



Bioenergy Australia is an alliance of organisations
fostering biomass for energy and products

Newsletter

December 2010

Bioenergy Australia 2010 Conference

Australia's premier bioenergy conference, Bioenergy Australia 2010, will be held at the Novotel Manly Pacific, Sydney from **9 - 10 December**, with a **technical tour on 8 December**.

The program will cover policies and programs, projects and project development case studies and emerging opportunities.

The conference will consider many facets of bioenergy, including some 105+ presentations on:

- Biomass sources and supply aspects
- First and second generation liquid biofuels
- Algae and other future feedstocks
- Pyrolysis bio-oil and bio-char
- Gasification
- Anaerobic digestion and livestock wastes
- Energy-from-waste
- Heat and power
- Overarching aspects of bioenergy, such as life cycle emissions and sustainability.

Plenary session speakers will include Prof. Jack Saddler, University of British Columbia, Canada and Dr. Jim McMillan, National Renewable Energy Laboratory, Golden Colorado, USA, the Co-Task Leaders of IEA Bioenergy Task 39 *Commercialising Liquid Biofuels*. Well known bioenergy figure, Professor Ralph Sims will again be contributing to the conference program, moderating the concluding panel discussion and open forum. The conference dinner speaker will be Tony Windsor MP, Independent Member for New England.

The program will include a trade exhibition and technical posters and a technical tour to five bioenergy facilities in the region. Last year this conference was attended by 344 delegates and we expect a similar good attendance this year.

Event details are available at: <http://www.bioenergyaustralia.org>.

Bioenergy Australia Membership Update

The Bioenergy Australia membership now includes 84 organisations. The most recent members are Utilitas Pty Ltd, Earth Systems Pty Ltd, University of New England, CleanStar Australia Pty Ltd, VicForests, University of Western Sydney, Ace Waste Pty Ltd and Simons Green Energy Solutions. Bioenergy Australia wishes to further expand its membership and invites interested organisations to contact the Bioenergy Australia Manager, Dr Stephen Schuck on tel: (02) 9416 9246 or email: sschuck@bigpond.net.au if your organisation is interested in joining this government-industry bioenergy forum. Bioenergy Australia has a specific membership tier to cater for universities and for organisations with an annual turnover of less than \$2 million per annum.

Bioenergy Australia Quarterly Meeting

Bioenergy Australia holds a series of day-long meetings which have evolved into a symposium format, with invited speakers, workshops and reports on Australia's participation in IEA Bioenergy. The presentations from the most recent meeting, held on 21 September in Canberra, with the theme of 'Biomass Feedstocks' are currently in the public area of the Bioenergy Australia webpage at <http://www.bioenergyaustralia.org>. The members' area of the website stores the presentations from past meetings.

Australian Biofuels Research Institute Announced

In the aftermath of the recent Federal Election, a \$20 million Australian Biofuels Research Institute was announced to be based at James Cook University, Queensland. The Institute, which will have staff at the Cairns and Townsville campuses, will bring up to 70 research jobs to northern Queensland. The Australian Centre for Renewable Energy (ACRE) is responsible for coordinating the creation of the Institute and ensuring its focus is on commercialising research into second-generation biofuels. ACRE will work with relevant research and educational institutions and the biofuels industry to develop a model that draws on the expertise of a wide range of organisations.

This announcement follows an earlier one that a \$10 million algal fuel project jointly developed by the Advanced Manufacturing Cooperative Research Centre, MBD Energy and James Cook University would be based at Tarong Power Station to eventually produce 11 million litre algal oil, up to 25,000 tonnes of algal meal while consuming up to 70,000 tonnes of carbon dioxide from the power station per year using an 80 hectare facility.

Renewable Energy Venture Fund

The Government has announced the establishment of a new \$100 million Renewable Energy Venture Capital (REVC) fund to make critical early-stage equity investments that leverage private funds to help commercialise emerging renewable technologies. The REVC fund will provide opportunities for renewable energy technology proponents to access private capital, particularly important as their financing requirements change along the innovation chain.

The REVC fund will provide capital and active management to help promising companies achieve commercial success in Australian and overseas markets. The REVC fund will be part of ACRE's integrated strategy to support the development of renewable energy technologies.

The Australian Centre for Renewable Energy (ACRE) has consulted on the design of the REVC fund. Once the fund is operating, the fund manager or managers will be responsible for all investment decisions, which will be made on a commercial basis in accordance with the fund manager's investment practices and program guidelines. This venture capital mechanism provides both capital and active management to help promising companies achieve commercial success in Australian and overseas markets.

The ACRE Board expects to start identifying appropriate fund managers to deliver the initiative in the first half of 2011. The Centre forms part of the Federal Government's \$5.1 billion Clean Energy Initiative.

ACRE Strategic Directions Consultation

ACRE is expected to release its Strategic Directions consultation paper during the week of 29 November, setting out its priorities and strategy for meeting its objectives. It is expected that responses would be sought prior to the Christmas break.

Alternative Fuels Strategy

Building on the Australian Government's Energy White Paper process which was conducted over the past two years, the Department of Resources, Energy and Tourism is about to progress some of the key energy policy areas. One of these areas is to develop an Alternative Fuels Strategy. To this end an Alternative Fuels Strategic Issues Group (AFSIG) is being formed to provide strategic industry leadership for the development of the Strategy. To address the requirements of competitively priced alternative fuels, reliable supply, appropriate quality and consumer acceptance, the Strategy will focus on issues relating to industry structure, technology and infrastructure challenges and public acceptance. It will not examine issues already under consideration by Government concerning fuel excise, emission standards for motor vehicles or a price on carbon, except where they are used as background material for modelling industry competitiveness and factors influencing future demand for, and the uptake of, alternative fuels. The AFSIG will be chaired by Tania Constable, Head of the Resources Division within DRET, and is to include representatives from fuel suppliers, technology and infrastructure suppliers, fuel users and the research sector and will be supported by an Interdepartmental Committee and a Commonwealth/State Reference Group. The Bioenergy Australia Manager has been invited on to the AFSIG.

Carbon Farming Initiative Open for Consultation

The Minister for Climate Change and Energy Efficiency, the Hon Greg Combet AM MP, announced on 22 November the release of a framework which will allow farmers, foresters and landholders to generate carbon credits under the Carbon Farming Initiative (CFI). Interested organisations and individuals are invited to provide feedback to the Government by making a submission to the Department of Climate Change and Energy Efficiency by 17:00 AEDT, 21 January 2011. The Consultation paper is at:

<http://www.climatechange.gov.au/en/government/submissions/cfi.aspx>

Global Study into Emission Reduction Policies

The Federal Government has announced that the Productivity Commission will undertake a \$2.6 million study of emission and energy-reduction policies in key international economies to help inform the Government's plan to introduce a carbon price in Australia. The study will determine the effective carbon price of a range of policies including carbon taxes and emissions trading schemes as well as those where the price is less transparent, such as renewable energy targets and subsidies for low-emission technologies. The Productivity Commission will report to the Government by the end of May 2011. The study will:

- examine and detail carbon pollution reduction strategies

- estimate the effective carbon price per tonne of carbon emissions faced by the electricity generation sectors in these economies, and selected industries in manufacturing and transport
- report on the methodology, assumptions and data sources used.

In conducting the study and making recommendations the Commission is to:

- consult with the business sector, government agencies and other interested parties as appropriate in Australia and internationally
- draw on credible evidence both nationally and internationally, including by utilising local research expertise in economies being examined.

The study is part of the agreement struck with the Member for New England, Tony Windsor, following this year's Federal Election. Tony Windsor will be the dinner speaker at the Bioenergy Australia 2010 conference.

See also: <http://www.climatechange.gov.au/en/minister/greg-combet/2010/media-releases/November/mr20101015.aspx#tor>

Report Looks at Future of Bioenergy

Bioenergy could provide between 20 and 30 percent of Australia's electricity generation by 2050, according to a report released by the Federal Government's Rural Industries Research and Development Corporation. The 'Overview of Bioenergy in Australia' report says bioenergy is still very much in its infancy and presently provides less than one percent of electricity generation. It says, however, the sector has the potential to become a significantly bigger source over the next 40 years. This report and its publication were funded through Bioenergy Australia.

The report says revenue from Australian biofuel production represents less than one per cent of the 37 billion litres of petrol and diesel used last year in Australia. It says with a commitment for more of Australia's electricity to come from renewable energy targets, it is clear future prospects are positive for the bioenergy industry.

General Manager of the Rural Industries Research and Development Corporation, Roslyn Prinsley, says the report recognises the significant role bioenergy could play in helping Australia to achieve a low-carbon energy future by providing businesses and households with a viable renewable energy source. Dr Prinsley says it highlights the potential that exists for the development and use of a wider array of bioenergy feedstocks and technologies, and for bioenergy generally to play a greater role contributing to the nation's renewable energy targets. The report can be found at: <https://rirdc.infoservices.com.au/downloads/10-078.pdf>

NSW Reviews Ethanol Mandate

The NSW Ethanol industry has been advised that as a result of the current ethanol supply situation in NSW, the government appointed Expert Panel will shortly convene to review both the volumetric ethanol mandate percentage settings and the date on which all regular unleaded petrol is to be E10. An announcement will be made as soon as possible after the Minister has considered the advice and made a decision.

