

Commercializing Liquid Biofuels from Biomass

Task 39
IEA Bioenergy

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From the Task

From Jack Saddler and Jim McMillan, Task Co-Leaders

This spring marks the beginning of a new triennium for our Task. We would like to welcome you to the redesigned IEA Bioenergy Task 39 Newsletter. As many of you know, the Task 39 Newsletter provides regular updates on activities of member countries, helps distribute contributions from the R&D community, and provides a platform for information exchange and collaboration. We are undertaking a re-invention of our Newsletter and website in order to facilitate more effective communication between country representatives and biofuel stakeholders. We would like to introduce Jana Hanova, who is spearheading the process and is our new Newsletter editor and Task Coordinator.

We would also like to welcome Brazil, New Zealand and South Korea as the newest members of IEA Bioenergy Task 39. We extend our welcome to the three countries and sharing their perspectives and experience in the biofuels area. The first Newsletter of 2010 will feature and in-depth report on New Zealand's efforts and advances in the biofuels space. Hopefully, these contributions will then be followed by articles on Brazil's, South Korea's and Norway's experience in forthcoming issues.

We are in the process of finishing up three feature reports will include Task 39's 1) Biofuels Sustainability Report as well as an algal biofuels report tentatively entitled, 2) "Algal Biofuels: Current Status and Potential" and 3) a report accompanying the Task 39 demonstration plant database, known as the [Global Assessment of 2nd Generation Biofuels Projects](#). We anticipate releasing penultimate drafts of these reports to Task 39 country representatives for review shortly.

- Jack Saddler and Jim McMillan

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*We welcome your
feedback on the layout
and scope of the
Newsletter – Please
Contact Us!*



Editor's Notes

Welcome to Issue 24 of the Task 39 Newsletter. I am pleased to join IEA Bioenergy's Task 39 as an editor and coordinator, and look forward to interacting with you in the future. My background includes a Master's of Science degree from the University of British Columbia in Resource Management and Environmental Studies. After completing my degree I then worked on commercializing alternative energy technologies at BC Hydro, British Columbia's electricity utility. I look forward to working with you, the Task 39 Representatives and sustainable biofuels stakeholders.

I would like to invite you to submit your feedback and input for Issue 25 as new information becomes available over the next 4 months. In particular, I am soliciting the most recent developments in your respective countries to provide readers with developments representative of each region. We are currently testing whether this section of the Newsletter (see page 8) will be of value. The benefits of participating include increased exposure of your country's efforts and further discussion of issues of particular relevance. [Please send me your:](#)

- Industry developments (incl. important press releases)
- New R&D updates and partnerships, reports and publications
- Opportunities for collaboration and/or faculty exchanges
- Other relevant material on biofuel advancements

I hope you enjoy edition #24 of the Task 39 Newsletter, and I look forward to receiving your feedback and Newsletter submissions. - [Jana Hanova](#)

About Task 39

The goal of IEA Bioenergy Task 39 is to provide participants with comprehensive information to assist with the development and deployment of transportation biofuels. The Task coordinates both technical and infrastructure issues related to biofuels; we help facilitate collaboration between country representatives, biofuels stakeholders, and industry. Task 39 has the following objectives:

1. Provide information and analyses on policy, markets and implementation issues that help the encourage adoption of sustainable 1st gen and 2nd biofuels
2. Catalyze cooperative research and development projects that will help participants develop improved, cost-effective processes for the production of 'second-generation' liquid biofuels
3. Provide information dissemination, outreach to stakeholders, and coordination with other related groups

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Biofuel Research and Development in New Zealand

Authors: Michael Jack, Katharine Challis and Peter Hall
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1. Introduction

New Zealand is an island nation covering a land area of just over 268,000 km² and is populated by nearly 4.4 million people. The country currently generates about 70% of its electricity from renewable (mainly hydro) resources and also has significant unexploited wind and geothermal resources. Transport fuels on the other hand, are mostly imported fossil oil, which raises concerns about long-term energy security, economic sustainability and the country's greenhouse gas emission profile.

