



## Editorial

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### Dear readers,

In its recent proposal, the European Commission announced its intention to set minimum levels for the sustainability of biofuels. Some European countries are already introducing sustainability reporting and others have announced that biofuel targets should not be increased until sustainability of the final product can be assured. Recent publications (e.g. Scienceexpress and a confidential but leaked report of the Joint Research Centre (JRC) of the European Commission) have stressed that the advantages of biofuels may be fewer than previously thought and media attention is greater than ever before. In conclusion, it is fair to say that biofuel sustainability is currently THE hot topic in this field.

Therefore, in this fourth edition of Biofuel Cities Quarterly, we are happy to finally deal with the key issues of biofuel sustainability. In preparing this edition, we were able to interview two leading authorities on this topic:

Dr. Jacqueline Cramer is the Dutch Minister of Environment, who in her previous role, was responsible for developing the "Cramer Criteria" which are known and referred to globally.

Dr. André Faaij is an expert on sustainable production of biomass and biofuels and on potentials and trade issues.

This issue of the Quarterly is filled from cover to cover with interesting articles, interviews and news. As such, I will not spend more time introducing these, but will finish and let you see for yourself!

Please enjoy reading!

## In focus

### Biofuels and sustainability

In the past weeks and months, there has been large media attention and public debate about the potential risks of (large-scale) biofuel production. Opinions vary greatly and the debate is often based not only on facts, but also on emotions. Even in the scientific community there is controversy on this topic. Despite these uncertainties, policy makers are trying to draw up sustainability criteria and implement them on a European and national level. The aim of this article is to address some of the key questions concerning biofuels and sustainability.

A primary concern of an increased demand for biofuel feedstock is the pressure it puts on the available arable land. The increased feedstock demand can, directly or indirectly, lead to the conversion of forests and other natural ecosystems into plantations or cropland. These changes in land-use often cause so much carbon release from vegetation and soil that the savings from the use of biofuels are negated. Moreover, land-use change can lead to the loss of important habitats for plants and animals and the endangerment of rare species. In addition, biomass production can lead to degradation of soils and water bodies.

Another important concern is the competition between biofuels and food. An increased demand for agricultural commodities leads to higher food prices. Biofuels contribute to this. Other important factors contributing to rising food prices are population growth, increased meat consumption and failing harvests.

Everyone will agree that the biomass we use to make biofuels should be produced in a responsible way. But what is considered responsible or sustainable? There is no fixed definition and lists of sustainability criteria can differ. Generally sustainability criteria can be broken down into two categories: environmental and social criteria. → [Page 2](#)



Jatropha fruit © VWP

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## Self presentation

### SenterNovem

SenterNovem is an agency of the Dutch Ministry of Economic Affairs that aims to promote sustainable development and innovation, both within the Netherlands and abroad. SenterNovem provides companies, (knowledge) institutions and government authorities with advice, information and financial support. The agency works on behalf of several Dutch ministries, international organisations such as the European Commission, the International Energy Agency (IEA) and foreign

governments and its projects are grouped into four themes: encouraging innovation; reducing climate change; sustainable energy and improved environment.

On the subject of biofuels, SenterNovem co-ordinates the GAVE programme, commissioned by three Dutch ministries (Spatial Planning, Housing and the Environment; Economic Affairs; and Transport, Public Works and Water Management). GAVE is a Dutch abbreviation for *Climate Neutral Gaseous and Liquid Energy Carriers* and the project actively supports the government and relevant market parties in their efforts to achieve national and EU biofuel targets in a sustainable manner. Those involved are kept informed of all

latest developments and meet regularly to exchange knowledge through a platform, network days and other frequently organised activities.

**For more information on SenterNovem or the GAVE-programme please visit:**

<http://www.senternovem.org>  
<http://www.senternovem.nl/gave>



## Biofuels and sustainability

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Environmental criteria include:

- a net greenhouse gas emission reduction throughout the total production chain, compared to its fossil reference.
- no negative effect on: important carbon stocks in vegetation and soil; protected natural ecosystems and biodiversity; the soil, water and air quality.