Inquiry into Growing Queensland's Renewable Energy Electricity Sector

The Queensland Parliament's Environment and Resources Committee has been conducting an Inquiry into Growing the Queensland Renewable Electricity sector. Bioenergy Australia's 14 page submission may be downloaded from:

http://www.parliament.qld.gov.au/view/committees/documents/ERC/inquiries/inquiries%20submissions/Renewable_Energy%20subs/Sub27_Bioenergy.pdf. In addition, the Committee has now also authorised the

release of the Hansard transcript of proceedings of the 2nd public hearing which was held on 17 September 2010. To view this transcript, visit:

<http://www.parliament.qld.gov.au/view/committees/documents/ERC/transcripts/ERT100910.pdf>. This includes evidence by Steve Schuck. The Committee will now report on the inquiry in early 2011.

Research in Progress - Bioenergy, Bioproducts and Energy 2009-10

Bioenergy, Bioproducts & Energy Program (BBE) Research in Progress June 2010 contains short summaries of continuing projects as well as those that were completed during 2009-2010.

The BBE Program aims to:

- meet Australia's research and development needs for the development of sustainable and profitable bioenergy and bioproducts industries
- develop an energy cross-sectoral R&D plan following the development of a nationally coordinated R&D plan for Bioenergy and Biofuels, under the Primary Industries Standing Committee R&D Framework.

BBE Research in Progress reports for 2009-10 are now available for download (pdf 346kB) from the RIRDC website: <https://rirdc.infoservices.com.au/items/10-084>

IEA Bioenergy Publishes Status Report on 2nd-Generation Biofuel Production Plants

IEA Bioenergy Task 39 'Commercializing Liquid Biofuels from Biomass' has published a report on the status of 2nd-generation biofuel production facilities. The background information can be found on the Task 39 website. Both the report and the website contain data supplied by the owners of these installations or projects. Updating of data and contacting of new companies is ongoing and will be reflected on the database website whenever new data becomes available.

View at: [Status of 2nd Generation Biofuels Demonstration Facilities in June 2010](#)

Hydrothermal Biofuels Research Pilot Plant Opened in Sydney

The fifth integrated biofuels facilities funded under the Commonwealth Government's NCRIS Program has been officially opened at the University of Sydney. The NCRIS Hydrothermal Biofuels Research Pilot Plant will provide researchers an opportunity to improve biofuel production, taking it a step closer to becoming a commercially viable, sustainable energy source. Construction of the facility has been funded through the NCRIS Program, with additional support from the NSW Science Leveraging Fund and the University.

The NCRIS Biofuels Research Pilot Plant is the first semi-automated, continuous-flow kilo-scale research facility of its kind in Australia. The pilot plant will look at how biomass – particularly woody plant matter

– can be used to produce biofuels and other chemicals more efficiently. The plant converts biomass into fuels and chemicals under hydrothermal conditions, submersing them in hot water (up to 300°C) and subjecting them to high pressure (up to 250 atmospheres).

AusBiotech is the Managing Agency for this project and is overseeing the allocation of \$7.98 million of Federal funding to facilitate the development and utilisation of the biofuels facilities across Australia. When State government and host institution contributions are considered the overall project value is \$15 million. Small Australian companies and collaborative arrangements involving industry and academia are eligible to receive substantial discounts on the commercial rate to access the technology and expertise provided at each of the NCRIS facilities.

For more information contact Ms Nicole Bleasdale, NCRIS Program Manager
Tel: 03 9828 1416 Email: nbleasdale@ausbiotech.org Website: www.ncrisbiofuels.org

Plantation Energy Australia’s First Asian Export Contract

Plantation Energy Australia Pty Ltd, Australia’s largest manufacturer and exporter of energy wood pellets, announced on 19 November a four-year supply agreement with one of Japan’s largest trading companies, Mitsui & Co.

The agreement is worth over \$70 million and is the largest of its kind in Japan in terms of volume and value. Under the terms of the agreement Plantation Energy will manufacture and export wood pellets from their first of several planned pellet manufacturing facilities. Their first plant is operating in Albany, Western Australia.

The agreement provides a secondary market to Plantation Energy’s existing European business. Wood pellets are presently used extensively in Europe, with a major application being co-firing with coal in large utility boilers. Global demand for pellets exceeds 12 million tonnes per annum and is expected to exceed 30 million tonnes by 2015.

Earlier this year, fellow Bioenergy Australia member, Delta Electricity launched an integrated oil mallee-wood pellet-co-firing project in New South Wales (see the June issue of the Bioenergy Australia Newsletter).

Source: Plantation Energy

Grant for Fuel from Farm Waste

Synthetic fuel company Syngas and a Yorke Peninsula farmers’ group have received a \$300,000 State grant to create a potentially lucrative market for farm waste. The Renewables SA grant will be used to complete trials for commercial-scale collection, storage and transportation of cereal crop by-products, namely chaff and residual straw, on Yorke Peninsula and in the State’s Mid North.

Syngas MD Merrill Gray said “the company and the Yorke Peninsula Alkaline Soils Group had already invested \$120,000 on conducting workshops and technology partnerships. This additional investment will now help us establish the commercial viability of an entirely non-food, biomass-fed plant in the Yorke Peninsula area. It will also allow us to assess other biomass projects like power generation using biomass. It will help us to secure feed material for our different business models”.

Source: Adelaide Advertiser

ASX Listing in Offing for Algae Tec

Algae Tec Ltd is poised to list on the Australian Securities Exchange (ASX), having lodged its fifth supplementary prospectus since July 2010. The latest listing date is now 13 December. The Company is offering 37.5 million shares at a price of 20 cents each to raise \$7.5 million

Perth-based Algae Tec holds exclusive global rights to the McConchie-Stroud algae growth and harvesting system, which produces products that can be used to generate biofuels. “The Algae Tec system is designed to deliver the highest yield of algae per hectare and solves the problem of food-producing land being turned over for biofuel production” a company statement said. The company intends to implement projects in China and has a letter of intent for a project at Nowra NSW involving the Manildra Group. See: <http://www.algaetec.com.au>.

ARC Linkage Project Awarded to S.A. Universities

Dr Stephen Clarke of Flinders University reports that along with Associate Professors David Lewis and Peter Ashman from Adelaide University, they have obtained a major Microalgae and Chemical Biorefinery co-products biodiesel ARC Linkage project, co-supported by industry partner SQC. The project was submitted through Adelaide University under the direction of A/Prof Lewis as the lead Chief Investigator. This was the only microalgae biofuel ARC Linkage program awarded in Australia in this latest round of ARC industry linked research projects. Some 218 scientific projects were offered by the Federal Government to Australian Universities, and this project is one of only two liquid biofuel projects awarded by the Federal Government in Australia - the other being to Western Australia. In this project Dr Clarke will be expanding his Chemical Biorefinery research activities, involving glycerol as a platform chemical to develop new and exciting co-products to underpin sustainable biodiesel production from Gen-2 microalgae and Gen-1 feedstock.

From a South Australian perspective this unique microalgae biofuels project, has been offered \$460,000 of Federal funding from the ARC and is the largest ARC Linkage project awarded to South Australian Universities in this 2010, Round 2 series of projects.

New Biodigester Announced for Colac, Victoria

The Colac Power Company, a joint venture between biological farming firm Camperdown Compost Company and green electricity developer Diamond Energy, is to build a biogas plant in the town of Colac, Victoria, Australia.

The Victorian government has committed \$1.5 million to help build the plant, which will have a total cost of \$6 million and take about 18 months to construct once a planning permit is approved. Once construction has been completed it will process organic waste from dairy, meat and other agricultural industries. The plant has been estimated to process around 80 tonnes of liquefied waste each day, generating 1MW of electricity.

New Gasification Plant Announced for Benalla Timber Company

D & R Henderson, a major industrial manufacturer of engineered timber products is reported to be embarking on a \$2 million gasification project to consume all its surplus wood dust and avoid the need to send dust containing flammable resin to landfill. The project will significantly reduce the release of CO₂

into the atmosphere; produce a rich gas as an output of the gasification process which will be utilised to produce heat to be used in the company's drying processes; significantly reduce the gas purchased by the company; and reduce water consumption by eliminating the need to moisten the dust.

\$1.5 Million Biodiesel Project to Help Regional Industry

Regional Victorian motorists and industries will have easier access to biodiesel blended fuels thanks to a \$1.5 million project. With \$750,000 in support from the Victorian Government's Regional Infrastructure Development Fund (RIDF) the project will enable fuel distributor United Petroleum to introduce biodiesel blended fuels from the new Hastings facilities to its outlets throughout Victoria, including Mildura.

The project will enable the consistent distribution of up to 20 million litres of biodiesel throughout the United Petroleum network and play an important role in boosting sales of this fuel to Victorian motorists. See: <http://www.premier.vic.gov.au/component/content/article/10933.html>

Crucible Carbon Commercialisation Award

Crucible Carbon Pyrolysis Pty Ltd has been awarded \$685,099 for Early Stage Commercialisation by Commercialisation Australia. The grant will take the Crucible Carbon Pyrolysis technology to a 'sales ready' position, based on a production facility that demonstrates commercial scale operations for the conversion of timber industry biomass residues to gas suitable for generating on-site heat and power at wood processing plants. The development project will be based at Delta Electricity's Vales Point Power Station on the central coast of NSW.

