table below gives an overview of which policies and measures applied are of highest relevance.

Policy area	Instruments/ measures	Comments/ Effectiveness
Common agricultural policy (CAP)	Rural development measures, including LEADER approaches	Could support environmentally friendly cropping practices, may contribute to social and economic development of local communities. Limited funds, different focus in Member States
	Cross compliance	Mainly enforces pre-existing environmental minimum standards, no socio-economic criteria
	Energy crop premium	Supports further production of bioenergy crops, premium recently cut from 45 to 31,65 Euro per hectare.
	Set aside obligations	Permits non-food energy crops on set aside land, potential trade-offs with objectives for nature protection since set-aside land often has a high biodiversity value. Council recently approved zero set-aside rate for autumn 2007 and spring 2008 sowings.
Environmental policies	Nature conservation	Natura 2000 network for the protection of valuable habitats Some cases have been reported on conversion due to bioenergy cropping in Natura 2000 areas.
	Water Policy	Water Framework Directive regulates water consumption, can limit intensive biomass cropping (nutrient pollution), WFD still in implementation process; Nitrate Directive poorly implemented
Trade policy	Trade barriers	Constrain free trade, may limit the amount of (environmentally favourable) feedstocks, Protect European markets/ added value for Rural areas in Europe
	Sustainability standards	WTO could design/ influence but also prevent the implementation of sustainability standards
Regional planning	Can lead to an integrated and comprehensive approach, taking local conditions (environmental and socio-economic) into consideration, Engages (local) stakeholders; Helps to address unintended side-effects. Still limited to national and regional scales, integrated planning for Europe does not (yet) exist.	

Few sustainability criteria addressed within the bioenergy policy framework

In April 2007[4] the EU Commission launched a public consultation on "Biofuel issues in the new legislation on the promotion of renewable energy". It analyses how a biofuel sustainability system could be designed and suggests a set of sustainability criteria.
The issues addressed are:

- achieving a minimum level of greenhouse gas savings,
- avoiding major reduction in carbon stocks through land use change and
- avoiding major biodiversity loss from land use change.

The initial design of the scheme proposes that biofuels which failed to meet one of these criteria would not count towards national biofuel targets and would not be eligible for tax reductions and similar types of financial support. Member States would be responsible for ensuring that the criteria are respected.
In addition to this approach, several other measures under other sector policies can

[4] see COM 2007: Biofuel issues in the new legislation on the promotion of renewable energy. Public consultation exercise, EU Commission, April 2007.

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contribute to the sustainable development of bioenergy cropping.
One of the aims of the Agrinergy project is to assess the existing framework for a sustainable biomass production on a European and international level. Therefore, environmental, social and economic criteria have been identified and assessed against this framework. The findings are presented in the table below.

	Sustainability criteria	Status
environmental	*Lifecycle greenhouse gas emissions* should offer significant savings in comparison with fossil fuel	Debated*
	Carbon stocks (above or below ground) must not be significantly damaged or destroyed, including through deforestation	Debated*
	Areas of high biodiversity must be preserved	Debated* Partly covered under the FFH Directive
	Soil degradation, (pollution, erosion)	Partly implemented under GAECs[5]
	Water sources must not be contaminated or depleted	Under implementation (WFD)/Implemented (Nitrate Directive) supported by Cross Compliance
	Increases in *air pollution* must be avoided	Fuel Quality Directive
social	*workers' rights and working relationships* must be protected	
	Land rights and community relations must be preserved	
	Shall contribute to the social and economic *development of local, rural and indigenous peoples and communities*.	
economic	Food markets should not be affected in ways that compromise the *security of food supply*	
	Excessive subsidies must be avoided	
	International trade in biofuels should not be distorted	

* for liquid biofuels only

Furthermore, some Member States, such as the UK, the Netherlands and Germany, are currently also developing sustainability standards for biofuels. On an international level, many standard setting initiatives have recently been set up[6]. Many of these initiatives include more criteria but are, however, also limited to biofuels only.

The table above clearly indicates that most efforts are limited to environmental issues and not to sustainability in its broader meaning, including social and environmental issues.
Moreover, except trade policies all of the above mentioned policies are predominantly targeted at the European level, although the most severe impacts are often felt in exporting developing countries.

