BIOENERGY Australia

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

Newsletter

September 2002

Bioenergy Australia Membership[1] Update

The Bioenergy Australia membership now includes 48 organisations, with recent new members being AGL, Resource New South Wales, MBAC Consulting Pty Ltd, and Environment Australia. 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 if your organisation is interested in joining this bioenergy forum. Bioenergy Australia has now set up a new membership tier to cater for universities and for organisations with an annual turnover of less than $2 million per annum.

Bioenergy Australia 2002 Conference

The third annual Bioenergy Australia Conference will be held 2 –3 December at the Manly Pacific Parkroyal Hotel, Manly, New South Wales. The theme of this year's conference is 'Sustainable Energy for Society, the Economy and the Environment'. Coupled to the conference is an optional technical tour on 4 December to Sydney Water Corporation's 497 kW Cronulla Sewage Treatment anaerobic digestor, to Energy Development's Lucas Heights 11 MW landfill gas power plant and to Brightstar Environmental's SWERF gasification plant near Wollongong (followed by an end-of-conference airport drop-off).

The conference program will focus on policies, programs, prospects for bioenergy and biobased products, and will include sessions on liquid biofuels, waste to energy and new developments in bioenergy. A feature of this year's conference is two extended panel discussions and forums on 'achieving sustainability through bioenergy' and on 'the evolving market for bioenergy'. The conference is linked to an IEA Bioenergy Task 36 meeting (Energy from Integrated Solid Waste Management Systems) at the same venue (5-6 December) and several international experts from this Task will be participating and contributing to the conference program. Two international keynote speakers, Associate Professor Ralph Sims from New Zealand and Dr Niranjan Patel from the United Kingdom are also lined up to contribute to the program. Professor Tony Bridgwater, Director Energy Research Group at Aston University, UK, an international leader in pyrolysis and gasification technology development will also be presenting the latest advances in thermal conversion of biomass. **Ian Kiernan** (a Director of CVC REEF – one of the sponsors), of Clean Up Australia fame has agreed to be the conference dinner speaker.

[1] Founding members: RIRDC and the Australian Greenhouse Office. Membership now also includes DITR, BRS, CSIRO Energy Technology & Forestry and Forest Products, FPA of NSW/Clean Green Energy Company, Pacific Power, Delta Electricity, Macquarie Generation, Waste Service NSW, Brightstar Environmental & BEST, SEDA, SPM/CPM, Forestry Tasmania, State Forests of NSW, Western Power Corporation, Alstom Power, Stanwell Corporation, CS Energy, NRE -Forest's Service, AFFA, Tarong Energy, Country Energy, Rio Tinto R&TD, QFRI, Babcock and Brown, CVC REEF, ForestrySA, CALM, Gunns Forest Products, CSIRO Sustainable Ecosystems, Carter Holt Harvey, Metasource, Novera Energy, Sugar Research Institute, Enecon Pty Ltd, BioEnergy Australia Ltd, Forest Products Commission of WA, Victorian Sustainable Energy Authority, WMAA, Ergon Energy, AGL, Resource NSW, MBAC Consulting Pty Ltd, Environment Australia.

The program includes some 40 papers/presentations, the two forums and again includes a trade/sponsors exhibition. Posters on bioenergy are currently being sought for display and presentation at the conference venue (see next newsletter item).

The Principal conference sponsors are Delta Electricity, IEA Bioenergy, the Joint Venture Agroforestry Program, SEDA, and Southern Pacific Petroleum, with Major sponsors being Alstom Power, the Australian Greenhouse Office, Brightstar Environmental, Country Energy, CVC REEF, and Environment Australia.

Conference Action has been appointed as the conference organisers. To register, or for further details contact Louise Pitney or Emma Waygood at:

Conference Action Pty Ltd
Suite 104, 308 Pacific Highway
(PO Box 576) Crows Nest NSW 2065
Tel: +61 2 9437 9333 Fax: +61 2 9901 4586
Email: confact@conferenceaction.com.au
Web: www.conferenceaction.com.au or www.users.bigpond.net.au/bioenergyaustralia

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Posters for Presentation/Display at Bioenergy Australia 2002 Conference

Expressions of Interest are sought for displaying and presenting posters at the Bioenergy Australia Conference 2-3 December at Manly, NSW. Bioenergy Australia especially wants to provide this opportunity to researchers at universities and research institutions. Please contact Stephen Schuck, Bioenergy Australia Manager. Tel/Fax: (02) 9416 9246 Email: sschuck@bigpond.net.au.

IEA Bioenergy Participation by Australia

Bioenergy Australia is the vehicle for Australia's participation in the International Energy Agency's (IEA) Bioenergy program. Bioenergy Australia is providing Australia's annual membership fees and other support for five current Tasks:

- Task 30-*Short Rotation Crops for Bioenergy Systems*
- Task 31-*Conventional Forestry Systems for Sustainable Production of Bioenergy*
- Task 32-*Biomass Combustion & Co-firing*
- Task 36-*Energy from Integrated Solid Waste Management Systems*
- Task 38-*Greenhouse Gas Balances of Biomass & Bioenergy Systems*

These Tasks run from 2001-2003. Subgroups from the Bioenergy Australia membership have formed to participate in these Tasks, with each Task selecting a National Team Leader to co-ordinate involvement. National Team Leaders are: Task 30- Don McGuire, Forestry SA, Task 31- John Raison, CSIRO Forestry and Forest Products; Task 32- Peter Coombes, Delta Electricity; Task 36- Chris Stapleton, Brightstar Environmental; and Task 38- Annette Cowie, State Forests NSW.

