



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

# Newsletter

January 2010

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## Bioenergy Australia 2009 Conference

Bioenergy Australia 2009 - *From Opportunity to Implementation*, held from 9 – 10 December 2009 at the Radisson Resort Gold Coast, Queensland was attended by a record 344 delegates. The conference was opened by The Hon. Stephen Robertson MP, Queensland Minister for Natural Resource, Mines and Energy. Keynote speakers were Dr Göran Berndes, Department of Energy and Environment, Chalmers University, Sweden and Task and Leader of IEA Bioenergy Task 30 Short Rotation Crops for Bioenergy and Professor Michael Borowitzka, Algae R&D Centre, Murdoch University, Western Australia. The program included over 90 presentations covering: Government policies and programs, heat and power, liquid biofuels, biogas, algae short rotation energy crops, IEA Bioenergy and international collaboration, biochar and biomass as a metallurgical reductant, diverse case studies, life cycle analyses and health and safety aspects of using biomass. Well known bioenergy figure, Professor Ralph Sims who has been working at the IEA in Paris was the dinner speaker and also moderated a stimulating panel discussion on advancing the bioenergy industry in Australia.

A preceding technical tour on 8 December visited an anaerobic digester at AJ Bush near Beaudesert, Ti Tree BioEnergy's bioreactor facility near Ipswich, the Cambi technology at Oxley Creek waste water treatment plant, Rocklea, a piggery digester using a floating cover at Grantham, and the University of Queensland's Pongamia research plot at Gatton where this tree legume is being researched and developed to provide a biofuels feedstock.

A CD of the conference presentations has been compiled and is available for sale. A few sets of the conference folders are also available to those who could not attend the conference. See below for details on how to purchase the CD and/or the conference folder.

## Bioenergy Australia 2009 Conference CD

The CD ROM from the Bioenergy Australia 2009 conference, held on the Gold Coast in December 2009 is now available for sale. The CD includes the conference program, speaker profiles, abstracts, delegate list, presentations and several photos from the technical tour. The cost of the CD is \$88 (including GST, postage and handling). A few copies of the conference folder are available for sale at \$120 (including GST) or \$150 (including GST) for both the CD and the conference folder. For further details and to place orders please contact Stephen Schuck, tel: (02) 9416 9246, email: [sschuck@bigpond.net.au](mailto:sschuck@bigpond.net.au) or Zareena Prinsloo, Conference Action, Tel: (02) 9431 8636, email: [zareena@conferenceaction.com.au](mailto:zareena@conferenceaction.com.au).

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## Bioenergy Australia Membership Update

The Bioenergy Australia membership now includes 82 organisations. The most recent members are Licella Pty Ltd, CO2seq Pty Ltd, NAFI, Zenergy Australia, Imatech Energy Technologies Pty Ltd, CO2 Algae Pty Ltd, Plantation Energy Australia Pty Ltd, APAC Biofuel Consultants, DIISR, Leighton Contractors Pty Limited, Future Farm CRC, Kimberley-Clark Australia and Rocky Point Green Power. Bioenergy Australia wishes to further expand its membership and invites interested organisations to contact the Bioenergy Australia Manager, Dr Stephen Schuck on tel/fax (02) 9416 9246 or email: [sschuck@bigpond.net.au](mailto: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.

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## 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. Our most recent quarterly meeting was held on 22 October in Canberra which was attended by 48 members and invitees. The presentations from this meeting are available to Members and can be downloaded from <http://www.bioenergyaustralia.org/memberslogin.html>. Topics covered at this meeting were:

- Update on Federal Government Policy Development (Richard Niven – Department of Resources, Energy and Tourism)
- Formation of a Quasi Biofuels Institute (Richard Niven – Department of Resources, Energy and Tourism)
- Feedback from IEA Bioenergy Multi-Task Conference – Vancouver, Canada, 24-28 August (Brendan George & Les Edye)
- IEA Bioenergy
  - Selection of IEA Bioenergy Tasks for 2010-2012 - Steve SchuckUpdates on Task Participation:
  - Task 30 *Short Rotation Crops for Bioenergy* - Brendan George
  - Task 34 *Pyrolysis of Biomass* - Damon Honnery
  - Task 39 *Commercialising 1<sup>st</sup> and 2<sup>nd</sup> Generation Biofuels* - Les Edye
  - Task 42 *Biorefineries: Co-production of Fuels, Chemicals, Power and Materials from Biomass* - Gil Garnier
- Update and Feedback on National Bioenergy Research, Development and Extension Strategy (Roslyn Prinsley & Julie Bird, RIRDC).
- Assessing the Trade-Offs in the Strategic Use of Biomass as an Energy Resource and/or Feedstock (Geoff Whitfield, DuPont and Queens University, Canada – retired)
- Central Highlands Bioenergy Scoping Study and Biomass Audit (Andrew Lang, Central Highlands Regional Bioenergy Working Group)
- Torrefaction and Gasification for High Efficiency Second Generation Biofuels (Phil Hobson, Sugar Research and Innovation at QUT)
- Non Food Crops for Biofuels: Weed Biosecurity Risks (Andy Sheppard, CSIRO Entomology)
- Biogas Production by Anaerobic Digestion of Food and Animal Waste Streams: A microbiological perspective (Mark Morrison, CSIRO Livestock Industries & Ohio State University)
- National Biodiesel Port Kembla Soy Biodiesel Project, (Bradley Wheaton, National Biofuels Group)
- Bioenergy Australia 2009 – update on annual conference (Steve Schuck)
- Report on Bioenergy Industry Developments (Steve Schuck's report plus open discussion)
- Administration of Bioenergy Australia Membership status and Financial Report

Bioenergy Australia's next day-long meeting is scheduled to be held in Canberra on 25 March.

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## Bioenergy in Australia Publication

The 264 page report, 'Biomass Energy Production in Australia – status, costs and opportunities for major technologies', reprinted with funding from Bioenergy Australia may be purchased in hard copy from RIRDC. The link is: <https://rirdc.infoservices.com.au/items/04-031>.

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## Major Report Released at “Bioenergy Australia 2009”

During the Bioenergy Australia 2009 Conference, the Rural Industries Research and Development Corporation (RIRDC) launched a major new study report, ‘Sustainable Production of Bioenergy – A review of global bioenergy sustainability frameworks and assessment systems’. This report reviews the sustainability issues that have arisen through the rapid international expansion of the biofuels industry. It also reports on the international response to these issues in terms of both institutional systems, and sustainability assessment systems. It reviews institutional systems in place at the level of the Australian Government, and for the state of Victoria as a case study. The theory and application of outcomes-based criteria and indicator assessment systems are discussed. The potential options and implementation pathways (should Australia choose to develop or apply these approaches) are also put forward.

The study was co-funded by CSIRO Energy Transformed Flagship, RIRDC, Industry and Investment NSW, the University of New England and the Victorian Department of Sustainability and Environment and was authored by Deborah O’Connell, Andrew Braid, John Raison, Kristian Handberg, Annette Cowie, Luis C. Rodriguez and Brendan George.

The 165 page report is freely downloadable as a pdf file (1.2 MB) or can be purchased as a printed version for \$35.00.

Visit: <https://rirdc.infoservices.com.au/downloads/09-167.pdf>

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## New Victorian Timber Industry Strategy

The new Victorian Timber Industry Strategy was launched in December 2009. Of interest to bioenergy stakeholders is that the new strategy supports the use of native forest wood waste for energy production, consistent with the Federal government’s expanded renewable energy target scheme. The strategy also prioritises research to explore the potential use of wood for biofuels; especially 2nd generation biofuels.

The new strategy is available for download at: <http://new.dpi.vic.gov.au/forestry/timber-industry-strategy>

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## Australian Centre for Renewable Energy

Since the last issue of the Bioenergy Australia newsletter, the Federal Treasurer and the Minister for Resources and Energy launched the Australian Centre for Renewable Energy (ACRE). The Centre is part of the Australian Government’s \$4.5 billion Clean Energy Initiative and draws together more than \$560 million of renewable energy investment to help commercialise renewable energy. ACRE will be a one-stop shop for Australian renewable energy businesses, consolidating these programs:

- \$300 million Renewable Energy Demonstration Program
- \$15 million Second Generation Biofuels Research and Development Program
- \$50 million Geothermal Drilling Program
- \$20 million Advanced Electricity Storage Technologies Program
- \$14 million Wind Energy Forecasting Capability Program
- \$18 million Renewable Energy Equity Fund; and
- \$150 million for new initiatives, including funding from the formerly proposed Clean Energy Program.

ACRE has been established to help Australia meet its targets of 20 percent renewable energy by 2020 and greenhouse gas emissions reduction of 60 percent by 2050.

Treasury modelling projects that by 2050 Australia's renewable energy sector output will be 30 times larger than it is today, with the expanded Renewable Energy Target and mooted Carbon Pollution Reduction Scheme.

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### **NSW Biofuels Mandate Extended**

As of the 1 January 2010 the NSW biofuels mandate requires that the average ethanol content of petrol be four percent. This will increase to six percent from the start of 2011, and from the beginning of July that year, E10 ethanol blend petrol will replace regular grade unleaded petrol. Major fuel retailers, including Coles and Woolworths now also join oil companies under the biofuel mandate. All biofuels sold under the mandate must also meet an international sustainability standard. A two percent biodiesel mandate was also introduced from the beginning of 2010, and is set to rise to five percent in 2011. See:

<http://www.biofuels.nsw.gov.au>.

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### **Inquiry into soil sequestration in Victoria**

In September 2009, the Victorian Parliamentary Environment and Natural Resources Committee launched an inquiry into soil sequestration in the State. The Committee will investigate soil sequestration at a number of levels and it will report its findings to the state government by no later than 31 August 2010.

The committee will:

- explore possible benefits to the agricultural industry
- explore possible environmental benefits of soil sequestration
- consider methodologies for measurement of the effects of carbon sequestration, including any potential issues associated with the measurement of benefits
- identify the costs
- identify any possible harms or detriments
- identify linkages with the proposed carbon pollution reduction scheme and other relevant Federal Government policies
- identify linkages with existing Victorian Government policies; and
- explore options for the Victorian Government to support the benefits, if any, of soil sequestration.

