



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

# Newsletter

February 2009

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## **Bioenergy Australia 2008 Conference- Sustainable Bioenergy Opportunities for Australia**

Bioenergy Australia's annual conference, held at the Sebel Albert Park, Melbourne, Victoria on 8-9 December was a great success, being attended by 325 delegate. Professor Philip Peck, from the International Institute for Industrial Environmental Economics, Lund University, Sweden, a member of the European Bioenergy Network of Excellence gave the keynote address.

The Conference program included 60 presentations in up to four parallel sessions, covering biomass sources and supply aspects, first and second generation liquid biofuels, algae and other future feedstocks, pyrolysis bio-oil and bio-char, anaerobic digestion and livestock wastes, energy-from-waste, heat and power and overarching aspects of bioenergy, such as life cycle emissions and sustainability. A moderated panel discussion addressed the issue "Realising Sustainable Bioenergy Opportunities for Australia".

The technical tour on 10 December visited Melbourne Water's Eastern Treatment Plant where biogas is being used to generate 9MW of electricity; a mobile small scale biodigester; a 2.2 MWe fluidised bed combustor at Consolidated Energy and Resources which will be fuelled on wood biomass waste materials; a 1 MW wood fired boiler at Reid Bros Timber at Yarra Junction; and a Powerhearth biomass scale downdraft gasifier at Cambellfield.

The conference presentations and other materials such as copies of the posters and photos from the tour have been consolidated on to a CD. See below for details on how to purchase the CD.

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## **Bioenergy Australia 2008 Conference CD**

The CD ROM from the Bioenergy Australia 2008 conference, held in Melbourne, 8-9 December 2008 is now available for sale. The CD includes the conference program, speaker profiles, abstracts, delegate list, presentations and photos from the technical tour. The cost of the CD is \$88. 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 Emma Waygood, Conference Action, Tel: (02) 9431 8636, email: [emma@conferenceaction.com.au](mailto:emma@conferenceaction.com.au).

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## **Bioenergy Australia 2009 Conference - Call for Presentations**

Expressions of Interest are sought from potential paper and poster presenters, sponsors and trade exhibitors for the 2009 Bioenergy Australia conference which will be held in early December 2009. Please contact Stephen Schuck, Bioenergy Australia Manager, Tel/Fax: (02) 9416 9246 Email: [sschuck@bigpond.net.au](mailto:sschuck@bigpond.net.au) to express your interest.

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## **Bioenergy Australia Membership Update**

The Bioenergy Australia membership now includes 71 organisations. The most recent members are Microbiogen Pty Ltd and the Biofuels & Renewable Energy Centre, Flinders University. 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 24 March 2009**

The next Bioenergy Australia Members' quarterly meeting, in the form of a one-day seminar is to be held in Canberra on Tuesday 24 March 10:00-16:15. Topics to be covered will be: an update on the Carbon Pollution Reduction Scheme; an update on the Renewable Energy Target; Nationals R&D planning for bioenergy and biofuels; updates on Australia's participation in five IEA Bioenergy Tasks; biofuel production technologies; a proposal for a biofuels collaborative research centre; a 5 MW wood waste power plant at Chipping Norton in Sydney; the development of a proposed 5 MW wood waste power plant on the south coast of NSW; a biomass supply chain; report on bioenergy industry developments; and review and planning for Bioenergy Australia conferences. Whilst these meetings are essentially for only Bioenergy Australia Members, stakeholders with specific interests and those considering membership may be able to attend as observers. If interested in attending, please contact Steve Schuck, Bioenergy Australia Manager to discuss and for details.

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### **Biomaxx Systems Inc**

The Bioenergy Australia Manager has received over a period of time inquiries related to a former member of Bioenergy Australia, Biomaxx Systems Inc. of Ontario Canada. It is advised that Biomaxx has not been a financial member of Bioenergy Australia since June 2008.

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### **Renewable Energy Fund - Supporting Development and Deployment of Renewable Energy in Australia**

The Australian Government has introduced the Renewable Energy Fund to support the adoption of renewable energy technologies in Australia. The Fund will provide \$500 million for a series of competitive grant programs that aim to demonstrate the viability of renewable energy technologies on a technical and economic basis. The Fund is managed by the Department of Resources, Energy and Tourism and is divided into three program components:

- The \$435 million [Renewable Energy Demonstration Program \(REDP\)](#) – designed to fill the gap between post-research and commercial uptake for renewable energy technologies.
- The [\\$50 million Geothermal Drilling Program \(GDP\)](#) – supporting companies in the geothermal energy sector.
- The \$15 million [Second Generation \(Gen2\) Biofuels Research and Development Program](#) – supporting research, development and pre-commercialisation of second generation biofuel technologies.

Key objectives of the Renewable Energy Fund include:

- leveraging around \$1.5 billion worth of investment in renewable energy technologies through encouraging private investment with government funding
- supporting a range of technologies across a range of geographic areas in Australia
- taking technology from the laboratory to the field to help prove a project's viability on a technical and economic basis.

See: [http://www.ret.gov.au/energy/energy\\_programs/RenewableEnergyFund](http://www.ret.gov.au/energy/energy_programs/RenewableEnergyFund)

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## Renewable Energy Target Update

The Australian Government will continue to support the deployment of renewable energy in Australia's electricity supply through the national Renewable Energy Target (RET) scheme. The RET scheme will implement the Government's commitment to achieve a 20 per cent share of renewables in Australia's electricity mix by 2020. The RET will be set at 45,000 GWh/a of renewable energy by 2020.

On 17 December 2008, draft legislation to implement the RET by amending the *Renewable Energy (Electricity) Act 2000* was released for public comment. Submissions will close on 20 February 2009. The draft legislation is available at

<http://www.climatechange.gov.au/renewabletarget/consultation/index.html#scheme>

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## New South Wales Biofuels Mandate

Legislation will be introduced into NSW State Parliament this year to increase the volumetric ethanol mandate to 4 percent from 1 January 2010 and 6 percent from 1 January 2011, and then to replace all regular grade unleaded petrol with E10 from 1 July 2011.

The legislation will also introduce a volumetric biodiesel mandate of 2 percent initially, rising to 5 percent as supplies become available. These volumetric mandates will also apply to major retailers as well as primary wholesalers.

Comments are being invited on the Bill by c.o.b. 28 February 2009. Contact: Mr Greg McDowall, Director of Biofuels, Department of Lands, Email: [greg.mcdowell@lands.nsw.gov.au](mailto:greg.mcdowell@lands.nsw.gov.au), Tel: (02) 9236 7655.

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## Renewable Energy Development Program

The Renewable Energy Development Program under the NSW Climate Change Fund provides \$40 million over five years to support projects which are expected to lead to large scale greenhouse gas emission savings in NSW by:

- demonstrating renewable energy technologies in NSW
- supporting the early commercialisation of renewable energy technologies in NSW.

Go to <http://www.environment.nsw.gov.au/grants/ccfund.htm> to view

- eligibility criteria
  - how to apply
  - closing dates (Note: Round 1 has now closed)
  - funding agreement
  - contact details.
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## SEDO Grants for Sustainable Energy Projects in Western Australia

Sustainable Energy Development Office (SEDO) Grants Program are providing grants ranging from \$5,000 to \$50,000 to help meet up to 50 percent of the actual or cash costs of implementing community-based projects and research and development projects in Western Australia.

All applications to the SEDO Grants Program are assessed as part of a competitive funding round which closes at 5.00pm on Friday **27 February 2009**. Further information may be obtained from SEDO Senior

Program Officer Rebecca Driscoll on 9420 5606. Program eligibility criteria and application forms can be downloaded from: <http://www.sedo.energy.wa.gov.au>

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## **Biomass Energy Production in Australia: Status, costs and opportunities for major technologies**

This report, originally commissioned for the RIRDC led Joint Venture Agroforestry Program (in conjunction with the then Australian Greenhouse Office) by C.R. Stucley, S.M. Schuck, R.E.H. Sims, P.L. Larsen, N.D. Turvey and B.E. Marino, RIRDC Publication No. 04/31, Project No. RPL-1A has recently been reprinted with funding from Bioenergy Australia. The 250 page report is available from RIRDC. A summary of the report is at: <http://www.rirdc.gov.au/reports/AFT/04-031sum.html> See: <http://www.rirdc.gov.au> for ordering details. Contact: Catherine Poyner, tel: (02) 6271 4181 for details on how to purchase the report.

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## **Carbon Trading and Renewable Energy**

A discussion paper on carbon credits and bioenergy, jointly funded by Bioenergy Australia and RIRDC was launched at the Bioenergy Australia 2008 conference in December. This discussion paper was originally developed to support discussion at the Bioenergy Australia quarterly meeting in Canberra on 26 June 2008.