Should you or your organisation wish to obtain information on IEA Bioenergy or participation in its Tasks, please contact Steve Schuck, the Bioenergy Australia Manager and Australia's representative on the Executive Committee of IEA Bioenergy. Tel/fax: (02)-9416-9246, or email: sschuck@bigpond.net.au. IEA Bioenergy has recently updated its home page at URL: http://www.ieabioenergy.com which provides links to the IEA Bioenergy Task sites and information such as its Annual Report, Strategic Plan and newsletters. With sufficient additional support, Australia could expand its participation to other Tasks, such as the Liquid Fuels Task and the Gasification Task.

IEA Bioenergy Meetings

Task 36- *Energy from Integrated Solid Waste Management Systems* will be holding its next meeting in Australia 5-6 December 2002 at the Manly Pacific Parkroyal Hotel, immediately following the Bioenergy Australia 2002 conference. This group will be sharing the conference tour with the conference delegates. IEA Bioenergy combined meeting Task 30 – *Short Rotation Crops for Bioenergy Systems* and Task 31 – *Conventional Forestry Systems for Sustainable Production of Bioenergy* will be held in Belo Horizonte, Brazil from 28 October to 1 November 2002. Task 30- *Short Rotation Crops for Bioenergy Systems* is planning to hold a meeting in Australia and/or New Zealand in early 2003. The Executive Committee of IEA Bioenergy will also be holding a meeting in Sydney 22-24 April 2003.

Bioenergy from Sustainable Forestry Book Launched

IEA Bioenergy Task 31-*Conventional Forestry Systems for Sustainable Production of Bioenergy* has as one of its major activities produced a major text "Bioenergy from Sustainable Forestry – Guiding Principles and Practice". The 357 page book is organised around the criteria for sustainable forestry management: productivity, environment, social issues, economics, and legal and institutional frameworks. More than 25 international experts from 10 countries have brought together available ecological, physical, operational, social and economic information and identified gaps in knowledge related to biomass production and harvesting systems. This is the first time that such comprehensive information has been brought together under one cover, using an integrated, holistic approach. The book is aimed to enable forest resource managers and planners to evaluate the ability of specific forest regions to sustainably meet bioenergy production demands. A number of copies are being distributed to Bioenergy Australia members.

The hardcover book ISBN 1-4020-0676-4 is priced EUR 105/GBP 66/USD 97. It may be ordered from Kluwer Academic Publishers. Email: orderdept@wkap.nl

Biofuels for Cleaner Transport - Major Study on Market Barriers to Biofuels

Since the issue of the last newsletter, Federal Environment Minister David Kemp and Agriculture Minister Warren Truss announced a $5 million, two-year study to address market barriers to the increased use of biofuels (mainly ethanol and biodiesel) in transport. The study will develop a broad strategy to increase biofuels production to 350 million litres per annum by 2010. Current Australian ethanol production is approximately 40 million litres.

The Coalition announced in the 2001 election campaign that it would set an objective that fuel ethanol and biodiesel produced in Australia from renewable sources will contribute at least 350 million litres to the total fuel supply by 2010. Progress towards the objective will be reviewed in 2006.

The biofuels study, to be managed by Environment Australia in consultation with other departments, will be funded from the Greenhouse Gas Abatement Program. It will consider vehicle testing and a technical assessment of the E-20 ethanol blend in standard vehicles. While blends containing up to 10 per cent ethanol are regarded as acceptable, concerns have been expressed by some vehicle manufacturers and other stakeholders that higher blends may risk operational or mechanical problems.

The study will examine options for addressing market access difficulties including an assessment of the respective merits of nationally mandated minimum biofuel standards for transport fuels, and voluntary arrangements. Existing biofuel manufacturers report that, even with an excise exemption, they are having difficulty accessing markets.

The study will assist in determining the detail of measures needed to implement the Coalition's election commitment. The Government has announced it remains committed to a program to boost biofuel production and will decide on a final package later this year, after receipt of preliminary study data. Until there is a decision on the biofuels initiative, funding of biofuel projects will continue to be considered under the Greenhouse Gas Abatement Program process.

Renewable Energy Industry Development Round 6 Grants

Since the last issue of the Bioenergy Australia newsletter, the outcome of the AGO's REID round 6 have been announced. Some projects of note that are being funded are:

- $114,500 to the Waste Management Association of Australia for the production of an Industry Code of Practice and Complementary Project Development and Sustainability Guide for projects involving the production of Energy from Waste.
- $65,000 to the Australian Ecogeneration Association to produce a Guide to Developing Renewable Power for Local Authorities.
- $89,700 to CSIRO Energy Technology Lucas Heights Research Laboratories to develop a database of Australian Biomass Fuels based on testing a wide range of possible fuels.
- $38,000 to the Sustainability Energy Industry Association of Australia to undertake a feasibility study into industry structures to address barriers to sustainable energy implementation.