In order to achieve a more sustainable production, it is apparent that an integrated policy approach is needed, and bioenergy policies need to be mainstreamed in a broader framework of policies and measures. This is also required to address trade-offs and conflict of objectives between different policies[7].

The use of certification schemes to ensure sustainable production is limited

Often certification schemes are seen as an appropriate way to ensure the sustainable production of bioenergy feedstocks.

[5] Annex IV of EC 1782/2003 defining the "Good Argicultural and Environmental Conditions" under Cross Compliance. Many GAEC requirements were newly introduced under Cross Compliance

[6] These include the Rountable for sustainable biofuels (RSB), the Global Bioenergy Partnership (GBEP), UNEP, the International Energy Agency, and the International Bioenergy Platform (IBEP).

[7] For example Brasilian bioethanol based on sugarcane has a better environmental performance than rye based bioethanol produced in Europe (EMPA 2007: Ökobilanz von Energieprodukten: Ökologische Bewertung von Biotreibstoffen. Schlussbericht, Switzerland). However, the imported biofuels would not contribute to rural development and generation of employment within Europe.

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SSPE-CT-2007-44437

However, besides being a voluntary instrument that would not apply to the whole bioenergy market, certification schemes have the major drawback in that they cannot take macro-level impacts (including increased food prices and displacement effects) into account, since certification systems apply on the individual producer level only.

Certification systems can, therefore, only be a supporting means to implement a sustainability standard[8]. Other implementing options are:

- binding of (Member States) incentives/ tax breaks and subsidies to the sustainability performance of bioenergy feedstocks,
- insert sustainability standards in trade guidelines and (bilateral) regulations and agreements and
- requirement of report obligations

Ensuring sustainable biomass production is urgently needed. But saving energy and increasing energy efficiency is just as important!

The Agrinergy project focuses on the question how bioenergy feedstocks from agriculture and forestry can be produced in a sustainable way. However, given the ambitious European targets for bioenergy, the question remains if these objectives can be met in a sustainable way at all.

In this regard, a number of issues that limit a more sustainable energy policy have been identified:

1. A major downside of the European approach is that it puts a strong emphasis on biofuels. The proposed sustainability criteria are even limited to biofuels. Moreover, they only consider (some) environmental impacts. However, sustainability concerns do not only apply to the biofuels sector but relate to the production of biomass in general and to a broader range of issues. There are many other options to use biomass for energy purposes, which mostly have a much better environmental performance.[9]
2. Without increased efforts on energy saving and energy efficiency, the European bioenergy targets may be to high in the given timeframe to be met in a sustainable way. Additionally, production change towards more sustainable production methods, innovative technologies as second generation biofuels, plant species and cropping patterns will not be available in the short to medium timeframe. Bioenergy targets may be easier and more efficiently achieved with a strong overall increase in energy efficiency, thereby reducing the demand for fuels in general.

3 Main questions

The workshop aims to reflect and verify the interim project's results but also to identify gaps and additional aspects that are of relevance for a policy framework targeted at sustainable bioenergy feedstock production.
It is the intention of the workshop to draw clear policy recommendations.
Hence, the following questions with regard to biomass production for bioenergy are of main relevance:

1. Do the identified sustainability criteria sufficiently address the main impacts on European and on global level?
2. What measures and policies are needed and how would they need to be designed?
   - Do the identified policy areas reflect the main leverages?
   - To what extend can an according policy framework build on existing measures?
   - Which existing instruments can and need to be adapted?
   - What new measures would need to be established and how should they look like (command and control, incentives, labelling)?
   - How to deal with trade-offs between different policy objectives?
   - What role do and can Member State policies play?
3. Given the policy instruments and measures available and those to be developed: Is it possible to achieve the European bioenergy targets in a sustainable way?

[8] Standards are usually structured in three levels: principles, criteria and indicators. This hierarchy follows from the objectives in a sequence of increasing detail and specificity.

[9] SRU 2007: Klimaschutz durch Biomasse. Sondergutachten prepared by the Sachverständigenrat für Umweltfragen. Germany, Juli 2007

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