



EEB Analysis of EU's revised Biofuels and Bioenergy policy

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Introduction and background to the EU's revised biofuels policy

On December 2008 the EU adopted a new biofuels policy as part of a new Renewable Energy Directive, which made up an element of the EU Climate and Energy Package. This paper provides a detailed, comprehensive analysis of EU biofuels policy under the Climate and Energy Package, identifying environmental threats and opportunities and recommendations for NGO involvement during the implementation of this new policy.

Before starting with this policy analysis, we will provide some basic facts and figures on biofuels and the expected impacts of their production and use.

The production of energy from renewable biological resources such as wood is as old as humankind and plays a significant but limited role in most energy scenarios. The production of liquid fuels from biologically-based materials such as grains, oil, seeds, straw and wood is a more recent development. Often the somewhat misleading term "first generation" is used for biofuels produced from food crops such as palm oil, rape seed, corn and sugar cane and "second generation" for biofuels sourced from cellulosic materials such as straw and wood. The terminology is misleading because it implies that first generation are a first necessary step to second generation. This is not the case because an entirely different infrastructure is needed to produce second generation biofuels. It is also misleading because it implies that one is older than the other. In fact, second generation technologies (the Fischer Tropsch synthesis) for converting biomass to liquids were developed in the 1930s in Germany when they were cut off from imports and forced to use domestic coal reserves to produce liquid fuels. Although Coal-to-Liquids technologies are commercially available, the application of this technology for biomass is still in the pilot plant phase.

Current statistics and research

Globally, the US and Brazil are world leaders in ethanol production (produced mostly from sugar cane in Brazil and maize in the US) and the EU is the world leader in producing biodiesel (produced mostly from rapeseed). A number of developing countries, such as southern African nations, India, Indonesia and Malaysia, are also seeking to boost their production capacities, mostly for vegetable oils. But Brazil also has high ambitions to export its know-how in ethanol production from sugar cane especially to African countries. The production of these biofuels at current and estimated future levels has an effect on the cost of food globally as more and more land is used to grow feedstocks

for energy production rather than food. A June 2008 World Bank report of the impact on food prices from using these crops for biofuel production estimates that approximately 70% of the early 2008 food price hike could be attributed to biofuels. Over a third of US corn is currently used to produce ethanol, while about half of EU vegetable oils are used in the production of biodiesel. According to a 2008 estimate from the UN's Food and Agriculture Organisation (FAO), if 5.8% of global fuel consumption were to come from biofuels it would require the use of 52.8 million hectares of cropland (approximately the size of Germany, Austria and Czech republic combined) globally. Within the EU, the Dutch Environment Assessment Agency estimated that meeting the proposed 10% biofuel target would require between 20-30 million hectares of cropland.

The much acclaimed greenhouse gas (GHG) reduction benefits of biofuels are in most cases either marginal or non-existent. The critical flaw in a lot of conventional calculations is two-fold. Firstly, they allocate a lower GHG figure to biofuels by wrongly presuming that if crops for fuel were not grown, there would be no alternative vegetation cover that would *also* sequester carbon. Secondly, they ignore the 'hidden carbon costs' in terms of the impacts of land use changes when land is diverted from food production to energy production. Moreover, throughout the biofuels production chain a lot of energy is used, which means that the GHG balance in most production pathways is either marginal or even negative. Recent studies published in *Science* (Searchinger 2008) and by the UK's Renewables Fuel Agency in the Gallagher Review (2008) found that the most critical factor in terms of GHG impacts is how direct and indirect land use changes affect carbon stocks. The table below illustrates how this affects the GHG balance for a number of biofuel pathways in the US.

UNDERSTANDING THE ROLE OF LAND IN COMPARING GREENHOUSE GAS EMISSIONS FROM BIOFUELS AND CONVENTIONAL FUELS

Why calculating land use change just means accounting for the costs of using land as well as the benefits