SEDA Renewables Investment Program Grants

The New South Wales Sustainable Energy Development Authority has recently announced the following grants from its Renewable Investment Program for bioenergy projects:

Narrabri: A new waste to energy plant at Auscott cotton gin will generate all the plant's energy needs. The project involves the conversion of cotton trash into gas to replace the use of LPG for drying. A second stage will involve the installation of a cogeneration plant to convert the gas to electricity. Grant applicant: Novera Energy and Cleanaway. $650,000.

Western Sydney: Conversion of liquid waste (oils, fats, tallows) to produce biodiesel fuel. Can be used as a substitute for mineral diesel or fuel extender when blended with mineral diesel. Biodiesel fuel is a cleaner burning, lower cost option in diesel burning engines. Turns waste product into a resource. Grant applicant: Clearwater Industrial Services. $650,000.

Ulladulla: Collection of methane from landfill to pipe to Ulladulla Leisure Centre. Using methane from disused landfill site that continues to vent gas. Methane gas is 21 times more potent than CO2, as a greenhouse gas. Grant applicant: Shoalhaven City Council. $167,000.

Glenlee: Domestic green waste and paper pulp waste diverted from landfill to produce bio-fuel pellets. The pellets can be used as coal substitute, or used in tandem or co-firing with coal in conventional power stations. Grant applicant: BioMass Solutions. $800,000.

Berkeley Vale: Project to more than double production of biodiesel from waste vegetable oils and tallow. Grant applicant: Australian Biodiesel Consultancy. $205,000.

Orange: A new digestion facility to capture methane from abattoir waste and convert it to a renewable energy source for re-use in the plant. One of the first examples of biogas capture by any agricultural processor in Australia. Grant applicant: Bindaree Beef. $600,000.

Leeton: Conversion of normally dumped or burned rice hulls to gas to fire engines at rice plant. Ash produced from the conversion process can be re-used in other industrial processes such as steel making. Grant applicant: Ricegrowers' Cooperative Ltd. $220,000.

Research and Development Grants Program – Resource NSW

The NSW Minister for the Environment, the Hon Bob Debus has announced a $3 million research and development grants program to support new approaches for recovering resources and reducing the environmental impacts of waste and resource recovery technologies and processes. Applications for concepts are invited by 1 November 2002. See: http://www.resource.nsw.gov.au.

New South Wales file:///outbind/%2F%2F21-00000000DA31B2DB2ABCBF11BDA7C633D662E1E8C4EF3200%2F -topMandatory Greenhouse Benchmarks

The NSW's government has announced a decision to enforce greenhouse benchmarks applying to electricity retailers under the NSW Electricity Supply Act (1995). The decision means that all NSW electricity retailers operating in NSW will need to reduce emissions to five percent below 1990 per capita levels by 2007 - or pay a penalty of up to $15 for each tonne of CO2e by which they exceed their emission targets. Wholesale energy users will also be subject to the requirements to reduce emissions.

The new rules are expected to take effect from January 2003. Prior to commencement of the scheme, legislative amendments will be required and it also expected that the existing reporting methodologies will be amended.

Under the scheme, parties can reduce emissions by improving energy efficiency, sourcing cleaner energy supply and/or investing in carbon sinks. Against business as usual estimates, the new rules will mean a reduction of more than 10 million tonnes of CO2e emissions by 2011/12. The introduction of the penalty should boost low emission and renewable energy supply projects such as bioenergy.

For background information visit the Ministry for Energy and Utility's Web site at: http://www.energy.nsw.gov.au

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QSEIF Funds Cypress Pine Sawdust Gasifier

The Queensland Sustainable Energy Innovation Fund has granted $120,000 to Pine Oil Extraction Pty Ltd for the development of a small scale cypress pine waste sawdust gasifier. Pine Oil Extraction Pty Ltd aim to design and build a 20 kW pilot plant to gasify sawdust from cypress pine milling. This innovative project is to provide the basis for building a commercial plant to extract pine oil and generate 200 kW electrical power.

Currently, cypress pine sawdust presents a major disposal problem. Due to its content of pine oil, the waste gives off large volumes of smoke if burned for disposal and can contaminate ground water if disposed in landfill. It is not suitable for composting because it is highly resistant to decay. Total production of this hazardous waste in Queensland amounts to about 100,000 cubic metres per year.

This project aims to adapt existing biomass gasification technology to the particular requirements of gasifying this material on a relatively small scale. Pine Oil Extraction Pty Ltd have identified 27 cypress pine sawmills that would potentially be able to use the gasification/cogeneration technology developed in the project. The total generation capacity is assessed at 5 MW. Locating the oil production and electricity generation plants at cypress pine sawmills would create employment in regional areas of the State. QSEIF's announcement indicates that design, construction and testing of the gasifier will be contracted to either CSIRO's Queensland Centre for Advanced Technologies or the University of Queensland Chemical Engineering Department. Both bodies have expertise in gasification technology.

This project aims to design and build a pilot-scale gasification plant. This will provide operational data and experience for a first commercial plant with a capacity of about 200 kW generation. Joint venture partners will be sought to license the technology for oil extraction-cogeneration plants.

For further information on QSEIF contact Dr Martin Gellender, tel: (07) 3224 8606, email: martin.gellender@epa.qld.gov.au

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Waste Management Association of Australia Sustainability Project Workshops

As reported in the previous issue of the Bioenergy Australia newsletter, the Australian Greenhouse Office has awarded the WMAA a grant of $114,500 under Round 6 of the Renewable Energy Commercialisation Program (Industry Development subprogram) for the WMAA Energy-from-Waste Division to conduct a project to:

- Develop a Code of Practice for practitioners in the EfW sector and
- Develop a Sustainability Guide for EfW projects.