Further information can be obtained from the Committee Secretariat on (03) 8682 2803 or visit [http://www.parliament.vic.gov.au/enrc/inquiries/soil\\_sequestration/default.htm](http://www.parliament.vic.gov.au/enrc/inquiries/soil_sequestration/default.htm).

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### **Commercialisation Australia**

In late October, Commercialisation Australia (formerly known as the Commonwealth Commercialisation Institute) was announced to provide a radical new approach to commercialising promising Australian research and ideas. Commercialisation Australia will receive \$196.1 million over the next 4 years, with ongoing funding of \$82 million per year thereafter.

Commercialisation Australia will give successful applicants access to:

- Specialist advice and services to build the skills, knowledge and linkages necessary to successfully commercialise their ideas. This includes funding of up to \$50,000 to engage specialist services and, where it is deemed appropriate, up to \$200,000 over two years to assist in the recruitment of experienced CEOs and executives
- Funding of up to \$250,000 for proof of concept activities
- Funding of up to \$2 million for early stage commercialisation activities.

Successful applicants will be assigned a Case Manager for the duration of their involvement with Commercialisation Australia. The Case Manager will partner with the successful applicant, assessing its needs and monitoring their progress. The Case Manager will be responsible for linking the successful applicant with a group of volunteer mentors - people with 'hands-on' experience in the various aspects of the commercialisation process.

Persons interested in being considered for the Case Manager or Volunteer Mentor positions are encouraged to register their interest with the Commercialisation Australia Team. Persons who register will receive information on the public recruitment process for Case Managers and for listing of Volunteer Mentors once these processes are underway. A Registration of Interest can be lodged at:

<http://www.innovation.gov.au/Section/Innovation/Pages/CommercialisationAustralia-RoflCaseManagersandMentors.aspx>.

For further information about Commercialisation Australia please contact the Commercialisation Australia Team by email at [ca@innovation.gov.au](mailto:ca@innovation.gov.au), or call (02) 6213 7611.

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### **BioCube Testing in Australia**

The Biofuel Partnership's Research and Development Centre in Queensland has successfully completed testing of BioCube, a compact, fully integrated, community-sized biodiesel processor that can process biodiesel from a wide variety of feedstock. It was shipped to Lae, Papua New Guinea for 6-10 weeks of field trials using coconut and jatropha feedstocks. Source: Biofuels Digest. See:

<http://www.biofuelsdigest.com/blog2/2009/11/10/>

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### **Report - 'Powerful Choices: Transition to a Biofuel Economy in Australia'**

A report, 'Powerful Choices: transition to a biofuel economy in Australia' by Barney Foran for the former Land and Water Australia uses a biophysical-economics model of the Australian economy to explore the capability of discrete low-carbon technologies to maintain economic growth, ensure energy security and reduce carbon dioxide emissions out to 2051. The approach applies physical laws of thermodynamics and mass balance to established economic structures to ensure that financial dynamics are constrained by physical reality. Renewable electricity (bioelectricity, wind, solar thermal and solar photovoltaics) and advanced fossil electricity (high efficiency generators, carbon sequestration and storage) are examined alone and in various combinations. Alternative transport fuel cycles are explored through renewable fuels (bio-methanol and bio-ethanol) and fossil-based oil replacements (compressed natural gas and shale oil).

The 2.69 MB report may be downloaded from: <http://lwa.gov.au/products/pn30178>.

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### **India's Bhoruka Group to Invest \$63 million in NSW Oilseed Operation**

An Indian consortium which includes the Bhoruka Group plans to invest \$63 million to produce edible oils and eventually biodiesel in NSW. This will be one of the largest investments in renewable fuels in Australia. The project to be known as Riverina Oils & Bio Energy (ROBE) will have three partners: Dhruv Saxena, leading Indian businessman Satya Agarwal, chairman of Bhoruka Group and Ravi Uppal holding 60% of ROBE, and Lotus Ventures, a US technology venture capital group, holding 40%.

Edible oils would be produced in the first phase and biodiesel is planned for the second phase. Construction of the plant in Wagga Wagga, New South Wales, which has the capacity to crush and refine 170,000 tonnes of oil seed each year, began after a groundbreaking ceremony on 11 September.

With production projected to begin in October 2010, the plant is expected to export 65,000 tonnes a year of refined vegetable oil to India, Japan and other parts of Asia. It will also produce 105,000 tonnes a year of

vegetable protein meal for use in the Australian poultry, dairy and animal feed industry.

Running at full capacity the plant would generate annual revenue of \$150 million, with the value of edible oil exports reaching \$100 million in the first five years.

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### **Biomass Scoping Study and Audit for Ballarat, Victoria**

The Central Highlands Agribusiness Forum (CHAF), with funding from Regional Development Victoria, has conducted a comprehensive biomass audit and scoping study for the Ballarat region of Victoria. The study investigated all forms of biomass annually available within an 80 km radius of the city, including municipal solid waste and putrescible waste. Other biomass identified includes straw, food processing wastes, urban green waste, woody biomass from urban recovered wood and forestry harvest waste and thinnings, woody weeds and salvage farm trees.

The study includes information that helps compare the Ballarat region with some city municipalities in other parts of the world where bioenergy is already providing the major part of their renewable energy. In some cases this amounts to 60-85% of all energy required.

The study indicates that when Australia has a carbon price that makes bioenergy cost-competitive with fossil-fired energy and other necessary supporting policies and legislation are in place, the available biomass in the Ballarat region could provide from a third to a half of the energy requirement (including fuel, electricity, and industrial and institutional heat). The study provides some approximate costs, volumes, technologies and options.

The publication contains the biomass audit and a feasibility study and proposals to utilise the biomass. It also is constructed as a primer on bioenergy and renewable energy information and current government policies for local government and other interested parties.

The publication can be found on the CHAF website <http://www.chaf.org.au>.

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### **MBD Energy Algae-Based Biofuel and Livestock Meal Project Launched**

On 20 November, the Queensland Premier opened MBD Energy's 5,000 square metre micro-algae research and development facility at James Cook University, Douglas Campus, Townsville, Queensland. MBD Energy and the Marine Biology Department at Townsville's James Cook University have developed a process in which carbon dioxide from industrial flue gas emissions is used to grow micro-algae. The gas is fed as a nutrient, along with sewage or livestock waste and commercial fertilisers. The algae, which consist of local strains selected for their high oil yields, then double in mass every 24 to 48 hours. When harvested and crushed, about 35 percent of the algae's mass will yield oil for the manufacture of biofuel and plastics, according to MBD. The remainder can be turned into meal with a 20 percent protein content that can be used as livestock feed or biomass for power generation or plastic production. MBD is currently moving to full scale demonstration plants at a number of Australia's major coal-burning power stations.

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### **Synthetic Fuel Project in South Australia to Include Biomass Feedstocks**

Rentech, Inc., of Los Angeles, California is reported to be partnering with General Electric and Syngas to develop South Australia's \$3 billion coal-biomass-to-diesel Clinton project. Rentech has agreed to provide its Fischer Tropsch technology for the production of ultra-clean synthetic transportation fuels from synthesis gas derived from fossil and biomass resources. Rentech, Inc. is a leading provider of technologies that utilise domestic resources to produce ultra-clean synthetic fuels and chemicals. The company licenses its proprietary Rentech Process, converting gas from coal, petroleum coke, biomass,

natural gas, or municipal solid waste into liquid hydrocarbon products, including ultra clean diesel fuel, jet fuel, naphtha, specialty chemicals, and other fuel products.

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## Biofacts

- The Pellet Fuels Institute, based in Washington, D.C., USA estimates that North American production of wood pellets reached approximately 6.2 million tonnes in 2009.
  - From a base of 5.3 billion litres of ethanol production in 1999, the U.S. ethanol industry produced an impressive 40.13 billion litres in 2009. As recently as January 2000, there were only 54 ethanol plants in the U.S. Nine years later, there were more than 200 plants in 26 states, with even more under construction. See: <http://www.greencollareconomy.com>.
  - In 2008, approximately 8 million tonnes of pellets were produced in approximately 640 pellet plants in 30 European countries. Imports from North America amounted to in excess of one million tonnes. 95% of the produced and imported pellets were consumed in EU 27 (representing a 0.1% share of the Gross Energy Consumption). Imports within Europe for 2009 are estimated to be approximately 3.4 million tonnes, of which about 50 percent is EU internal trade. Total exports are estimated to be 2.7 million tonnes, mainly internal trade between European countries.
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## Biomass on the Internet

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The Internet provides a valuable source of information on biomass and allied topics. Below are some Internet addresses to supplement the 1,600 odd addresses given in the previous 36 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.