GREET and UK Default Values CO2 Emissions for Various fuels, grams (CO2 equivalent) per mega joule of energy in fuel								
	1	2	3	4	5	6	7	8
	Production Emissions	Refining and Retail Transport	Combustion	Land Use Benefit carbon removed from air by plants used for biofuels	Land Use Effects Land Use Cost emissions from cropland expansion to replace crops on land diverted to biofuels (as estimated by Searchinger/Heimlich)	Total without any land use effects (rows 1+2+3)	Total counting land use benefit only (rows 1+2+3+4)	Total counting land use benefit and cost (rows 1+2+3+4+5)
GREET								
Gasoline	4	15	72	0	0	91	91	91
Corn Ethanol	24	40	71	-62	104	135 (+48%)	73 (-20%)	177 (+93%)
Biomass Ethanol	10	9	71	-62	111	90 (-1%)	28 (-70%)	138 (+51%)
Diesel	5	11	68	0	0	84	84	84
Soy Biodiesel	23	23	69	-76	110-180	115 (+37%)	39 (-57)	+149 to +219
UK Default Values -Diesel*	3	14	69			86	86	86
UK Default Palm to Biodiesel	8-9	35-36	69	-69	?	112-114 (+30% to +33%)	43-45 (-50% to -48%)	?
UK Default Rape biodiesel for UK	52	0	69	-69	?	121 (+41%)	52 (-40%)	?

Percentages are for biofuel compared to gasoline or diesel.

Source: Searchinger, 2008.

The "second generation" biofuels, currently presented by many as the better kind of biofuel, are likely to have serious drawbacks and limitations as well: economies of scale and logistics (e.g., huge volumes of raw materials needed to operate plants result in high transport costs), competition with

other uses for waste streams (such as soil improvers and in more efficient energy pathways such as combined heat and power installations) and competition with land uses other than agriculture.

Perhaps the most critical issue is that producing liquid fuel from plants to power vehicles is a highly inefficient, wasteful way to use energy. Typically the efficiency of transforming energy into movement with an internal combustion engine (ICE), whether powered by biofuel or other forms of liquid hydrocarbon, is 18% for gasoline and 23% for diesel engines. In comparison, an electric motor can reach an efficiency rate of 74% (IEA 2005), a statistic that reflects only relatively few years of research and development into car batteries. The biomass that we have available in a sustainable quantity is therefore much more efficiently used for transport through a stationary Combined Heat and Power plant powering a fleet of battery-operated electric vehicles than by turning it into liquid fuel for conventional ICE vehicles.

Another important recent finding by the European Commission's Joint Research Centre (2008) has been that the costs to society (both costs to produce as well as increased feedstock prices) of achieving the proposed EU 10% biofuel target by 2020 could be as high as 65 billion EURO with only marginal benefits in terms of employment, security of supply and reduced GHG emissions (estimated at 18 billion EURO). The study found that almost every other technology to reduce GHG emissions is cheaper than producing biofuels.

All this means that in a very optimistic, best-case scenario, biofuels *may* play a minor role in reducing GHG emissions in *some* parts of the world. In a more realistic scenario, biofuels will accelerate ecosystem breakdown on a massive scale through agricultural expansion and intensification and threaten the livelihoods of those hundreds of millions of people who already spend over 50% of their income on food.

EU policy background

The EU's first Biofuels Directive dates from 2003 and set an indicative target of 5.75% biofuel share by 2010 for all EU member states. A review of this Directive started in 2005. After many internal discussions the Commission finally included its proposal for a revised Biofuels Directive as part of the updated Renewable Energy Directive which it released in January 2007. The proposal enjoyed strong political support from EU heads of state at the 2007 Spring Council meeting on the Commission's Energy and Climate Package, which included a 10% biofuels target. The Renewable Energy Directive (RED) proposes an overall target of 20% renewable energy for the EU which then needs to be divided between EU member states. The Directive does not set any specific targets for specific sectors or technologies except one: a 10% share of renewable energy in the transport sector to be achieved by all EU Member States. Although this target can also be met by increasing the number of electric cars on the road or using renewable electricity in railways, there is a risk that the target will act as a major driver for increased biofuel production.

At the 2007 European Spring Council heads of state gave their support to the 10% biofuels target under the clear condition that production would be sustainable and second generation biofuels would be commercially available. During the 2008 Spring Council, heads of state no longer included explicit support for the biofuels target in their conclusions and merely reiterated the importance of ensuring the sustainability of biofuels.