An objective of the project is to provide a greater level of certainty for project developers, consent authorities and the broader community. As part of this project, as series of free workshops are being conducted to give all stakeholders the opportunity to present their views on the sustainability of recovering energy from waste. The dates and venues for these workshops are:

- 18 September Canberra
- 24 September Sydney
- 25 September Hobart
- 1 October Perth
- 8 October Melbourne
- 10 October Shepparton
- 15 October Brisbane
- 22 October Darwin
- 24 October Adelaide
- 29 October Dubbo
- 6 November Townsville

For more information on venue details please visit: www.wmaa.asn.au/efw/home.html
Alternatively contact the Project Manager, Matthew Warnken, on (02) 9571 4800 or 0418 238 040 or email on matthew@warnkenise.com.au

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Biofacts

- Biomass fuel now accounts for 302 MW, or 1.5 percent, of Indonesia's total electricity capacity.
- In the USA there are 61 ethanol plants, primarily in the Midwest, producing 2.3 billion gallons (8.7 billion litres) a year, and another 14 under construction. By the end of next year, the industry's output is expected to reach 3 billion gallons (11.34 billion litres).

Typical Energy Content of Fossil and Biomass Fuels

Solid Fuels	Net Heating Values (MJ/kg)
Biomass Fuels	
Wood (wet, freshly cut)	10.9
Wood (air dry, humid zone)	15.5
Wood (air dry, dry zone)	16.6
Wood (oven dry)	20.0
Charcoal	29.0
Bagasse (wet)	8.2
Bagasse (air dry)	16.2
Coffee husks	16.0
Rice hulls (air dry)	14.4
Wheat straw	15.2
Corn (stalk)	14.7
Corn (cobs)	15.4
Cotton stalk	16.4
Coconut husks	9.8
Coconut shells	17.9
Fossil fuels	
Anthracite coal	31.4
Bituminous coal	29.3
Lignite	11.3
Coke	28.5

AFFA Report on Wood Resources and Processing

Agriculture Fisheries and Forestry Australia (AFFA) has available an in-depth report prepared by Jaako Pöyry Consulting of Australia's wood resources, identifying market opportunities and potential investment opportunities for wood processing. The report is aimed at promoting investment in wood processing and growing. The Appendices provide up to date and detailed information on domestic regional resources and markets as well as pointing to the future

opportunities arising in south east Asian markets. The report also covers utilising sawmill residues for renewable energy.

The report is aimed at encouraging a shift towards domestic processing of wood in Australia, to reduce the $2.5 billion deficit in Australia's wood products trade and create prosperous employment in regional areas.

The following documents are provided in PDF format for downloading:
Executive Summary [432 KB]
[www.affa.gov.au/corporate_docs/publications/pdf/forestry/action_agenda/invest_op_exsum.pdf]
Report [4.1 MB]
[www.affa.gov.au/corporate_docs/publications/pdf/forestry/action_agenda/invest_op_report.pdf]
Appendices [2.9 MB]
[www.affa.gov.au/corporate_docs/publications/pdf/forestry/action_agenda/invest_op_appendices.pdf]
Web site: http://www.affa.gov.au/content/publications.cfm?ObjectID=BE45A763-2CCB-4CFB-B5D47431DCAE4680

Biomass on the Internet

The Internet provides a valuable source of information on biomass and allied topics. Below are some Internet addresses to supplement the 1,000 odd addresses given in the previous sixteen issues of the Bioenergy Australia newsletters. These lists are consolidated as electronic links on Bioenergy Australia's web page at **www.users.bigpond.net.au/bioenergyaustralia** which includes an internal search feature.

Australian Biodiesel Consultancy (correction)
http://www.biodiesel.net.au
Black and Veatch project for the European Bank for Reconstruction and Development
http://projects.bv.com/ebrd
Green Oil Company (USA)
http://www.greenoil-online.com
ETSU Report *Technology Status Report - Embedded Generation and Electricity Studies*
http://www2.dti.gov.uk/renewable/embedded.htm
Wood to Ethanol – article from Environment Canada
http://www.pyr.ec.gc.ca/ep/wet/section16.html
RIRDC paper 'Biodiversity in Agriculture and Agroforestry' (full version)
http://www.rirdc.gov.au/reports/AFT/02-051.pdf
RIRDC paper 'Biodiversity in Agriculture and Agroforestry' (summary)
http://www.rirdc.gov.au/reports/AFT/02-051sum.html
Energy Central (Australia)
http://www.energycentral.com.au
SVZ (methanol and CHP from mixed biomass and waste residues)
http://www.svz-gmbh.de/index.html
Biomas-Energy
http://www.biomas-energy.com
International Energy Agency report "Energy & Poverty"
http://www.worldenergyoutlook.org/weo/pubs/weo2002/energypoverty.pdf
Bioenergy International
http://www.bioenergyinternational.com
Distributed Generation Resources (US Dept of Energy)
http://www.eren.doe.gov/der/