This 23 page paper provides a broad discussion on both carbon management and biomass energy as they relate to the forestry and agriculture sectors. Analysis in this report by New Forests indicates that the Carbon Pollution Reduction Scheme (CPRS) in Australia will provide a price signal for investors in regards to carbon pollution, but that at a modest carbon price the CPRS will not provide the stimulus to generate significant investment in bioenergy projects. In the authors' view, targeted policy for bioenergy development in parallel to the CPRS is therefore crucial to see Australia achieve deeper cuts in carbon dioxide emissions and make a transition to a low carbon economy.

The importance of this report is that it provides information that will be useful in informing debate about the interactions between bioenergy production and emissions trading. This is highly relevant given the expanding emphasis on bioenergy production and the development of emissions trading schemes in Australia and internationally.

The report is downloadable from: <http://www.rirdc.gov.au/reports/BBE/08-184.pdf>

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## **ATSE Report - Energy Technology for Climate Change: Accelerating the Technology Response**

An Australian Academy of Technological Sciences and Engineering (ATSE) study titled 'Energy Technology for Climate Change – Accelerating the Technology Response' has found that to meet projected carbon dioxide reductions, Australia will need to invest some \$6 billion on RD&D on new power generation technologies by 2020. The aim of the ATSE study was to identify those technologies that can most efficiently and effectively reduce carbon emissions for stationary power generation in both technical and financial terms. ATSE recommends that a new national Energy Research Council be established to fund these technologies and that support of existing Australian programs, including the Renewable Energy Fund and the Energy Innovation Fund should continue.

ATSE's report says that while much emphasis is currently being given to a Carbon Pollution Reduction Scheme (CPRS) trading scheme to reduce greenhouse gases (GHG), a CPRS is a necessary, but not sufficient, condition for timely new technology deployment. New low-emission technologies for electricity generation must be deployed on a massive scale to achieve the proposed reductions in GHG and

this has major implications for research and development (R&D) and demonstration (RD&D). Much technology is already being developed, but it awaits large-scale commercial implementation before the costs come down to allow widespread utilisation, even with a price on carbon.

The report outlines that a critical step is a commitment to invest around \$6 billion by 2020 on RD&D – and further increased deployment expenditure after that – without which the projected targets for reduction of GHG will not be met.

The ATSE study shows that it is unlikely that any single technology will achieve the CO2 reduction outcome targets now being proposed. The response will require development and application of a portfolio of technologies. The study notes that Australia's competitive electricity market and the future Carbon Pollution Reduction Scheme (CPRS) will ultimately determine the technology mix that will be deployed.

The 55 page report is downloadable from: <http://www.atse.org.au/uploads/EnergyClimateChange.pdf>

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## **Carbon Pollution Reduction Scheme**

On 15 December 2008, the Federal Government released the White Paper outlining scheme design and planned medium-term trajectory for the scheme. The Summary Report can be viewed at <http://www.climatechange.gov.au/whitepaper/summary/index.html>. This site has links to the full report and the Government's proposed timeline for the introduction of the scheme which is as follows:

July 2008	Public release of the Green Paper on scheme design (Complete)
July-Sep 2008	Phase 2 consultation on the Green Paper (Complete)
Dec 2008	Public release of the White Paper outlining scheme design and planned medium-term trajectory for the scheme (Complete)
Late Feb 2009	Public release of exposure draft of legislative package
March - April 2009	Phase 3 consultation on exposure draft legislation package
End 2008	Firm indication by Government of planned medium-term trajectory for the scheme
May 2009	Bill introduced into Parliament
June 2009	Government aims to achieve passage of bill by Parliament at this time
3rd quarter 2009	Act enters into force; scheme regulator established
2010	Emissions trading scheme will commence

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## **National Greenhouse and Energy Reporting Act**

A consultation paper outlining a proposed amendment to public disclosure of corporate level energy production data under the NGER Act is now available for public comment. Interested stakeholders are invited to make a written submission on the proposed amendment by close of business **Tuesday 17 February 2009**. See: <http://www.climatechange.gov.au/reporting/index.html>

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## **Biofuel Partnership Raises \$500,000 for BioCube**

Biofuel Partnership Limited has successfully filled its \$500,000 share offer for the commercialisation of its BioCube – a shipping container sized transportable biodiesel processing unit. They have also indicated receipt of two successful Australian Federal Government grant applications. The BioCube has been under development for about two years and is now reported to have achieved its initial research and development goals. The BioCube will produce biodiesel from a broad range of oil-bearing plants, particularly those

grown in harsh tropical and sub-tropical zones. There is reported to be substantial interest in the BioCube from several countries across Asia, Africa and the Pacific, with initial orders expected to be signed in the near future. Biofuel Partnership has signed a contract with the Australian arm of the German engineering group EDAG for the manufacture of the initial units. They anticipate that the first of the BioCubes to be manufactured will be located in Papua New Guinea.

Further information about Biofuel Partnership Limited and the BioCube is available at: <http://www.biofuelpartnership.com>. Contact: Laurence Baum email: [bauml@biofuelpartnership.com](mailto:bauml@biofuelpartnership.com) or Harold Abrahams email: [Abrahamsh@biofuelpartnership.com](mailto:Abrahamsh@biofuelpartnership.com)

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## **\$50 Million Wood Pellet Plants Being Built in Australia**

Western Australian based Plantation Energy plans to build a \$25 million wood pellet mill on the outskirts of Mount Gambier, South Australia and plans are in place for another mill of the same size at Heywood, initially to service market demand in Europe for biofuel. As biofuels become better understood in Australia the company is hopeful that the product will be shipped by rail to Port Augusta and other domestic coal-fired power stations. Late last year, Plantation Energy said that a \$25m wood pellet plant, expected to be commissioned in February, was under construction at Albany in Western Australia. Building works for the new plant in the Green Triangle region were expected to commence in April with production starting in September or October 2009. The company was reported to be working with Forestry SA on the location of the Mount Gambier based mill and the pellet mill at Heywood will be located at the site previously earmarked for a pulp mill. Source: Friday Offcuts

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## **Biofacts**

- Biomass power sources added more than 700 MW of generating capacity in 2007 to the USA power network, while solar electric technologies added an estimated 91 megawatts of capacity.
  - Brazil exported a record-high 5.16 billion litres of ethanol fuel in 2008, up 45.7% from 2007, the Ministry of Mines and Energy reports. The amount of ethanol fuel exported in 2008 was over two times higher than the exports of petrol made by state-owned oil giant Petrobras in the same period. The fuel sold for US\$0.47 (€0.35) per litre in 2008, up 16% from 2007. The US led imports of the fuel with 2.8 billion litres in the year. In Brazil, an increase in the consumption of ethanol is expected for 2009, due to the increasing number of flexible-fuel cars in the national fleet.
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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 32 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.

ActionAid article on Food vs. Fuel

[http://www.actionaidusa.org/what/food\\_rights/biofuels\\_program/](http://www.actionaidusa.org/what/food_rights/biofuels_program/)

Global NRG Ltd (waste to energy)

<http://www.nuglobalnrg.com>

BITES (Biofuels Technologies European Showcase)

<http://www.biofuelshowcase.eu/>

Biogen

<http://www.biogen.com.au>  
Biogen Australian Newspaper article on IPO  
<http://www.biogen.com.au/assets/files/Australian001.pdf%20-%20Adobe%20Acrobat%20Professional.pdf>

Small scale pellet mills  
[http://www.alibaba.com/product-gs/209200827/Pelleting\\_Biomass\\_Flat\\_Die\\_Pellet\\_Press.html](http://www.alibaba.com/product-gs/209200827/Pelleting_Biomass_Flat_Die_Pellet_Press.html)

American Society of Agricultural and Biological Engineers  
<http://www.asabe.org>

IEA Bioenergy Task 29  
<http://www.task29.net>

IEA Bioenergy Task 31  
<http://www.ieabioenergytask31.org>

IEA Bioenergy Task 32  
<http://www.ieabcc.nl>

IEA Bioenergy Task 36  
<http://www.ieabioenergytask36.org>

IEA Bioenergy Task 37  
<http://www.iea-biogas.net>

Wood pellet market and trade  
<http://www.bioenergy.org>

Anaerobic Digestion Pilot Plant at Veolia (with animations)  
[http://www.veoliaenvironnement.com/fr/groupe/recherche\\_developpement/methanisation/en/index2.htm](http://www.veoliaenvironnement.com/fr/groupe/recherche_developpement/methanisation/en/index2.htm)

Algal Biomass Organisation  
<http://www.algalbiomass.org>

Report 'Cooking up a storm: Food, greenhouse gas emissions and our changing climate'  
[http://www.fcrn.org.uk/frcnResearch/publications/PDFs/CuaS\\_web.pdf](http://www.fcrn.org.uk/frcnResearch/publications/PDFs/CuaS_web.pdf)

BioDME  
<http://www.biodme.eu/>

Velocys Fischer Tropsch synfuels small scale production  
<http://www.velocys.com/about/>