Bio E-Flex Available in NSW – Caltex's New High Tech Fuel

Caltex has launched Bio E-Flex in NSW, a high ethanol blend fuel consisting of up to 85 per cent ethanol, blended with 15 per cent petrol, which is commonly known overseas as E85. The new ethanol-based fuel is designed for use in Holden's soon to be released VE Series II Commodore flex-fuel vehicles.

With ten sites in NSW and two sites in ACT selling Bio E-Flex from September, Caltex aimed to have Bio E-Flex available in over 30 service stations in Sydney, Canberra, Brisbane, Adelaide and Melbourne by the end of October, increasing to 100 metropolitan and regional locations in 2011. With the addition of Bio E-Flex, Caltex will be offering its customers a wide range of alternative fuels that includes Bio E10 Unleaded, a range of biodiesel blends and LPG autogas.

Bio E-Flex is suitable only for flex-fuel vehicles, such as vehicles in the Holden Commodore VE Series II range. Most new and many older cars, SUVs and light commercial vehicles can use E10 which is available at about 400 Caltex service stations in NSW, the ACT and Queensland. Source: Caltex

Biofacts

- There are more than 2,300 E85 petrol stations in the U.S.A.
 - At the start of 2010 there were some 800 solid biomass power plants across Europe, representing an estimated 7GW of capacity, the bulk of which is in Germany, Finland and Sweden. Total electricity across the EU27 from biomass (solid biomass, biogas and anaerobic digestion) came in at 101.81 TWh in 2007, up some 20 percent since 2005. Biomass heating is also expanding steadily, rising from 57.5 mtoe (million tonnes oil equivalent) in 2005 to 61.5 mtoe in 2007, led by Sweden, Finland and Denmark.
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Biomass on the Internet

The Internet provides a valuable source of information on biomass and allied topics. Below are some Internet addresses to supplement the 2,500 odd addresses given in the previous 38 issues of the Bioenergy Australia newsletters. These lists are consolidated as electronic links on Bioenergy Australia's web page at <http://www.bioenergyaustralia.org>. These links are available within an Excel file to allow interested persons to download the file and work with them off-line.

Biomass Net

<http://www.biomass.net/>

Joule Unlimited, Inc

<http://www.jouleunlimited.com/>

The Bioenergy Site

<http://www.thebioenergysite.com/index.php>

Summer Hill Biomass Systems

<http://summerhillbiomass.com/>

Wood energy group

<http://www.woodenergy.net.au>

UK Biofuels Media

http://www.biofuelsmedia.com/?merchant_return_link=Return+to+Biofuels+Media+Limited

BioBowser (small scale anaerobic digester)

<http://www.srela.com.au/biobowser.php>

BioBowser youtube video of modular biogas digester

http://www.youtube.com/watch?v=UGh0SKkPYWk&feature=player_embedded

Bioenergy report ex RIRDC (check title and contents)

<https://rirdc.infoservices.com.au/items/04-098>

Bioenergy and Carbon Trading discussion paper

<https://rirdc.infoservices.com.au/items/08-184>

Active Research

<http://www.activeresearch.com.au/>

Biogas Australia Pty Ltd

<http://www.biogasaustralia.com.au/>

Natural Systems Limited

<http://www.naturalsystems.co.nz>

Spectrum Renewable Energy

<http://www.srela.com.au>

California Bioenergy Action plan

http://www.energy.ca.gov/bioenergy_action_plan/index.html

Bioenergy Action Plan California documents

http://www.energy.ca.gov/bioenergy_action_plan/documents/index.html

US National Algal Biofuels Technology Roadmap

http://www1.eere.energy.gov/biomass/pdfs/algal_biofuels_roadmap.pdf

Thermogenics boilers

<http://www.thermogenicsboilers.com>

Nipissing University Biomass Innovation Centre

<http://biomassinnovation.ca>

EPA NREL Web-based biopower mapping tool

<http://rpm.nrel.gov/biopower/biopower/launch>

WWF data on role of biotechnology for greenhouse gas reduction

http://www.globalbioenergy.org/uploads/media/0909_WWF_-_Industrial_biotechnology.pdf

Wood resources in Victoria

<http://www.sustainabilityvictoria.gov.au/www/html/2113-bioenergy.asp>

Wood gasification for electric generation video

<http://www.youtube.com/watch?v=Eynd-2G3O2g>
StarColibri project
<http://www.star-colibri.eu/>
Article on algal fuel for aviation
http://www.marketwatch.com/story/algae-could-one-day-make-aviation-carbon-neutral-2010-07-21?reflink=MW_news_stmp
LEP Waste to Energy Pty Ltd
<http://www.lep.net.au>
BTG-BTL pyrolysis to liquid fuel brochure
<http://www.btg-btl.com/uploads/documents/2009-07%20Brochure%20BTG-BTL%20Pyrolysis%20Oil.pdf>
European BioEnergy Services – EBES, AT
<http://www.ebes.at>
Intrinerger Operating LP, USA - Pellets and CHP plants
<http://www.intrinerger.com>
Thermya S.A – torrefaction
<http://www.thermya.com>
European Biogas Association
<http://www.european-biogas.eu>
Complete Biogas Handbook
<http://completebiogas.com/>
North Queensland Bioenergy
<http://www.nqbioenergy.com.au/index.php>
Greentech Media Research report: Third and Fourth Generation Biofuels: Technologies, Markets and Economics Through 2015.
<http://www.gtmresearch.com/report/third-and-fourth-generation-biofuels>
LS9 biofuels
<http://www.ls9.com>
World Bank: Impact of Biofuels on Commodity Prices “Not As Large” as Originally Thought
<http://www.ethanolrfa.org/news/entry/world-bank-impact-of-biofuels-on-commodity-prices-not-as-large-as-originall/>
Biomass Power (UK)\
<http://www.biomasspower.co.uk>
BFC
<http://www.biofuels.com>
Conrad Industries (pyrolysis of organic material)
<http://www.conradind.com/index.asp>
Canberra Times article 4 Aug ‘Slimy scum may hold the key to freedom from oil’ on algae
<http://www.canberratimes.com.au/news/opinion/editorial/general/slimy-scum-may-hold-the-key-to-freedom-from-oil/1903354.aspx>
Shenzhen Puxin Science & Technology Co biogas
<http://puxinbiogas.com>
French gasifiers (in French)
http://bft.cirad.fr/cd/BFT_195_61-70.pdf
Micro Gas Turbine Operation with Biomass Producer Gas
<http://gasifiers.bioenergylists.org/ecnmicrogas>
Park Spark dog poo digester project
<http://parksparkproject.com/home.html>
Opcon Powerbox (ORC)
<http://www.opcon.se>
Pellpress (modular pellet presses in containers)
<http://www.pellpress.se>
Greenlane Biogas (biogas upgrading)
<http://www.greenlanebiogas.com>

International Developments

Singapore Opens World's Largest Renewable Diesel Plant

Finnish Neste Oil has opened a major new biofuels refinery in Singapore, to produce its NExBTL renewable diesel. The new €550 million (\$764 million) facility will now ramp up production, ultimately producing 800,000 tonnes a year of renewable diesel. Neste currently operates two renewable diesel plants at Porvoo in Finland which have a combined capacity of 380,000 tonnes a year, while a another plant is currently under construction in Rotterdam, which is expected to be of similar size as the Singapore facility and is expected to open during the first half of 2011.

Georgia's First Wood-to-Ethanol Plant Opens

In the US, Range Fuels Inc has began operating that nation's the first commercial plant producing ethanol from wood wastes, in Soperton Georgia. Initially the plant will operate with an annual capacity of 15 million litres, down from an original goal of 38 million litres. After obtaining more than US\$100 million in private commitments in 2008, Range Fuels landed additional federal support last year in the form of a US\$80 million loan guarantee from the Department of Agriculture.

DOE Awards \$16.5 Million for Biomass Research and Development

The US Department of Energy announced in September the award of up to US\$16.5 million for two major research and development cost-share initiatives that will support the expansion of renewable fuels production.

Under the first initiative, DOE will invest up to US\$12 million over three years in four projects that will employ pyrolysis, the heating of biomass in the absence of oxygen to create a bio-based oily liquid called bio-oil. The projects will explore a variety of catalytic processes to upgrade this bio-oil into so-called "drop-in" biofuels—advanced biofuels that are compatible with our existing fueling infrastructure. Drop-in biofuels may include a bio-based crude oil substitute that could be processed in existing refineries, as well as bio-based versions of gasoline, diesel fuel, and jet fuel that can be handled the same way as their petroleum-based counterparts. For example, the Gas Technology Institute will test wood, corn stover, and an aquatic plant in an automated, integrated pilot facility that converts biomass directly into gasoline and diesel fuel.

Under the second initiative, DOE will provide up to US\$4.5 million to three projects focused on developing sustainable methods of biomass crop production. The projects will design, model, and implement biomass production systems across different regions of the country while looking at factors such as how plants impact soil erosion and water quality, quantifying the environmental impacts of different strategies for producing energy crops and using crop residues. The projects will also provide insight into where to locate bioenergy crops within a landscape in order to maximize their potential positive impacts. Under this initiative, a team led by North Carolina State University will examine sites in Alabama, Mississippi, and North Carolina and will investigate biomass production options that are compatible with forest management, with a focus on the intercropping of pine and switchgrass. Meanwhile, the University of Minnesota and Purdue University will focus on energy crops in the Mississippi River watershed and watersheds in the Upper Midwest, respectively. See the [DOE press release](#) and DOE's [Biomass Program Web site](#).