A strategic analysis of New Zealand's energy options has highlighted the importance of biomass as a potential resource for producing transport fuel. Current government initiatives to stimulate a movement towards renewable transport fuels include a biodiesel subsidy of \$NZ 0.425 per litre and a tax exemption for bioethanol (\$NZ 0.425 per litre) usually imposed on petrol sales¹. The New Zealand government is also initiating a Sustainable Biofuel Bill² to rule out the sale of biofuels that are produced from food crops, that do not reduce carbon emissions compared to non-renewable alternatives, and that reduce biodiversity or adversely affect land with high conservation value.

New Zealand has a range of residual biomass resources with a significant portion being woody biomass from plantation forestry, see Figure 1. However, utilising all existing residual resources to produce biofuels would provide only 6% of New Zealand's transport fuel demand³. Therefore, to meet a significant fraction of fuel demand from renewable sources, it will be necessary to increase the volume of resources available by producing purpose-grown biomass.

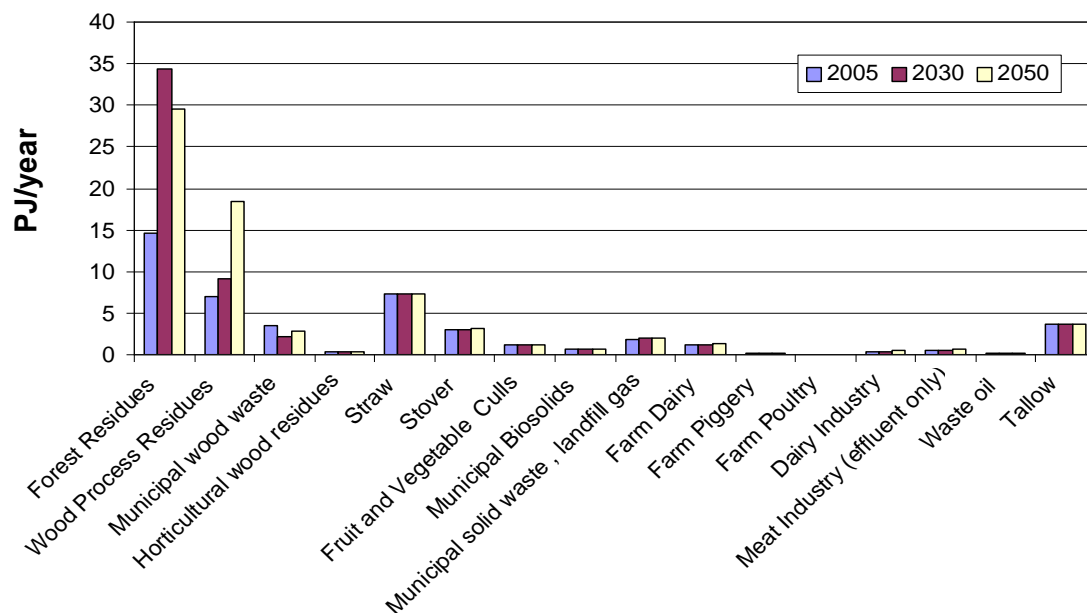


Figure 1. New Zealand's residual biomass resources³.

New Zealand has good opportunities for biomass production and highly favourable growing conditions. In particular, oil crops such as canola can be grown for biodiesel (see section 2.0) and biofuels can also be produced from algal biomass grown on wastewater (see section 3.0). These opportunities are not insignificant, but the potential contribution they can make to New Zealand's overall fuel demand is limited by availability of wastewater and high-value arable land. The opportunity with the most potential in terms of large-scale biomass production is from purpose-grown forests on marginal land⁴.

It is estimated that, by 2030, New Zealand could sustainably supply 100% of its transport fuel demand from forests grown on low-productivity land⁴. This could be realised by increasing the plantation forestry cover. A potential scenario is shown in Figure 2. Large-scale forestry for bioenergy has been shown to have significant economic and environmental benefits for New Zealand⁴. There are a variety of technology development initiatives underway to take advantage of this opportunity (see section 4.0).