Algae Lab (includes 36 minute video)  
<http://www.algaelab.org/lab.html>

BioTop (biofuel cooperation between EU and Latin America)  
<http://www.top-biofuel.org>

Bioenergy event calendar  
<http://www.bioenergyonlineexpo.com/events.php/>

APEC Biofuels Taskforce  
<http://www.biofuels.apec.org>

Mixed Alcohol and Ethanol report  
<http://www.nrel.gov/docs/fy06osti/39947.pdf>

Aquatic Species Close our report  
[http://govdocs.aquake.org/cgi/r\\_eprint/2004/915/9150010.pdf](http://govdocs.aquake.org/cgi/r_eprint/2004/915/9150010.pdf)

IEA Bioenergy Task 33 Gasification – Denmark Country report  
[http://media.godashboard.com//gti/IEA\\_Task33\\_Denmark\\_Apr\\_2008.pdf](http://media.godashboard.com//gti/IEA_Task33_Denmark_Apr_2008.pdf)

IEA Bioenergy Task 33 Gasification – Swedish Country report  
[http://media.godashboard.com//gti/IEA\\_Task33\\_Sweden\\_Apr\\_2008.pdf](http://media.godashboard.com//gti/IEA_Task33_Sweden_Apr_2008.pdf)

IEA Bioenergy Task 33 Gasification – Finland Country report  
[http://media.godashboard.com//gti/IEA\\_Task33\\_Finland\\_Apr\\_2008.pdf](http://media.godashboard.com//gti/IEA_Task33_Finland_Apr_2008.pdf)

IEA Bioenergy Task 33 Gasification – USA Country report  
[http://media.godashboard.com//gti/IEA\\_Task33\\_US\\_Apr\\_2008.pdf](http://media.godashboard.com//gti/IEA_Task33_US_Apr_2008.pdf)

IEA Bioenergy Task 33 Gasification – Germany Country report  
[http://media.godashboard.com//gti/IEA\\_Task33\\_Germany\\_Oct\\_2008.pdf](http://media.godashboard.com//gti/IEA_Task33_Germany_Oct_2008.pdf)

Enviroarc plasma arc technology  
<http://www.enviroarc.com/pyro.asp>

European Biofuels Technology Platform  
<http://www.biofuelstp.eu/>

INEOS Enterprises  
<http://www.ineos.com>

Camelina biofuels feedstock  
<http://www.CamelinaCompany.com>

Michigan State University's biofuel and bioenergy research  
<http://www.bioeconomy.msu.edu>

Organic Waste Systems (anaerobic digesters, Belgium)  
<http://www.ows.be>

Veolia's Woodlawn and Ti-Tree Bioreactor projects  
<http://www.veoliaes.com.au/recycling-services/resource-recovery-facilities/bioreactor-landfills.asp>

Growth Energy (ethanol lobby group)  
<http://www.GrowthEnergy.org>

Solazyme (algae)  
<http://www.solazyme.com/>

Blue Marble Energy (algae)  
<http://www.bluemarbleenergy.net/>

Inventure Chemical (algae to jet fuel)  
<http://www.inventurechem.com/>

Live Fuels (algae)  
<http://www.livefuels.com/>

Solix Biofuels (algae)  
<http://www.solixbiofuels.com/>

Aurora Biofuels  
<http://www.aurorabiofuels.com/>

Aquaflow Binomics (algae company from NZ)  
<http://www.aquaflowgroup.com/>

Petro Sun (algae)  
<http://www.petrosuninc.com/>

Seamibiotic (Israeli algae company)  
<http://www.seamibiotic.com/>

GrassBioenergy.org  
<http://www.grassbioenergy.org>

Biofuel Partnership's BioCube  
<http://www.assob.com.au/biofuel>

BioEnergy Solutions  
<http://www.allbioenergy.com>

Indian Gasification Technology  
<http://cgpl.iisc.ernet.in/site/Portals/0/Technologies/Gasification%20Technology.pdf>

GreenFuel algae FAQ page  
[http://www.greenfuelonline.com/contact\\_faq.html#Algae%20as%20a%20Crop](http://www.greenfuelonline.com/contact_faq.html#Algae%20as%20a%20Crop)

EU defends biofuel goals amid food crises - article  
[http://news.yahoo.com/s/afp/20080414/sc\\_afp/euunfarmpovertyenergypoliticsbiofuel\\_080414143918&printer=1;\\_ylt=Aiu3tyvirhnLG8Js8fVSHdDQOrgF](http://news.yahoo.com/s/afp/20080414/sc_afp/euunfarmpovertyenergypoliticsbiofuel_080414143918&printer=1;_ylt=Aiu3tyvirhnLG8Js8fVSHdDQOrgF)

The Complete Biogas Handbook  
<http://www.completebiogas.com>

Bekon Dry Fermentation technologies  
<http://www.bekon-energy.de/english/products.htm>

Renewable Energy Atlas of Australia  
<http://www.environment.gov.au/settlements/renewable/atlas/>

Organics Conversion Technologies  
<http://www.ciwmb.ca.gov/Organics/Conversion/>

Vermont Sustainable Jobs Fund (grass pellet energy)  
[http://www.vsjf.org/biofuels/Grass\\_Pellets.shtml#](http://www.vsjf.org/biofuels/Grass_Pellets.shtml#)

Methane – the world’s first ecolabelled fuel - article  
<http://www.svanen.nu/Default.aspx?tabName=NewsDetail&newsid=59701>

Pelletsales.com  
<http://www.pelletsales.com>

‘Growing Power – Bioenergy Solutions from Finland’  
[http://www.tekes.fi/julkaisut/GrowingPower\\_2009.pdf](http://www.tekes.fi/julkaisut/GrowingPower_2009.pdf)

Small scale gasifier experimenter’s kit  
<http://www.allpowerlabs.org/gasification/gek/downloads.html>

MakePellets.com  
<http://www.makepellets.com/>

Grass pellet video from MakePellets.com  
<http://www.youtube.com/watch?v=4Cq63ak0Fmw>

International Renewable Energy Agency  
<http://www.irena.org>

Biomass Research and Development Initiative  
<http://www.brdisolutions.com/default.aspx>

The Gallagher Review of the indirect effects of biofuels production. Renewable Fuels Agency  
[http://www.dft.gov.uk/rfa/db/documents/Report\\_of\\_the\\_Gallagher\\_review.pdf](http://www.dft.gov.uk/rfa/db/documents/Report_of_the_Gallagher_review.pdf)

Sustainable biofuels: prospects and challenges. Royal Society, London, UK  
<http://www.royalsociety.org>

BioCycle archive  
<http://www.jgpress.com/archive.html>

"Agrobiogas" Program  
<http://www.agrobiogas.eu>

‘San Benito County Sourcebook of Biomass Energy’ by Mark Jenner  
<http://www.recycleloan.org/San%20Benito%20County%20Biomass%20SourceBook.pdf>

Fecon Bio-harvester (small diameter wood)  
<http://www.fecon.com>

Penn State's Biomass Energy Center  
<http://www.bioenergy.psu.edu>

Green Crude Production  
<http://www.greencrudeproduction.com/>

Biohousing Project (EU)  
<http://www.biohousing.eu.com>

Methanol presentation World Bank  
<http://www.worldbank.org/html/fpd/ggfrforum06/belguedj/messiri.ppt>

Biomass Energy and Carbon  
<http://www.biomasse.com>

Bioenergy Research (Danish English language newsletters)  
<http://www.biopress.dk/FiB-UK.htm>

Wood Pellet Guide  
<http://www.biomasspelletmill.com>

Energy Locate (Elsevier)  
<http://www.energylocate.com>

BioEnergy International, LLC  
<http://www.bioenergyllc.com>

Primafuel (algae)  
<http://www.primafuel.com>

IEA Second Generation Biofuels report  
[http://www.iea.org/textbase/papers/2008/2nd\\_Biofuel\\_Gen.pdf](http://www.iea.org/textbase/papers/2008/2nd_Biofuel_Gen.pdf)

Biofuels and Climate Change  
<http://biofuelsandclimate.wordpress.com/>

Biomass fuels to the rescue? article  
[http://www.wfaa.com/projectgreen/greenarticles/stories/wfaa090106\\_lj\\_biomass.440e9f84.html](http://www.wfaa.com/projectgreen/greenarticles/stories/wfaa090106_lj_biomass.440e9f84.html)