Anaerobic Digestion of food waste
http://www.greenfinch.co.uk
Gasifier (small scale) – Technical University of Denmark
http://www.et.dtu.dk/halmfortet/research/twostage/
WMAA Energy from Waste site
http://www.wmaa.asn.au/enr_wast.htm
Hawaii Natural Energy Institute
http://www.hnei.hawaii.edu
IEA Report Hydrogen from Biomass--State of the Art and Research Challenges
http://www.eren.doe.gov/hydrogen/iea/pdfs/hydrogen_biomass.pdf
World Council for Renewable Energy
http://www.world-council-for-renewable-energy.org
Earthday (22 April 2003)
http://www.earthday.net/default.asp
Biodegradable plastic from biomass
http://www.wired.com/wired/archive/10.07/start.html?pg=8
reNet (Austrian Bioenergy site)
http://www.renet.at
EucProd 2002,International Conference on Eucalypt Productivity, Hobart, Tasmania, 10th - 15th November 2002
http://www.cdesign.com.au/eucprod2002.
IEA Task 33 Biomass Gasification
http://www.gastechnology.org/pub/iea/
BTG's online list of gasifier manufacturers and installations
http://www.btgworld.com/gi/
Gasifier manufacturers and installations
http://www.gasifiers.org
Hydrogen from Biomass--State of the Art and Research Challenges- report
http://www.eren.doe.gov/hydrogen/iea/pdfs/hydrogen_biomass.pdf
U.S. Department of Energy, Alternative Fuels Data Center
http://www.afdc.doe.gov
WWF article on excessive use of natural resources
http://www.panda.org/news/press/news.cfm?id=3017
ISEC 2003, INTERNATIONAL SOLAR ENERGY CONFERENCE
http://www.asme.org/divisions/solar/call/index.html
Fibrowatt (chicken litter power)
http://www.fibrowatt.com
Xylowatt gasifiers
http://www.xylowatt.com
Associated Engineering Works (Indian small scale gasifier)
http://aewgasifiers.netfirms.com/
Ankur Scientific biomass gasifiers (Indian small scale gasifiers)
http://www.ankurscientific.com/
Organic Rankine Cycle Turbogenerators
http://www.turboden.com/
Svebio Swedish Bioenergy Association
http://www.svebio.se/index.html
Irish Energy Centre
http://www.irish-energy.ie/reio.htm
CarbonSim
http://www.carbonsim.com
De Montfort University, Applied Sustainable Technologies Group,
http://www.dmu.ac.uk/ln/itc
NSW Greenhouse gas licence conditions paper by Outhred and Nolles
http://www.ergo.ee.unsw.edu.au
Bioenergy Atlas

http://www.brs.gov.au/mapserv/biomass/

Ethanol Option website

http://www.ethanoloption.com

Australian Biomass (anaerobic digestion)

http://www.bocchtech.com

Gasifier Action Research Project For Biomass Gasification Technology and its Utilisation, for Ministry Of Non-Conventional Energy Sources, Government Of India

http://www.me.iitb.ac.in/garp

Ethanol from gasification path and synthesis

http://www.ethxx.com/news_press_march.asp?section=news&level=a

European Biomass Association

http://www.ecop.ucl.ac.be/aebiom/

International Developments

Cargill Dow's Blair Biorefinery Launches Commercial Production of Bio-Plastics

Cargill Dow, LLC has opened the world's first large scale biorefinery in Blair, Nebraska, USA to produce plastic from biomass. Cargill Dow's new facility, which is to employ up to 100 workers, will use corn-derived dextrose to produce 140,000 tonnes per year of polylactide (PLA) polymers. The biobased plastic will be sold under the NatureWorks™ name and will be used as a fibre for clothing and bedding, as a plastic for food packaging and many other everyday products. Ultimately, Cargill Dow technology will use other biomass raw materials feedstocks, such as residues from wheat and sugar beet production.

To date Cargill Dow has invested more than US $750 million in this business and production facility. It intends to invest an additional US $250 million over the coming years for commercial and product technology development and to broaden the feedstocks from which PLA can be produced.

The company's goal is to produce 455,000 tonnes per year PLA plastics by 2010 and 3.6 million tonnes by 2020. This will be more than 10% of the current market for plastics in the USA. According to Cargill Dow, the production cycle of PLA consumes up to 50 percent less fossil fuels than traditional petroleum-based plastics, and PLA production will produce from 15-60 percent less greenhouse gases that the materials it will replace. With further development greenhouse gas reductions are expected to be in the range of 80 –100 percent.

Cargill Dow was recognised for this process of making plastics from corn by being awarded the 2002 Presidential Green Chemistry Challenge, Alternative Reaction Conditions Award at a ceremony held at the National Academy of Sciences, Washington D.C., on 24 June 2002.

For further information see: http://www.cargilldow.com/news.asp.