Social criteria are:

- not endanger the local supply of biomass for food and other purposes.
- comply with (inter)national laws on human rights, landownership and labour conditions, and contribute to the social and economic development of local, rural and indigenous peoples and communities.



Mixed cropping © VWP

Many of the above mentioned sustainability criteria can be addressed on the level of individual companies. However some major effects of biofuel production only become apparent on national or regional scale. These are effects caused mainly by indirect land-use change, which means that the increased pressure on arable land due to biofuels leads to the conversion of land via a few intermediate steps. For example, European rapeseed oil is used for biofuels production, leading to a shortage in vegetable oils for the European food industry. This shortage is made up by increased import of palm oil and the increased demand for palm oil is, in turn, met by the conversion of rainforests to palm oil plantations. Addressing these indirect effects adequately is primarily a responsibility for governments and international organisations.

How do we know that the biofuels we use to fuel our cars are produced in a sustainable way? The simple answer to this is that oil companies should provide information about the sustainability of their fuels, however, this implies that a comprehensive system should be developed that keeps track of all the information about the different steps in the production chain. The next question would be why should all those actors make such efforts? At the end of the upstream chain, oil companies are responsible for the quality of the final product: the biofuel. Somehow these oil companies should be triggered to supply the relevant sustainability information of the fuel, either by public demand, their own

social responsibility or forced by governmental policies. The latter might be most attractive for industry as this will create a level playing field; maintaining the competitive position of the companies.



Algal photo bio-reactor  
 © David Lockie, www.LowCarbonEconomy.com

Governments have several policy options to stimulate or require sustainable biofuel production. Policy options vary from mandatory minimal requirement standards, an obligation for oil companies to report on the sustainability of their finished product or a framework supporting voluntary reporting. In the EU, some countries, namely the UK, Germany and the Netherlands, are already discussing or have even put in place minimal sustainability requirements. The new EU directive proposal on the promotion of the use of energy from renewable sources also sets sustainability requirements, to be met by 2010 and by all 27 EU member states.

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## Interview with Dr. J. M. Cramer, Dutch Minister for the Environment

### How sustainable are biofuels? Dr. J. M. Cramer was interviewed by Marieke Hartevelde & Per Godfroj, SenterNovem

#### A policy perspective

Minister Dr. J. M. Cramer is the Dutch Minister for Housing, Spatial Planning and the Environment. She is the Minister responsible for the issue of biofuels. Before she joined the government in 2007, she chaired a commission for the formulation of sustainability criteria for biomass.



© VROM, Netherlands Ministry of Housing, Spatial Planning and the Environment

**M. Hartevelde / P. Godfroj:** What is your view on the role of biofuels in the transport sector?

**J. M. Cramer:** The use of biofuels for the transport sector is part of a long-term vision on the energy transition towards a more sustainable and a less carbon intense energy system. To combat climate change we need to significantly reduce our greenhouse gas emissions. We need all available options to do this

and biofuels is one of these options. In the short-term, biofuels is one of the main alternative fuel options available for the transport sector.

**M. Hartevelde / P. Godfroj:** In January this year the European Commission has put forward a directive proposal on, amongst others, increasing the share of biofuels in Europe to 10% in 2020 and on introducing sustainability criteria. What is your view on this proposal?

**J. M. Cramer:** The new biofuels target is necessary to reduce the greenhouse gas emissions from the transport sector in Europe. I think the 10% target is a sensible target, but it should regularly be assessed in the view of sustainability. I am pleased to see that the proposal contains a standard on carbon saving, carbon stock preservation and biodiversity protection. Nonetheless, I would like to see a more ambitious sustainability approach to ensure that the most

important concerns regarding biofuels can be addressed in an adequate way. However, it also has to be realised that sustainability criteria concerning international trade, as now being discussed within the Renewable Energy Directive, have been non-existent until now. By proposing minimum sustainability requirements the European Commission has taken a unique and important step.

**M. Hartevelde / P. Godfroj:** In the media much is written about the sustainability risks of biofuels. For example about the competition between biofuel and food production, the negative impacts on biodiversity and the CO<sub>2</sub> emissions by land use change. How do you perceive these risks?