Gasification equilibrium Charts

<http://gekgasifier.pbwiki.com/Gas%20Equilibrium%20Charts>  
PetroAlgae  
<http://www.petroalgae.com>  
ZeaChem (third generation ethanol)  
<http://www.zeachem.com>  
Mediterranean Energy and Ecology Center  
<http://www.meecenter.com>  
Biogas Wiki  
<http://biogas.wikispaces.com>  
Check Biotech  
<http://bioenergy.checkbiotech.org>  
World Bioenergy Association  
<http://www.worldbioenergy.org>  
Aboissa Óleos Vegetais – Brazil (vegetable oil trader from Brazil)  
<http://www.aboissa.com.br>  
NextStep Biofuels  
<http://www.NextStepBiofuels.com>  
POET video on cellulosic ethanol from corn cobs  
<http://link.brightcove.com/services/link/bcpid1214149085/bctid7022559001>  
RISI's Wood Biomass Market Report dispels 'overabundant waste wood' myth  
<http://www.risiinfo.com/technologyarchives/risi-wood-biomass-market-report-woodfiber-supply.html>  
Fluidized bed gasifiers  
<http://gasifiers.bioenergylists.org/search/node/fluidized%20bed>  
Michigan State University Product Center for Agriculture and Natural Resources  
<http://www.aec.msu.edu/product>  
MSU Office of Biobased Technologies  
<http://www.bioeconomy.msu.edu>  
Maxxtec Organic Rankine Cycle plant  
<http://en.maxxtec.net/index.html>  
Forest Guild report “An Assessment of Biomass Harvesting Guidelines”  
[http://www.forestguild.org/publications/research/2009/biomass\\_guidelines.pdf](http://www.forestguild.org/publications/research/2009/biomass_guidelines.pdf)  
Altus Renewables  
<http://www.altusrenewables.com>  
Untha shredding technology (Austria)  
<http://www.untha.com>  
Wood chippers list  
<http://tekes.fi/opet/pdf/chippers.pdf>  
Doty Energy  
<http://dotyenergy.com/Markets/Biofuels.htm>  
British Columbia Bioenergy Strategy  
<http://www.energyplan.gov.bc.ca/bioenergy>  
Canadian Agricultural Bioproducts Innovation Program (ABIP)  
<http://www.agr.gc.ca/abip>  
Biofuel Energy Systems Simulator  
<http://www.bess.unl.edu/>  
E-Fuel Ethanol Micro-refinery  
<http://www.efuel100.com/>  
Biofuel Partnership (BioCube biodiesel technology)  
<http://www.biofuelpartnership.com>  
Biomass Research and Development Initiative  
<http://www.brdisolutions.com/default.aspx>  
Biomass Power Association (US)  
<http://www.usabiomass.org>  
Universal Bioenergy, Inc.

<http://www.universalbioenergy.com>  
Husk Power (India)  
<http://huskpowersystems.com/Home.htm>  
Biofuels Partnership BioCube (biodiesel manufacturing at small scale)  
<http://www.biofuelpartnership.com/home.html>  
Gasification at GTI, USA presentation  
[http://media.godashboard.com//gti/Biomass\\_Gasification\\_at\\_GTI\\_Oct\\_2008.pdf](http://media.godashboard.com//gti/Biomass_Gasification_at_GTI_Oct_2008.pdf)  
Electricity Generating Facilities in NSW, January 2005  
<http://www.epa.nsw.gov.au/resources/biomaterial0510.pdf>  
Parkwood Wood Pellet Stoves  
<http://www.parkwoodfires.com.au>  
Terra Preta  
<http://terrapreta.bioenergylists.org/ecn030808>

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## International

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### **DOE and USDA Offer US\$25 Million for Biomass Research**

The US Department of Energy (DOE) and the U.S. Department of Agriculture (USDA) have announced that they will invest up to US\$25 million over the next four years, subject to annual appropriations, for the research and development of processes that produce biofuels, bioenergy, and high-value biobased products. This funding opportunity announcement (FOA) covers three technical areas: biomass feedstocks development; cellulosic biofuels and biobased products; and biofuels development analysis, including strategic guidance, analyses of the energy and environmental impact of biofuels production, and an assessment of the potential for biomass feedstock production on US federal lands.

The FOA is part of the Biomass Research and Development Initiative (BRDI), a joint effort between DOE and the USDA to accelerate research and development in bioenergy research and biobased products. It is open to higher education institutions, national laboratories, federal research agencies, state research agencies, private sector entities, non-profit organizations, and consortia of these types of entities. DOE and USDA anticipate that each awardee will receive up to US\$5 million over the next four years. Pre-applications are due on 6 March and final applications will be due on 1 June. See the [DOE press release](#), the [FOA](#) on Grants.gov, and the [BRDI Web site](#). Source: EERE newsletter

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### **USDA Guarantees an \$80 Million Loan for a Cellulosic Ethanol Plant**

The U.S. Department of Agriculture (USDA) announced that it has approved its first-ever loan guarantee to a commercial-scale cellulosic ethanol plant. Range Fuels, Inc. will apply the loan to the construction of its plant near Soperton, Georgia, that will convert wood chips into ethanol through a high-temperature gasification process. The loan guarantee falls under the Biorefinery Assistance Program that was authorised by the 2008 Farm Bill. The first phase of the Range Fuels plant is currently under construction, with production expected to begin in 2010. See the [USDA](#) and [Range Fuels](#).

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### **US Legislation to Stimulate Biomass and Renewable Energy**

The US Senate Finance Committee has approved an economic stimulus tax bill that would extend and expand tax credits for renewable energy. The US\$275 billion package, to be submitted to the full Senate includes approximately US\$34 billion for renewable energy, transmission, efficiency and storage. The measure would extend the existing tax credits for renewable energy, and create two new ones for manufacturing and research and development. Production tax credits would be extended through to 2013

for bioenergy and other renewable industries. An additional \$1.6 billion in direct funding would also be provided for facilities that generate electricity from renewable resources.

In addition, the U.S. House of Representatives has passed the American Recovery and Reinvestment Act of 2009, which contains several provisions related to bioenergy. One provision would make US\$18.5 billion available for energy efficiency and renewable energy projects. Of that, US\$2 billion would be allocated for energy efficiency and renewable energy research, development, demonstration and deployment activities, and to accelerate the development of technologies. Of the US\$2 billion, not less than US\$800 million would be allocated for biomass.

Under the legislative version passed by the House of Representatives, the U.S. Forest Service would be allocated \$650 million in funding to be used for a variety of purposes, including the development of alternative energy technologies and energy efficiency enhancements. \$850 million would be provided for wildland fire management, of which \$300 million would be allocated for hazardous fuels reduction, forest health, wood to energy grants and rehabilitation and restoration activities on federal lands. The remaining \$550 million would be allocated for state fire assistance hazardous fuels projects, volunteer fire assistance, cooperative forest health projects, city forest enhancements, and wood to energy grants on state and private lands.

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### **UK Makes Significant Investments in Biofuel Research**

The UK plans to invest £27 million in the Biotechnology and Biological Sciences Research Council's (BBSRC) Sustainable Bioenergy Centre (BSBEC). It has been launched to provide the science to underpin and develop the important and emerging UK sustainable bioenergy and biofuels sector. Together with 15 companies and organisations, the British Government has allocated funds for research into biofuels from non-food crops. Energy companies such as Shell and BP are also involved in these projects. The funds will be used, among other things, for six national research centres, which have been instructed to develop an alternative to petrol from willows and reeds, using new production methods for 2nd-generation ethanol. Researchers will also study other potential raw materials, such as industrial and agricultural waste. See: [http://bsbec.bbsrc.ac.uk/files/sustainable\\_bioenergy\\_information\\_pack.pdf](http://bsbec.bbsrc.ac.uk/files/sustainable_bioenergy_information_pack.pdf)

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### **Fish Oil to Biodiesel**

Approximately 2.5 million Euro has been allocated by the European Union to Finnish research centre VTT for development of a production plant to turn fish waste into biodiesel. The project, ENERFISH, which commenced last year, will continue through 2011 with efforts focussing on developing a plant for Hiep Thanh Seafood JSC, a Vietnamese waste processing company which produces 120 tonnes of fish waste per day that is currently only used in the animal fodder industry.

A consortium has been formed by companies from Finland (Preseco Oy and Vahterus Oy), France (Technofi), Germany (TÜV Rheinland) and the UK (NEF - the National Energy Foundation). The Vietnamese partners include Hiep Thanh Seafood JSC, ECC (Energy Conservation Center for Hochiminh City), RCEE Energy and Environment JSC, and AFI-Industry JSC.

See: [http://www.vtt.fi/whatsnew/2008/25112008\\_enerfish.jsp?lang=en](http://www.vtt.fi/whatsnew/2008/25112008_enerfish.jsp?lang=en)

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### **Bio-Ammonia Fertiliser and Biochar Plant for Iowa, USA**

SynGest, Inc. have announced that its venture to manufacture bio-ammonia from biomass will be launched in the state of Iowa. When the plant goes into operation in 2012, renewable corn stover (stalks, cobs, etc.) will help replenish soil with organic ammonia and biochar. The facility will process 450 tons per day of field-dried stover to yield 150 tons per day of ammonia plus 20 tons per day of bio-char and depending

upon local ammonia prices, the plant will generate annual revenues between US\$25 and US\$35 million. The plant will act as a net carbon sink, and will be the first of its kind in the world. It will create 30 full-time direct jobs. Handling, transportation of the stover and ammonia, and ancillary support services will generate the full-time equivalent of 100 additional jobs. Source: <http://www.biobasednews.com>

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## **Corn Ethanol Emits 51 % Less Greenhouse Gas Than Gasoline**

Research carried out to evaluate dry-mill ethanol plants that use natural gas is outlined in an article in the Journal of Industrial Ecology. These plants account for nearly 90 % of current US production capacity.