In the mean time the Commission published a proposal for a revised Fuels Quality Directive (FQD) in early 2007. The proposal includes an obligation for fuel suppliers to monitor and reduce the GHG intensity of fuel sold on the EU market by 10% over 10 years (2010-2020). Producing biofuels would be one tool to meet this obligation, on the condition that they make a genuine contribution to the reduction of GHG emissions. Apart from producing and using biofuels, oil companies are expected to

be able to realise significant reductions in GHGs in the fossil fuel supply chain, especially by reducing flaring and creating efficiency gains in the refineries. It is even estimated by some that they could meet their entire 10% GHG reduction target using such efficiency measures alone, although it is difficult to get a reliable estimate as the necessary data is being held by the oil industry.

At the same time, in the first months of 2008 the stream of critical reports and studies on the perceived benefits of biofuels intensified, including reports from the OECD, Global Subsidies Initiative, FAO, IMF, World Bank, UK government, Dutch Environment Agency, a German environmental advisory body and even the Commission's own Joint Research Centre. (A listing of these reports is included at the end of this policy brief.)

Perhaps most significantly for the EU, in February 2008, the UK Transport Secretary ordered a major review of all existing and emerging evidence on the impacts of biofuels. A crucial difference between the UK ("Gallagher") review and those used by the Commission is that the Gallagher report assesses the indirect land use change impacts, i.e., it looks at the 'hidden carbon costs.' The Gallagher report (June 2008) found "that the rush to develop biofuels has played a 'significant' role in the dramatic rise in global food prices, which has left 100 million more people without enough to eat." Although the study's conclusions fell short of advising the UK government to abandon support for the biofuels target, it called for a slowdown until 2015 and listed a number of challenges to be addressed by then before picking up speed again. These challenges include such things as building a global governance structure to effectively deal with deforestation.

General trends

Perhaps the most important trend is that awareness of the impacts and drawbacks of biofuels has increased dramatically among both policy makers as well as the general public. The number of newspaper cartoons depicting one variation or another of the theme of a well-fed westerner putting biofuel in his tank next to a hungry person are already countless. Biofuels have become the subject matter of songs, comedy and generally a wide public debate. The most important driver behind this new awareness has been the drastic and sustained increases in the prices of a number of key commodities including staple foods. This focus on food-or-fuel has, on the one hand, been useful as it helped raise awareness on impacts, but on the other hand has sometimes simplified the debate too much at the expense of other equally critical impacts.

Key elements of the new Renewable Energy Directive in respect to biofuels

An agreement between European Parliament, Council and the Commission on the new renewables directive was finally reached on December 9, 2008. Under immense pressure from the French Presidency, aided by Commission negotiators from DG TREN, Parliament was forced to give up on almost all its amendments which would have ensured clear conditions as to which technologies and feedstocks would play a role in implementing the Directive. Nevertheless, the room for different interpretations that the Directive leaves means that Member States will be able to continue the u-turn on biofuel support that some (such as UK, NL and DE) have already started.

1. A target of 10% renewables in transport

Already in the Commission's proposal, the 10% biofuel target had been replaced by a target of 10% renewables in transport. In the final agreement this was changed so that Member States are encouraged, though not obliged, to promote electric vehicles as a means to achieve the target (Article 3.4). The renewable energy consumed in such vehicles will count 2.5 times towards the

target. Already Denmark, France, UK, Sweden and Ireland have launched plans to go electric. Moreover the target will be subject to a report, to be presented by the European Commission in 2014 at the latest, which will review the cost efficiency of the measures to implement the target, the impacts of the implementation, the availability of electric and hydrogen vehicles, the possibility of meeting the target sustainably and an evaluation of market conditions. Although the Directive is not explicit about whether the target itself will be reviewed, this is of course always possible (Article 23.8.b.i-v).

2. GHG Saving thresholds

Until 2017 biofuels only need to achieve GHG savings of 35%. With effect from 2017 the GHG savings from the use of biofuels and other bioliquids will have to be 50% and 60% for biofuels produced in installations which started production from 2017 and onwards (Article 17.2). Moreover a grandfathering clause has been included which exempts biofuels and bioliquids produced in installations that were in operation in January 2008 from meeting any GHG saving threshold until April 2013 (Article 17.2). These higher saving thresholds are subject to a review, at the latest by 2014, in order to take into account, following a somewhat twisted logic, the availability of technologies and suitable biofuels (Article 23.8a). Although the grandfathering clause makes it possible for existing installations to continue to produce unsustainable biofuels, the 2017 deadline, coupled with the fact that after 2010 indirect land use change impacts will need to be considered in determining GHG impacts, will hamper investments in new installations as it will be unclear which feedstocks and technologies will receive support in the long term.