**J. M. Cramer:** I am well aware of the discussion that is now taking place about the sustainability of biofuels. I share the concerns and think caution is necessary. But, it is important that the discussion about the risks of biofuels is based on facts. A couple of years ago biofuels were labelled as “good”, now they are labelled as “bad”. It is not as simple as that. Biofuels offer changes for the environment and economic development. But we have to prevent that these positive effects are undone by unsustainable production methods. I am convinced this is possible if we make the right decisions.

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## Biofuels and sustainability

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In order to be able to define the sustainability of a biofuel at the end of the production chain, a certification system should be developed. The first thing to do is to define sustainability criteria. Secondly, each production step should be validated in reference to these criteria, that is, all actors in the production chain should prove that their product meets the established sustainability criteria. This could be done by an audit of the production process against each criterion or by using existing certification systems, like, e.g., the FSC (Forest Stewardship Council) system or the RSPO (Round Table on Sustainable Palm Oil production). If the existing certification system does not

cover all relevant criteria, the missing criteria should be incorporated. In practice the sustainability criteria should cover the whole upstream production chain, i.e., farmers (feedstock production), transport and conversion (biofuel production). Compliance with the criteria would result in a certificate being awarded to the producer, which can be used by oil companies to prove that their biofuels are produced in a sustainable way.

**Per Godfroj & Marieke Hartevelde, SenterNovem, the Netherlands.**

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Interview with Dr. A. P. C. Faaij

**How sustainable are biofuels?** Dr. A.P.C. Faaij was interviewed by Marieke Hartevelde & Per Godfroj, SenterNovem.  
**A researchers perspective**



Dr. A.P.C. Faaij is associate professor and co-ordinator of energy research at the Copernicus Institute for Sustainable Development of Utrecht University, the Netherlands. His expertise lies in following areas: energy system and scenario analysis and modeling, bioenergy and other renewables, bioenergy markets and international trade, land use and land use change, sustainability assessments of energy systems, alternative transport fuels, GHG balances & accounting and energy and research policies.

**M. Hartevelde / P. Godfroj:** What is your view on the role of biofuels in the transport sector?

**Dr. A. P. C. Faaij:** Biomass in principle has a very large techno-economic potential. State-of-the-art insights say that approximately one third of global energy demand could be covered by sustainable biomass production. Beside biomass, other renewable energy sources, energy efficiency as well as CO<sub>2</sub> capture and storage and nuclear energy will be

necessary to meet the global energy needs and simultaneously address climate change. Contrary to the power (and heat) production sector, there are only limited options to tackle emissions and energy demand of the transport sector, where (expensive) oil is the main energy source. Therefore, biomass is likely to become a more important energy source for the transportation sector than for the power production sector.

**M. Hartevelde / P. Godfroj:** In the media much is written about the sustainability risks of biofuels, for example the competition between biofuel and food production, the negative impacts on biodiversity and the CO<sub>2</sub> emissions generated by land-use change. What are your views on this?

**Dr. A. P. C. Faaij:** In theory, the global potential for sustainable food production is sufficient to feed a world population of about 40 billion people. For 2050, a figure of 9 billion people is expected. Therefore, the issue of 'food versus biofuel' is of less relevance and the focus of discussion should be much more on sustainable and more efficient production of biomass and food crops. As the current production of biomass for energy is only about 0.5% of total food production, the problems we observe today are for the large part caused by increased food demand and underinvestment in agriculture. The discussions about sustainable biofuels should function as starting point for a discussion about sustainable food production and land-use at large. → [Page 5](#)

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Interview with Dr. J.M. Cramer,  
 Dutch Minister for the Environment  
**How sustainable are biofuels?**  
**A policy perspective**

**M. Hartevelde / P. Godfroj:** How should/could potential adverse effects of the use of biofuels be avoided?

**J. M. Cramer:** The application of sustainability criteria for biofuels is essential to avoid these adverse effects.

Two years ago in the Netherlands we formulated six sustainability criteria to make biofuels a sound green alternative energy source. The first important step has been made in Europe with the proposed sustainability requirements in the Renewable Energy Directive. Let me be clear, quality goes before quantity. The biofuels target of 10% should only be maintained if it can be reached in a sustainable way. The standards that have been set by the European Commission are a good start but in time we should work on progressive stringent standards. This will give the right impulses to companies to work on innovation.