This research is the first to quantify the impact of recent improvements throughout the corn-ethanol production process, including crop production, biorefinery operations and co-product use. These newer biorefineries have increased efficiency and reduced GHG emissions through the use of improved technologies. Also contributing to corn ethanol's GHG performance are improvements in how the crop is grown, including improved crop and soil management, and better hybrids that help farmers achieve a steady increase in corn yields without having to increase fertilizer or energy inputs.

Fuel that is 48 to 59 percent lower in direct-effect lifecycle greenhouse gas emissions than gasoline is currently being produced and the net energy ratio, which averaged 1.2 to 1 in earlier studies, is 1.5-1.8 to 1 in the recent research. The study did not take into account indirect land use change.

See report: <http://dx.doi.org/10.1111/j.1530-9290.2008.00105.x>

Source: <http://www.cattlenetwork.com/Content.asp?ContentID=284922>

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## **Forthcoming Events**

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- JatrophaWorld Asia 2009  
16-17 February 2009  
Kuala Lumpur, Malaysia  
<http://www.futureenergyevents/jatropha>
- Sixth Australian Conference on Life Cycle Assessment: “Sustainability Tools for a New Climate  
16 – 19 February, 2009  
Langham Hotel, Melbourne  
<http://www.alcas.asn.au> or contact The Conference Organiser on 03 93492220
- REC Quarterly Review  
1.30pm – 5.00pm 19 February 2009  
Novotel Hotel, 200 Creek Street, Brisbane  
1.30pm – 5.00pm 19 March 2009  
Intercontinental Hotel, 495 Collins Street Melbourne  
Green Energy Events Tel: 03 9811 9986.  
<http://www.greenmarkets.com.au> and <http://www.nges.com.au>
- RFA 14<sup>th</sup> Annual National Ethanol Conference  
23-25 February 2009  
Henry B. Gonzales Convention Center, San Antonio, Texas, USA  
<http://www.nationalethanolconference.com>
- World Sustainable Energy Days 2009 (Includes European Pellet Conference)  
25 -27 February 2009  
Stadthalle Wels, Austria.  
<http://www.wsed.at/>
- RETECH 2009: Renewable Energy Technology Conference & Exhibition  
25-27 February 2009

- Las Vegas Convention Centre, Las Vegas, Nevada, USA  
<http://www.retech2009.com/>
- Renewtech India 2009  
 3-5 March 2009  
 Pune, India  
<http://www.renewtechindia.com/PDF/Brochure.pdf>
  - Global Sustainable Feedstock Bio fuel, and Biochemical Summit  
 3-6 March 2009  
 Kuala Lumpur, Malaysia  
<http://www.neo-edge.com>
  - The 15th Annual Fuels and Lubes Asia Conference  
 4-6 March 2009  
 InterContinental Hanoi Westlake, Hanoi, Vietnam  
<http://www.fuelsandlubes.asia/hanoi>
  - Bioenergy - II: Fuels and Chemicals From Renewable Resources  
 March 8-13, 2009  
 Rio de Janeiro, Brazil  
<http://www.engconfintl.org/9af.html>
  - Climate Change and Emissions  
 9-10 March Sydney – Rydges World Square  
 3-4 August Melbourne – Medina Grand  
 IIR Executive Development  
<http://www.iired.com.au>
  - PPP in Waste - including a workshop: CHP in Waste  
 9 and 10 March 2009  
 The Crowne Plaza - St James, London, UK.  
<http://www.smi-online.co.uk/2009waste.asp>
  - 2<sup>nd</sup> Annual Canadian Renewable Energy Workshop  
 9-11 March 2009  
 Regina, Saskatchewan, Canada  
 Email: [CREW@bbiinternational.com](mailto:CREW@bbiinternational.com)  
<http://www.crew2009.com>
  - 3rd International Energy Farming Congress  
 10 - 12 March 2009  
 Papenburg, Germany.  
 Contact: Reent Martens, Tel.: +49 (0) 5951-9893-14 Email: [martens@3-n.info](mailto:martens@3-n.info)  
<http://www.3-n.info>
  - Renewable Energy World Conference & Expo North America  
 10-12 March 2009  
 Rio All-Suite Hotel & Casino, Las Vegas, Nevada, USA  
<http://rewna09.events.pennnet.com/fl//index.cfm>
  - Energy from Waste and Biomass  
 11 March 2009  
 Venue: Institute of Materials, Minerals and Mining, London, UK  
 Website: [www.ion3.org/events/waste](http://www.ion3.org/events/waste)  
 Contact: Dawn Bonfield  
 Email: [dawn.bonfield@ion3.org](mailto:dawn.bonfield@ion3.org)  
 Tel: +44 (0)1438 821 740
  - CANA Conference 2009 : 'The climate movement in 2009: The Turning Point'  
 March 11 – 12 2009  
 Melbourne Town Hall  
[http://www.cana.net.au/index.php?site\\_var=351](http://www.cana.net.au/index.php?site_var=351)
  - World Biofuels Markets  
 16 - 18 March 2009  
 Brussels Expo Centre, Belgium

- <http://greenpower.msgfocus.com/q/1oMZk0osiGQvr/wv>
- Biomass 2009: Fueling Our Future  
17-18 March 2009  
Gaylord National in National Harbor, Maryland, USA  
<http://biomass2009.com/>
  - Algae Biofuels World Summit  
23-25 March 2009  
Marines' Memorial Club & Hotel, San Francisco, CA  
<http://www.infocastinc.com/index.php/conference/algae09>
  - EECA Biofuels & Electric Vehicles Conference 2009  
24 March 2009, 9am-5pm  
Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand.  
<http://www.eeca.govt.nz/renewable-energy/biofuels/biofuels-conference.html>
  - Workshop 'The Current Status of Liquid Biofuels Supply in New Zealand - Addressing the Supply Opportunities'  
25 March 2009  
Renouf Foyer, Wellington Convention Centre, Wellington, New Zealand  
<http://www.bioenergy.org.nz>
  - 1st International Wood Energy Conference in Romania – Modern Wood Energy Systems: a New Opportunity for Romania & South-East Europe  
26-28 March 2009  
Calea Aurel Vlaicu FN, Arad, Romania  
<http://www.enreg-expo.com>
  - 5th AustralAsian Cleantech Forum  
1 - 2 April 2009  
Melbourne Victoria  
<http://www.cleantechforum.com>
  - Waste 2009 Conference  
1-3 April 2009  
Novotel Pacific Bay, Coffs Harbour, New South Wales, Australia  
<http://www.impactenviro.com.au/waste2009>
  - The 2nd Annual Biomass Supply Chain Conference  
2-3 April 2009  
The Ritz Carlton, 100 Carondelet Plaza, St. Louis, MO USA  
<http://www.biomassupdate.org>
  - Bois Energie 2009 Expo  
2-5 April 2009  
Lons-le-Saunier, France.  
<http://www.boisenergie.com>
  - BIT Life Sciences' 2nd Annual World Congress of Industrial Biotechnology 2009  
Theme: Innovative Biotechnology for Sustainable Bio-economy  
5-7 April 2009  
Seoul, South Korea  
<http://www.bit-ibio.com>
  - Biogas for Electricity and Heat – part one  
BIOGAS 101  
6-7 April 2009  
The Hyatt Regency, Minneapolis, MN, USA  
<http://www.euci.com/pdf/0409-biogas-101.pdf>
  - Biogas for Electricity and Heat – part two  
Advanced Biogas  
7-8 April 2009  
The Hyatt Regency, Minneapolis, MN, USA  
<http://www.euci.com/pdf/0409-adv-biogas.pdf>
  - Biofuels, Bioenergy and Carbon Trading