3. Sustainability criteria

The sustainability criteria defined in Article 17, other than the GHG saving threshold, identify a number of 'no go' areas for production of biofuels: biodiversity rich lands including natural and semi-natural grasslands (Article 17.3), and land with high carbon stocks (Article 17.4). A major weakness, especially as regards the biodiversity rich areas, is that even when they are recognised as such by the IUCN, the Commission has given itself the right to not recognise them as such and allow biofuels produced from such areas to count towards the 10% target. Also when it comes to biodiversity rich grasslands, the Commission will still need to propose criteria and geographic ranges to determine which grasslands in the end will be covered.

Social standards will only be the subject of reporting by the Commission, looking superficially at a number of international conventions. If deemed appropriate by the Commission they may propose corrective action. A first report will be released in 2012 (Article 17.7).

4. Verification of compliance

Most critical to the sustainability criteria is not so much their substance but rather the verification of compliance. The Commission has been given a lot of discretion in doing this. The Commission alone will decide, through an advisory committee, exactly which information Member States will require operators to report upon with a special view to avoiding 'excessive administrative burden' (Article 18.3.third sub para). Information submitted to a transparency platform that is yet to be set up (Article 24) will only be in summary form to preserve the confidentiality of commercially sensitive information. This means that the Commission is unlikely to inform the public about the real impacts of biofuel production.

Moreover, the Commission has the possibility to conclude bilateral and multi lateral agreements with third countries and decide that these agreements will mean that all sustainability criteria will be met for all the biofuels produced in that country (Article 18.4). Similarly the Commission can decide

that being part of an existing national or international voluntary scheme means the sustainability standards are met, including that such schemes contain information on GHG savings, even when such schemes were never set up for this (Article 18.4 second subpara). Lastly, when a Member State or the Commission itself wants to know whether a specific source of biofuels is in compliance or not, the Commission can simply decide this independently (Article 18.8).

As regards extending the sustainability standards to solid biomass, this has now also been postponed to the end of 2009 when the Commission will present a report which may, if deemed it appropriate, include proposals to extend the scheme. This proposal may also include amendments to the calculation methodology in Annex VII and sustainability criteria related to carbon stocks (Article 17.9).

5. Protection of peatland

Although the most outrageous demands from the Finnish government to allow the use of peat for the purpose of producing biofuels were rejected within the Council, one amendment was accepted which could constitute a massive loophole. Although the Directive states that in principle biofuels and bioliquids shall not be made from raw material cultivated on land that was peatland in January 2008, this does not apply when it is proven that the cultivation and harvesting of this raw material does not involve the drainage of previously undrained soil. According to estimates by Wetlands International, up to 95% of the world's peatlands could be classified as having been drained to some extent at some point in history (Article 15.4a).

6. Indirect land use change impacts

A decision on how to factor in the indirect impacts of land use changes from the production of biofuels have been postponed till later. The Commission will submit a report, by the end of December 2010, in which it should review the impacts of indirect land use changes, ways to minimise the impacts and, if it deems it appropriate, make a proposal to mitigate these impacts. At the same time the Directive ensures that any biofuels produced in installations in use before 2013 will not be affected. This means that in theory installations constructed between now and 2013 could increase the production of unsustainable biofuels. However this is unlikely to happen in practice, since by 2017 these installations will also need to achieve a minimum GHG saving of 50%. When determining the GHG impacts, they will have to take into account indirect land use change impacts (Article 17.4. The only escape here is if the 2014 review leads to a change in the GHG threshold.) Moreover, there is a limit set to the total capacity of installations for which this extension in deadline applies: only the capacities that installations have by the end of 2012 fall under this extension. Increased capacities after 2012 in existing installations will immediately have to meet the new requirements to avoid indirect land use change impacts.

6. Calculating GHG emissions and default values

Under the Directive Member States will be able to use default values for different types of biofuels, or disaggregate default values for the different parts of a biofuel's life cycle, which means that most biofuels on the market today automatically comply with the Directive, irrespective of their real impacts. The default values can be used for biofuel feedstocks produced outside the EU, within the EU in areas where the Member States believe that the emissions from cultivation are equivalent or lower than the default values, or when these feedstocks are waste or residues other than agricultural, aquaculture and fisheries residues (Article 19.3). A worrying element of the methodology for calculating real GHG emissions is that emission savings from Carbon Capture and Storage can count to calculate the total emissions from a particular biofuels. This could play into the hands of the peat industry who have been consistently arguing that when using Carbon Capture and

Storage (CCS), second generation biofuels made from peat could deliver significant emission savings (Annex V.C.1).