Soybeans Find New Growth as Plastics Ingredient

The Urethane Soy Systems Co. of Princeton, Illinois has developed a spray foam insulation manufactured from soybean oil. Foam insulation is just the latest product from the Urethane Soy Systems Co., which has pioneered a range of plastic materials made from the soy-based polyol "SoyOyl". The soy-based foam provides the same insulation performance in a four-inch layer that fiberglass batting can provide in a six-inch layer, which cuts down on construction costs. At the same time, spray foam provides better insulation quality, cutting energy bills for homeowners up to 50 percent. The soy-based insulation can be used for both

residential and commercial building applications. To read the full article see: http://www.unitedsoybean.org/lib_fs_artview.cfm?id=10&type=one

Source: Biobased Products and Bioenergy newsletter

Minnesota Mandates Biodiesel Use

US state, Minnesota has passed a law mandating that by June 2005 all diesel fuel sold in the state contain a two-percent biodiesel blend. In the latest "Oil Crops Outlook" the US Department of Agriculture estimates that Minnesota may require 55,000 tonnes of soybean oil annually for biodiesel. See http://www.agweb.com

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USDA Report Finds Ethanol 'Energy Efficient'

The results of a new US Department of Agriculture study confirms the energy efficiency of ethanol and its positive role in reducing U.S. dependence on imported oil. The report, "The Energy Balance of Corn Ethanol: An Update" concludes that ethanol production is energy efficient because it yields 34 percent more energy than is used in growing and harvesting the corn and distilling it into ethanol. The report concludes that the net energy value of corn ethanol has become positive in recent years due to technological advances in ethanol conversion and increased efficiency in farm production. Studies using older data are said to have overestimated energy use because the efficiency of growing corn and converting it into ethanol has improved significantly over the past 20 years. http://newuses.org

(source: Biobased Fuels, Power and Products September 2002 Newsletter)

UK Capital Grants Scheme for Bioenergy

The £66 million UK Bioenergy Capital Grants Scheme promotes the efficient use of biomass for energy, and in particular the use of energy crops by stimulating the early deployment of biomass fuelled heat and electricity generating projects. The scheme is a joint initiative funded by the Department of Trade and Industry (DTI), and the National Lottery New Opportunities Fund with input from the Department for the Environment, Food and Rural Affairs (DEFRA). One of the aims of the scheme is to contribute to the UK's challenging domestic policy goal of reducing emissions of carbon dioxide by 20% below 1990 levels by 2010. Supported projects under the scheme are aimed to; kick start the deployment of energy crops, encourage the development of efficient technologies for converting biomass resources to energy, to stimulate the development or rural economies, and to alleviate fuel poverty in the UK. For preliminary information on the Bioenergy Capital Grants Scheme see http://www.dti.gov.uk/renew/bioenergygrant.pdf. DEFRA separately administers an existing Energy Crops Scheme to promote coppice willow and miscanthus. See http://www.defra.gov.uk/erdp/schemes/projectbased/energy/energyindex.htm.

B9 Biomass Limited's Biomass Gasification Technology

Following a successful demonstration of its biomass gasification based Combined Heat and Power (CHP) technology (based on Swedish gasification technology) at the Blackwater Valley Museum in Northern Ireland, B9 Energy Biomass Ltd has progressed to the installation of a 130 kWe unit at the Peabody Trust's Beddington ZED (Zero Energy Development), a sustainable urban development in South London. The CHP unit has been designed to supply the site's entire heat and electricity requirements (80 residential and commercial units). In the medium to long term B9 Energy Biomass Ltd is interested in

expanding the market for the technology by looking at alternative feedstocks and alternative power/energy generation systems. See http://www.b9energy.co.uk

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Britain's First Dung Fuelled Anaerobic Digestor Power Plant

German firm Farmatic has completed a £7.7 million anaerobic digestor plant at Holsworthy, north Devon that will run on animal manure slurry collected from 5,000 cows on 28 local dairy farms to produce 1.4 MW of electricity. The plant opened on 18 July. The plant also produces hot water for a central heating scheme and digestate which is used as an organic manure by the farmers. The project was part funded by a £3.5 million European Union grant. The plant will sell electricity into the National Grid.

Forthcoming Events

- **Bioenergy Australia 2002 Conference**, 2-4 December 2002, Manly Pacific Parkroyal, Manly, NSW. Contact Conference Action. Tel: (02) 9437 9333, Fax: (02) 9901 4586, Email: conf@conferenceaction.com.au. Web: www.conferenceaction.com.au (see article on page 1 of newsletter).

- IEA Bioenergy Task 29 – *Socio-economic Aspects of Bioenergy Systems: Issues Ahead*. 19-21 September 2002, Cavtat-Dubrovnik, Croatia. See http://www.iea-bioenergy-task29.hr . (If interested, please contact Stephen Schuck in the first instance as Australia is not a direct participant in this IEA Bioenergy Task).

- *Bioenergy 2002* - Bioenergy for the Environment, 22-26 September 2002, Boise, Idaho, USA. http://www.bioenergy2002.org

- 1st International Ukrainian Conference on Biomass for Energy. 23-27 September 2002. Institute of Engineering Thermophysics, 2a, Zhelyabov str., Kyiv, 03057, Ukraine. Contact: Dr. Georgiy Geletukha, Tel: +380 44 441 7344; 446 9462 Fax: +380 44 484 8151; Email: conference@biomass.kiev.ua Web: http://www.biomass.kiev.ua

- *Fuel Ethanol Thailand***,** 26-27 September 2002, The Regent Hotel Bangkok, Thailand. Nuchada Paradeevisut (Ms.), Senior Manager - Marketing Department, Asia Business Forum (Thailand) Ltd., 14/F Maneeya Center Building, 518/5 Ploenchit Road, Lumpini, Pathumwan, Bangkok 10330, THAILAND. Tel: +66 (0) 2254 8321-4 Fax: +66 (0) 2254 8320
  Website: www.abf-asia.com

- Australasian Universities Power Engineering Conference, Monash University, Melbourne, 29 September to 2 October 2002. Visit AUPEC2002 web-site for more information. http://www.ecse.monash.edu.au/aupec2002/index.html
  Email: aupec2002@eng.monash.edu.au

- International meeting on biodiesel, Christchurch, New Zealand, 29 September to 3 October 2002 Part of APCChE 2002 (9th Asian Pacific Confederation of Chemical Engineering Congress) and Chemeca 2002 (30th Annual Australasian Chemical Engineering Conference). See http://www.conference.canterbury.ac.nz/apcche/
  Email: apcche@cont.canterbury.ac.nz.