- 21-22 April 2009  
Melbourne Park Function Centre in conjunction with the APPITA Annual conference  
<http://www.appita.com.au>
- China EPower  
23-25 April 2009  
Intex Shanghai, China  
<http://www.china-epower.com>
  - Biocycle International Conference 2009  
Waste Diversion, Composting and Renewable Energy  
27-30 April 2009  
San Diego, California, USA.  
<http://www.biocycle50.com/>
  - International Biomass Conference and Trade Show (BBI Event)  
28-30 April 2009  
Oregon Convention Center, Portland, Oregon, USA.  
<http://www.biomassconference.com>
  - EcoForum Conference & Exhibition  
28 - 30 April 2009  
Australian Technology Park, Sydney  
Email [Quitiz@ecoforum.net.au](mailto:Quitiz@ecoforum.net.au)  
<http://www.ecoforum.net.au/2009/>
  - 31st Symposium on Biotechnology for Fuels and Chemicals  
3-6 May 2009  
San Francisco, USA  
<http://sim.confex.com/sim/31st/cfp.cgi>
  - Excellence in Investment: Life Sciences Asia Pacific 2009  
4 - 5 May 2009  
Sheraton Mirage Hotel, Gold Coast, QLD Australia  
<http://www.resourcefulevents.com/page/excellence-in-investment-life-sciences>
  - 10th Annual National Emission Trading Summit  
7-8 May 2009  
Sydney Harbour Marriott Hotel.  
<http://www.informa.com.au>
  - Asia Pacific Biochar Conference  
17 – 20 May 2009  
Watermark Hotel, Gold Coast Australia  
Email: [leanne.munro@dpi.nsw.gov.au](mailto:leanne.munro@dpi.nsw.gov.au)  
<http://www.biochar-international.org/>
  - Ligna 2009  
18 – 22 May 2009  
Hannover Germany  
<http://www.ligna.de>
  - All Energy 09  
20-21 May 2009  
Aberdeen UK  
<http://www.all-energy.co.uk>
  - Power-Gen Europe  
26-28 May 2009  
Koelnmesse, Cologne Germany  
<http://www.powergeneurope.com>
  - Waste-Tech  
26 - 29 May 2009  
Moscow, Russia  
<http://www.waste-tech.ru>

- IEA Bioenergy Task 39 Workshop “From today’s to tomorrow’s biofuels - from the Biofuels Directive to bio based transport systems in 2020”  
2 – 5 June 2009  
Steigenberger Parkhotel Dresden-Radebeul, Germany  
Contact: Dina Bacovsky Email: [IEA\\_Bioenergy\\_Task39@abc-energy.at](mailto:IEA_Bioenergy_Task39@abc-energy.at)
- Elmia Wood  
3 – 6 June 2009  
Jönköping Sweden  
<http://www.elmia.se/wood>
- Residues to Revenues 2009  
15-16 June 2009  
Melbourne, Victoria.  
<http://www.woodresidueevents.com>
- International Fuel Ethanol Workshop and Expo  
15 – 18 June 2009  
Colorado Conventional Center, Denver, Colorado, USA  
<http://www.fuelethanolworkshop.com>
- 17th European Biomass Conference and Exhibition. From Research to Industry and Markets.  
CCH – Congress Center Hamburg, Germany  
Conference 29 June - 3 July 2009  
Exhibition 29 June - 2 July 2009  
Contacts:  
Tel. +39 055 5002280  
Fax +39 055 573425  
[biomass.conference@etaflorence.it](mailto:biomass.conference@etaflorence.it) <http://www.conference-biomass.com>
- International Symposium on Energy Engineering, Economics and Policy: EEEP 2009  
10-13 July 2009  
Orlando, Florida, USA  
<http://www.ICTconfer.org/eeep>
- The Sixth Annual World Congress on Industrial Biotechnology & Bioprocessing  
19-22 July 2009  
Montreal, Quebec, Canada  
<http://www.bio.org/worldcongress>
- 10th International Congress of Ecology  
16 – 21 August 2009  
Brisbane, Australia  
Contact details: INTECOL 2009 Congress Managers,  
GPO Box 128, Sydney NSW 2001 AUSTRALIA  
Tel: 02 9265 0700 Email: [intecol10@tourhosts.com.au](mailto:intecol10@tourhosts.com.au)  
<http://www.intecol10.org>
- IEA Bioenergy Multitask Meeting  
Biofuels and Bioenergy: A changing climate  
24-28 August 2009  
University of British Columbia, Vancouver, Canada  
Contact: [emmanuel.ackom@ubc.ca](mailto:emmanuel.ackom@ubc.ca)  
<http://www.task39.org>
- Bioenergy 2009 – Sustainable Bioenergy Business  
31 August – 4 September 2009  
Jyvaskyla Fair and Congress Centre, Finland.  
<http://www.finbioenergy.fi/bioenergy2009>.
- World Bioenergy – Clean Vehicles & Fuels 2009  
14 – 15 September 2009 – conference tours  
16 – 18 September 2009 - conference.  
Stockholm, Sweden.  
[http:// www.wbcfv2009.se](http://www.wbcfv2009.se)

- 2009 International Conference on Thermochemical Biomass Conversion Science  
16-18 September 2009  
Sheraton Chicago Hotel & Towers, Chicago, USA.  
<http://www.gastechnology.org>
- International Bioenergy Days 2009  
26-30 September 2009  
Trollhättan Sweden  
<http://www.bioenergydays.com>
- World Congress on Oils & Fats & 28th ISF Congress  
27-30 September 2009  
Sydney, Australia  
<http://www.isfsydney2009.com>
- IEA Bioenergy Task 31 International workshop on “Forests Under Pressure?! Bioenergy – Forest Industry – The Public”  
5-8 October, 2009  
Wershofen (Eifel), Germany.  
<http://www.ieabioenergytask31.org>
- CAN BIO Annual Bioenergy Conference  
14 -16 October 2009  
Edmonton, Canada  
[http://www.canbio.ca/canbio\\_events.html](http://www.canbio.ca/canbio_events.html)
- UN Framework Convention on Climate Change  
30 November – 11 December 2009  
Copenhagen, Denmark  
<http://www.unfccc.int>

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## Residues

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**Bioenergy conferences:** Bioenergy Australia has agreed to sponsor the Australian leg of the biennial Residues to Revenues 2009 conference, organised by the Forest Industries Engineering Association. This conference will be held in both Rotorua, New Zealand and in Melbourne, Victoria. See the entry in the Forthcoming Events section above. Bioenergy Australia has also entered into a reciprocal arrangement with the organisers of the 17<sup>th</sup> European Biomass Conference and Exhibition to be held in Hamburg, Germany 29 June to 3 July. See above Forthcoming Event notice.

**Coal-biomass Cofiring Handbook:** Following the closure of the Cooperative Research Centre for Coal in Sustainable Development (CCSD), Bioenergy Australia has acquired the distribution rights for the 284 page Coal-Biomass Cofiring Handbook, produced by the former CRC. Please contact Dr Stephen Schuck, Bioenergy Australia Manager if you wish to acquire a copy of this handbook. It is being provided at no charge to financial Bioenergy Australia members. Email: [sschuck@bigpond.net.au](mailto:sschuck@bigpond.net.au)

**IEA Bioenergy Reports:** A number of new bioenergy related reports have been placed on the IEA Energy website at <http://www.ieabioenergy.com>. These include:

- Task 41, Project 1: Synergies and Competition in Bioenergy Systems - Final Report
- Bioenergy News, Volume 20(2), December 2008
- Biofuels for Transport: Part of a Sustainable Future? - summary and conclusions - ExCo61 Workshop
- Full Report and Extended Executive Summary - From 1st- to 2nd-Generation Biofuel Technologies: An overview of current industry and RD&D activities (A joint Task 39 and IEAHQ Report)
- Innovation in Bioenergy Business Development: summary and conclusions - ExCo60 Workshop
- Gaps in the Research of 2nd Generation Transportation Biofuels

- Biomass Hot Issue: Smart Choices in Difficult times - Energy Transition, Biobased Raw Materials Platform, Sittard, the Netherlands.
- IEA Bioenergy 2007 Annual Report

**From 1st- to 2nd-Generation Biofuel Technologies:** A study titled 'From 1st- to 2nd-Generation Biofuel Technologies - An Overview of Current Industry and RD&D Activities' has just been published by the IEA's renewables team in association with the IEA Bioenergy program. This new 120-page report can be downloaded free, along with an Extended Executive Summary, from the IEA website.

See [http://www.iea.org/Textbase/publications/free\\_new\\_Desc.asp?PUBS\\_ID=2079](http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=2079)

**New Energy for America:** President Obama's plan calls for a federal investment of \$150 billion over the next decade to catalyse private efforts to build a clean energy future. Specifically, the plan calls for:

- renewable energy to supply 10% of the nation's electricity by 2012, rising to 25% by 2025
- an economy-wide cap-and-trade program to achieve an 80% cut in greenhouse gas emissions by 2050; and
- a national standard to reduce the carbon emissions from our motor fuels.

See the President's [New Energy for America plan](#) on the White House Web site.