Source: US Department of Energy

The BIOLYFE Project

The European BIOLYFE project aims at improving critical steps of the second generation bioethanol production process and at demonstrating the whole supply chain, from feedstock sourcing via fuel production to product utilisation. The main result will be the construction of an efficient second generation industrial demonstration unit with an annual output of about 40.000 tons of lignocellulosic bioethanol, which can then be used for process optimization through extensive testing. See www.biolyfe.eu for more information.

Together with BIOLYFE, three other projects on the industrial-scale demonstration of second generation bioethanol production are co-funded under the 7th framework program of the European Union:

- The **LED Project** (ledproject.eu) is coordinated by Abengoa Bioenergy. The aim is to use 522 dry tonnes of biomass feedstocks per day in a new second generation bioethanol plant.
- The **FibreETOH Project** is led by UPM Kymmene (www.upm.com) and focusses on the production of second generation bioethanol from paper fibre.
- The third project is **KACELLE** which is briefly presented below.

In November 2009, six partners signed the Kalundborg Cellulosic Ethanol Project (KACELLE), devoted to demonstrating and further optimising the Kalundborg bioethanol plant. Partners are INBICON, DONG Energy, Royal DSM, Statoil, University of Copenhagen – LIFE, University of Minho, Braga, and the German Biomass Research Centre. For further information on KACELLE, please visit www.kacelle.eu or contact the project coordinator Jeppe Bjerg: jepbj@dongenergy.dk. The project brochure can be downloaded from:

http://www.inbicon.com/SiteCollectionDocuments/PDF/KACELLE/KACELLE_BROCHURE.pdf.

EU's Production of Ethanol Grows

Following a 60% growth in 2008, the EU's production of ethanol continued to grow last year and increased 31% to 3.7 billion litres up from 2.8 billion litres in 2008. While a number of countries, including Austria and Sweden, dramatically increased their ethanol output capacity in 2009, France remains the biggest manufacturer. The nation increased its ethanol output from 1,000 million litres in 2008 to 1,250 million litres in 2009. Germany is not far behind as it ramped up production by 32% last year to 750 million litres, while the third largest producer is Spain with 465 million litres. Six out of the total 18 producing EU countries failed to increase production or keep it constant. Austria and Sweden were the only producing states to more than double their ethanol output, with Austria boosting production by 102% and Sweden 124%. They are now ranked the fourth and fifth largest manufacturer of the biofuel respectively. Total EU consumption is also on the up. The EU consumed around 4.3 billion litres, a significant increase compared with the 3.5 billion litres in 2008. Germany consumed 1,143 million litres in 2009 making it the largest consumer. France is second with 798 million litres, followed by Sweden (377 million litres).

Source: Carbon Alternative

The BIOMAP Project

BIOMAP is a 7th Framework Programme Coordination and Support Action contract aiming to provide a complete information and dissemination tool for biofuels with main emphasis on technology development. BIOMAP will provide detailed information both for European Commission contracts funded under Framework Programmes FP5, FP6 and FP7, the Intelligent Energy Europe programme as well as for industrial projects and plants developed by the industry. The BIOMAP also includes information on numerous players in the biofuel sector such as associations, industrial organisations, technology developers et al, and gradually will have information from all EU Member States on national legislation and research

institutions per Member State. It also has a section on all relative standardisation work undertaken by CEN whether under EC mandates or independently.

This information is now accessible via <http://biomap.kcl.ac.uk>.

New Study Touts Biomass Energy's Greenhouse Gas Benefits

A new study, funded in part by the Department of Energy (DOE), finds that burning biomass to generate electricity could offset up to 107 billion metric tons of greenhouse gas (GHG) emissions over 100 years, and even greater offsets could be achieved with additional measures involving "biochar." Producing biochar would offset annually up to 1.8 billion metric tons of GHG emissions and up to 23 billion metric tons more GHG emissions than biomass energy alone in the first 100 years of production, according to the study. Biochar avoids more GHGs because it can be used as fertilizer to stimulate additional sources of biomass. For comparison, the study notes that human activities produce 15.4 billion metric tons of GHG emissions annually. The Study 'Sustainable Biochar to Mitigate Global Climate Change' was conducted by Dominic Woolf, James E. Amonette, F. Alayne Street-Perrott, Johannes Lehmann & Stephen Joseph To learn more, visit: www.nature.com/ncomms/journal/v1/n5/full/ncomms1053.html

World Bank Report Takes New Look at Food and Fuel

A working paper, entitled 'Placing the 2006/08 Commodity Price Boom into Perspective,' from the Development Prospects Group at the World Bank, concludes that "...the effect of biofuels on food prices has not been as large as originally thought." It was argued that energy prices, as well as speculation, played significant roles in the non-energy commodity price spikes seen in the recent past. Biofuels played some role too, but much less than initially thought. The biofuels industry has been commonly blamed for causing record highs in grain prices and food shortages in the developing world. This report looks at a variety of factors involved and shows that biofuels production – while certainly a factor – was only one among many.

A key point made in this report is that biofuels only represent 1.5 percent of worldwide grain and oilseed use. *"This raises serious doubts about claims that biofuels account for a big shift in global demand. Even though widespread perceptions about such a shift played a big role during the recent commodity price boom, it is striking that maize prices hardly moved during the first period of increase in US ethanol production, and oilseed prices dropped when the EU increased impressively its use of biodiesel. On the other hand, prices spiked while ethanol use was slowing down in the US and biodiesel use was stabilizing in the EU."*

The earlier 2008 Policy Research Working Paper (http://www-wds.worldbank.org/external/default/WDSContentServer/TW3P/IB/2008/07/28/000020439_20080728103002/Rendered/INDEX/WP4682.txt), authored by Donald Mitchell, lead economist for the World Bank's Development Prospects Group, claimed 70-75 percent of the increase in food prices that year was due to biofuels and the related consequences of low grain stocks, large land use shifts, speculative activity and export bans. Accordingly, this new paper is a big about-face from the 2008 view and actually says what most biofuels advocates were saying all along.

See: <http://domesticfuel.com/2010/07/30/world-bank-report-takes-new-look-at-food-and-fuel/>

DOE Announces US\$24M for Algae Research

The U.S. Department of Energy announced the investment of up to US \$24 million for three research groups to tackle key hurdles in the commercialization of algae-based biofuels.

The three consortia selected for funding are:

- Sustainable Algal Biofuels Consortium: \$6 million - Led by Arizona State University, this consortium will focus on testing the acceptability of algal biofuels as replacements for petroleum-based fuels. Tasks include investigating biochemical conversion of algae to fuels and products, and analyzing physical chemistry properties of algal fuels and fuel intermediates.
- Consortium for Algal Biofuels Commercialization: \$9 million - Led by the University of California, San Diego, this consortium will concentrate on developing algae as a robust biofuels feedstock. Tasks include investigating new approaches for algal crop protection, algal nutrient utilization and recycling, and developing genetic tools.
- Cellana LLC Consortium: \$9 million - Led by Cellana LLC, this consortium will examine large-scale production of fuels and feed from microalgae grown in seawater. Tasks include integrating new algal harvesting technologies with pilot-scale cultivation test beds, and developing marine microalgae as animal feed for the aquaculture industry.

The US National Algal Biofuels Technology Roadmap guides investments in algal biofuels. Under the Recovery Act, the Department awarded funding earlier this year to an algal research consortium to tackle a broad range of barriers identified in the roadmap report. View a copy of the National Algal Biofuels Technology Roadmap at: http://www1.eere.energy.gov/biomass/pdfs/algal_biofuels_roadmap.pdf.

World's Largest Biomethanol Plant Begins Production

The construction of biomethanol producer BioMCN's second generation biofuel plant in Delfzijl, The Netherlands, has been completed and began operations in late June. The plant has the capacity to produce 250 million litres of biomethanol annually and is thought to be the largest in the world.

By 2020 the Netherlands will be required to blend a minimum of 10 percent biofuel into regular petrol. According to the company the new plant can meet this obligation on its own. Biomethanol produces 78 percent less greenhouse gases than regular methanol. BioMCN has patented the process that it uses to produce its biomethanol. The biofuel is made from crude glycerine, a sustainable by-product created from processing vegetable oil and animal fats.

JV to Build Biorefinery in Indonesia

A joint venture between Illinois, US-based Elevance Renewable Sciences and agribusiness group Wilmar International will construct a biorefinery in Indonesia. The commercial-scale manufacturing facility will use Elevance's proprietary biorefinery technology to produce high-value performance chemicals, advanced biofuels and oleochemicals and will begin with a capacity of 180,000 tonnes with the ability to expand up to 360,000 tonnes of products. The plant can be fed by palm, mustard, soyabean, jatropha or waste oils, and will come online in 2011. The products will include include green olefins, a unique distribution of alpha and internal olefins for chemicals and advanced fuels; novel multifunctional esters and acids, including 9-decenoic acid, as well as a premium mixture of oleochemicals and advanced biofuels.