HRL bioenergy page

<http://www.hrlt.com.au/biomass>

BioCogen Pty Ltd (biogas)

<http://www.bio-cogen.com.au>

UNEP Bioenergy Issue Paper Series

<http://www.unep.fr/energy/bioenergy/issues/issuepaperseries.htm>

Plastic Tubular Biogas Digesters

[http://www.watsoninstitute.org/ge/watson\\_scholars/Biogas\\_Digester\\_final%20report.pdf](http://www.watsoninstitute.org/ge/watson_scholars/Biogas_Digester_final%20report.pdf)

Biogas Australia

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

Council on Sustainable Biomass Production (CSBP)

<http://www.csbp.org>

Cambi Brisbane Water Plant

<http://www.cambi.no/photoalbum/view2/P3NpemU9b3JnJmlkPTI3MTQ1OCZ0eXBIPTE>

Nawaro Bioenergy – anaerobic digesters

<http://nawaro.ag/en/energy/process/>

APEC Workshop on Implications of Bio-refineries for Energy and Trade in the APEC Region

[http://www.netd.itri.org.tw/apec\\_biorefinery2009/](http://www.netd.itri.org.tw/apec_biorefinery2009/)

BIGChar

<http://www.bigchar.com.au/index.htm>

Methane to Markets is Agriculture reports

<https://rirdc.infoservices.com.au/collections/m2m>

Intelligent Europe Gasification Guide

<http://www.gasification-guide.eu/>

ATSE workshop report 'Electricity Generation: Accelerating Technological Change'  
[http://www.atse.org.au/uploads/ATSE\\_ATCworkshop\\_report.pdf](http://www.atse.org.au/uploads/ATSE_ATCworkshop_report.pdf)

Bishop's Castle Biomass Power Project (UK)  
<http://www.bishopscastlebiomass.co.uk/>

Liquid Biofuels in NZ (BANZ)  
[http://www.bioenergy.org.nz/liquid\\_biofuels\\_home.asp](http://www.bioenergy.org.nz/liquid_biofuels_home.asp)

Earth Biofuels Inc  
<http://www.earthbiofuels.com>

Terranol  
<http://www.terranol.dk>

Risø-DTU  
<http://www.risoe.dk>

Technical University of Denmark  
<http://www.dtu.dk>

Biofuel initiative Fuel for Life  
<http://www.fuel.life.dk>

Global Biomass Network  
<http://www.globalbiomassnetwork.org/DisplayPage.aspx?pageId=Welcome>

Ecovolve (carbon negative energy via pyrolysis)  
<http://www.ecovolve.com/>

Pro-Fab Industries Inc. (boilers)  
<http://www.profab.org>

International Sustainable Energy Exchange  
<http://www.hart-isee.com/>

Beijing Laowan Bio-energy Technology Co., Ltd (boilers)  
<http://www.laowan.com>

Blue Flame Stoker Boilers (boilers)  
<http://www.blueflamestoker.com>

Brandelle Industries (boilers)  
<http://www.brandellebiomass.com>

Decker Brand Boilers (boilers)  
<http://www.deckerbrand.com>

Dell-Point Technologies (boilers)  
<http://www.pelletstove.com>

KMW Systems Inc. (boilers)  
<http://www.kmwenergy.com>

Pro-Fab Industries Inc. (boilers)  
<http://www.profab.org>

Carbon Credit Aggregation Program of the Iowa Farm Bureau (anaerobic digestion)  
<http://www.iowafarmbureau.com/biogas/methane.pdf>

GreenField Ethanol Inc.  
<http://www.greenfieldethanol.com>

Victorian in-forest native forest biomass article from The Age  
<http://www.theage.com.au/national/proposal-to-burn-native-forest-wood-for-power-20090408-a0tu.html?page=-1>

Biorefinery Ireland  
<http://www.biorefinery.ie/>

Carbolea Research Group – Ireland  
<http://www.carbolea.ul.ie/>

Government of Alberta-Provincial Energy Strategy  
<http://www.energy.gov.ab.ca/Initiatives/strategy.asp>

Scottish Bioenergy Cooperative Ventures  
<http://www.scottishbioenergy.co.uk/>

Global Renewable Fuels Alliance  
<http://www.globalrfa.org>

Wood Pellets in New Zealand  
<http://www.woodpellets.org.nz>

Inbicon (ethanol)  
<http://www.inbicon.com>

BioGasol (ethanol)  
<http://www.biogasol.dk>

All Canadian Coal-Fired Heaters (boilers)  
<http://www.allcanadianheaters.com>

International Sustainable Energy Exchange  
<http://www.hart-isee.com/>

Report 'Impacts of Selected U.S. Ethanol Policy Options'  
<http://www.fapri.missouri.edu>

Australian Kelp Products (macro-algae)  
<http://www.austkelp.com.au>

EIN News  
[www.einnews.com](http://www.einnews.com)

World Future Council  
<http://www.worldfuturecouncil.org>

Genencor  
<http://www.genencor.com>

Novozymes  
<http://www.novozymes.com>

SCF Technologies  
<http://www.scf-technologies.com>

1939 British Institute of Fuel's "Modern Portable Gas Producer" report  
<http://www.spaco.org/Woodgas/1939Report.htm>

Wood gasifiers for vehicles  
<http://www.Woodgas.nl>

BEKON dry fermentation product  
<http://www.bekon-energy.de/english/products.htm>

Next Step Biofuels, Inc. (pellets)  
<http://www.nextstepbiofuels.com>

US Biomass Power Association (BPA)  
<http://www.BiomassPowerAssociation.org>

World Bioenergy Association  
<http://www.worldbioenergy.org>

Joule Biotechnologies article on use of photobioreactor to produce biofuels  
<http://www.technologyreview.com/business/23073/>

Wood fuels handbook from Europe  
[http://nuke.biomassstradecentres.eu/Portals/0/D2.1.1%20-%20WOOD%20FUELS%20HANDBOOK\\_BTC\\_EN.pdf](http://nuke.biomassstradecentres.eu/Portals/0/D2.1.1%20-%20WOOD%20FUELS%20HANDBOOK_BTC_EN.pdf)

Biomass Trade Centres (Europe)  
<http://nuke.biomassstradecentres.eu/Home/tabid/36/Default.aspx>

US anaerobic digester list  
[http://www.epa.gov/agstar/pdf/digesters\\_operational.xls](http://www.epa.gov/agstar/pdf/digesters_operational.xls)

German anaerobic digestors  
<http://www.renewables-made-in-germany.com/en/biogas>

Carbon Edge magazine  
<http://www.carbonedge.com.au>

Grassoline article in Scientific American  
<http://www.scientificamerican.com/article.cfm?id=grassoline-biofuels-beyond-corn&print=true>

Renewable Energy employment study- Access Economics  
[http://cleanenergycouncil.org.au/info/reports/R090603%20CEC\\_Employment%20Impacts\\_Final.pdf](http://cleanenergycouncil.org.au/info/reports/R090603%20CEC_Employment%20Impacts_Final.pdf)

Biomass Magazine

<http://www.biomassmagazine.com/issue.jsp>  
Hefei Debo Bioenergy Science & Technology gasifiers  
<http://www.hfdepo.com/hfdepo/en/index.asp>  
Chongqing Fengyu Electric Equipment gasifiers  
<http://en.feng-yu.com/newEbiz1/EbizPortalFG/portal/html/index.html>  
Gasifier supplier list  
<http://gasifiers.bioenergylists.org/gassupply>  
Gasifier economics  
<http://gasifiers.bioenergylists.org/economics>  
BioMara (marine biomass)  
<http://www.biomara.org>  
Bio-Top (EU-South American biofuels cooperation)  
<http://www.top-biofuel.org>  
Article on Knetic Renewables' peach stone gasification project  
[http://ecogeneration.com.au/news/powered\\_by\\_peach/004975/](http://ecogeneration.com.au/news/powered_by_peach/004975/)  
Portagester mobileanaerobic digesters  
<http://www.bioplex.co.uk/portagester.shtml>  
Avongro bioenergy study report (oil mallees)  
<http://www.avongro.com.au/Webpages/documents/AvongroStudyReport-final.pdf>  
Financing Biogas: A Reference manual for Microfinance Institutions in Nepal report  
[http://www.winrock.org/clean\\_energy/biogas.asp](http://www.winrock.org/clean_energy/biogas.asp)  
ETP Biofuels  
<http://www.biofuelstp.eu>  
IEA AMF  
<http://www.iea-amf.vtt.fi>  
Elobio: Biofuels and commodity markets  
<http://www.elobio.eu>  
Biofuel Cities  
<http://www.biofuel-cities.eu>  
ForNeBiK  
<http://www.fornebik.bayern.de>  
ETP Forestry  
<http://www.forestplatform.org>  
ETP Plants for the Future  
<http://www.plantetp.org>  
ETP Sustainable Chemistry  
<http://www.suschem.org>  
Gasification Scrubbers for Particulate Control  
<http://www.envitechinc.com/air-pollution-control-innovations/bid/20837/Gasification-Scrubbers-for-Particulate-Control>  
Gasification syngas cleaning  
<http://www.envitechinc.com/air-pollution-control-innovations/bid/20053/Gasification-syngas-cleaning>  
Bhoruka (Indian Company developing bioenergy in Australia)  
<http://www.bhorukagroup.com/>

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## International

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### New IEA Bioenergy Report Released

A major IEA Bioenergy commissioned report, 'Bioenergy - a sustainable and reliable energy source. A review of status and prospects' which was profiled in a presentation at the Bioenergy Australia 2009

conference by keynote speaker, Dr Göran Berndes has now been generally released in electronic form. Hard copies of this 108 page main report will also be available in January 2010.

The 3.66 MB report may be downloaded from: <http://www.ieabioenergy.com/LibItem.aspx?id=6479>

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## **Bioenergy – the Impact of Indirect Land Use Change**

A workshop report on Indirect Land Use Change from IEA Bioenergy contains the summary and conclusions from an Executive Committee meeting workshop held in Rotterdam, The Netherlands on 12 May 2009. The workshop's purpose was to take stock of the rapidly evolving international debate on bioenergy and indirect land use change. The 20 page report, along with workshop presentations, can be accessed from: <http://www.ieabioenergy.com/DocSet.aspx?id=6214>

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## **International Standard on Sustainable Bioenergy**

The International Standards Organisation (ISO) is to develop a new Standard ISO 13065, to address sustainability issues linked to bioenergy. The Standard responds to the growing international interest in bioenergy, and the current lack of globally harmonised sustainability criteria. The Standard is expected to be a key tool to help governments meet their alternative fuel targets. The Standard would make an important contribution to this global goal by helping avoid technical barriers to trade on bioenergy.

In addition to tackling social and environmental issues, the Standard will make bioenergy more competitive to the benefit of both national and international markets. It will be particularly valuable in helping developing countries' producers to compete.

The ISO project committee will hold its first meeting in April 2010. Already some 29 countries are involved as participants or observers, including large markets such as China and the USA. Brazil and Germany will provide the secretariat and leadership of the committee under a twinned arrangement. The meeting will bring together international expertise and state-of-the-art best practice to discuss the social, economic and environmental aspects of the production, supply chain, and use of bioenergy, and identify criteria that could prevent it from being environmentally destructive or socially disruptive.