**NSW Sustainability Criteria for Biofuels:** It is being proposed that imported biofuel will have to be certified to conform to the Principles and Criteria of the Roundtable on Sustainable Biofuels to be counted towards fulfilment of the New South Wales state biofuel mandate,. This standard is currently in draft form, but is expected to be finalised by June 2009. See <http://cgse.epfl.ch/page65660.html>

**Mitr Phol Sugar Group Ltd:** Thailand's largest sugar producer has begun operating its third ethanol plant, with a 200,000 litre per day capacity. The plant, unlike the two currently run by the company will use the Brazilian model - whole sugar cane as the raw material instead of the byproduct, molasses. Mitr Phol, which is also the country's biggest ethanol supplier, will begin operating its fourth plant at the end of 2009, which will also have a daily capacity of 200,000 litres. The Thai government plans to expand the proportion of ethanol in petrol from the present 10 percent (E10) to E85.

**Waste-to-Energy Facility for Maryland, USA :** The first new greenfield waste-to-energy plant is to be constructed in the U.S. in more than a decade. Wheelabrator Technologies Inc., a wholly owned subsidiary of Waste Management, Inc. is the preferred vendor to construct and operate a new, regional waste-to-energy facility that will serve the solid waste disposal and energy needs of Frederick and Carroll Counties. The approval phase will begin in the near future and take approximately two years, followed by a three-year engineering and construction period, with a projected completion date in 2014. 1000 workers will be employed during the construction phase, and approximately 50 full-time employees to operate the plant which will process up to 1,500 tons per day of municipal solid waste with an electric generating capacity of 55 MW. It is expected to offset the release of approximately 500,000 tons of greenhouse gases per year.

**European Biofuels Technology Platform 2nd Stakeholder Plenary Meeting:** The presentations from the European Biofuels Technology Platform *2nd Stakeholder Plenary Meeting - Implementing the Strategic Research - Agenda for Sustainable Biofuels: From pilots to demonstration plants*, held in Belgium, 22 January 2009 are at: [http://www.biofuelstp.eu/spm2/spm2\\_prog.html#pres](http://www.biofuelstp.eu/spm2/spm2_prog.html#pres).

**Landfill Gas to Create Elemental Hydrogen and Carbon:** Southern California-based Catalyx Nanotech is looking for sources of landfill gas to demonstrate its process of separately capturing elemental hydrogen and carbon. The hydrogen will be used in on-site fuel cells to produce electricity. The carbon can be sold as a valuable, high-grade graphite suitable for nanomaterials applications. CatalyxNano has teamed with infrastructure developer Dudek to commercialise the bio-hydrogen process. See: <http://www.catalyxnano.com>.

**Microalgae Pyrolysis:** A paper on microalgae pyrolysis by Scott Grierson et al has now been published. See: ["Thermal characterisation of microalgae under slow pyrolysis conditions"](#).

**ATSE Report:** Following the successful launch of the 'Energy Technology for Climate Change: Accelerating the Technology Response', a copy of the ATSE report is available at website: <http://www.atse.org.au/index.php?sectionid=128>

**Bio-Oils and Products from Biomass:** Agri-THERM Limited is developing, manufacturing and marketing portable and stationary equipment for the production of bio-oils and products from biomass, specifically agricultural residues, wastes and transition crops. In collaboration with the Western Fluidization Group, Faculty of Engineering, University of Western Ontario, a unique fluid bed reactor has been designed and patented. This has allowed a mobile pyrolysis plant that addresses the unique issues associated with agricultural products to be designed and built. <http://www.agri-therm.com/about.html>

**Cosun and Avantium Announce Collaboration:** Royal Cosun and Avantium of the Netherlands have announced they are to collaborate in the production of a new generation of bioplastics and biofuels from selected organic waste streams under the name 'Furanics'. The duration of the first phase of the collaboration will be approximately two years and will see Cosun focusing on the selection, isolation and purification of suitable components from agricultural waste streams with Avantium to continue to focus on the development of an efficient, chemically catalysed production process. Their strategy is to produce Furanics from raw materials that do not compete with the food chain.

**Study: Global Feedstock Yields are Overestimated:** A US research study 'Resetting global expectations from agricultural biofuels' which considered 20 different biofuels feedstocks across 240 countries has found that global yields of most biofuels crops have been overestimated by up to 150 percent. This overestimation has been because the differences in climate, soils, technology, etc that have not been taken into account from the US and European data. The full research article, "Resetting global expectations from agricultural biofuels," can be accessed from: <http://www.iop.org/EJ/abstract/1748-9326/4/1/014004/>

**New European Project on Regional Bio-Energy Partnerships:** The new bio-project 'Decision-making and implementation tools for delivery of local and regional bio-energy chains' (MAKE-IT-BE), working in conjunction with other bio-energy experts and cities, will run until 2011. Its aim is to support development and implementation of integrated bioenergy chains in four EU regions which will result in creating new businesses and jobs, new markets and services at the local level. The project is co-funded by the European Commission under the Intelligent Energy Europe (IEE) Program. See: <http://ec.europa.eu/energy/intelligent/>

**Demonstration Flight using Sustainable Biofuel:** Japan Airlines (JAL) became the first airline to conduct a demonstration flight using a sustainable biofuel primarily refined from the energy crop, camelina. The biofuel component tested was a mixture of three second-generation biofuel feedstocks: camelina (84%), jatropha (under 16%), and algae (under 1%). It is expected that commercial aircraft will begin to widely use sustainable next-generation biofuels in 3-5 years.

**Covanta Energy to Build \$575 Million Energy-from-Waste Plant in Wales, UK:** Plans are underway to build a US\$575 million, 70 MW waste to energy plant in Wales. Almost 500 jobs will be created during construction of the plant, which will have a full-time staff of approximately 100 when it is operational in 2014. It will take approximately 730,000 tonnes of waste per year.

**Dow, Süd-Chemie to Turn Syngas into Chemicals, Fuel:** The Dow Chemical Co. will work with Süd-Chemie Group to develop catalysts that can be used to convert syngas derived from biomass to hydrocarbons for the production of liquid fuels and chemicals. The collaboration will involve US, Dutch and German scientists.

**Biofuels Alarmism:** An interview with Lord Browne of Madingley, the former head of BP on biofuels alarmism is at: [http://business.timesonline.co.uk/tol/business/industry\\_sectors/natural\\_resources/article4974872.ece](http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article4974872.ece)

**Youtube video:** A 1 minute 23 second Youtube video of a small scale biomass gasifier powering a Stirling engine is at: <http://au.youtube.com/watch?v=9KX0EsNWQZo&feature=related>

**NextStep Biofuels supply agreement:** NextStep Biofuels Inc. has signed a 20-year feedstock procurement contract with Arkansas-based wood processor The Price Cos. to provide 500,000 tons of wood-based residues annually for conversion into cellulosic ethanol.

**Report assesses wood harvesting guidelines:** A new report, “An Assessment of Biomass Harvesting Guidelines” from the US Forest Guild reviews various states’ biomass harvesting guidelines that advise how much woody biomass to remove and how much should be left to promote the healthy longevity of watersheds, wildlife habitat and long-term forest productivity. The report notes the importance that dead wood plays in the health of a forest by providing wildlife habitat, cycling nutrients, aiding plant regeneration, decreasing erosion, and storing carbon. Other recommendations in the report include considering the full range of potential impacts from biomass removal when developing guidelines; incorporating public input and collaboration into the guideline development process; and clearly defining terms such as ‘woody biomass.’ The report is available online at: [http://www.forestguild.org/publications/research/2009/biomass\\_guidelines.pdf](http://www.forestguild.org/publications/research/2009/biomass_guidelines.pdf)

**25 MW gasification plant for Alberta, Canada:** Otoka Energy Inc., Energy Products of Idaho and B&A Inc. have announced the construction of a gasification plant near Edmonton, Alberta that will produce 25 MW of electricity and that will eventually be extended to produce syngas and liquid biofuels from forestry residues. The plant is expected to be operational in 2012.

**Enerkem syngas-to-ethanol plant:** Enerkem Inc. has established a commercial-scale syngas-to-ethanol/methanol plant in Westbury, Quebec, Canada. The 4.9 million litres per year plant uses catalytic synthesis technology to convert gasified wood waste to fuel. The company reports a conversion rate of 360 litres ethanol per ton of waste.

**Sale of Global Renewables Eastern Creek Facility:** GRD Limited has announced that the sale of its Global Renewables Eastern Creek. UR-3R™ Facility in Sydney has now been completed.

**7-MW CHP Bioenergy Plant in Scotland:** Planning permission has been granted for a joint development between Helius Energy plc and The Combination of Rothes Distillers Limited (CoRD) for the installation of a GreenSwitch biomass-fuelled combined heat and power (CHP) plant at CoRD's existing site to the north of Rothes. The unit will use a combination of distillery co-products and wood chips to generate 7.2 MW of electricity, to be used on site or exported to the grid and the project will turn the liquid co-product of whisky production into a concentrated organic fertiliser. Representing an investment of approximately £35 million (\$78 million), it is expected to take 18-24 months to construct the plant.