What is also important is that we rapidly find ways to deal with indirect land use change and competition with food. Monitoring programmes could help to recognize negative effects in time and based on those insights appropriate policy measures can be taken. Responsible land-use planning will be key in this perspective. Together with the Dutch Minister of Development Cooperation, I actively work with developing countries such as Mozambique and Indonesia to see how biofuels can bring development opportunities in a sustainable way and to see in what way our sustainability criteria work in practice.

**M. Hartevelde / P. Godfroj:** It is expected that the so called second generation biofuels will perform better on sustainability issues. How could the introduction of second generation biofuels be stimulated?

**J. M. Cramer:** Innovation is important and I want to support this where possible. One idea is to reward biofuels according to their greenhouse gas reduction. With regards to research on second generation we should work together on a European base and concentrate our

combined research strengths. But we should not only look at the second generation biofuels. It is important to not lose sight of improvements in present biofuel production processes that are possible in the short-term.

**M. Hartevelde / P. Godfroj:** What steps can European biofuel market players take to help ensure sustainability?

**J. M. Cramer:** Biofuels offer new opportunities for companies. Here in Europe as well as in developing countries. These opportunities have to be developed in a responsible manner. Companies have a corporate social responsibility. Therefore it is important that governments and private companies work together towards sustainable biofuels production. Where government are often restricted within international trade agreements, private parties have more leeway to implement sustainability criteria. I would like to see that they take that responsibility.

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## Interview with Dr. A.P.C. Faaij

### How sustainable are biofuels?

#### A researchers perspective

**M. Hartevelde / P. Godfroij:** How should/could potential adverse effects of the use of biofuels be avoided?

**Dr. A. P. C. Faaij:** It is important to increase the net energy yield per hectare by improving agricultural processes and by choosing the most efficient crops (i.e. perennial crops on marginal land for second-generation biofuels). Improving the efficiency of global agriculture could release the pressure to cultivate more land. Relatively less-developed regions can benefit substantially from such improved efficiencies. In total, bioenergy provides a massive opportunity for rural regions to combine renewable energy production with improved management of agriculture, soils and water. Abating poverty in rural regions is one of the key strategies that required to protect forests, soils and improve agriculture. Bioenergy can support these developments. Additionally, governments should take the lead in developing policies to manage the macro-effects of biomass and food production in an integrated manner. An important aspect of such

policies should be (national) spatial planning and a balanced strategy taking development of agriculture, bioenergy and land-use into account simultaneously.

**M. Hartevelde / P. Godfroij:** It is expected that the so-called second-generation biofuels will perform better on sustainability issues. How could the introduction of second-generation biofuels be stimulated?

**Dr. A. P. C. Faaij:** Further development of the so-called second-generation biofuels is vitally important. This development could be stimulated by the setting of clear targets for the CO<sub>2</sub> and net land-use performance of biofuels. Moreover, it is important that governments support promising technologies and that governments and industry work closely together in the further deployment of such production technologies. Key is a stable and long-term oriented policy environment that reduces (investment) risks for technology developers. Such an approach could bring the key technologies onto the market rather quickly (e.g. close to 2010).

**M. Hartevelde / P. Godfroij:** In January, the European Commission put forward a directive proposal on increasing the share of biofuels in Europe to 10% by 2020 and on introducing sustainability

criteria. What is your view on this proposal?

**Dr. A. P. C. Faaij:** It is good that the Commission has proposed sustainability criteria, however the whole proposal, as it is now, is still a bit limited. More focus is necessary on macro-effects (including indirect effects) and on learning potentials. In the years towards 2020, much experience will be gained on the issue of biomass sustainability. Therefore, some refinement should happen on the issue of how biofuel sustainability requirements are to be developed and deployed over time.