- Pyrolysis and Gasification of Biomass and Waste, 30 September to 1 October 2002. Strasbourg, France. Web: www.thermonet.co.uk. Email: j.ellen@aston.ac.uk

- 5th Annual Waste 2002 Conference and Trade Exhibition, Novotel Opal Cove Resort, Coffs Harbour, NSW, 16-18 October 2002. Tel: (02) 6582 7122 Fax: (02) 6582 7133 Web: http://www.impactenviro.com.au/waste2002.

- Sustainability & Business Strategy - managing the cost of energy and environmental responsibility for competitive advantage. 22 -23 October, 2002, Quay Grand, Sydney. ENG International Pty Ltd. Tel: (02) 9380 9122 Email: cgray@eng-au.com Web: www.eng-au.com .

- 3rd International CHP and Decentralised Energy Symposium & USAID International Conference and Exhibition on Bagasse Cogeneration, 24-26 October 2002, Hotel Grand Inter-Continental, New Delhi, India. Email: winrock@vsnl.com Web: www.winrockindia.org and www.renewingindia.org

- IEA Bioenergy combined meeting Task 30 – *Short Rotation Crops for Bioenergy Systems* and Task 31 – *Conventional Forestry Systems for Sustainable Production of Bioenergy*. 28 October – 1 November 2002. Belo Horizonte, Brazil. Contact: National Team Leaders (see IEA Bioenergy article on page 2).

- *Wood Energy 2002*, exhibition and conference. 30 October - 2 November 2002, Messe Augsburg Fairground, Germany. For details visit www.holz-energie.de

- Biofuels 2002, 31 October – 1 November 2002, Hilton Hotel, Brisbane. IBC Conferences. Tel: (02) 9080 4405 Email: registration@informa.com.au Web: www.ibcoz.com.au/biofuels.

- *World Ethanol 2002* and Ethanol Production Workshop, 5-7 November 2002. London Marriott Hotel, Grosvenor Square. Email: conferences@fo-licht.com Web: www.fo-licht.com

- International Conference on Eucalypt Productivity, A synthesis of the physiological, environmental, genetic and silvicultural determinants of growth, Hobart, Australia 10-15 November 2002. Website: http://www.cdesign.com.au/eucprod

- International Symposium on Alcohol Fuels: The Implementation of Biomass Alcohol as Alternative Fuels for Clean Environment, 12-15 November 2002. Phuket, Thailand http://diamond.mtec.or.th/ISAFXIV/

- 6th UK Bioenergy Conference, 20 November 2002, Royal Bath & West Showground, Shepton Mallet, Somerset. See: http://www.britishbiogen.co.uk

- International Workshop on Pyrolysis and Bio-Oil : Bio-oil Production Opportunities for New Liquid Fuels and Chemicals through Research and Development. 25-26 November 2002, CSIRO Ian Wark Laboratories, Bayview Ave, Clayton, Victoria 3169, Australia. Email: Vanessa.Dusting@csiro.au Web: http://www.ffp.csiro.au/conference/bio_oil/

- ANZSES Conference "Solar 2002" Newcastle, NSW, 27 - 30 November 2002. Papers required by 30th September 2002. Expressions of interest to: solarharvest@ncc.nsw.gov.au

- IIR 2nd Annual Australian Renewable Energy Conference (and two workshops), 9-11 December 2002, Mercure Hotel, Sydney. Tel: 02 9923 5090 Web: http://www.iir.com.au/rsources

- Waste to Energy 2003 Symposium (Meinhardt and SEDA), 27 February 2003, Sydney. Contact Christine Wardle, Tel: 03 8530 1241 Email: christine@vic.meinhardt.com.au. Call for Abstracts by 30 September.

- IUFRO - Division 5 Conference 11-15 March 2003, Rotorua, New Zealand. See http://www.forestresearch.co.nz/site.cfm/alldiv5iufronz

- ISEC 2003, International Solar Energy Conference, 16-18 March, 2003, Mauna Kea Resort, Kohala Coast, Hawaii Island, Hawaii USA. Web: http://www.asme.org/divisions/solar/call/index.html

- IUFRO - section 1.09.00 Short-Rotation Forestry. World Perspective of Short-rotation Forestry for Industrial and Rural Development, Solan, Himachel Pradesh, India. April 6-10, 2003. Contact: Kartar S. Verma-Tel: +91-1792-52270, Fax: +91-1792-52242, Email: khuranasolan@yahoo.com or ists-nauni@hclinfinet.com

- 25th Symposium on Biotechnology for Fuels and Chemicals. Beaver Run Resort, Breckenridge, Colorado, USA. 4-7 May 2003. Abstract deadline: 15 November 2002. Web: http://www.nrel.gov/biotech_symposium Email: mark_finkelstein@nrel.gov.