See: <http://www.iso.org/iso/pressrelease.htm?refid=Ref1282>

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## **DOE and USDA Award US\$564 Million to Biorefinery Projects**

The US Department of Energy (DOE) and the U.S. Department of Agriculture (USDA) announced on 4 December the award of US\$564 million in American Recovery and Reinvestment Act funds to 19 integrated biorefinery projects. Located in 15 states, the projects will validate biorefining technologies and help lay the foundation for full commercial-scale development of a biomass industry in the United States. The selected projects will produce advanced biofuels, bioproducts, and power from biomass feedstocks at the pilot, demonstration, and commercial scale. Collectively, these projects will be matched with more than US\$700 million in private and non-Federal cost-share funds, for total project investments of nearly \$1.3 billion. These efforts are designed to help close the gap between the current biofuels production from a small number of advanced biorefineries and the aggressive goals for cellulosic and advanced biofuels included in the Federal Renewable Fuel Standard.

Of the new funding, up to \$483 million will go to 14 pilot-scale and 4 demonstration-scale biorefinery projects, which will produce biofuels and bioproducts from such sources as algae, poultry fat, plant oils, switchgrass, sweet sorghum, agricultural and forest residues, and various sources of wood (including

hybrid poplar trees and wood waste). The projects will produce ethanol and biobased versions of diesel fuel, gasoline, and jet fuel. Several projects will produce high-value biobased chemicals, including potassium acetate, ethyl acrylate, and succinic acid. One demonstration-scale project will also produce 2 MW of power. The funds include a DOE grant of up to \$50 million and a USDA loan guarantee of \$54.5 million for Sapphire Energy's planned facility in Columbus, New Mexico. Sapphire Energy plans to convert algae into "Green Crude," a replacement for crude oil that can be refined into a variety of fuels at a traditional oil refinery. See press release [http://www.sapphireenergy.com/press\\_release/17](http://www.sapphireenergy.com/press_release/17).

The remaining \$81 million will help accelerate the construction of a facility in Fulton, Mississippi, that had previously received DOE funding. The project from BlueFire Ethanol, Inc. will have the capacity to generate 72 million litres of ethanol per year from woody biomass, mill residue, and municipal solid waste.

Source: EERE Network News 9 December 09

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### **Coal-Fired Power Station Units to be Converted to Biomass in Ohio**

Ohio Edison Company, a subsidiary of FirstEnergy Corporation has agreed under a Federal Court arrangement to retrofit its R.E. Burger Units 4 and 5 near Shadyside, Ohio to be fuelled primarily on biomass. This is part of a 2005 Federal consent agreement in a lawsuit aimed at reducing pollution. The power company said it intends to replace the 312 MW of electricity now generated at Burger with biomass by 2012, turning it into one of the largest biomass power facilities in the United States. The revamped facility will also burn up to 20 percent coal. Ultimately, Ohio Edison plans on using a "closed-loop" system for its biomass supply, drawing on energy crops specifically grown to provide a constant supply of biomass to the power plant. See the press releases from the [U.S. Department of Justice](#) and FirstEnergy ([PDF 370 KB](#)).

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### **Bioenergy infrastructure grants of £1.5m available in England**

Bioenergy infrastructure grants of £1.5 million are currently available to English farmers, foresters and local authorities to help develop the supply of biomass, such as wood chips or energy crops like miscanthus, in England through round three of the Bioenergy Infrastructure Scheme. Eligible crops are: short rotation coppice (willow, poplar, alder, ash, hazel, lime, silver birch, sweet chestnut and sycamore), miscanthus, switch grass, reed canary grass, prairie cord grass, rye grass, straw, woodfuel from forestry, arboricultural tree management and primary processing and other energy crops at DECC's discretion. The objectives of the bioenergy scheme are to increase renewable energy generation and reduce greenhouse gas emissions, while contributing to sustainable land management.

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### **Biofuels Ethanol and Biodiesel Decrease GHG Emissions Significantly: Canadian Report**

A Canadian report, 'Life Cycle Assessment of Renewable Fuel Production from Canadian Biofuel Plants for 2008-2009' has found that ethanol reduces greenhouse gas emissions by 62 percent over conventional petrol, when compared on a fuelcycle analysis, while biodiesel will drop emissions by 99 percent. This is the first study in Canada to draw exclusively upon domestic renewable fuel facilities. The results refute the claims that producing biofuels uses more energy than the green fuels can generate, including a 2005 study by Cornell University and University of California-Berkeley which found that producing biofuel from corn and other crops uses much more energy than the end product generates. The reported production of 741 million litres of all biofuels from April 2008 to March 2009 reduced lifecycle GHG emissions by 1.1 Mt compared with conventional fuels, the report notes. Lifecycle GHG emissions include all stages of biofuel production, biofuel consumption, vehicle materials and assembly. See:

<http://greenfuels.org/files/Cheminfo%20Biofuel%20Production%20LCA%20Report%202009.pdf>

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## **US\$21 Million in Funding for Cellulosic Feedstock Development**

US\$21 million will be made available for the selection of five projects that will develop supply systems to handle and deliver high tonnage biomass feedstocks for cellulosic biofuels production in the USA.

Projects selected for negotiation of awards:

- Agco Corporation of Duluth, GA (up to \$5 million) - to demonstrate the viability of the densified, large square bale (LSB) as a least-cost, near-term means for supplying high tonnage biomass feedstocks to cellulosic biofuel processors.
- Auburn University of Auburn, Alabama (up to \$4.9 million) - to design and demonstrate a high productivity system to harvest, process, and transport woody biomass from southern pine plantations
- FDC Enterprises Inc. of Columbus, Ohio (up to \$4.9 million) - to complete design, fabrication, and demonstration of three types of innovative new harvest and biomass handling machines, including a single-pass mowing and baling operation, a Bale Picking Truck, and a Self Loading Trailer
- Genera Energy, LLC of Knoxville, Tennessee (up to \$4.9 million) will supply low-moisture switchgrass with an efficient bulk-format system that maximizes automated conveyance and handling.
- The SUNY College of Environmental Science and Forestry of Syracuse, New York (up to \$1.3 million) - to build on existing collaborative efforts among the project partners to develop, test, and deploy a single-pass cut-and-chip harvester combined with a handling, transportation, and storage system that is effective and efficient in a range of different short-rotation wood crops (SRWC) production systems throughout North America.

See: [http://www1.eere.energy.gov/biomass/news\\_detail.html?news\\_id=14865](http://www1.eere.energy.gov/biomass/news_detail.html?news_id=14865)

Source: U.S. Department of Energy

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## **SynGest Selects The Weitz Company to Build First Biomass-to-Ammonia Plant**

SynGest, Inc. announced that it has chosen The Weitz Company to provide engineering, procurement and construction services (EPC) for its first plant to manufacture BioAmmonia (anhydrous ammonia) fuel and fertiliser from corn biomass. The new facility will be located near Menlo, Iowa, 73 km west of Des Moines. The SynGest plant will process 118,000 tonnes of locally supplied corn cobs annually to manufacture 45,360 tonnes of bio-ammonia. Ammonia, used as nitrogen fertiliser, is critical to the food supply in the USA. Today, more than half is imported. The few remaining large ammonia plants in the U.S. are aging and no significant domestic expansion is foreseen. SynGest's facility will be the first new ammonia production plant to be built in the USA since the decline of traditional U.S.-based production began more than five years ago as energy prices started to rise. It is widely recognised that fossil fuel-based production methods will likely never be re-built in America.

Pre-construction design, engineering, permitting, and environmental assessment are well under way with construction beginning in April 2010. The new plant is expected to be fully operational by October 2011.

Source: SynGest, Inc. [http://www.syngest.com/news\\_press\\_release\\_iowa2.html](http://www.syngest.com/news_press_release_iowa2.html)

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## **150MW Biomass Plant for North Somerset, UK**

E.ON UK has submitted a planning application to the Department of Energy and Climate Change for a 150 MW biomass-fired energy plant at the Royal Portbury Dock in North Somerset. If approved, construction is expected to begin in 2010 and to be fully operational as early as 2013. E.ON already owns and operates the 44 MW Steven's Croft project, which is currently one of the UK's largest biomass plants.

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## **UK Government Approves a 60 MW Biomass and Waste Plant at Tilbury**

A 60 MW biomass and waste fuelled power plant has been given approval by the UK government. The plant will be situated at Tilbury Docks in Essex where fuel can be delivered by barge or boat, reducing the impact on local roads. The Tilbury Green Power project is due to be completed in 2011 and could create up to 380 jobs during construction and 120 once it is in operation. It will produce enough energy for the national grid to power 100 000 homes annually – the equivalent of burning 175 000 t of coal.

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## **‘Estimating U.S. Government Subsidies to Energy Sources: 2002-2008’**

A 37 page Environmental Law Institute report, has found that:

- The US federal government provided substantially larger subsidies to fossil fuels than to renewables. Subsidies to fossil fuels—a mature, developed industry that has enjoyed government support for many years—totalled approximately \$72 billion over the study period, representing a direct cost to taxpayers.
- Subsidies for renewable fuels, a relatively young and developing industry, totalled \$29 billion over the same period.
- Most of the largest subsidies to fossil fuels were written into the U.S. Tax Code as permanent provisions. By comparison, many subsidies for renewables are time-limited initiatives implemented through energy bills, with expiration dates that limit their usefulness to the renewables industry.
- Almost half of the subsidies for renewables are attributable to corn-based ethanol.

The report is downloadable from: [http://www.elistore.org/Data/products/d19\\_07.pdf](http://www.elistore.org/Data/products/d19_07.pdf)

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## **50-MW Biomass Plant Planned in Scotland**

A new 50 MW biomass-fueled cogeneration plant is to be developed for papermaker Tullis Russell to supply its paper mill at Markinch, in Fife, Scotland, with heat and power. The new facility will replace an existing coal-fired power plant at the Tullis Russell site and follows the signing of a multi-million pound deal the RWE npower renewables. Around 400,000 tonnes of virgin and used wood from a wide range of sources will be used to power the plant with contracts being put in place with local and national companies for the supply of biomass. Construction work will begin immediately and the power plant is scheduled to enter operation during 2012.