**M. Hartevelde / P. Godfroij:** What steps can European biofuel market players take to help ensure sustainability?

**Dr. A. P. C. Faaij:** Market players should take a pro-active role in showing commitment to their governments, regarding the importance of sustainability and they could take the initiatives to set their own sustainability requirements and develop the necessary systems. Also, they could make very clear what is needed to get the required investments in technology and agriculture going. Policy and the market should be much more aligned for success than is currently the case.

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## → More about biofuels and sustainability

### Publications

- **Refuel (2008):** Eyes on the track, mind on the horizon. From inconvenient rapeseed to clean wood: a European road map for biofuels. [http://www.refuel.eu/fileadmin/refuel/user/docs/REFUEL\\_final\\_road\\_map.pdf](http://www.refuel.eu/fileadmin/refuel/user/docs/REFUEL_final_road_map.pdf)
- **Doornbosch, R. & Steenblik, R. – commissioned by OECD – (2007):** Biofuels: Is the cure worse than the disease? <http://www.oecd.org/dataoecd/48/54/39385749.pdf>
- **Dutch Project group “Sustainable production of biomass” (2006):** Criteria for sustainable biomass production. [http://www.senternovem.nl/mmfiles/412293MEZ%20biomassa%20EN\\_tcm24-198026.pdf](http://www.senternovem.nl/mmfiles/412293MEZ%20biomassa%20EN_tcm24-198026.pdf)
- **Ecofys for WWF International (2007):** Towards a harmonised sustainable biomass certification scheme. [http://www.panda.org/about\\_wwf/where\\_we\\_work/europe/what\\_we\\_do/epo/index.cfm?uNewsID=109100](http://www.panda.org/about_wwf/where_we_work/europe/what_we_do/epo/index.cfm?uNewsID=109100)

- **European Commission (2008):** Renewable Energy Directive, proposal. [http://ec.europa.eu/energy/climate\\_actions/doc/2008\\_res\\_directive\\_en.pdf](http://ec.europa.eu/energy/climate_actions/doc/2008_res_directive_en.pdf)
- **Fresco L.O. (2007):** Biomass, food & sustainability: Is there a dilemma? [http://www.rabobank.com/content/images/Biomass\\_food\\_and\\_sustainability\\_tcm43-38549.pdf](http://www.rabobank.com/content/images/Biomass_food_and_sustainability_tcm43-38549.pdf)
- **House of Commons, Environmental Audit Committee (2008):** Are biofuels sustainable? <http://www.publications.parliament.uk/pa/cm/cmenvaud.htm>
- **JTRC – Joint Transport Research Centre (2007):** The Environmental Certification of Biofuels. <http://www.internationaltransportforum.org/jtrc/DiscussionPapers/jtrcpapers.html>
- **Renewable Fuels Agency (2008):** Guidance on Biofuels Sustainability Reporting. <http://www.dft.gov.uk/rfa/reportsandpublications/carbonandsustainabilityguidance.cfm>
- **Van Dam et al (2007):** Overview of recent devel-

opments in sustainable biomass certification. <http://www.lowcvp.org.uk/assets/reports/van%20Dam%20et%20al%20%20certification%20paper%2015.11.07%20final.pdf>

- **Worldwatch Institute (2007):** Biofuels for transport. Global Potential and Implications for Sustainable Agriculture and Energy in the 21<sup>st</sup> century. For more information: <http://www.worldwatch.org>, the book may be ordered at [wwpub@worldwatch.org](mailto:wwpub@worldwatch.org)
- **WWF (2006):** Sustainability standards for bioenergy. [http://www.wwf.de/fileadmin/jfm-wwf/pdf\\_neu/Sustainability\\_Standards\\_for\\_Bioenergy.pdf](http://www.wwf.de/fileadmin/jfm-wwf/pdf_neu/Sustainability_Standards_for_Bioenergy.pdf)

### Web-sites

- **Round Table of Sustainable Biofuels:** <http://cgse.epfl.ch/page65660.html>
- **GBEP, Global Bioenergy Partnership:** <http://www.globalbioenergy.org>
- **German “platform sustainable bioenergy“:** <http://www.plattform-nachhaltige-bioenergie.de/>

## Life Cycle Assessment of Renewable Fuels

Life cycle assessment (LCA) aims to investigate the environmental impacts of products from cradle to grave. In recent years, several studies have been made investigating and comparing different types of renewable and fossil fuels. LCA studies are used in some countries, such as Switzerland, as a basis for granting an exemption from the excise duty on fuels.