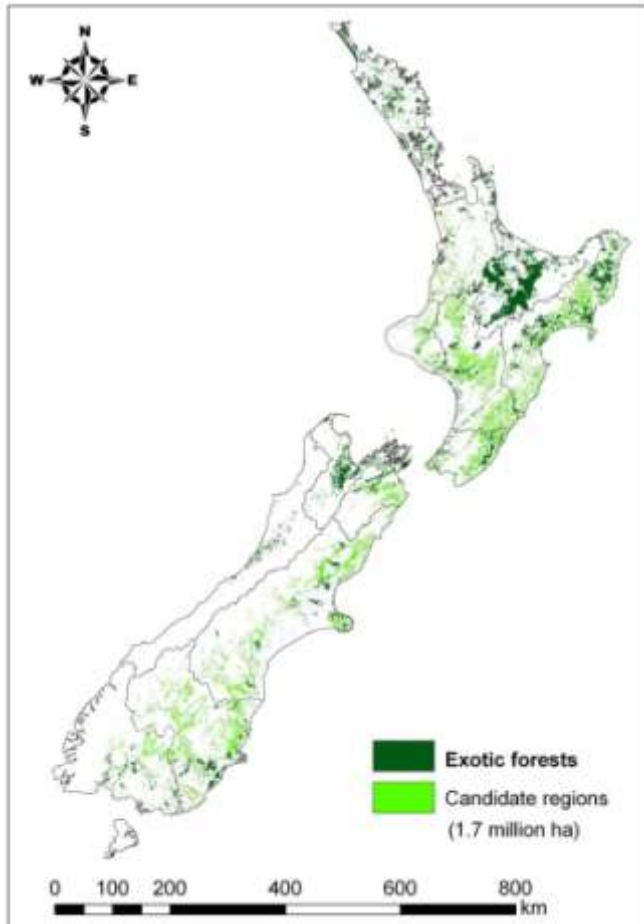


Figure 2. Large-scale forestry for bioenergy scenario. The areas of light green show a 1.7 M ha area for potential new afforestation. This forest resource could supply approximately 60% of New Zealand's transport fuel demand⁴.

A recent report by the Bioenergy Association of New Zealand and New Zealand Trade and Enterprise provides comprehensive information on the players involved in New Zealand's growing Liquid Biofuels sector⁵.

2. First-generation biofuels

The production of first-generation biofuels is already well established in New Zealand, although quantities are small on a world wide scale. Currently ethanol is being produced from dairy whey, a by-product of the large dairy industry. In addition, there are a number of companies producing biodiesel from waste cooking oil, oil seed rape crops and tallow. There are plans in place to rapidly increase production.

For example, for nearly 30 years *Anchor Ethanol Limited*, a subsidiary of Fonterra Cooperative Group (www.fonterra.com), has been producing anhydrous ethanol for industrial purposes from whey, a by-product of manufacturing cheese and protein from milk. The global demand for biofuels has opened up new markets for the company which now produces 15 million litres of fuel grade ethanol per year.

Another company producing first-generation biofuels in New Zealand is *Biodiesel New Zealand* (www.biodiesel-nz.co.nz). The company currently produces 3-4 million litres of biodiesel a year, primarily from recycled

cooking oil. They plan to supplement this by purpose-grown rape seed oil to increase production to 70 million litres by 2011. To meet sustainability requirements the land used to grow biofuel crops can only be used for this purpose one year in two, which suits farmers looking for crop rotation options. Biodiesel New Zealand recently completed its first commercial-scale harvest of rapeseed grown by South Island farmers and has begun constructing a new facility at Rolleston, near Christchurch, enabling the drying, cleaning and storage of up to 10,000 tonnes of rapeseed.

Flo-Dry Engineering (www.flo-dry.com) is a company that specialises in technologies for making biodiesel from tallow. Their innovation is in the design and production of processing plants with a continuous reactive distillation process. This process is paramount in the production of reproducible, high quality fuel. As a result of Flo-Dry research work, a reactive distillation process that converts tallow to biodiesel was recently demonstrated in a pilot plant. This plant is capable of converting difficult feedstocks into biodiesel at a competitive economic cost.

3. Biofuel from wastewater algae

Algal biomass has the potential to become an important biofuel feedstock. There is a realisable opportunity to produce algal biofuels (e.g., biogas, bioethanol, biodiesel and bio-crude oil) from algae grown as a by-product of pond-based wastewater treatment. A significant research and demonstration project is currently underway at NIWA, a New Zealand crown research institute. NIWA's research program involves laboratory and pilot-scale studies that specifically address: (i) algal production and harvest from wastewater treatment high rate algal ponds (HRAPs) and (ii) the efficiencies of different pathways of biofuel production from wastewater grown algae⁶.