World's First BioDME Production Facility

The world's first plant for the production of the renewable fuel BioDME opened on 9 September 2010 in Piteå, Sweden. Located at the Smurfit Kappa pulp and paper container board mill, the plant utilises black liquor, a by-product of the pulping process, to produce the BioDME. The gasification technology comes from Chemrec AB, while Haldor Topsøe A/S provides the fuel synthesis technology. Volvo Trucks, Swedish fuels company Preem, France-based oil and gas giant Total, Delphi and local research institute ETC are also participating in the project.

The production of bio-DME (dimethylether) is similar to that of biomethanol. Bio-DME can be produced directly from synthesis gas.

Brazil to Invest over \$5 billion in Renewable Energy

In Brazil, a recently held biomass, wind and hydroelectric auction is expected to encourage \$5.52 billion in investments in alternative energies in the region. The auction came as the Brazilian government aims to further diversify its clean energy matrix. It contracted power from biomass plants, 89 wind farms and small hydroelectric plants and will add an installed capacity of 2,892.2MW to the national energy grid. The resulting investments are expected to come primarily from private enterprise.

Brazil's alternative energy auction was conducted through a process, whereby the government first announced the energy demand to serve the market by 2013, and then electricity generators competed by bidding capacity to fill that demand at the lowest price.

The result was a significant decrease in energy costs from starting prices, with a 17.41% decrease in the price of energy supplied by biomass-fueled plants, averaging \$78.42/MWh.

Honeywell UOP Technology Selected to Support Conversion of Biomass to Fuel at California Renewable Energy Facility

UOP LLC, a Honeywell company, has announced that its technology has been selected for use in Rentech, Inc.'s Rialto Renewable Energy Center for the conversion of biomass to transportation fuels. The renewable energy centre, to be built in Rialto, Calif., will convert biomass into renewable, ultra-clean diesel fuel and renewable electricity. The new facility will use UOP hydroprocessing technology, which converts hydrocarbons into clean-fuel products. The center is expected to produce roughly 640 barrels-per-day of liquid fuel and 35 MW of base-load electricity.

In August 2009, eight airlines signed a multi-year agreement with Rentech to together purchase up to 5.7 million litres per year of diesel from the Rialto Project for use in ground service equipment at Los Angeles International Airport (LAX). The Rialto Project is scheduled to start up in late 2012.

In the new unit the Rentech-SilvaGas biomass gasification system will be used to produce synthesis gas, or syngas, from biomass feedstock which is converted to ultra-clean hydrocarbons using Rentech's proprietary Fischer-Tropsch process and catalyst. The UOP Unionfining™ process and the UOP Unicracking™ process are then used to upgrade the hydrocarbons to ultra-clean jet and diesel fuel as well as specialty waxes and chemicals.

Honeywell's UOP business, a recognised global leader in process technology to convert petroleum feedstocks to fuels and chemicals, has also developed a range of processes to produce high-quality, drop-in green fuels from natural feedstocks. Since 2006, UOP has commercialized processes to convert non-edible natural oils to Honeywell Green Diesel™ and Honeywell Green Jet Fuel™. It has also established Envergent Technologies, a joint venture with Ensyn Corp. which offers pyrolysis technology for the production of renewable heat, power and transportation fuels from biomass sources such as forest and agricultural waste.

See: <http://www.uop.com/>

USDA Releases Regional Roadmap for Biofuels

The U.S. Agriculture Secretary has released a report outlining both the current state of renewable transportation fuels efforts in America and a plan to develop regional strategies to increase the production, marketing and distribution of biofuels.

The report provides:

- information on current production and consumption capacities as well as projections to meet the Renewable Fuels Standard (RFS2) mandate to use 36 billion gallons (136 billion litres) of biofuel per year in America's fuel supply by 2022; and
- data on the significant impact the ethanol industry will have on job creation. It is estimated that as many as 40 direct jobs and additional indirect jobs are created with each 100 million gallon (378 million litre) ethanol facility built.

To read the report view: http://www.usda.gov/documents/USDA_Biofuels_Report_6232010.pdf

FirstEnergy Switches from Coal to Biomass

FirstEnergy in Cleveland, Ohio, USA, is seeking approval to convert one of its coal-burning, 1940's vintage, power plants to be fuelled by wood pellets. If received, the firm's R.E. Burger generators would become the largest in the US to be fired with wood pellets. The company is currently aiming for the R.E. Burger power generation facility to be burning 80 percent wood pellets and briquettes alongside coal by 2013.

The switchover application comes after an order by the EPA for FirstEnergy to close a number of its coal-fired power plants if it did not install pollution control equipment or change from burning fossil fuels. However the proposal is being opposed by environmental groups, who claim that the change over will result in deforestation and an increase in carbon dioxide. The environmentalists are urging the Public Utilities Commission to postpone their final ruling until the environmental effects of burning pellets are determined and FirstEnergy explains how it will meet the fuel mandates.

Report Predicts Biorefineries Will Offer a Solution to Significantly Reducing CO2 Emissions and Creating Economic Growth

The World Economic Forum report *The Future of Industrial Biorefineries* pinpoints the key role the biorefinery industry can play in mitigating climate change and creating a more sustainable bio-based economy.

Produced in collaboration with Royal DSM N.V., Novozymes, DuPont and Braskem, the report says that the biorefineries industry could supplement demand for sustainable energy, chemicals and materials, aiding energy security. It also acknowledges that a number of obstacles still stand in the way of biorefineries realising their full economic potential. The author of the report, Professor Sir David King, Director, Smith School for Enterprise and the Environment at the University of Oxford, says "The emerging biomass value chain will create significant business opportunities and new winners, with technology- and science-driven companies with access to key enzyme and microbial technologies being central to the development of the bio-based economy. The growth of the bio-based economy could create significant economic growth and job creation opportunities, particularly in rural areas, where incomes and economic prospects are currently moderate, and in advanced manufacturing."

The report concludes that the development of the bio-based economy is at an early and high-risk stage and no single industry, or company, is capable of managing this phase of its development independently. Government, therefore, has a key role to play in providing seed support – particularly at the pre-

competitive stage – to the emerging bio-based sector and creating the market to ensure that it becomes established and successful as quickly as possible.

The full report is at: http://www3.weforum.org/docs/WEF_FutureIndustrialBiorefineries_Report_2010.pdf

Source: World Economic Forum

Report Finds Bioenergy Production Can Expand across Africa without Displacing Food

Crops can be produced for bioenergy on a significant scale in west, eastern and southern Africa without doing damage to food production or natural habitats, according to a report produced by the Forum for Agricultural Research in Africa (FARA), Imperial College London, and CAMCO International. The study was released at the 5th African Agriculture Science Week in Burkina Faso. The conclusions of the report, *Mapping Food and Bioenergy in Africa*, were drawn from a review of existing research and case studies of biofuel production and policy in six countries: Senegal, Mali, Tanzania, Kenya, Zambia, and Mozambique. Among the report's findings is that there is enough land available to significantly increase the cultivation of crops, such as sugar cane, sorghum, and jatropha for biofuels without diminishing food production.

The analysis reveals that the challenge today is not so much whether bioenergy production can co-exist with food production but rather how it can be scaled-up to help African countries realise their potential.

Full report (126 pp) see: http://fara-africa.org/library/browse/fara_publications/Mapping_Food_and_bioenergy_Africa_final_June_2010.pdf

Source: FARA <http://www.faraweek.org/>

Genomic Sequence of Jatropha

Life Technologies Corporation and SG Biofuels have succeeded in defining the genomic sequence of *Jatropha curcas*, using the SOLiD 4.0 system developed by Life Technologies. The blueprint of the sequence will accelerate the identification of the most important characteristics of oil-retaining crops. This knowledge can contribute to the cultivation of new types that show increased growth, and types that can tolerate simpler extraction methods. The researchers hope that this will result in cheaper crops that achieve higher productivity rates.