7. Other issues

Under Article 21.1 Member States are required to ensure that information is given to the general public on the environmental benefits of biofuels. Although this may seem like an invitation for greenwashing it also provides a good opportunity to take legal action against either government or operators for misleading the public on biofuels. A recent ruling from the UK Advertising Standards Authority on a complaint about an advertisement from the Renewable Fuels Association found that presenting biofuels as sustainable was misleading - an encouraging precedent.

8. Other biofuel related legislation: Fuel Quality Directive and CO2 and Cars

Around the same time as the Renewable Energy Directive was adopted the revised Fuel Quality Directive and a new Directive on the emission of CO2 from cars were also agreed. The adopted Fuel Quality Directive still maintains an obligation for fuel suppliers to reduce the carbon intensity of the fuels they sell by 10% but only 6% of this 10% reduction is now compulsory, with the remaining 4% being voluntary. Although a large share of these reductions is expected to be achieved through measures in the oil supply chain such as reduced flaring and venting, biofuels that can demonstrate significant GHG reductions can also play a role. But perhaps the biggest benefit of the Fuel Quality Directive is that it will make the EU market very difficult to enter for other non-conventional oils such as those sourced from tar-sands and coal-to-liquid.

Under the new Directive on CO2 and Cars, car efficiency targets will now only be phased in with a final target of, effectively, around 140 grams/kilometre to be met by all cars by 2015. The presumed use of biofuels has been one of the 'additional' measures that are now allowing car makers to achieve the target of 120 grams/kilometre that was originally foreseen in the Commission's proposal. As a result, biofuels will continue to serve as an easy get-out clause for car makers to not deliver on fuel efficiency.

A final cause for concern is the fact that biofuels that will be used in the aviation sector count as zero emission in the Emission Trading Scheme, which ignores their real climate impacts.

Recommendations for NGO actions in the implementation phase

Although few of the EEB's demands for a more responsible and intelligent EU policy on bio-energy have made it into the new Renewable Energy Directive, the final results as described above do provide enough scope to limit the damaging effect of existing biofuels and continue to push for a u-turn on biofuel support policies.

The greater the volume of biofuels that enter the EU market, the more their real impacts will become increasingly clear to everyone, and so will the pressure mount to revise the EU's biofuels policy.

→ At EU level

The Commission is playing a critical role now in the implementation of the Directive, most importantly in clarifying, through a series of report and proposals, some major issues related to what constitutes a sustainable biofuel. The Commission should organise an open and transparent process which will ensure stakeholder involvement and accountability for the decision it will propose to take

on these major issues. Given the number of issues that need to be resolved, Brussels based NGOs will need to coordinate and share their involvement in this EU level work.

The single most important issue to resolve now is how indirect land use change impacts will be tackled. The Joint Research Centre has already kicked off its work on this with an expert consultation meeting in the end of January 2009, together with the EEA and OECD. It is critical that NGOs will continue to follow this work to ensure politics will not get in the way of science somewhere along the way.

Depending on how open and transparent the Commission will be at this stage, additional actions through the Ombudsman or using access to information and participation rules agreed under the Aarhus Convention may be necessary.

At their own initiative, the Commission's standardisation body CEN has started developing its own proposals, for example on GHG calculations and sustainability standards. It is unclear at the moment how this work will fit in with the work the Commission is doing on the same issues.

→ At national level

National NGOs should lobby their government to either start or continue slowing down their support for biofuels and instead invest heavily in the development of an electric car fleet. Given the uncertainty as to which type of technologies and feedstocks will in the end count towards the 10% target, investment and support to most existing biofuels should at the very least be postponed and probably, following publication of the Commission's proposals, be abandoned.

In Member States where governments are set to continue or increase their support of biofuels, a court action by NGOs may be necessary, either at a national court or, through a referral by the national court, at the ECJ. Grounds for such a Court Action could be to prove that biofuels used and counted towards the target are unsustainable, at the very least by not achieving the minimum GHG emission reductions.