NIWA is currently operating a 5 ha demonstration system in Christchurch, which is the largest wastewater treatment HRAP that is augmented with CO₂ addition in the world (see Figure 3). The HRAP was built especially for *Solray Energy Ltd* (www.solrayenergy.co.nz). Solray is converting the whole algal biomass to pure algal crude, not ethanol or biodiesel. This avoids culturing specific algal species, which is necessary when recovering oil from the algal lipid. Solray's ready-to-use technology has proven scalability and produces transportation fuels with long carbon chains that are completely compatible with existing biorefining, distribution and fleet infrastructure.



Figure 3. NIWA's 5 ha wastewater treatment HRAP

Aquaflow Bionomic Corporation (www.aquaflowgroup.com) is a private company working to produce biocrude oil from wild micro algae. The algae are predominantly sourced from municipal wastewater treatment sites. A continuous harvesting process of 70 m³/hr capability was initiated at the Blenheim city wastewater facility in February 2008 to supply algae to the continuous green crude pilot plant processor which was commissioned in March 2008. Aquaflow has a memorandum of understanding with United-States-based UOP LLC, a Honeywell company, and Aquaflow's first jet and diesel fuel samples were produced by UOP in December 2008.

4. Lignocellulosic biofuels

Currently in New Zealand, the most common and cost effective way of using woody biomass for energy is to burn the wood material to generate heat and, in a few wood processing sites, cogeneration of electricity.

Common fuel options include wood chips for industrial heat, or converting chips into wood pellets for feeding home fires or commercial boilers. Many wood processing plants use residues as boiler feedstock. However, it is increasingly recognised that liquid fuels from woody biomass could contribute to meeting future demand for sustainable energy due to the large-scale potential of the forestry resource. There are new technologies currently under development to convert woody biomass into liquid fuels.

Pure Power Technology is the New Zealand operating subsidiary of Pure Power Global (www.purepowerglobal.com), a resource-based company that is commercialising technology to convert biomass into high-value specialty chemicals. Pure Power owns a process for manufacturing high-quality natural lignin, xylose and fuel ethanol from woody feedstocks, including *Salix* (willow), *Eucalyptus*, and other types of hardwoods. Pure Power plans to build a flexible commercial demonstration plant to establish the optimal processing conditions for a variety of feedstocks. Production biorefineries able to process 250 tonnes/day or more of biomass will then be rolled out in various locations where feedstock is available. New Zealand is a potential site for establishing a commercial demonstration plant due to the availability of sustainable hardwood feedstocks.

LanzaTech (www.lanzatech.co.nz) was founded in early 2005 and secured funding through New Zealand-based Angel investors and government grants. The company specialises in developing and commercialising proprietary technologies for the production of ethanol and high-value chemicals by fermenting flue gases produced by the steel industry. LanzaTech operates a pilot plant at the BlueScope Steel plant at Glenbrook, south of Auckland. LanzaTech's technology is attracting interest from India and China due to the extent of their steel industries. In 2007, LanzaTech attracted "series A" investment from a consortium led by Khosla Ventures, and expanded its development program to include biomass-derived syngas.

The *University of Canterbury* is undertaking a Biomass to Syngas and Liquid Fuel (BTSL) research programme funded by the New Zealand Foundation for Research, Science and Technology. The six year project is led by Professor Shusheng Pang⁷ in the Department of Chemical and Process Engineering, and aims to adapt and develop advanced thermo-chemical process technologies for producing biodiesel from New Zealand's biomass resources. The technologies of interest include Fast Internal Circulating Fluidised Bed (FICFB) gasification of biomass for hydrogen-rich syngas, solvent absorption-strip gas cleaning and development of a micro channel Fischer-Tropsch (F-T) reactor. The program also considers co-gasification of biomass with coal, densification of biomass by pyrolysis, and develops new biomass resources of herbaceous species and short rotation crops. The research includes a theoretical component involving feasibility studies and mathematical models for flow hydrodynamics in gasification processes.



Figure 4. LanzaTech's Glenbrook pilot plant.