Source: [greencarcongress](http://www.greencarcongress.com/) via GAVE News

Forthcoming Events

- 4th International BtL-Congress
1 – 2 December, 2011
Berlin
<http://www.fnr.de/btl-Congress2010>
- International Algae Congress 2010
1 - 2 December, 2010
The Netherlands
<http://www.algaecongress.com/>
- Lignofuels 2010
1 – 2 December, 2010
Madrid, Spain
http://www.acius.net/wiki.aspx/fs/conferences/pdf/193_EEF1_Brochure.pdf

- Biogas to Energy Fundamentals: Ag, Food Processing, and Landfill Waste
6 – 7 December, 2010
Miami, Florida
<http://www.euci.com/conferences/1210-biogas/agenda.php?q=4391o171407Fh0102>
- **Bioenergy Australia 2010**
8 - 10 December, 2010
Novotel Manly Pacific, Manly, Sydney, NSW
<http://www.bioenergyaustralia.org>
- Advanced Biofuels Markets
9 – 10 December, 2010
San Francisco
<http://www.greenpowerconferences.com/advancedbiofuelsUSA>
- Pacific Rim Summit
11 – 14 December, 2010
Honolulu, Hawaii
<http://bio.org/pacrim/index.asp>
- Pacific West Biomass Conference & Expo
10 – 12 January, 2011
Seattle, Washington
<http://pacificwest.biomassconference.com/ema/DisplayPage.aspx?pageId=About>
- National Algae Association Conference
13 - 14 January, 2011
Biotech Institute - Lone Star College
The Woodlands, Texas, USA.
<http://www.nationalalgaeassociation.com/index.html>
- Fuels of the Future 2011
24-25 January 2011
ICC Berlin
<http://www.fuels-of-the-future.com>
- 3rd Central European Biomass Conference
26 - 29 January, 2011
Graz, Austria
<http://www.biomasseverband.at/biomasse?cid=41146>
- Renewtech India
17 – 19 February, 2011
Bombay Exhibition Centre Goregaon (E), Mumbai
http://mco-online.com/files/Ausland/Anmeldeunterlagen%20PDF/Renewtech2011_Brochure.pdf
- National Ethanol Conference: *Building Bridges to a More Sustainable Future*
20 – 22 February, 2011
JW Marriott Desert Ridge in Phoenix, Arizona
<http://www.nationalethanolconference.com>
- Keystone Symposia – Biofuels
1 – 6 March, 2011
Swissotel The Stamford, Singapore
<http://www.keystonesymposia.org/11C3>
- European Pellet Conference 2011
2 – 3 March, 2011
Wels, Austria
<http://www.wsed.at/en/programme/european-pellet-conference/>
- EcoForum Conference & Exhibition
9 – 11 March, 2011
Australian Technology Park, Sydney
<http://www.ecoforum.net.au/2011/>
- Biowise 2011
14 - 15 March, 2011

- Kuala Lumpur
<https://www.eventelephant.com/biowise>
- BioPro Expo 2011
 14 – 16 March, 2011
 Atlanta Hilton, Atlanta, GA, USA
<http://www.bioproexpo.org/>
 - 2nd Biomass Trade & Power
 17 - 18 March 2011
 Rotterdam, The Netherlands
<http://www.cmtevents.com>
 - Nordic Wood Bioenergy Conference
 22 – 24 March, 2011
 Stockholm, Sweden
<http://www.inventia.com>
 - World Biofuels Markets Conference and Exhibition
 22 – 24 March, 2011
 Beurs – World Trade Centre, Rotterdam
<http://www.worldbiofuelsmarkets.com/>
 - 9th International Lignin Forum of ILI
 24 – 25 March, 2011
 Stockholm, Sweden
<http://www.ili-lignin.com>
 - Salon Bois Energie 2011
 24 – 27 March, 2011
 Micropolis Exhibition Park, Besançon, France
<http://www.boisenergie.com/sommaire.php3>
 - Residues to Revenues (incorporating the GreenENERGY Expo)
 30 – 31 March, 2011
 Rotorua, New Zealand
<http://www.woodresidueevents.com/>
 - Residues to Revenues (incorporating the GreenENERGY Expo) – sponsored by Bioenergy Australia
 4 - 5 April, 2011
 Bayview Eden Hotel, Melbourne
<http://www.woodresidueevents.com/>
 - Greenhouse 2011: The science of climate change
 4 - 8 April, 2011
 Cairns Convention Centre, Queensland, Australia
<http://www.greenhouse2011.com/>
 - 2nd Argus European Biomass Trading conference
 7 April, 2011
 Hotel Okura, Amsterdam, The Netherlands
<http://www.argusbiomass.com/>
 - BioCycle Global 2011
 11 - 14 April, 2011
 San Diego, California
<http://www.BioCycleEnergy.com>
 - European Biomass to Power
 13 - 14 April 2011
 Vienna, Austria
http://www.acius.net/wiki.aspx/fs/conferences/pdf/203_EBP1%20Draft%20AgendaCT.pdf
 - World Renewable Energy Technology Congress
 21 – 23 April, 2011
 Le Meridien, New Delhi, India
<http://www.wretc.in/>
 - 4th World Congress of Industrial Biotechnology-2011

- 25 - 29 April, 2011
Dalian, China
<http://www.bitlifesciences.com/ibio2011>
- BIT's 1st Annual World Congress on Bioenergy
25 - 29 April 2011
World Expo Center, Dalian, China
<http://www.bitlifesciences.com/wcbe2011/fullprogram.asp>
 - 9th European Conference On Industrial Furnaces And Boilers (INFUB-9)
26 - 29 April, 2011
Palacio Estoril Hotel, Estoril, Portugal
<http://www.cenertec.pt/infub/>
 - International Biomass Conference & Expo
2 – 5 May, 2011
St Louis, Missouri
<http://se.biomassconference.com/ema/DisplayPage.aspx?pageId=About>
 - 19th European Biomass Conference and Exhibition
6-10 June 2011
Berlin, Germany
<http://www.conference-biomass.com>
 - 4th Congress of the International Society for Applied Phycology
19-24 June 2011
Halifax Marriott Harbourfront Hotel, Nova Scotia, Canada.
Email: ISAP2011@nrc-cnrc.gc.ca
 - Bio International Convention
27 – 30 June, 2011
Washington DC, USA
<http://convention.bio.org/content.aspx?id=3018>
 - Chemica 2011 – Engineering a better world
18-21 September 2011
Hilton Sydney
<http://www.chemica2011.com>
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Residues

Media Coverage of Bioenergy Australia and Bioenergy: An article 'Up Close with Stephen Schuck' about bioenergy appeared in the Sept/Oct issue of EcoGeneration Magazine. The article is at: http://ecogeneration.com.au/news/up_close_with_stephen_schuck/043494/. Another media article was 'Lots of room for growth' which appeared in the 19 November issue of international newsletter Recharge. A six page profile on Bioenergy Australia by White Digital Media is also at: <http://www.businessreviewaustralia.com/magazines/3277>

ACRE Funding: The Australian Government has committed \$2 million from ACRE (Australian Centre for Renewable Energy) funding for it to undertake renewable energy studies along the proposed Mt Isa to Townsville transmission line. This initiative will complement the Australian Government's *Connecting Renewables Initiative*.

IEA Take on Current Government Policies to Address Climate Change: The International Energy Agency has stated that the broad greenhouse gas policy commitments and plans of countries around the world will not be sufficient to avoid significant increases in average global temperatures. The IEA released its annual *World Energy Outlook* on 9 November, and this year's report includes a "New Policies Scenario" that includes commitments such as the Copenhagen Accord. Even under that scenario, world energy demand increases by 36% between 2008 and 2035, or 1.2% per year on average, and fossil fuels still dominate the world's energy mix in 2035. As a result, the concentration of greenhouse gases in the

Earth's atmosphere is projected to stabilise at the equivalent of 650 parts per million (ppm) of carbon dioxide, resulting in a likely long-term temperature rise of more than 3.5°C above pre-industrial levels.

Argus European Biofuels Trading Conference: Presentations and documentation from the Argus European Biofuels Trading Conference held in London on 21 October, 2010 are now available for purchase via: <http://www.argusbiodiesel.com/euro2010/register.html>

UNSW ARC Grants for Biofuel Research: The University of New South Wales has been successful with two Australian Research Council grant applications. One Discovery grant will look at ethanol and methanol combustion in the context of a new engine concept called HCCI, while the other Linkage grant with a partner in the automotive sector will look at dual-fuelling of diesel engines with ethanol port-fuel injection. For further information contact Evatt Hawkes, UNSW.

Australian Renewable Fuels has raised \$4.7 million to recapitalise the company via a rights offer to allow it to embark on a new biodiesel strategy.

Deutsche Lufthansa AG plans to be the first airline to test biofuels on regular passenger flights. Kerosene derived from plant oils will make up 50 percent of the fuel mix for one engine on an Airbus SAS A321 airliner flying on the Hamburg-Frankfurt route. The six month test will begin in April 2011 if approved by regulators. The biofuels will be sourced from Finland's only petroleum refiner Neste Oil.

Nexterra Energy Systems is installing a 2 MW combined heat and power system at the University of British Columbia in Vancouver, Canada: See: <http://www.nexterra.ca/news/100817.html>

RIRDC Annual Report 2009-2010: The RIRDC Annual Report was tabled in both Houses of the Parliament on 26 October 2010. The website link for the report is: <https://rirdc.infoservices.com.au/items/10-196>

Rise and Fall of the Carbon Civilisation - Resolving Global Environmental and Resource Problems: A new book by long standing Bioenergy Australia member, Associate Profession Damon Honnery of Monash University and co-author Patrick Moriarty (218 pages, 23 illustrations) has been released. See: <http://www.springer.com/engineering/energy+technology/book/978-1-84996-482-1> and http://www.amazon.com/Rise-Fall-Carbon-Civilisation-Environmental/dp/1849964823/ref=sr_1_2?s=books&ie=UTF8&qid=1289474371&sr=1-2

Biomass Heating in Upper Austria – green energy, green jobs: This 39 page report describes how modern, highly efficient biomass heating presents great opportunities for local economic development, for decreasing energy costs and for climate and environment protection. It offers information on technologies, biomass supply chains and business models. It describes the policies and programs which were implemented in Upper Austria to trigger a successful biomass market. Project examples show the variety of biomass heating systems installed in Upper Austria. Go to: <http://www.oec.at/eu/publications>

European Confidence in Biofuels: A 385 page report 'Eurobarometer 73.1 - Biotechnology' by TNS Opinion and Social for the European Commission indicates that 72 percent of EU27 inhabitants are in favour of biofuels, and no less than 83 percent are in favour of sustainable biofuels. The report may be downloaded from: http://www.epure.org/downloads/reports/ebs_341_en.pdf.