In principle, each type of fuel (ethanol, methanol, diesel, oil, synthetic fuels and gas) can be produced in an environmentally friendly way from renewable resources – depending on what raw materials and production technologies are used. Most of the environmental impacts can be attributed to the agricultural cultivation of the respective raw materials. The environmental impact from fuel processing and transportation is usually much lower. The LCA studies show that with most renewable fuels there is a trade-off between minimizing greenhouse gases (GHG) and lowering total environmental impacts. In the case of a number of biofuels, GHG emissions can be reduced by more than 30%.

However, for other indicators, most of these supply paths show larger environmental impacts than petrol use. In the case of trop-

ical agriculture, clear-cutting and burning of rainforests can cause an increase in air pollution and have massive impacts on biodiversity. In the moderate latitudes, the use of land, fertilizer, pesticides and mechanical tilling of the soil leads to emissions of heavy metals, as well as other toxic, acidifying and eutrophication substances, which are the cause of greater impacts than fossil fuels. Therefore, it is necessary to reduce the environmental impacts of biofuels using specific measures.

The studies also show that a sole evaluation of CO<sub>2</sub>-emissions in so-called well-to-wheel studies is not sufficient to compare all environmental impacts of renewable fuels with fossil fuels. Therefore, several types of indicators and the full life cycle must be studied in an LCA. Even though it is very important to look at the best possible fuel type, it might even be more important to look at fuel efficiency and reducing fuel consumption in general.

**Niels Jungbluth, ESU-services Ltd., Switzerland.**

**For more information:**

<http://www.esu-services.ch/bioenergy.htm> &  
<http://www.esu-services.ch/renew.htm>



### → More about life cycle assessment of renewable fuels

- **Jungbluth N. et al. (2007a):** Life Cycle Inventories of Bioenergy. Ecoinvent report No. 17, v2.0. ESU-services, Uster, CH: <http://www.ecoinvent.org>
- **Jungbluth N. et al. (2007b):** Life Cycle Assessment of BtL-fuel production: Final Report. RENEW – Renewable Fuels for Advanced Powertrains, Sixth Framework Programme, Deliverable: D 5.2.15. ESU-services, Uster: <http://www.esu-services.ch/renew.htm>
- **Zah R. et al. (2007):** Ökobilanzierung von Energieprodukten: Ökologische Bewertung von

Biotreibstoffen. Schlussbericht. Abteilung Technologie und Gesellschaft, Empa im Auftrag des Bundesamtes für Energie, des Bundesamtes für Umwelt und des Bundesamtes für Landwirtschaft, Bern: <http://www.bfe.admin.ch/energie/00588/00589/00644/index.html?lang=de&msg-id=12653>

- **Jungbluth et al. (2008):** Ökobilanz von Energieprodukten: Life Cycle Assessment of Biomass-To-Liquid Fuels: <http://www.esu-services.ch/cms/index.php?id=153&L=1&L=0>

## Work in progress

### Polish Platform for Biofuels



POLSKA PLATFORMA TECHNOLOGICZNA  
BIOPALIW I BIOKOMPONENTÓW

The Polish Technology Platform for Biofuels was created in March 2006. Its main activity is the improvement of competitiveness of the national economy in the field of production and use of biocomponents and biofuels. This applies particularly to the transport and energy sector and the biofuel industry through the taking into consideration of the possibilities for public-private partnerships in research and production.

Currently, the Polish Technology Platform includes 22 members from different stakeholder groups, such as research institutes, fuel producers and distributors, biofuel producers and distributors, associations of producers and distributors. The Platform is a member of the European Technology Platform for Biofuels (<http://www.biofuelstp.eu>).

The Institute for Fuels and Renewable Energy (IPIEO) is co-ordinating the Polish Technology Platform for the first four years. At present, a strategic action plan has been created that includes the following:

- New technologies for producing first and second-generation biofuels.
- New technologies for processing and use of by-products from biofuel production.
- New technologies of biofuel blending, distribution and use.
- Education and overcoming the barriers hindering biofuel sector development, especially overcoming the technological barriers.