Three crown research institutes, GNS, AgResearch and Scion, are members of the New Zealand Renewable Energy Transformation Research Science and Technology group⁸. This group is sponsored by the Ministry of Research Science and Technology to enable New Zealand's transition toward a low carbon energy system utilising diverse, distributed and sustainable energy supplies by accelerating RS&T effort on renewable energy technologies and their integration in the New Zealand energy system. The main intention is to make renewable energy work for New Zealand and, while this incorporates many aspects of renewable energy RS&T, there is a strong focus on lignocellulosic biofuels.

Scion is a crown research institute that specialises in forestry and biomaterials research, including creating energy from woody biomass. They undertake a range of bioenergy and biorefinery research and development activities across the whole production chain, from resource establishment through to product development. Scion is a key partner in the New Zealand Lignocellulosic Bioethanol Initiative (NZLBI), a partnership formed to address the challenges of using softwoods as a feedstock for bioethanol production.

A feasibility study for the NZLBI reviewed the infrastructure, technology and economics of a transportation biofuel industry in New Zealand. This study showed that there were no major technical or input barriers to producing large volumes of ethanol from New Zealand-grown wood and plant waste. Participants in the jointly

funded study were Scion, Carter Holt Harvey, AgResearch, Verenum, and associated sub-contractors. The current aim of the programme is to evaluate the economic viability of Scion's bioethanol production technology⁹. Scion's technology is a combination of a thermomechanical and enzymatic process that can produce high yields of monomeric sugars and functional lignin from New Zealand's softwood forest resource (*radiata* pine). They are currently in the process of demonstrating their biofuel production process at pilot-scale with the long-term goal of developing a 90 million litre per year commercial facility in New Zealand.



AgResearch is New Zealand's largest crown research institute focusing on research and development for the pastoral and biotechnology sectors. A key biofuel programme is investigating an *in planta* enzyme manufacture technology capable of cost-effectively producing enzymes using a seed crop to harvest the high value proteins for use in large-scale biorefineries. This enabling technology will be compatible with the full range of cellulosic feedstocks such as trees, grasses, and municipal solid waste, and with algal, yeast or bacteria-based biorefinery processes. High merit enzymes are being sourced from rumen microbes, geothermal vent microbes, and commercial sources, and are tailored for manufacture *in planta* and to act on a range

of feedstocks. Selected enzymes will be linked to a proprietary protein that will stabilise the enzyme in the seed, and aid purification and emulsification properties of the enzyme while maintaining its efficacy¹⁰.

GNS Science is the leading earth sciences provider in New Zealand. One unique feature of New Zealand is the presence of a vast array of extreme environments in a small geographical area. GNS specialises in the enrichment and isolation of novel microorganisms in New Zealand's geothermal areas. Since 2007, they have focused on the isolation of novel cellulolytic and thermophilic bacteria that could be used to increase the rate of cellulose degradation, and, therefore, improve biofuel production¹¹.

Acknowledgements

The authors would like to thank Dr Shusheng Pang, Dr Rupert Craggs and Dr Sean Simpson for their kind contributions to this article.

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- [6] For more information please contact Dr. Rupert Craggs (r.craggs@niwa.co.nz)
- [7] For more information please contact Professor Shusheng Pang (shusheng.pang@canterbury.ac.nz).
- [8] <http://www.morst.govt.nz/current-work/transformational-rst/energy>
- [9] For more information please contact Dr. Trevor Stuthridge (trevor.stuthridge@scionresearch.com).
- [10] For more information please contact Heather Went (heather.went@agresearch.co.nz).
- [11] For more information please contact Dr Matthew Stott (extremophiles@gns.cri.nz)

Country Developments

Welcome to the new Country Developments Section, a way to share some of the most recent advances in your country. In addition to extensively featuring the progress of one country per issue in the Newsletters "Country Feature" section, we would like to encourage all our member countries to share recent advancements to the Newsletter distribution list.

This section allows you promote your country's initiatives and allows you to get exposure to country-specific, research and industry expertise. The following are examples of material you could submit to this section. Please [contact us](#) now with material to be included in Issue 25 of the Task 39 Newsletter.