A Realistic Technology and Engineering Assessment of Algae Biofuel Production report from the Energy Biosciences Institute (EBI) in Berkeley, California indicates that development of cost-competitive algae biofuel production will require much more long- term research, development and demonstration, taking at least a decade to reach conclusions about the technical and economic viability of algae for biofuels. The report (PDF, 6.8 MB), can be accessed via the URL: <http://www.energybiosciencesinstitute.org/media/AlgaeReportFINAL.pdf>

Complete Biogas Handbook: The table of contents of the 283 page Complete Biogas Handbook by David House may be viewed at: <http://completebiogas.com/toc.html>. The book consists of 7 main chapters and 21 Appendices. The cost is US\$25 plus shipping.

GTM Research releases new report *Third and Fourth Generation Biofuels: Technologies, Markets and Economics Through 2015*, analysing the strengths, weaknesses and commercial opportunities for fuels from algae, genetically modified organisms and gasification. For detailed information about this book, priced at \$1,495 visit <http://www.gtmresearch.com/report/third-and-fourth-generation-biofuels>

Copies of a SDC report **Energy from Waste Potential in Scotland** (0.4 MB) can be downloaded from: <http://www.scotland.gov.uk/Resource/Doc/311011/0098129.pdf>

Timber Queensland Bioenergy Forum: The presentations from the Timber Queensland bioenergy forum held 1 July in Brisbane are at: <http://www.timberqueensland.com.au/News/Default.aspx>. Bioenergy Australia sponsored this event, with Steve Schuck providing a keynote address and participating in two discussion panels.

The presentations from the **First International Conference on Lignocellulosic Ethanol**, Copenhagen, 13-15 October 2010 can be found at: http://ec.europa.eu/energy/renewables/events/2010_10_13_ethanol_presentations_en.htm

Brazilian Ethanol Pipeline: Petrobras has begun laying a 865-kilometre ethanol pipeline, in conjunction with PMCC and construction company Camargo Correa. The first section will connect the cities Ribeirao Preto (in a sugar producing area) to Paulinia (a major fuel distribution and refining hub). The ethanol pipeline is expected to be completed by the second half of 2011, and is a key part of a \$3.5 billion investment by Petrobras in ethanol and advanced biofuels investments that will take place through 2013.

Senate Select Committee on Fuel and Energy – Final Report Tabled: The Senate Select Committee has tabled its final report, which can be accessed via the following link: http://www.aph.gov.au/Senate/committee/fuelenergy_ctte/final_report/report.pdf

Biomass Processing Pilot Plant: The media release on the opening of the University of Sydney's NCRIS Biofuels pilot plant is at: <http://www.usyd.edu.au/news/84.html?newscategoryId=2&newsstoryid=5620>

Opening of Mackay Biorefining Pilot Plant: The new \$8.8 million cellulosic ethanol pilot plant owned and operated by Queensland University of Technology was opened on 9 July 2010. The plant, sited at the Mackay Racecourse Sugar Mill is one of the research facilities established under the NCRIS Biofuels Program.

AnaeCo is set to commence Stage 2 of its DiCOM facility for the Western Metropolitan Regional Council in Perth. The DiCOM facility will process 55,000 tonnes per annum of municipal solid waste and will be the first fully operational DiCOM system facility and will be one of the most advanced biological waste treatment plants in the world according to AnaeCo. This technology is the subject of a presentation at the Bioenergy Australia 2010 conference.

REN21 Publishes Global Interactive Map of Biomass Policy, Capacity, Production, Mandates: The Renewable Energy Policy Network REN21, a global policy network that provides a forum for international leadership on renewable energy, has launched its Renewables Interactive Map. The Map contains information on renewable energy, including support policies, expansion targets, current shares, installed capacity, current production, future scenarios, and policy pledges. The Map can be found on the REN21 website, at <http://www.ren21.net/map>

'The GBEP Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy - Version Zero': A copy of the full report can be downloaded from GBEP web site at:

http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/2009_events/7th_SC_NY/GBEP_GHG_report_2306.pdf

Vietnamese Biogas Program: The Ministry of Agriculture and Rural Development is to invest \$100 million over eight years to expand its Biogas Program. The expansion project should result in an additional 100,000 biogas generators being installed on farms across Vietnam.

Cogeneration Plant Planned for Washington State: Nippon Paper Industries is planning the construction of a \$71 million cogeneration plant to be built at its mill in Port Angeles and generate steam and electricity from forest biomass that would otherwise remain unused or be burned. The biomass will produce 20MW of energy which will be sold to utility companies, while the new plant will add another 20 employees to its current 200-strong workforce. Work on the facility is expected to begin later this year, following the completion of environmental studies and the approval of local and state permits.

The California Energy Commission announced twelve proposed awards in the amount of \$14,912,000 for Biofuel Production Plants. A number of the proposed projects will be using the organic fraction of municipal solid waste as feedstock for biofuel production. Under the Alternative and Renewable Fuel and Vehicle Technology Program the proposed awards will provide funding and financial assistance for the development of new, California-based biofuel production plants and enhance the operation of existing production plants to increase statewide biofuel production and reduce greenhouse gas emissions. The link below, Notice of Proposed Awards (PON-09-604), provides additional details:
<http://www.energy.ca.gov/contracts/index.html#nopa>

Synthetic Biofuel Project: The Solena Group has signed a letter of intent with Rentech to use its iron-based catalyst Fischer-Tropsch Fischer Tropsch technology in Solena's 'GreenSky' sustainable biojet fuel project. The project would most likely be sited in East London, UK. The plant would convert more than 500,000 tonnes per annum of waste biomass feedstock into synthesis gas using Solena's plasma gasification technology, BioSynGas and then further convert the syngas to 73 million litres of jet fuels and 41 million litres of BioNaphtha. The facility would also generate 40 MW electricity, of which more than 20MW would be exported to the grid after powering the entire facility. The project is expected to create 1,000 construction jobs and 200 full-time positions during operation of the plant.

Finland 'Green Motorway': Finland plans to build the first 'green motorway' in the world, with recharging points for electric cars, biofuel refilling stations and solar panels all along the route. These plans are currently still at the feasibility-study stage, but the Fins plan to develop a model of an ecological motorway that could also be used by many other countries. Source: GAVE News

Biofuels Demonstration Plant: A biomass-to-liquids (BTL) demonstration plant operated by the Oxford Catalysts Group and the Portuguese incorporated holding company, SGC Energia (SGCE) is now up and running at the biomass gasification facility in Güssing, Austria. The biofuels plant includes the Güssing gasifier, a gas conditioning unit supplied by SGCE and an FT microchannel reactor skid developed by the US-based member of the Oxford Catalysts Group, Velocys, Inc. The biofuels demonstration plant is already producing over 0.75 kg of synthetic FT liquids per litre of catalyst per hour – 4 to 8 times greater productivity than conventional systems. See:
<http://www.renewableenergyfocus.com/view/11848/biofuels-demonstration-plant-up-and-running>

New Joint Venture to Produce Ethanol from Sugarcane: Shell and Cosan S.A. have signed binding agreements to form a \$12 billion joint venture, for the production and commercialisation of ethanol from sugarcane. The partnership will make them the world's third largest producer of ethanol with a yearly output capacity of 2 billion litres.

French Oil Group to Acquire 17% Stake in Amyris: French oil company Total announced in June that it would acquire about 17% of U.S.-based biofuels developer Amyris for an undisclosed amount. Total and Amyris will collaborate on new products and "build biological pathways to produce and commercialise renewable fuels and chemicals," according to a statement. Source: Reuters.

Amyris raises \$85M in IPO: Amyris collected about US\$85 million from its initial public offering 28 September after selling 5.3 million shares at the Nasdaq stock exchange for \$16 each.

New Biofineries Needed in USA: America will need to build 527 biorefineries at a cost of \$168 billion to meet the 2022 target of the Renewable Fuels Standard according to the US Department of Agriculture. They are confident of meeting the threshold of producing 36 billion gallons (136 billion litres) of biofuel annually by 2022.

Report: Market for Advanced Biofuels Could Reach \$80B in 12 years: The global market for second-generation biofuels could grow from a very small proportion today to more than \$80 billion by 2022, according to an analysis by the Union Bank of Switzerland and Worldwatch Institute. Among the companies with high potential are Weherhaeuser, Novozymes, Danisco and Syngenta, according to UBS.

Biogas Plant, at Shlitters, Austria: A Youtube video of a 10t/day small scale urban waste to biogas plant, at Shlitters, Austria, is at http://www.yieldenergy.com/page_id=84.