**Bioenergy CHP installation at Scotland's largest distillery:** Diageo has also announced plans for a bioenergy CHP installation at Scotland's largest distillery, Cameronbridge in Fife. Producing around 6 MWe and some 25 MWth, the system will treat the spent wash by separating solids with a belt press, before the liquid portion goes to an anaerobic digester. In this case the treated digester water is expected to provide around 30 percent of the distillery's energy needs. Costing approximately £65 million (\$144 million), the planned facility is believed to be the largest single investment in renewable technology by a non-utility company in the UK and will provide around 98 percent of the thermal steam and 80 percent of electrical power used at the distillery. Around 90,000 tonnes of co-products, which would have required transport off-site by road, will be used at the distillery. [http://www.cospp.com/display\\_article/350367/122/ARTCL/none/NEWS/1/On-site-power-for-distillery/?dcmp=COSPP\\_NEWS](http://www.cospp.com/display_article/350367/122/ARTCL/none/NEWS/1/On-site-power-for-distillery/?dcmp=COSPP_NEWS)

**Verenium to build first cellulosic ethanol plant:** Verenium Corporation has announced plans to build its first commercial-scale cellulosic ethanol facility in Florida, USA. The company has entered into long-term agreements to provide the agricultural biomass for conversion to fuel and that the Highlands Ethanol

project has been awarded a US \$7 million grant as part of Florida's "Farm to Fuel" initiative. The use of next-generation cellulosic ethanol technology to convert renewable grasses to fuel will be a first for the State of Florida and with up to 136 million litres of cellulosic ethanol per year being produced will provide the region with 140 full-time jobs, once commercial operations begin. Construction is expected to start in the second half of 2009 with fuel production in 2011. It is estimated to cost between US \$250 and US \$300 million to build.

**Cropping management is a key factor in estimating greenhouse gas emissions:** An article entitled 'Biofuels, Land Use Change, and Greenhouse Gas Emissions: Some Unexplored Variables' by Hyungtae Kim, Seungdo Kim and Bruce E. Dale notes that several existing land use change studies did not consider many of the potentially important variables that might affect the greenhouse gas emissions of biofuels. Their analysis shows that cropping management is a key factor in estimating greenhouse gas emissions associated with land use change. Sustainable cropping management practices (no-till and no-till plus cover crops) reduce the payback period to 3 years for the grassland conversion case and to 14 years for the forest conversion case. See: <http://pubs.acs.org/doi/abs/10.1021/es802681k>

**UK modifies biofuel objective:** The UK has changed its 2009/2010 biofuel target slightly, to 3.25%. This is in line with the recently published Gallagher Review, which suggests that the threat to food production leads to a reduced biodiversity, and possibly even to an increase in carbon dioxide emissions, rather than a reduction. UK and European biofuel targets are accordingly moving more slowly, until such time as proven effective measures are found which make this threat more manageable.

**"Growing Power – Bioenergy Solutions from Finland" document:** This publication features Finnish bioenergy over the entire value chain from stump to energy, including related processes and technologies, which have been mainly developed in Finland. By 2050, bioenergy has the potential to become the market leader for heating, the main source of renewable electricity and to provide a significant share of fuels used in transport. See: [http://www.tekes.fi/julkaisut/GrowingPower\\_2009.pdf](http://www.tekes.fi/julkaisut/GrowingPower_2009.pdf)

**Gasification Video:** A YouTube video of Gasification Australia's Tasman Class gasifier (15 kWe) may be viewed at <http://www.youtube.com/watch?v=PWvJJiMKe5o>

**U.K. Electricity Investments:** UK companies need to invest £100 billion (\$222 billion) by 2020 to ensure secure supplies and meet targets for renewable-energy production, according to the country's Association of Electricity Producers.

**Large Scale Bioenergy Plants for UK:** Drax Group Plc, owner of western Europe's biggest coal-fired power plant and the utility E.ON AG have received agreements to connect new biomass stations to Britain's transmission network. Drax got a 290 MW agreement for a plant at Killingholme, northeast England, from 31 Oct. 2014 while E.ON, Germany's biggest utility, obtained an agreement for a 150 MW plant at Bristol's Portbury Dock from 2 Jan. 2013. Drax, based in Selby, U.K., said in October 2008 it would build three, 300 megawatt-capacity biomass plants, with the first operating by 2014. See: [http://www.bloomberg.com/apps/news?pid=20601102&sid=a\\_5BI9gulUuk&refer=uk](http://www.bloomberg.com/apps/news?pid=20601102&sid=a_5BI9gulUuk&refer=uk)

**Renewable diesel hydrogen supply:** Praxair, Inc. has been awarded a contract to supply hydrogen to Cetane Energy, LLC for the production of second-generation renewable diesel from tallow at its biorefinery in Carlsbad, New Mexico, USA.

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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.

- **A new call for IRSES** (International Research Staff Exchange Scheme). This program is administered by the Australian Academy of Science and provides a good opportunity to create links to European research centres and establish exchange schemes between relevant institutions. The closing date is the 27 March 2009. See: <http://www.science.org.au/internat/irses.htm> and [http://cordis.europa.eu/fp7/dc/?fuseaction=UserSite.PeopleDetailsCallPage&call\\_id=174](http://cordis.europa.eu/fp7/dc/?fuseaction=UserSite.PeopleDetailsCallPage&call_id=174).
- **Biotechnology Trade Mission to Canada:** Bob Gow of the Consulate General of Canada, Sydney is seeking expressions of interest from interested parties to participate in a trade mission surrounding the World Congress on Industrial Biotechnology & Bioprocessing, 19-22 July 2009 to be held in Montreal, Quebec, Canada. The Consulate arranges customised programs across Canada according to participants' interest. Contact Bob Gow, tel: (02) 9364 3045, email: [Robert.Gow@international.gc.ca](mailto:Robert.Gow@international.gc.ca).
- **French student seeks placement:** Arnaud Gallais, a French Physics Engineering student from Polytech Clermont (CUST), seeks a three month internship from June to August 2009 with an Australian company or in a laboratory to complete his master's degree. For further information, please contact [arnaud.gallais@polytech.univ-bpclermont.fr](mailto:arnaud.gallais@polytech.univ-bpclermont.fr)
- **Supervisor required for PhD student in Mauritius.** Pradeep Jaising Goburdhun from Mauritius completed his BSc in Natural Sciences in South Africa at UNISA and has recently completed his Masters degree at the University of Nottingham, UK and was awarded a distinction and was a gold medallist. He is looking for a supervisor for a PhD in Bioenergy related to genetic evaluation of sugar cane cultivars bred for high fibre. He is also looking for a job opportunity that in Australia in the field of Bioenergy. Email [pjgoburdhun@yahoo.com](mailto:pjgoburdhun@yahoo.com), [pgoburdhun@msiri.intnet.mu](mailto:pgoburdhun@msiri.intnet.mu)
- **Research/academic position required:** Mohammad Nora Alam Bhuiyan who is completing his PhD at the Graduate School of Mechanical Engineering, Tokyo Metropolitan University, Japan is seeking a research or research and academic job in Australia. Current activities are mainly centred on pyrolysis and gasification of biomass. Email: [alam78bh@ed.tmu.ac.jp](mailto:alam78bh@ed.tmu.ac.jp) or [nalambh@yahoo.com](mailto:nalambh@yahoo.com). Tel: +81 42 677 1111 Ext 4162 (Lab).
- **Post-doctoral fellows required:** The POPFULL project (European Research Council project, System analysis of a bio-energy plantation: full greenhouse gas balance and energy accounting) requires two new post-doctoral fellows to join the lab of Plant and Vegetation Ecology at the University of Antwerp, Belgium (PLECO); the group of Prof. Dr. Reinhart Ceulemans. Details on <http://www.ua.ac.be/main.aspx?c=reinhart.ceulemans&n=14&pid=23412&more=0>
- **The Hermon Slade Foundation Research Grants:** The Hermon Slade Foundation supports topics which are designed to improve the ways in which individuals and communities interact with their natural environments. The Foundation provides support, on a competitive basis, for three types of activity.
  - The top priority is to encourage high quality research by scientists in Australian national or state institutions, and universities.
  - Periodically, capital grants may be made to help finance equipment or facilities which are needed to encourage relevant studies by either scientists or the general community within Australia.
  - Occasional support may also be given to such activities as training, publications or conferences.Amount of Funding available: \$30,000 per year for up to three years. For more details and a copy of the instructions and application form, visit <http://www.hermonslade.org.au/guidelines.html>. To download the application form visit

[http://www.hermonslade.org.au/HSF\\_application\(Rev%202008\).doc](http://www.hermonslade.org.au/HSF_application(Rev%202008).doc). Applications close at the Hermon Slade Foundation on Friday 13 March 2009 at 5.00 pm.

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## Self-Managed Subscription to Bioenergy Australia Newsletters

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

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

Any comments, suggestions, articles and feedback are welcome. The views expressed in this newsletter are not necessarily those of the member organisations. Bioenergy Australia may be contacted at:

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