Brazil

We would like to welcome Brazil as the newest member of the Task 39 group. Brazil will be featured in the Newsletter Issue #26; we look forward to finding out more about Brazil's industry, research and policy developments.

Denmark

The private equity firm Fjord Capital Partners bought all shares in BioGasol, a Danish company developing 2nd gen bioethanol technologies. The investment from Fjord will ensure development, demonstration and commercialization of the BioGasol technology. [More...](#)

Inbicon, one of the Danish pioneers in cellulosic ethanol, and Mitsui Engineering & Shipbuilding (MES) from Japan announced the signing of a license agreement that grants MES the rights to use the Inbicon Biomass Refinery Technology in a number of plants in Southeast Asia. MES intends to use the technology to turn waste from the palm oil industry into ethanol, animal feed and solid biofuel. [More...](#)

Germany

Sustainability Reporting in Germany's Biodiesel Sector: The German government is working on measures to facilitate rapid transposition of the European Union's Renewable Energy Directive 2009/28/EC (RED) into national legislation. The 10 page report entitled "[Germany's Biodiesel Sector has now to document its Sustainability](#)" provides more information.

New Zealand

We would like to welcome New Zealand as the newest member of the Task 39 group; to read more about New Zealand's R&D progress please see Page 3.

Norway

As of April 2010, mandatory blending of biofuels has been increased from 2.5 to 3.5%. The level will be further increased to 5% in January 2011. Only biodiesel blending has been common in Norway so far, but it is expected that the use of bioethanol in gasoline blends will increase as a result of the new law.

Norway has decided to implement EU sustainability criteria from the same date as the EU does (tentatively January 2011); in the meantime, the fuel suppliers use a voluntarily reporting system.

A new report on biofuels describes different biofuels and their climatic impacts, terminology, potential and problems, status of production and use in Norway and policy instruments. Environmental organizations, interest groups and industry partners stand behind the report. (The report is in Norwegian only.) [More...](#)

South Africa

The Bioenergy Resolution for Africa, which is currently in draft format, was compiled by participants of the recent African Convention of the [Global Sustainable Bioenergy](#) (GSB) project in Stellenbosch. Stakeholders with a specific interest in the development of a bioenergy industry in Africa, have until June to add their voice to a resolution focusing on sustainability issues. To comment on the draft resolution before 1 June 2010, contact [Prof Emile van Zyl](#) of Stellenbosch University.

South Korea

We would like to welcome South Korea as the newest member of the Task 39 group.

Sweden

His Majesty King Carl XVI Gustaf of Sweden broke ground for the world's first plant for the production of a renewable automotive fuel called BioDME. The plant will be built by Chemrec, a Sweden-based development company, within the company's development unit located at the Smurfit Kappa paper mill in Piteå, Sweden. [More...](#)

Reports and Research

Policy and Standards

Better Use of Biomass for Energy

IEA's implementation agreements on Bioenergy and Renewable Energy Technology Development (RETD) presented the key findings from a joint project on 'Better Use of Biomass for Energy' during the RETD side event at the COP15 in Copenhagen. The project identified opportunities for bioenergy to achieve better greenhouse gas reduction, and for climate policies to achieve better bioenergy development.

1. 'Good' biomass for energy could diversify energy supply at reasonable cost, improve trade balances, and provide rural income and employment. Bioenergy could help GHG emissions from fossil fuels.
2. Biomass for energy could be 'Bad' if no safeguards are placed against GHG emissions and biodiversity loss from land use change, food insecurity, overuse of water, or mismanagement of soils.
3. 'Better' biomass for energy is needed to increase sustainable energy in all countries, taking into account costs and efficiency.