RWE Innogy will invest around £200 million (US\$300 million) in the biomass facility, with an additional £8.1 million (\$12 million) support from the Scottish government for the project. Across Europe, RWE Innogy is aiming to build biomass plants with a total installed capacity of around 390 MW by 2013.

See: <http://www.renewableenergyworld.com/rea/search?keywords=50-MW+Biomass+Plant+Planned+in+Scotland&ss=>

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## **Minnesota Project Biofuels Study**

A 24 page study entitled ‘Transportation Biofuels in the United States: An Update,’ released by The Minnesota Project, details the progress made in cellulosic ethanol and corn ethanol research, and discusses biofuels generally. The report specifically rebuts claims made in energy efficiency, land use theory and food versus fuel, soil and water, invasive species versus native species and monoculture versus polyculture. The study notes a University of Nebraska Lincoln study that found that for every unit of fossil energy input, 1.5 to 1.8 units of energy are created in the form of ethanol. Replacing natural gas with biomass combined heat and power facilities dramatically improves the energy ratio. The full report is

## **EU to Triple Investments in Low-Carbon Energy Research**

The European Commission estimates that an additional investment of EUR50 billion in energy technology research will be needed over the next 10 years. This means almost tripling the annual investment in the European Union, from EUR3 to 8 billion. The key low-carbon technologies to be financed include wind, solar, electricity grids, bioenergy, carbon capture and storage (CCS) and sustainable nuclear fission.

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## **Market Assessment of Biomass Gasification and Combustion Technology for Small and Medium-Scale Applications**

At the request of the Clean Energy States Alliance (CESA), the National Renewable Energy Laboratory prepared a market assessment of gasification and direct combustion technologies that use solid biomass to generate heat, power, or combined heat and power (CHP) for small to medium-scale applications. Solid biomass refers to primarily wood and agricultural resources. The report includes:

- Conversion Technologies
- Commercial Status of Conversion
- Project Costs
- Market Potential
- Conclusions and Recommendations
- Biomass Resource Assessment
- Direct Combustion System Manufacturers
- Direct Combustion, Direct-Fired, and Indirect-Fired Technology Companies
- Gasification Technology Companies

See full report at:

[http://www.cleanenergystates.org/Publications/NREL\\_Biomass\\_Gasification\\_Mkt\\_Assessment\\_46190.pdf](http://www.cleanenergystates.org/Publications/NREL_Biomass_Gasification_Mkt_Assessment_46190.pdf)

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## **Wärtsilä Supplying 800 MWe Biofuel-Based Power Plant in Italy**

A contract has been awarded to Wärtsilä for the supply of engineering and equipment for a new 34 MWe biofuel-based power plant in Gorizia, northern Italy. The plant which is under construction will supply baseload power to the national grid and heat to a steam turbine for further power generation. Energia Pulita had awarded the contract, which stipulates that Wärtsilä will supply two 18V46 engines based on liquid biofuel along with liquid biofuel auxiliaries, the control system and radiators. Upon completion, the plant will increase the contribution of Wärtsilä's equipment in the Italian power system using liquid biofuel to approximately 800 MW. Wärtsilä will deliver all the equipment to the Gorizia power plant in May 2010, with the plant scheduled to start operation by late 2010.

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## **Large Wood Pellet Mill for USA**

Green Circle Bio Energy has announced it will build a wood pellet mill in either Georgia or Mississippi with an annual pellet production capacity of 508,000 tonnes/year. The US\$140 million project will begin operation mid 2011. The new mill will use over 1 million green tonnes of softwood per year as a feedstock, approximately 90 percent roundwood, with the balance being sawdust.

## Ensus Wheat Biorefinery

The new Ensus biorefinery in north-east England is set to become Europe's largest biorefinery and the largest wheat biorefinery in the world. The plant has been commissioned and is scheduled to reach full capacity by the end of the first quarter of 2010. The plant will use approximately 1.1 million tonnes of wheat per year to produce 400 million litres of ethanol and 350,000 tonnes of high protein animal feed (DDGS – dry distillers grain with solubles). The protein level of the DDGS is reported to be approximately 34 percent, compared with approximately 11 percent in the feed wheat. See: <http://www.ensugroup.com>.

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## Forthcoming Events

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- Energy from Biomass and Waste  
26 - 27 January 2010  
London, United Kingdom  
<http://www.ebw-uk.com/index.htm>
- Bioenergy Expo  
4 - 7 February 2010  
Verona, Italy  
[http://www.bioenergyweb.it/index\\_en.asp](http://www.bioenergyweb.it/index_en.asp)
- Next Generation Bio-Based Chemicals Summit  
8 – 10 February, 2010  
Westin San Diego, San Diego, California  
<http://www.infocastinc.com/index.php/conference/biobased/registration>
- 15th Annual National Ethanol Conference: "Climate of Opportunity,"  
15 – 17 February 2010  
Orlando, Florida  
[www.nationalethanolconference.com](http://www.nationalethanolconference.com)
- European Biowaste Forum  
16 - 17 February 2010  
Brussels, Belgium.  
<http://www.agra-net.com/content/agra/ips/pdf/Marketing-HTML-PDFs/EuroBiowasteForum.pdf>
- EcoForum Conference & Exhibition  
24 - 25 February 2010  
Australian Technology Park Sydney  
<http://www.ecoforum.net.au>
- International Symposium "Progress in treatment of manure and digestate"  
24 – 25 February 2010  
Heiden, Westfalen, Germany.  
[http://www.biogas-zentrum.de/ibbk/downloads/IBBK\\_symposium2010\\_Programm\\_en.pdf](http://www.biogas-zentrum.de/ibbk/downloads/IBBK_symposium2010_Programm_en.pdf)  
and <http://www.biogas-centre.com/symposium2010>
- Future Forestry Finance  
1 - 2 March 2010  
Sydney, NSW  
<http://www.forestryfinanceevents.com/>
- World Sustainable Energy Days – European Pellet Conference  
3 - 5 March 2010  
Wels, Austria.  
<http://www.wsed.at>
- Biomass Power and Trade  
11 - 12 March 2010  
Rotterdam, The Netherlands  
<http://www.cmtevents.com>

- World Biofuels Markets  
15 - 17 March 2010  
Amsterdam, The Netherlands  
<http://www.greenpowerconferences.com>
- 4th Global Wood Fibre Conference: Trade in Woodchips and Biomass  
16-17 March 2010  
Sao Paulo, Brazil  
<http://www.pulpwoodconference.com>
- Salon BOIS ENERGIE (the French Wood Energy Exhibition)  
18 - 21 March 2010 (new dates)  
Exhibition parc in St Etienne, France.  
<http://www.boisenergie.com>
- Renewable biomass for affordable Power Generation  
23 – 23 March 2010  
Hyatt Regency, Minneapolis, Minnesota, USA  
<http://www.euci.com/pdf/0310-biopower.pdf>
- LIGNOBIOTECH ONE 2010  
28 March – 1 April 2010  
Reims, France  
[https://colloque2.inra.fr/ligno\\_biotech](https://colloque2.inra.fr/ligno_biotech)
- 25th Annual Biocycle West Coast Conference  
Composting, Organics Recycling and Renewable Energy  
12 - 15 April 2010  
San Diego, California, USA.  
<http://www.jgpress.com/bcwc25/>
- Renewable Energy Finance  
12 – 15 April 2010  
Sheraton Towers, Singapore  
<http://www.ibc-asia.com/renewableenergyfinance>
- EurasiaBio 2010  
13 - 15 April 2010  
Moscow, Russia  
<http://www.eurasiabio.org/>
- Argus Biomass Trading  
15 April 2010  
Brussels, Belgium  
<http://www.argusbiomass.com>
- APPITA Annual Conference and Exhibition  
18 - 21 April 2010  
Melbourne, VIC  
<http://www.appita.com.au/>
- 32nd Symposium on Biotechnology for Fuels and Chemicals  
19 - 22 April 2010  
Hilton Clearwater Beach  
Clearwater Beach, Florida  
<http://www.simhq.org/meetings/sbfc2010/index.asp>
- 2nd Algae World Europe  
22 - 23 April 2010  
Brussels, Belgium  
<http://www.futureenergyevents.com/algae>
- BIT's Inaugural Symposium on Enzymes & Biocatalysis-2010  
22 - 24 April 2010  
Shanghai Everbright Convention & Exhibition Center, Shanghai, China  
<http://www.bitlifesciences.com/seb2010>
- 9th European Conference on Industrial Furnaces and Boilers (Infub-9)

- 26 - 29 April 2011  
Portugal  
<http://www.cenertec.pt>
- Advanced Biofuels Leadership Conference  
27 - 28 April 2010  
Hilton Embassy Row, Washington DC, USA  
<http://www.advancedbiofuelssummit.com>
  - 2010 Scientific Symposium on Socio-Economic Impact of Natural Climate Change (organised by the Australian Institute of High Energetic Materials).  
3 - 5 May, 2010  
Torquay, Victoria, Australia  
<http://www.ausihem.org>
  - CEC National Conference & Exhibition  
3 - 5 May 2010  
Adelaide, Australia  
[www.cleanenergyconference.org.au](http://www.cleanenergyconference.org.au)
  - 18th European Biomass Conference and Exhibition  
From Research to Industry and Markets  
Conference 3-7 May 2010  
Exhibition 3-6 May 2010  
Cité Internationale, Centre de Congrès  
Lyon, France  
<http://www.conference-biomass.com>
  - International Biomass Conference & Expo  
4 – 6 May, 2010  
Minneapolis, Minnesota  
<http://www.biomassconference.com/>
  - Biofuels International expo & conference  
5 - 6 May 2010  
Barcelo Hotel, Prague, Czech Republic  
<http://www.biofuelsinternationalexpo.com>
  - Alternative Fuels & Vehicles National Conference & Expo 2010  
9 – 12 May, 2010  
Las Vegas, Nevada  
<http://www.afv2010.com/>
  - China Advanced Biopower and Waste-to-Energy Summit –  
20 – 21 May 2010  
Sheraton Shenyang Lido Hotel, Shenyang, China  
<http://www.noppen.com.cn/events/bioenergy/bioenergy.asp>
  - World Bioenergy 2010  
25 - 27 May 2010  
Jonkoping Sweden  
<http://www.worldbioenergy.com>
  - 4th International BioEnergy Conference and Exhibition  
Prince George, British Columbia, Canada  
8 – 10 June 2010  
<http://www.bioenergyconference.org>
  - International Fuel Ethanol Workshop and Expo  
14 - 17 June 2010  
America's Center, St. Louis, Missouri, USA  
<http://www.fuelethanolworkshop.com>
  - Global Unconventional Gas 2010: Unlocking Your Potential  
15 - 17 June 2010  
Amsterdam