‘Biomass: Carbon sink or carbon sinner?’ A 12 page report from the UK Environment Agency is available for download from: http://www.environment-agency.gov.uk/static/documents/Leisure/Biomass_carbon_sink_or_carbon_sinner_summary_report.pdf

Details of Crucible Carbon’s Provisional Patent for Processing Organic Materials, which describes their process is at: <http://www.wipo.int/pctdb/en/wo.jsp?WO=2009124359&IA=AU2009000455&DISPLAY=DESC>

Biogas from Abattoir Waste: The St Martin pig abattoir facility in Austria can cover most of its heat demand and some of the electricity requirements using the biogas from animal by-products’ digestion, in combination with geothermal energy. IEA Bioenergy Task 37 has published a case study on that rather unique solution: http://www.iea-biogas.net/Dokumente/casestudies/st_martin.pdf

Anaerobic Digester Opens in UK. A £9 million (\$14.75 million) anaerobic digestion plant, which will process 45,000 tonnes of waste a year and produce up to 2MW of electricity, has opened at Cassington, Oxfordshire, UK. This is part of Agrivert’s 20 year contract with the county council for managing its waste.

Corn Ethanol Energy Balances: The USDA has released ‘2008 Energy Balance for the Corn-Ethanol Industry’, an update for the energy-balance calculations for corn ethanol. According to the USDA's newest calculations, corn ethanol provides 2.3+ units for each unit of energy expended, with a 50 percent drop in overall energy requirements since the mid-1990s. See http://www.growthenergy.org/images/reports/2008Ethanol_June_final.pdf for the 12 page report.

Finnish engine manufacturer Wartsila has installed a 20V32 engine with an electrical output of 9 MW in the agricultural area of Merksplas, Belgium. The new CHP plant will be fuelled by a variety of liquid biofuels, such as oil extracted from the seeds of jatropha. The plant has a gross electrical efficiency of 44.2% and an overall efficiency in CHP mode of more than 85%. Heat from the plant is used in a drying facility for digested biomass recovered from a manure fermentation plant for local greenhouse farming operations. Electricity is sold to the local grid.

Biomass Assessment- Assessment of Global Biomass Potentials and Their Links to Food, Water, Biodiversity, Energy Demand and Economy by Veronika Dornburg, et al, provides a comprehensive assessment of global biomass potential estimates, focusing on the various factors affecting these potentials, such as food supplies, water use, biodiversity, energy demands and agro-economics. The 108 pp report is at: <http://www.bioenergytrade.org/downloads/wabbiomassmainreportbiomassassessment.pdf>

Biomass for Heat and Power – Opportunity and Economics report: This report from the European Climate Foundation provides a factual base for biomass and fuel for heat and power production. Biomass for heat and power has a very large untapped potential in Europe. The 72 page report is at: http://www.europeanclimate.org/documents/Biomass_report_-_Final.pdf

Scottish Energy from Waste Potential: Scotland could generate eight per cent of its existing electricity demand from energy from waste facilities. The Sustainable Development Commission Scotland (SDC), on behalf of the Scottish Government, has been investigating the potential for energy from waste (EfW) to provide for electricity and heat demand in Scotland. Scotland has significant medium term targets for renewable energy: 11% of all heat by 2020, and 50% of all electricity.

Top Ten Solar-biofuels Projects: Biofuels Digest has an excellent summary of the Top Ten Solar-Biofuels projects at: <http://biofuelsdigest.com/bdigest/2010/08/20/10-top-solar-biofuels-projects/>. This describes the production of biofuels using solar energy, generally as a supplement to the direct use of biomass. Companies and projects covered include: Power Energy, Sundrop Fuels, UCLA, Arizona State University, University of Massachusetts Amherst, The Electrofuels, University of Cincinnati, BiCee, The Energy Innovation Hub, and Joule Unlimited.

Opcon Power Box: An article on an Opcon power box, destined for Australia is at: <http://feed.ne.cision.com/wpyfs/00/00/00/00/00/11/98/68/wkr0005.pdf>. Also see <http://www.opcon.se/index.asp?cID=10&langID=2&sPage=1>. The Opcon web pages states that: Opcon, the energy and environmental technology Group, has received an order from Enerji (ERJ:ASX) in Australia to replace an existing Opcon Powerbox. The order is for the third generation of Opcon Powerbox and, like five other units ordered by Enerji, it will be built from scratch in accordance with Australian standards. Delivery will start in the final quarter of 2010. The Opcon Powerbox is a product developed by Opcon for the production of new carbon-free electricity from waste heat at temperatures as low as 55°C. A standard Opcon Powerbox is rated at 740 kW and can be installed in large process-industry plants, power stations or with adaption, on board larger ships.

Enviva Signs Supply Agreement with Electrabel: Enviva LP, a manufacturer of wood pellets and processed biomass in the United States and Europe, have signed a long-term contract with Electrabel, a subsidiary of GDF Suez Group, to supply 480,000 tonnes of wood pellets annually to Electrabel's biomass power generating facilities in Belgium.

Queensland Ethanol Plant Put into Administration: Australia's first grains-to-ethanol plant at Dalby on the Darling Downs in southern Queensland has gone into voluntary administration. Dalby Bio-Refinery went into administration and creditors have now appointed Ernst and Young to review the business. The bio-refinery was reported to owe more than \$80 million to creditors. The plant began production within the past two years, converting local sorghum crops into ethanol.

Bioenergy Australia Embarks on New Communications Strategy: The Bioenergy Australia Management Committee has held a series of interviews to engage a communications consultancy to assist in developing a new communications strategy and plan for Bioenergy Australia to better communicate bioenergy to a variety of stakeholders. It is expected that details of this engagement will be announced at the forthcoming Bioenergy Australia 2010 conference.

Opportunities Corner

The Bioenergy Australia manager would like to assist and facilitate biomass and bioenergy projects and businesses by providing information and industry contacts to link project developers, resources and energy companies, source of finance and other opportunities. If you or your organisation is interested in such assistance, please contact Steve Schuck for a free listing. Please note notices are placed using supplied

information, without checking its veracity. Interested parties should make their own enquiries to verify the information below.

- **Bioenergy Plant EOI for Bendigo, Victoria:** The City of Greater Bendigo has called for Expressions of Interest from technology providers for a Bio-waste to Energy plant for Bendigo. Copies of the documentation can be obtained by electronically downloading via <http://www.tenderlink.com/bendigo>. Enquiries may be directed to Jeff Bothe - Industry Development Manager at 41-43 Myers St Bendigo by telephone on 03 54346197 or via email on j.bothe@bendigo.vic.gov.au. The commencement date for this Expression of Interest was Friday, 12 November 2010 with a closing time / date for submissions being 12.00 midday (AEDT), Friday, 28 January 2011.
- **New Biomass-to-energy-and-water Technology:** Mr Rodney Springer has researched the potential for a new biomass-to-energy-and-water technology that does not exist in Australia. The process is not combustion, is not the slow aerobic/anaerobic digestion process, is compact and can produce natural gas (methane), liquid fertiliser (N, P), and water from the following feedstocks:
 - Biosolids at wastewater treatment plants (WWTPs)
 - Weeds of National Significance (WoNS) and algae, including macroalgae (kelp), microalgae (algae, cyanobacteria and diatoms), floating plants (water hyacinths, duckweed, azolla and cabomba) and marsh plants (cattails, reeds and cordgrass)
 - Any industrial liquid waste stream of 70-80% water, and contains 15-20% organic solids, i.e. dairy industry, paper/packaging industry,
 - Note: the feedstock needs to be low in ash content, and low in sulphur content, thus, coal and like feedstocks are not suitable.

Public Sector Entities that have a need to address such liquid waste can contact Rodney to discuss state-based funding of projects. **Private Sector Entities** can contact Rodney to investigate opportunities for their need to convert their liquid organic waste to energy and water. Contact Details: Email: rodney.springer@gmail.com Mobile: 0400439782.

- **Demonstration Batch Carboniser:** Brian Lewis, Biochar Technologies Division, Flow Force Technologies Pty Ltd has been developing a mobile carboniser to pyrolyse organic waste into biochar and advises the following:
 - A demonstration batch carboniser with 25kg output capacity has been completed and tested successfully with various waste products such as hardwood chips, hardwood pallets, hardwood logs etc. Test results show good performance from a cold start-up. This unit is available for demonstration by appointment and for biochar production by arrangement.
 - This new South Australian product has been announced on their website as the Series 1 style, Model 25M Batch Carboniser and is currently being offered for sale subject to gas type test approval.
 - They are now seeking to deploy further demonstration units at suitable sites around South Australia or interstate and invite any organisation that produces organic waste to contact them to explore ways in which they can help by making biochar.Email: blewis@flowforce.com.au Tel: (08) 8346 4006 Web: <http://www.flowforce.com.au>
 - **Position Available:** A research assistant or post-doc (including PhD student currently writing up) with fermentation experience is sought for a project evaluating sugar hydrolysates produced from eucalypt and other biomass processing using novel recombinant and mutant strains. The project is funded by DAFF until the 31st of August 2011. Potential candidates should have experience with computer controlled fermenters in addition to base research skills (data analysis, reporting, communication, teamwork, drivers licence, etc). The job is with the Biofuels & Environmental Microbiology unit located at Wollongbar Primary Industries Institute on the Northern NSW (close to Byron Bay). Please contact Dr Tony Vancov on either 02 66261359 or 0403951354 for further details.
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Back Issues of Bioenergy Australia Newsletters – Downloadable from the Bioenergy Australia homepage: <http://www.bioenergyaustralia.org>

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Bioenergy Australia Newsletter is interested in your organisation's bioenergy related activities. Please send all press releases, article leads and conference announcements to Steve Schuck. Fax: (02) 9416 9246
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