[Read the Position Paper](#)

2nd Generation Biofuels and Trade, an exploratory study - Task 40

A study by Douglas Bradley, Luc Pelkmans and Dieter Cupyers examines the potential supply and demand of 2nd generation biofuels up until 2030; it discusses various impacts on biofuel trade, ranging from cost advantages over shipping capacities and routes to policy impacts. It is an explorative study, highlighting the possible effects of large scale market penetration of lignocellulose-based transport fuels, but also highlights the large number of variables and uncertainties determining these developments. The impact of the global recession and the role of bio-refineries are briefly discussed. [Read the Report](#)

Sustainability

Sustainable Production of Second-Generation Biofuels

An IEA information paper by Anselm Eisentraut on the potential and perspectives of biofuels in major economies and developing countries. This study discusses the global status quo of 2nd gen biofuels and their potential role in the future energy supply, identifies global drivers for the development of the industry and their impact on developing and emerging countries. The report reviews recent studies on bioenergy potentials to point out key factors that impact the potential production of biomass for use as bioenergy. [Read the Report](#)

Sustainability Reporting in Germany's Biodiesel Sector

The German government is working on measures to facilitate rapid transposition of the European Union's Renewable Energy Directive 2009/28/EC (RED) into national legislation. The 10 page report entitled "[Germany's Biodiesel Sector has now to document its Sustainability](#)" provides more information.

Impact on soil nutrient levels after residue removal

Crop residues, perennial warm season grasses, and short-rotation woody crops are potential biomass sources for cellulosic ethanol production. While most research is focused on the conversion of cellulosic feedstocks into ethanol and increasing production of biomass, the impacts of growing energy crops and the removal of crop residue on soil and environmental quality have received less attention. Moreover, effects of crop residue removal on soil and environmental quality have not been compared against those of dedicated energy crops.

[More...](#)

Biorefineries: Adding Value to the Sustainable Utilization of Biomass

Task 42 prepared a special feature booklet 'Biorefineries: Adding Value to the Sustainable Utilisation of Biomass'. [Read the Booklet](#)

Technology and Innovation

WS11: Algae - the Future for Bioenergy? - ExCo

This workshop was held in conjunction with ExCo64 in Liege, Belgium on 1 October 2009. At the workshop presentations were given by 8 invited speakers and consisted of four sessions as follows:

1. What's the overall state-of-the-art for the different feedstocks and technology options?
2. Marine macro-algae
3. Micro-algae in open ponds
4. Micro-algae in closed systems

[Read Session Summaries](#)

Biogas from Energy Crop Digestion - Task 37

The report provides an overview of energy crops and technologies used for anaerobic digestion and their practical applications. It provides lessons learned from long-term biogas plant operations and the significance and potential of crop digestion. [More...](#)

Biogas Upgrading Technologies - Developments and Innovations - Task 37

This information paper provides some basics on the composition and cleaning of biogas and describes full-scale technologies involved in biogas upgrading. It provides a synopsis of new developments in upgrading technologies and removal of methane from the off-gas. Lists of upgrading plants and providers are included.

[More...](#)

Industry Developments

Biopathways Canada

The Forest Products Association of Canada (FPAC) determines how to best support the forest products industry by identifying the right transformational strategies. Investigators with FPAC and its lead partner, FPInnovations, examined 16 traditional and 11 emerging bioindustries to assess how wood fibre could create bio-energy, bio-chemicals and other bio-products. By offering a balanced perspective that verifies facts vs. hype and by building bridges to connect traditional forestry companies with emerging bio-firms, FPAC's goal is to enable Canada's forest products industry to profit from the bioeconomy in order to sustain and create jobs, increase revenues and create a healthier environment that benefits Canadians and the global community.

[Read the Biopathways Study.](#)

EU Transport GHG: Routes to 2050

The main objective of this paper is to review the potential of alternative energy carriers and powertrains to reduce GHG emissions from all motorised transport modes in the short-term (to 2020) and long-term (to 2050). It covers the road, rail, inland / maritime shipping and aviation sectors and uses data and analysis from existing studies to calculate GHG emissions savings that could be achieved by each option the paper also reviews the evidence on costs, timescales for implementation, barriers and secondary benefits. [More...](#)



Source: Inbicon

In the News

Industry Developments

Brenco and ETH Merger

SAO PAULO - Brazilian ethanol firms Brenco and ETH Bioenergia agreed to merge their operations to create one of the largest companies in the sector. After five months of negotiations, the companies announced the creation of a new company that will retain the name ETH Bioenergia and have an annual production capacity of 3 billion liters (792 million gallons) of ethanol. That will exceed the 2.3-billion-liter (608 million) annual output capacity of Brazil's Cosan, currently the world's biggest exporter of sugar-based ethanol. [More...](#)