But perhaps most importantly, NGOs must now do even more now to dispel the myth that most biofuels are good for climate change and the environment. This industry is still relatively small (although standing on the shoulders of oil giants) and highly dependent on government support, investor security and oil prices.

As a final point, policy makers should begin to draw conclusions from the biofuels controversy. Probably the most important one is that not everything that reduces GHG emissions even marginally is necessarily a good thing for the environment or for society as a whole. Biofuels production requires scarce resources such as land, soil and water. In fact, all renewable energies require space, whether they are windmills, dams for hydropower, solar cells or others and their development will inherently conflict with other land uses. The only way to avoid creating significant impacts from such conflicts and guarantee the smooth and rapid development of the renewables sector is to ensure that developments in renewables are planned on a strategic level, with an approach of relocation /decentralisation, in full compliance with existing EU environmental rules. Perhaps even more fundamentally, boosting renewables capacities will need to go hand in hand with measures to achieve a steep decline in overall levels of energy consumption.

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The European Environmental Bureau (EEB) is a federation of over 150 environmental citizens' organisations based in most EU Member States, most candidate and potential candidate countries as well as in a few neighbouring countries. These organisations range from local and national, to European and international. Our office in Brussels was established in 1974 to provide a focal point for our members to monitor and respond to the EU's emerging environmental policy.

EEB's aim is to protect and improve the environment by influencing EU policy, promoting sustainable development objectives and ensuring that Europe's citizens can play a part in achieving these goals. EEB stands for environmental justice and participatory democracy.

Annex 1

A selection of relevant recent publications

OECD. *Biofuels - is the cure worse than the disease?* Richard Doornbosch, Ronald Steenblik, September 12, 2007. <http://www.cfr.org/publication/14293/oecd.html>

OECD. *Economic Assessment of Biofuel Support Policies*, July 16 2008.
<http://www.oecd.org/dataoecd/19/62/41007840.pdf>

UK Renewables Fuels Agency. *Review of the Indirect Effects of Biofuels (Gallagher Review)*, 2008.
www.dft.gov.uk

MNP (Dutch Environmental Assessment Agency). *Local and global consequences of the EU renewable directive for biofuels*, Bilthoven, March 2008.

FAO, THE STATE OF FOOD AND AGRICULTURE 2008, biofuels prospects, risks and opportunities, report available at: <http://www.fao.org/docrep/011/i0100e/i0100e00.htm>

German Environmental Advisory Council (SRU). *Climate Change Mitigation by biomass*, Berlin, July 2007.

Global Subsidies Initiative, *Biofuels, at what cost?*, 2007
http://www.globalsubsidies.org/files/assets/Subsidies_to_biofuels_in_the_EU_final.pdf

European Joint Research Centre. *Biofuels in the European Context: Facts and Uncertainties*, 2008.
http://ec.europa.eu/dgs/jrc/downloads/jrc_biofuels_report.pdf

WorldBank Policy Research Working Paper. *A Note on Rising Food Prices*, Donald Mitchell, July 2008.
http://www.wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2008/07/28/000020439_20080728103002/Rendered/PDF/WP4682.pdf

IEA. *Prospects for hydrogen and fuel cells*. 2005.

WWF. *Plugged in, the end of the oil age*. 2008.

Timothy Searchinger et al. *Science Express, Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land Use Change*, February 2008.

Transport and Environment, December 2008, Briefing on the Fuel Quality Directive at:

<http://www.transportenvironment.org/Downloads/view/cid:3/>

NGO resource websites with further materials and analysis

http://www.birdlife.org/eu/Biofuels_pages/eu_biofuels.html

<http://www.foeeurope.org/agrofuels/index.html>

www.transportenvironment.org/pages/low-carbon-fuels/

Art 19.4	COM report areas in 3rd countries for lower GHG values from agricultural cultivation CODECISION							
Art 19.6	COM ILUC Report (addressing ways to minimise this impact) CODECISION							
Art 19.5	COM Report on the estimated typical and default values SCRUTINY.							X
Article 22 Reporting by Member States								
Art 22.1.j	MS implementation reports (availability of biomass; commodity price; land use changes; second gen; impact on biodiversity, water resources etc...; estimated GHG savings)						X	
Article 23 Reporting								
Art 23	COM Implementation Report CODECISION							X
Art 23	COM reviewing minimum GHG and biofuels target CODECISION							