<http://www.gastechnology.org/webroot/app/xn/xd.aspx?it=enweb&xd=3TrainingConfer/Conferences/gug2010.xml>

- World Congress on Industrial Biotechnology and Bioprocessing  
27 – 30 June, 2010  
Washington, DC or email: [worldcongress@bio.org](mailto:worldcongress@bio.org)  
<http://www.bio.org/worldcongress/>
- Renewable Energy 2010 - Conference and Exhibition  
27 June – 2 July 2010  
Pacifico Yokohama, Yokohama, Japan  
<http://www.re2010.org> and <http://www.renewableenergy.jp>
- 11th International Symposium on the Genetics of Industrial Micro-Organisms  
28 June – 1 July 2010  
Melbourne Conference and Exhibition Centre, Melbourne, Victoria.  
<http://www.gim2010.org>
- ORBIT 2010 "Organic resources in the carbon economy"  
29 June - 3 July 2010  
Heraklion, Crete, Greece.  
<http://www.orbit2010.gr>
- AEBIOM European Bioenergy Conference & RENEXPO Bioenergy EUROPE  
30 June-1 July 2010  
Brussels, Belgium  
<http://www.renexpo-bioenergy.eu/>
- BIT Life Sciences' 3rd Annual World Congress of Industrial Biotechnology 2010  
25 - 27 July 2010  
Qingdao, China  
<http://www.bit-ibio.com>
- Ecogen 2010  
5 – 8 September 2010  
Sydney Convention and Exhibition Centre  
Darling Harbour, Sydney, NSW  
<http://www.ecogeneration2010.com>
- 10th Pellets Industry Forum  
7 - 8 September 2010  
Stuttgart, Germany  
<http://www.pelletsforum.de>
- Interpellets 2010  
8-10 September 2010  
Stuttgart, Germany  
<http://www.interpellets.de>
- Bioten conference organised by SUPERGEN Bioenergy  
21 – 23 September 2010  
Holiday Inn, Birmingham City Centre, UK  
<http://www.bioten.co.uk>
- TCS 2010 – Symposium on Thermal and Catalytic Sciences for Biofuels and Biobase Products  
21 -23 September 2010  
Arranged by Iowa State University  
<http://www.eng.iastate.edu/html/etmail/tcs2010/tcs2010.html>
- Chemeca 2010 – Abstract Submission deadline 1 March 2010  
26 – 29 September 2010  
Hilton Adelaide, Adelaide, South Australia  
<http://www.chemeca2010.com>
- Third International Symposium on energy from Biomass and Waste  
8 - 11 November 2010  
Venice, Italy  
<http://www.venicesymposium.it>

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## Residues

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**Coal-Cofiring Handbook:** Bioenergy Australia has taken over the distribution of the former CRC Clean Coal in Sustainable Development's 'Coal-Biomass Cofiring Handbook'. The 284 page, 8 chapters, hard-cover handbook, is one of the most comprehensive texts on this subject, and has chapters on: Biomass and bioenergy; Australian Biomass resources- types and characteristics; Protocols for the sampling and trace element analysis of biomass; Fuel handling and processing issues associated with the cofiring of biomass and coal; Technical issues associated with co-combustion and ash deposition; Impacts on the environment; Commercial applications; and Case studies. **Bioenergy Australia Members** may have a complimentary copy for their organisation while stocks last. The book may be purchased by non-members for \$110, including GST, postage and handling. Contact: Stephen Schuck, Bioenergy Australia Manager, email: [sschuck@bigpond.net.au](mailto:sschuck@bigpond.net.au), Tel: (02) 9416 9246.

**Queensland Carbon Mitigation Study:** The 172 pp report on 'An Analysis of Greenhouse Gas Mitigation and Carbon Biosequestration Opportunities from Rural Land Use' is at: <http://www.csiro.au/resources/carbon-and-rural-land-use-report.html> with the key findings being at: <http://www.csiro.au/resources/carbon-and-rural-land-use-key-findings.html>

**IEA Bioenergy Workshop "Algae – the Future for Bioenergy?"** This workshop was held in conjunction with ExCo64 in Liege, Belgium on 1 October 2009. The workshop presentations were given by eight invited speakers in 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

Proceedings of the workshop will be made available in the near future. The presentations of the workshop are available here: <http://www.ieabioenergy.com/DocSet.aspx?id=6436>

**National Academies Report on Alternative Fuels:** A report on the technical feasibility, costs, and environmental impacts of producing alternative transportation fuels entitled, 'Liquid Transportation Fuels from Coal and Biomass: Technological Status, Costs, and Environment,' is accessible online at: [http://www.nap.edu/catalog.php?record\\_id=12620](http://www.nap.edu/catalog.php?record_id=12620)

**Presentations** from the workshop on Implications of Bio-refineries for Energy and Trade in the APEC Region held 7-9 October 2009 in Chinese Taipei are at: [http://www.netd.itri.org.tw/apec\\_biorefinery2009/Presentation.html](http://www.netd.itri.org.tw/apec_biorefinery2009/Presentation.html)

**'Bio-refinery Technology Review'** - a report prepared for an APEC Workshop on Implications of Bio-refineries for Energy and Trade in the APEC Region, 288 pages 5 MB, is at: [http://www.netd.itri.org.tw/apec\\_biorefinery2009/Downloads/APECBioRefineryTechnologyReview.pdf](http://www.netd.itri.org.tw/apec_biorefinery2009/Downloads/APECBioRefineryTechnologyReview.pdf)  
Also see: [http://www.netd.itri.org.tw/apec\\_biorefinery2009/](http://www.netd.itri.org.tw/apec_biorefinery2009/)

**The Economist Magazine**, 30 December 2009 issue, has an interesting article about optimising biogas (methane) production entitled, 'The Seat of Power: Better sewage treatment is the latest thing in clean energy'. See it at: [http://www.economist.com/sciencetechnology/displaystory.cfm?story\\_id=15172621](http://www.economist.com/sciencetechnology/displaystory.cfm?story_id=15172621)

**Jatropha Oil from Madagascar:** GEM Biofuels will commence commercial production and shipment of crude jatropha oil later this month with 54 tonnes of oil being shipped to Australia and Germany. The company anticipates up to 4,54 tons of production under this project. GEM's current planted area is 137,000 acres of Jatropha. See <http://www.gembiofuels.com/>

**Current Anaerobic Digestion Technologies Used for Treatment of Municipal Organic Solid Waste:**

This free 90 page report from the California Integrated Waste Management Board provides an overview of the state of anaerobic digestion (AD) technologies for the treatment of municipal solid waste. In addition to detailed process descriptions, performance, economic data and references, the report describes AD deployment in Europe, Australia, Japan and Canada. CIWMB Publication Number: IWMB-2008-011 See: <http://www.calrecycle.ca.gov/Publications/Organics/2008011.pdf>

**Anaerobic Digestion Conference:** The presentations from ‘Anaerobic Digestion: An Old Story for Today and Tomorrow’ are at: <http://www.ite-narbonne.com/francais/congres-grand-succes.html>

**SUPERGEN Bioenergy Research Forum on Sustainability:** The presentations from this UK forum are now available for download. [http://www.supergen-bioenergy.net/?\\_id=427](http://www.supergen-bioenergy.net/?_id=427)

**USDA Forest Service Research Paper:** "North America's Wood Pellet Sector" FPL-RP-656 is available at: [http://www.fpl.fs.fed.us/documnts/fplrp/fpl\\_rp656.pdf](http://www.fpl.fs.fed.us/documnts/fplrp/fpl_rp656.pdf)

**tcbiomass2009 Conference:** The keynote presentations, oral presentations, panel presentations and poster presentations were among the highlights of this conference covering the thermal conversion of biomass. The presentations have been posted online at <http://www.gastechnology.org/tcbiomass2009>

**European Biofuels Technology Platform’s (EBTP) Newsletter 6 - November 2009** is now online at <http://www.biofuelstp.eu/newsletter.html>

**‘Decentralised Co-Digestion of Faecal Sludge with Organic Solid Waste’:** A report which provides several examples from the African Kingdom of Lesotho and contains many photos showing the building and operation of various small, low technology digesters, is at: [http://www.eawag.ch/organisation/abteilungen/sandec/publikationen/publications\\_swm/downloads\\_swm/biogas\\_lesotho.pdf](http://www.eawag.ch/organisation/abteilungen/sandec/publikationen/publications_swm/downloads_swm/biogas_lesotho.pdf)

**AMFI Newsletter:** Issue 4/2009 of the IEA Advanced Motor Fuels Agreement (Annex XXVIII) newsletter is at: [http://virtual.vtt.fi/virtual/amf/news/amfinewsletter2009\\_4october.pdf](http://virtual.vtt.fi/virtual/amf/news/amfinewsletter2009_4october.pdf). This issue covers: Gaseous Fuels (NG, LPG, biomethane, DME); Alcohols, (Bio)Gasoline; Biodiesel Esters; Synthetic And Renewable Diesel; Other Fuels And Vehicles

**Do-It-Yourself Polyethylene Digester Kit:** See [http://www.adelaide.edu.au/biogas/poly\\_digester/diykit.pdf](http://www.adelaide.edu.au/biogas/poly_digester/diykit.pdf)

Copies of a report **Thermal Treatment of Waste Guidelines 2009** (0.7 MB) can be downloaded from the Scottish Environmental Protection Agency’s website at: [http://www.sepa.org.uk/waste/waste\\_regulation/idoc.ashx?docid=b61dc32b-f2e8-4f65-b237-8e67c5194f08&version=-1](http://www.sepa.org.uk/waste/waste_regulation/idoc.ashx?docid=b61dc32b-f2e8-4f65-b237-8e67c5194f08&version=-1)

**US\$1 million Grant to UC’s Riverside College:** With a \$1 million grant from the California Energy Commission, UC Riverside’s College of Engineering-Center for Environmental Research and Technology (CE-CERT) will build a process demonstration unit (PDU) to convert biosolids to synthetic diesel fuel. The PDU will use a steam hydrogasification process to convert biosolids from the City of Riverside’s wastewater treatment facility comingled with green waste. The PDU will provide critical engineering data prior to a larger pilot plant targeted to be located at the City of Riverside’s wastewater treatment facility. This would be the final step prior to full commercial-scale plant. Partners in the project include UCR, the City of Riverside and Viresco Energy LLC of Riverside.