New Cellulosic Ethanol Facilities Sprout Up in US Four States

A shift in biofuel production to cellulosic biofuels is underway as both demonstration and commercial-scale power plants are opening or moving closer to completion. [More...](#)

Policy and Standards News

European Commission

European Commission called public authorities, business, and researchers to join efforts in order to develop by 2020 the necessary technologies to address climate change, secure EU energy supply and ensure the competitiveness of our economies. In a proposal on "Investing in the development of low-carbon energy technologies", the Commission estimates that an additional investment of €50 billion in energy technology research will be needed over the next 10 years. [More...](#)

US Renewable Fuel Standard Program RFS2

U.S. Environmental Protection Agency (EPA) announced Wednesday that it has finalized a rule to implement the long-term renewable fuels standard of 36 billion gallons by 2022 established by Congress. According to EPA, the Renewable Fuel Standard Program (RFS2) requires biofuels production to grow from last year's 11.1 billion gallons to 36 billion gallons in 2022. Of this 2022 volume, 21 billion gallons will need to come from advanced biofuels. [More...](#)

Big Oil files lawsuit against EPA on RFS2 rule

The American Petroleum Institute filed a lawsuit today with the U.S. Court of Appeals for the District of Columbia challenging the U.S. EPA's rule on the revised renewable fuel standard (RFS2) that was just recently finalized. The final RFS2 rule combines the 2009 and 2010 biomass-based diesel volumes. [More...](#)

Sustainability News Items

Brazil Sugarcane Update

EPA Reaffirms Sugarcane Biofuel is Advanced Renewable Fuel with 61% Less Emissions than Gasoline
Brazilian Sugarcane Industry Welcomes U.S. EPA's Renewable Fuels Rules... "The EPA's decision underscores the many environmental benefits of sugarcane ethanol and reaffirms how this low carbon, advanced renewable fuel can help the world mitigate against climate change while diversifying America's energy resources," said Joel Velasco, Chief Representative in Washington for the Brazilian Sugarcane Industry Association (UNICA). [More...](#)

Drought and Oil Price impact on Food Prices

A new [report commissioned by the UK Government](#) has concluded “all available evidence suggests that biofuels had a relatively small contribution to the 2008 spike in agricultural commodity prices”. “Whilst commodity prices have fallen steeply from their peaks in 2008 biofuel demand has remained steady - indicating that the causal link from biofuel demand to short-term crop prices is still relatively weak.” While demand for feedstocks used directly in biofuel production has dramatically increased over the last decade, the surge in biofuel demand has likely been primarily driven by government policies rather than by ‘organic’ demand from rising crude oil prices during the past few years.

Other News Items

Study assesses landscape effects on biomass crop yields

Understanding biomass productivity on specific landscape positions is essential to realizing the highest financial returns on the integration of herbaceous and woody biomass crops at the field scale while providing a reliable and consistent feedstock source that meets quality specifications for the bioenergy market, according to a recent University of Minnesota study. [More...](#)

Study shows E20 has no impact on drivability

A newly-released Rochester Institute of Technology study shows that E20 has no measurable impact on vehicle drivability or durability, and lower tailpipe emissions compared to conventional gasoline. Growth Energy, the coalition of U.S. ethanol supporters, said today that this study proves the value of moving to higher blends of ethanol in the country’s fuel supply. [More...](#)

American Recovery and Reinvestment Act

U.S. Department of Energy Secretary Steven Chu announced the investment of nearly \$80 million under the American Recovery and Reinvestment Act for advanced biofuels research and fueling infrastructure that will help support the development of a clean sustainable transportation sector. [More...](#)

Upcoming Task 39 Meetings

The following is a tentative schedule of Task 39 meetings over the course the next two years (2010-2012):

- Clearwater Beach, USA - 19-22 April 2010 (Informal session)
- Australia - December 2010 (w/Bioenergy Australia)
- Seattle, USA - 2-5 May 2011 (Planning/Special Session, 33rd Symposium)
- Brazil- June 2011 (Task Technical workshop w/Brazil Ethanol Summit)
- Graz, Austria - September 2011 (Policy & Implementation Workshop)
- Copenhagen, Denmark - May 2012 (Technical workshop)
- Vancouver, Canada - August 2012 (Planning/Technical Conference)