**Learn more about the activities and offers of the Polish Technology Platform for Biofuels:**  
<http://www.pptbib.pl>

### Biofuel certification plans take shape

#### Pilot phase for the implementation of a global certification scheme initiated

In the framework of a project supported by the German Federal ministry of Food, Agriculture and Consumer Protection (BMVEL) and the Agency for Renewable Resources (FNR), a project consortium under the lead of méo Corporate Develop-

ment Ltd. developed a concept for a certification system for biofuels and biomass. The results were presented in 2007.

With the theoretical work now done, méo are embarking upon a two-year pilot phase to implement and test the workability of the internationally oriented certification scheme, and to identify the needs for refinement, taking into account various crops (wood, wheat, corn, sugar beet, rape, palm, soya and sugar cane) from different regions (EU, USA, Malaysia, Indonesia, Argentina and Brazil) . Within the project, a certification method to ensure sustainability along the entire production chain will be identified, GHG emissions along the production chain will be verified, and minimum standards for certification will be developed and implemented.

Andreas Schütte, managing director of the FNR says: "I believe that this project is currently the most advanced proposal to prove compliance with sustainability requirements".

**For more information:**

<http://www.fnr-server.de/cms35/Aktuelle-Nachricht.995+M5a35dc35bb3.o.html>

**VOICE (Vegetable Oil Initiative for a Cleaner Environment)  
A LIFE-Environment 2006 project**

Supported by the European Commissions DG-Environment, the VOICE project (Vegetable Oil Initiative for a Cleaner Environment) is an initiative to cut greenhouse gas emissions, demonstrating the use of pure vegetable oil in decentralised energy generation and transport.



Test field in Tuscany © CREAR

The project aims at developing and demonstrating the potential of the pure vegetable oil chain in Italy, both for co-genera-

tion and rural transportation. Currently pure vegetable oil in Italy is tax-exempted if used for rural transportation (e.g. tractors), while the generation of energy in small-scale systems (below 1 MWe) using locally produced fuel (within 70 km radius) will be subsidised by 30 cents/kWh.

A decentralised cold-pressing oil press has been commissioned and installed. Oil is produced from high-oleic sunflower varieties (84 % m/m content of oleic acid). The first sunflower oil batch, is close to DIN 51605 standards and the oil obtained through a specially designed extraction/filtering system, has shown very good properties in terms of cetane number (48), iodine value (85g iodine/100 g) and oxidation stability (23 h).



Decentralised oil press installed for the VOICE project © CREAR

The oil will be tested in 5 kWe and 50 kWe engines, a tractor engine and in a 30 kWe micro-gas turbine. Heat generation systems for greenhouses and a school will also be converted for testing.

The VOICE partnership is led by CREAR (Research Center on Renewable Energies of the University of Florence). Project partners are: Province of Florence, ARSIA (Tuscany region agency for innovation in agriculture), Coldiretti and Confederazione Italiana Agricoltori della Toscana – CIA (farmers associations), International Solar Energy Society – Italian Section, IFEU (Germany) and new University of Lisbon FCT-UNL (Portugal), and the companies Itacol SPA (Italy), Shap SPA (Italy), BAUM (Germany), and VWP (Germany).

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**Imprint**

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**Comments welcome!**

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## News from Biofuel Cities

### Biofuel Cities end-users study tour in Graz

15 study tour participants from 11 European countries made the leap 'from the frying pan into the tank' at the 2<sup>nd</sup> Biofuel Cities study tour for end users in Graz (Austria) at the end of January.



The participants of the study for end-users in Graz ©ICLEI

Chosen for its innovative biofuel end-use solutions, the city certainly did not disappoint and provided the visitors with a great learning opportunity. Graz is well known in biofuels circles for its fleet of municipal buses, which run on waste cooking oil. Collected from private homes, as well as restaurants, this oil is re-processed in a local biodiesel plant and then used to fuel the city's buses. Taking place over two days, the study tour gave participants a detailed background on the reasoning behind their unique move to biodiesel, as well as what such a move entailed. Such presentations were further built upon with visits to the biodiesel plant, as well as offering a chance to see the Graz 'ecodrive' buses up close at the fleet garage.