**Algae as a Biodiesel Feedstock:** A 47 page Feasibility Assessment report for NREL is at: <http://www.ascension-publishing.com/BIZ/HD8-Nrel.pdf>

**‘Financing Biogas: A Reference manual for Microfinance Institutions in Nepal’** from Winrock International, who authored the report is at: [http://www.winrock.org/clean\\_energy/biogas.asp](http://www.winrock.org/clean_energy/biogas.asp).

**‘Electricity Generation: Accelerating Technological Change’:** A 48 page ATSE workshop report from an international workshop held in Melbourne 31 March to 2 April, attended by the Bioenergy Australia Manager is available for download from:

[http://www.atse.org.au/uploads/ATSE\\_ATCworkshop\\_report.pdf](http://www.atse.org.au/uploads/ATSE_ATCworkshop_report.pdf).

**Top Value Added Chemicals from Biomass, Vol 1:** A 76 page report giving Results of Screening for Potential Candidates from Sugars and Synthesis Gas from PNNL and NREL dated Aug 2004 is downloadable from <http://www.ascension-publishing.com/BIZ/HD49.pdf>

**The Smoldering Wood Pellet Business:** An article on wood pellets and subsequent comment is at <http://greeninc.blogs.nytimes.com/2009/12/31/the-smoldering-wood-pellet-business/>

**New Scion bioenergy report released:** Scion has recently released the fifth and final report under the three-year Bioenergy Options for NZ study. Transition Analysis considers the potential for energy supply of woody biomass from existing forests and drivers for change in NZ's energy supply. The earlier reports are: Bioenergy Options - Situation Analysis, Bioenergy Options - Pathway Analysis, Research and Development Strategy and Analysis of Large-scale Bioenergy from Forestry. The reports are available at: [www.scionresearch.com](http://www.scionresearch.com).

**COMET Grant for Crucible Carbon:** Crucible Carbon has received a \$64,000 Federal Government Commercialising Emerging Technologies (COMET) grant. Crucible Carbon of Mayfield West, NSW is developing a technology to produce biocrude, biogas and biochar from a variety of biomass resources. Producer gas from the process can be used for electricity generation.

**Pellets@las Newsletter:** The aim of the Pellets@las project is to provide technical and market information for pellets markets across Europe. The current edition is at:

[http://www.eubia.org/uploads/media/6th\\_Pelletsatlas\\_Newsletter\\_2009.pdf](http://www.eubia.org/uploads/media/6th_Pelletsatlas_Newsletter_2009.pdf)

**Beyond Oil and Gas: The Methanol Economy:** This new 350 page book from Wiley by George A. Olah, Alain Goeppert, and G. K. Surya Prakash is available for \$52.95. ISBN: 978-3-527-32422-4. See: [http://au.wiley.com/WileyCDA/WileyTitle/productCd-3527324224\\_descCd-tableOfContents.html](http://au.wiley.com/WileyCDA/WileyTitle/productCd-3527324224_descCd-tableOfContents.html)

**Synterra Fuels:** Pacific Renewable Fuels Inc. of Sacramento and Red Lion Bio-Energy of Toledo have formed Synterra Fuels, a joint venture that aims to produce synthetic diesel fuel and renewable electricity from waste biomass as a direct replacement for traditional diesel. Synterra will operate a pilot biorefinery at the University of Toledo. Manufacturing operations will be in California and Ohio. See:

<http://sacramento.bizjournals.com/sacramento/stories/2009/11/30/daily27.html>

**Saab** has recently launched the new Saab 9-3 Sportcombi 1.8 BioPower (biomethane) model in Gothenburg, Sweden. Apart from biomethane, this new Saab model also runs on petrol and ethanol.

**Pilbara Regional Grants Scheme:** The Ashburton Aboriginal Corporation's biodiesel manufacturing business will benefit from a \$145,000 development grant. The \$877,000 project to produce biodiesel by recycling waste was financed by the Pilbara Regional Grants Scheme.

**‘Global Biofuels Market: Opportunities, Emerging Technologies and Production’**, a new 138 page report, may be purchased online for US\$4,800 from <http://www.sbireports.com/Global-Biofuels-Opportunities-1926676/>

**Nexterra Systems to develop Biomass Gasification System:** The City of Stamford, Connecticut, has selected Nexterra Systems Corp. to develop a biomass gasification system for the Stamford Water

Pollution Control Authority (SWPCA). The proposed gasification system will convert locally procured woody biomass waste into combustible synthetic gas.

**Trans-Asia Renewable Energy Corp**, based in the Philippines is reported to have abandoned its biofuels development business due to agricultural hurdles in planting jatropha.

**The German Market for Biomethane Report:** This Euro790, two-part report provides the key facts on the development of the market for upgrading and feeding biogas into the German natural gas network. In part one, the report provides information on German political parameters, business models, market players and injection projects. Part two offers the results of a 2008 market survey and provides an overview on the spectrum of technologies available and soon to be available on the market throughout Europe. The report is a tool for international project developers and decision makers. To order, visit <http://www.dena.de/en/topics/renewable-energies/publications/publikation/biomethane-report/>

**Dutch Study of Water Requirements for Bioenergy Crops:** The water requirements of 13 bioenergy crops across the world has been assessed by a Dutch study, the findings of which could help select the best crops and locations to produce bioenergy. The study investigated 12 crops that contribute most to global crop cultivation, currently making up 80 per cent of total agricultural production. It also investigated the plant jatropha, used to make biodiesel in India, Indonesia, Nicaragua, Brazil and Guatemala. Water footprints were calculated for the production of various types of bioenergy, including heat and electricity, biodiesel and bioethanol. <http://ec.europa.eu/environment/integration/research/newsalert/pdf/163na3.pdf>

**BP and Dupont** announced the commencement of commercialisation of their butanol venture, which will be named Butamax Advanced Biofuels.

**ExxonMobil's algae biofuel program:** Exxon Mobil Corporation has announced an alliance with a biotech company, Synthetic Genomics Inc. (SGI), to research and develop advanced biofuels from photosynthetic algae. ExxonMobil expects to spend more than US\$600 million in this program: US\$300 million for in-house studies and another \$300 million for successfully meeting research and development milestones. The companies are projecting their partnership as a long-term R&D effort with possible investment running into billions of dollars. For further information see: [http://www.exxonmobil.com/Corporate/news\\_opeds\\_2\\_0090730\\_algae.aspx](http://www.exxonmobil.com/Corporate/news_opeds_2_0090730_algae.aspx)

**A Report 'Clean Heat and Power Using Biomass Gasification for Small to Medium-Scale Industrial and Agricultural Projects'** by Carolyn Roos from Washington State University, Extension Energy Program, December 2008 (Rev July 2009) is at: [http://www.pacificbiomass.org/documents/Clean\\_Heat\\_and\\_Power\\_Using\\_Biomass\\_Gasification\\_for\\_Industrial\\_and\\_Agricultural\\_Projects\\_Roos\\_July\\_2009.pdf](http://www.pacificbiomass.org/documents/Clean_Heat_and_Power_Using_Biomass_Gasification_for_Industrial_and_Agricultural_Projects_Roos_July_2009.pdf)

**Bioethanol production in Germany on the increase:** The German bioethanol industry is undergoing a recovery, with demand rising almost four-fold in the first half of 2009 compared to 2008, figures from the country's Federal Office of Economics and Export Control (BAFA) show. Bioethanol production jumped 61 percent from January to June 2009, with demand standing at 450,000 tonnes, according to data recently published by BAFA. Bioethanol demand amounted to 453,000 tonnes in the first six months of the year, 332,000 tonnes of which was mixed directly with petrol.

**NSW Municipal Council to Use Soy-Based Biodiesel:** The Marrickville municipal council, in Sydney's inner southern suburbs, has voted to switch their entire fleet of diesel vehicles and equipment to B100 soy-based biodiesel. The Council will purchase B100 Soybiodiesel-branded fuel from Sydney's first biodiesel service station, Franks Automotive. National Biodiesel is supplying biodiesel to the local station.

**University of California's Biofuel Research:** The October-December 2009 issue of UC's California Agriculture journal includes six peer-reviewed research and review articles on the promise of this university's biofuels research, as well as the challenge of insuring that food security and natural lands are not adversely affected by a vast expansion of new biofuels crops. The articles, and related editorial and

news coverage on biofuels regulation and research initiatives, are available online at:  
<http://californiaagriculture.ucanr.org>.

**International Seminar on Gasification:** All the presentations given at the International Seminar on Gasification, 22-23 October in Stockholm, Sweden are available for free download. Visit the SGC website <http://www.sgc.se>, click on “Publikationer” in the horizontal menu and then “Rapporter” in the left column. Click on “SGC Rapport 213 International Seminar on Gasification – Biomass Gasification, Gas Clean-up and Gas Treatment” (Approx. 24 Mb). Alternatively, enter the English website (click on the English flag), click on “Publications” in the horizontal menu and then “Reports” in the left column. Click on “SGC Rapport 213 International Seminar on Gasification – Biomass Gasification, Gas Clean-up and Gas Treatment” (Approx. 24 Mb). A third option is to visit the seminar webpage ([www.sgc.se/gasification2009](http://www.sgc.se/gasification2009)), click on “Programme” in the horizontal menu and then on the title of the presentation you are interested in.

**\$235 Million Awarded for Development of Renewable Energy Technologies:** The Australian government has awarded \$235 million to four companies to spur the development of renewable energy technologies as it seeks to reduce carbon emissions. Hydro Tasmania has been awarded \$15 million for its King Island project which will demonstrate the integration of wind, solar and storage with a biodiesel generator. This will provide base load and peak power for King Island's mini grid system and reduce the Island's reliance upon diesel generators.

**The California Integrated Waste Management Board** has adopted Strategic Directives that, in part, encourage the use of technology to manage and reuse solid waste. This guidance document helps determine the level of permitting or authorisation required for a project involving anaerobic digestion and solid waste. Downloadable copy of this document at:  
<http://www.ciwmb.ca.gov/Publications/Organics/2009021.pdf>

### **World Energy Outlook**

The International Energy Agency IEA published its annual World Energy Outlook on 10 November, detailing what needs to be done to move to a sustainable energy future. The world will need to spend an additional US\$10.5 trillion in the next two decades on energy efficiency and low-carbon energy to avoid runaway climate change, according to the IEA. Read more:  
<http://www.euractiv.com/en/energy/iea-urges-low-carbon-energy-investments/article-187263>

**An Anaerobic Digestion workshop** was held on 17 November 2009 in Oakland, California by the California Resource Recovery Association - Organics Technical Council (CORC). The workshop included presentations on the basics of Anaerobic Digestion, the latest technology from vendors, policy updates and case studies. The workshop materials are posted at:  
[http://www.sjrecycles.org/organics/workshop\\_1109.asp](http://www.sjrecycles.org/organics/workshop_1109.asp)

**Poland's EDF Kogeneracja Wroclaw Coal-Fired CHP Plant:** This 180 MW thermal and 55 MW electric coal-fired plant has been retrofitted with the installation of 80 MW wood powder burner technologies with ancillary handling equipment. This makes it one of the world's largest biomass co-firing installations at 45 % co-firing capacity.

**European Union Usage of Pelletised Biofuels:** The [European Biomass Association](#) predicts that by 2020 the European Union will use 100 million tonnes a year of pelletised biofuels, up from about 13 million tonnes this past year.

**DOE Awards Poet US \$6.85M for Cellulose Supply Sourcing:** Project Liberty is a 95 million litre per year cellulosic ethanol plant that will be attached to a current grain ethanol plant in Emmetsburg, Iowa. Operations are scheduled to begin in late 2011. Poet has operated a pilot-scale cellulosic ethanol plant in Scotland, South Dakota since November 2008.

**Commercial Scale Biochar:** Chaotech Pty Ltd, Queensland, has received a \$0.5 million Climate Ready grant for the development of its low cost biomass carbon kiln pyrolysis plant that can produce 20 tonnes of biochar per day. The biochar can be used in agriculture and soil management at a commercial level. The pyrolysis plant will also generate 500 kW for local power consumption. Chaotech intends to market both the biochar and the pyrolysis plant and plant components.

**Youtube videos:**

- A 4 minute Youtube video showing the cultivation of castor for biofuels from Brazil (in Portuguese) is at <http://www.youtube.com/watch?v=s1t6p2cS6wU>
- An 8 minutes Youtube video of a small boiler fuelled on wood pellets from IHT in Germany is at: <http://www.youtube.com/watch?v=teq3fgyTEYI>
- ‘Shaanxi Mothers, China, Domestic biogas for cooking & light - 2006 Ashden Award winner’ is at: <http://www.youtube.com/watch?v=ZMreH1YUs90>

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**Opportunities Corner**

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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.

- **Research into Diesel Substitute for Bio-fuel:** The ARC Centre of Excellence for Functional Nanomaterials at the University of Queensland seeks to talk with companies that have knowledge of diesel substitute biofuel and can provide guidance on the expected technical and economical benchmarks for new technologies in this space. They will be more than happy to keep any interested parties informed of the breakthroughs/ developments, during the project’s lifetime.

Their group has been invited by Rural Industries Research and Development Corporation (RIRDC), to prepare a full proposal for a project that aims to produce a diesel substitute biofuel, such as Dimethyl Ether (DME), from Australian lignocellulosic feedstock like stubble, cane bagasse, and annual and perennial grasses. The conversion of largely waste biomass to valuable bio-fuel will provide energy and cost effective technology for future bio-refineries.

The proposed project aims to deliver the following innovations:

- Cost effective catalysts for innovative tar free production of syngas from cellulose for small scale rural alternative fuel production.
- Cost effective catalysts for the small scale process of single step conversion of syngas to DME

In addition, DME has a range of applications, including:

- LPG blending and substitution
- Diesel blending and substitution
- Remote power generation,
- Acetylene substitution.

To obtain further information, please contact Dr. Fouad Haghseresht, Manager, and Innovation Commercial Development for the ARC Centre of Excellence for Functional Nanomaterials at [F.Haghseresht@uniquet.com.au](mailto:F.Haghseresht@uniquet.com.au).

- **Position Required:** Arthur Ziolkowski has a PhD in chemistry (manufacturing and application of chars and activated carbons enriched in nitrogen) and has been involved in few different projects regarding thermal degradation of biomass. He has also been involved in the investigation of the emission of polychlorinated dioxins and furans during thermal decomposition (burning, smouldering) of CCA (copper, chromium, arsenate) and pesticides (mostly permethrin) treated wood (pinus radiata) and has worked on identification of other biomass thermal decomposition products as a potential hazardous species. Arthur has also worked on emission of mercury during combustion of coal, atmospheric particle emission from iron ore and steel manufacturing facilities and application of biomass (bamboo, sewage, sugar cane, kelp and algae) as new energy resources and sewage sludge as fertilizer. He has almost five years experience as a supervisor and leader of the research and analytical laboratory and has a strong background in chemical engineering and organic chemistry synthesis. For further information, Arthur can be contacted on: Tel: (B) (02) 98507971 (Mob) 0419 560 680 or email: [r2ziolkowski@gmail.com](mailto:r2ziolkowski@gmail.com) / [r2p2@poczta.onet.pl](mailto:r2p2@poczta.onet.pl)
- **International Student seeking 6-week Internship:** Gregor Heinrich is studying renewable resources and bioenergy for a B. Sc. with a focus on plant cultivation and engineering at the University of Hohenheim in southwest Germany. Gregor needs to undertake a six week Internship during the European summer which he is keen to do somewhere in Australia on a farm that is growing and processing renewable resources. Gregor can be emailed on [gregor.heinrich@uni-hohenheim.de](mailto:gregor.heinrich@uni-hohenheim.de).
- **Information Required:** Alfredo Campora from UNIMIN, Cordoba, Argentina would like to obtain information on production of bamboo biomass for electrical generation. He is also looking for advice or consultants on cultivation of bamboo and application to generation of heat. He can be contacted on Tel. +54 9 351 3483452 or email [acampora@mtea.com.ar](mailto:acampora@mtea.com.ar).
- **QETT looking for business partners in Australian biogas project market:** Qingdao Tianren Environment Co., Ltd (QETT), founded in 1993 in China, is a hi-tech enterprise focusing on biomass energy development and environmental protection. Tianren has its controlled companies in the United States and Africa. With 10-year technology cooperation with Germany, Denmark and more than 300 biogas projects (turnkey contract mainly) worldwide including CDM projects, Tianren is now pursuing building up demonstration biogas projects in Australia to provide full solutions for transforming organic waste into energy (electricity, LPG or CNG). In the long-term, Tianren is looking for business partners to develop Australian biomass market to achieve win-win result. If interested, please contact Stephen Guo on [Guoxiaoyu@tianren.com](mailto:Guoxiaoyu@tianren.com) or call +86-532-80990303 for a potential business cooperation discussion. Please follow the link [www.tianren.com/en/](http://www.tianren.com/en/) for more information.
- **Hepburn Wind** will be the owner and operator of Australia's first community owned wind farm, at Leonards Hill, just south of Daylesford Victoria. Hepburn Wind is managed by an elected board of Directors. The Wind Park was initiated by the Hepburn Renewable Energy Association (now SHARE) in conjunction with Future Energy Pty Ltd. With approximately 90% of the anticipated total project cost already raised, Hepburn Wind are also talking to several other communities who are planning to embark on similar projects. They are investigating methods to provide advice to these initiatives without distracting them from their primary goal. If you know of other projects (no matter how embryonic) that have not made contact with them, please drop a line to [info@hepburnwind.com.au](mailto:info@hepburnwind.com.au).

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An email distribution list has been set up, to allow readers of this newsletter to self-subscribe (and unsubscribe) to the Bioenergy Australia Newsletters and to receive our conference notices. To self-subscribe, go to: <http://groups.google.com/group/bioenergyaustralia/subscribe>

Joining this list is purely to facilitate management of the distribution of Bioenergy Australia newsletters, notices regarding the annual conference, and endorsed Bioenergy Australia activities. It will only be used

for this purpose and you will not receive other emails through this list. It is intended that over time, this will be the primary way of distributing the Bioenergy Australia newsletters and conference notices. Self-subscribing will require you to take on a list password. It would be much appreciated if you would join this group, as in the not too distant future this will be the only way newsletter notices will be disseminated. If you have any queries, please contact Steve Schuck.

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Email: [sschuck@bigpond.net.au](mailto:sschuck@bigpond.net.au).

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**Editor:** Dr. Stephen Schuck, Bioenergy Australia Manager

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