Biofuel Cities would like to thank the City of Graz and Mr. Gerhard Ablasser for their cooperation in preparing this event. A report on the Study Tour will be available in the coming weeks.

**Presentations and images and the participant list are available for download at <http://www.biofuel.cities.eu>.**

### 3<sup>rd</sup> Study Tour for European biofuels end-users – Host Search

Does your city or region have biofuel projects it regards as exemplary, i.e. a public bus fleet or municipal vehicle fleet running on biofuels, a local company or group producing biofuels for local use? Would you like to share your experiences with interested European stakeholders? Biofuel Cities is currently looking for a city to host the third in a series of study tours. Should you be interested, please send us a one-page description of your projects in a motivation letter to Christine Klas ([ccp@iclei.org](mailto:ccp@iclei.org)). The host will be required to provide logistical support with the programme development and tour implementation.

## Event calendar

→ **28 – 30 May 2008**  
International Transport Forum 2008  
Leipzig, Germany



### Transport and Energy: The Challenge of Climate Change

The International Transport Forum is a global platform and meeting place at the highest level for transport, logistics and mobility. Key figures from government and politics, business and industry, research and civil society will meet in Leipzig to debate a transport topic of worldwide strategic importance. The engagement and involvement of such a broad range of actors makes the International Transport Forum truly unique.

**For more information, visit:**  
<http://www.internationaltransportforum.org>

→ **1 – 4 June 2008**  
4<sup>th</sup> International Conference on Renewable Resources & Biorefineries (RRB4)  
Rotterdam, Netherlands



Due to the growing impact of renewable resources, this conference aims at bringing together academic researchers, industrial experts, policymakers and venture capital providers to discuss the challenges emerging from the transition towards a biobased economy and to present new developments in this

area. The conference is expected to attract over 400 international participants.

**For more information, visit:**  
<http://www.rrbconference.com/>

→ **2 – 6 June 2008**  
16<sup>th</sup> European Biomass Conference & Exhibition  
Valencia, Spain

The international conference is aimed at stimulating public discussion and promoting awareness of the biomass community. Scientists, industry, suppliers, funding bodies and decision makers are invited to meet the more than 1,500 expected attendees.

**For more information, visit:**  
<http://p30322.typo3server.info/Welcome.4.0.html>

→ **4 – 5 June 2008**  
Biofuels International Expo & Conference  
Rotterdam, Netherlands

**biofuels international**  
expo & conference

Biofuels International Expo & Conference will bring together equipment providers and producers so that productive discussions can be held on how to best meet the growing biofuels needs worldwide. The two day exhibition and conference is targeted at both biodiesel and bioethanol producers. Concurrent conference tracks will address areas such as legislation and regulation, best practices, and future growth and outlook trends, as well as a more in-depth look at new technology.

**For more information, visit:**  
<http://www.biofuelsinternationalexpo.com/>  
**or contact** [pierre@biofuels-news.com](mailto:pierre@biofuels-news.com)

→ **10 – 11 June 2008**  
World Biofuels Forum 2008  
Prague, Czech Republic

Bringing together international audience of senior decision makers across the whole biofuels value chain, the World Biofuels Forum 2008 will cover key issues, challenges and opportunities within global biofuels markets, thus providing an unrivalled opportunity for attendees to stay abreast of latest developments within this competitive industry.

**For more information, visit:**  
<http://www.wbfevent.com/>



→ **12 – 14 August 2008**  
CeBiTec Symposium Solar Bio-Fuels 2008  
Bielefeld, Germany

This symposium will focus on fundamental biology and technology approaches to develop feasible and productive solar to storable biofuel processes. Economical and sociological aspects of renewable energy production will also be regarded. International and national experts will give an overview on the state of the art research regarding plant biomass production, conversion of biomass to biogas and biohydrogen production.

**For more information, visit:**  
<http://www.cebitec.uni-bielefeld.de/cebitec/symposium/sbf2008.html>