- 2003 International Conference on Energy and Environment, Shanghai, China May, 2003. Contact: Dr. Daoping Liu, Executive Secretary of ICEE, University of Shanghai for Science and Technology, P.O. Box 224, No. 516, Jun Gong Road, Shanghai, 200093, China. Email: dpliu@online.sh.cn Web: http://www.usst.edu.cn/2003ICEE/icee.htm

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Residues

- Dr Stephen Schuck recently edited a 160 page 'coffee table' book entitled "Sustainable Energy Innovation – a new era for Australia" which includes coverage of bioenergy. The book may be ordered from the publisher, CL Creations Pty Ltd. Cost is AUD $70 (including GST) which includes postage and handling. For details Tel: (02) 9418 6207, Fax: (02)9924 0944, Email: carolen@clcreations.com.au Web: www.energycentral.com.au.
- Steve Schuck, Bioenergy Australia Manager gave a presentation "The Future for Biomass" at the ESAA's 8th Renewable and Sustainable Power Conference, Alice Springs, N.T., 12-13 August 2002.
- The Bioenergy Australia Manager was summonsed to give a presentation and evidence at the NSW Parliamentary Select Committee into Salinity hearing on 5 September. The topic was the use of bioenergy for dryland salinity mitigation.
- Steve Schuck was interviewed on Melbourne ABC radio by Virginia Trioli on 26 August regarding bioenergy technology. This was in response to an earlier interview with Senator Bob Brown regarding Bass Link and bioenergy in Tasmania.
- Australia Post is producing a set of postage stamps depicting renewable energy sources. The Bioenergy Australia Manager has provided a number of bioenergy images from various members to Australia Post for consideration.
- RIRDC has released a discussion paper 'Biodiversity in Agriculture and Agroforestry'(report 02/051 ANU-59A). The full version is on the web at http://www.rirdc.gov.au/reports/AFT/02-051.pdf with the summary version at http://www.rirdc.gov.au/reports/AFT/02-051sum.html

- As part of the USA initiative to triple the level of biobased products and bioenergy, the US Department of Energy has produced a *Vision* and a *Roadmap* for Biobased Products and Bioenergy. The The Biobased Products and Bioenergy Vision is at: http://bioproducts-bioenergy.gov/pdfs/BIOENGY_BRCH_0718.pdf (20 pages) as a downloadable PDF file. The Roadmap is at http://bioproducts-bioenergy.gov/pdfs/BIOENGY_RDMP_0718.pdf (32 pages).
- The Pellet Fuels Institute, USA-based trade association, reported a 48 percent increase in pellet stove sales last year over 1999, with the trend continuing this year. At the same time, gas-burning product sales fell slightly - the first decline since 1992.
- The web site for the Cooperative Research Centre for Plant-Based Management of Dryland Salinity is at: http://www.general.uwa.edu.au/u/dpannell/crcsalt.htm.
- The Renewable and Sustainable Energy Roundtable of which Bioenergy Australia is a member, is one of 30 business groups in Australia involved in a 'Government-Business Climate Change Dialogue' to develop a strategy to identify and deliver long-term solutions on greenhouse gas emissions.
- A recommended website for converting units of measure is at:
  http://www.geog.umd.edu/homepage/courses/jboberg/units.htm
  It also provides the heating values of a range of biomass resources.
- Bioenergy Australia member, Southern Pacific Petroleum has been granted $96,800 from the New Industries Development Program, administered by AFFA, to develop the design data needed to construct the first full-scale woody biomass to ethanol facility in Australia. Contact: Dr Stephen Grocott sgrocott@sppcpm.com or Tel: (07) 3237 6647
- Further to the article on biodiesel in the April edition of the Bioenergy Australia newsletter, there are two other commercial biodiesel plants :
  1. Moama Refineries in Moama/Echuca on the Victorian/NSW border. Moama Refineries are reported as producing 70,000 litres/day
  2. Bass Biodiesel in Launceston, Tasmania. (thanks to Darren Sanford)
- Auspine Limited has been offered a $195,000 grant from Round 6 of the Australian Greenhouse Offices's Renewable Energy Commercialisation Program to assist with identification of the harvest and haulage technology required to efficiently collect and deliver biomass fuel to the mooted Auspine 60 MW bioenergy plant at Tarpeena, South Australia.
- EHN's 200 GWh/a straw-fired bioenergy plant has been commissioned in Sanguesa, Navarre, Spain. This 51 million Euro plant will be fueled on 160,000 tonnes of straw per year, almost six percent of the electricity demand of the region.
- Earlier this year, the CRC for Greenhouse Accounting held a short technical symposium in Canberra on the Carbon Cycle, in cooperation with the IGBP-IHDP-WCRP Global Carbon Project. To download presenters' slides or notes from the subsequent sinks workshop, see: http://www.greenhouse.crc.org.au/crc/research/carboncycle/crc_carbonsymposium_march02.htm
- The United Nations has published a 508 page book entitled "World Energy Assessment-energy and the challenge of sustainability". For details see: http://www.undp.org/seed/eap
- A state of the art report on gasification technology, 'Gasifier Action Research Project for Biomass Gasification Technology and its Utilisation' Sponsored by the Ministry of Non-Conventional Energy Sources, Government of India is available at http://www.me.iitb.ac.in/garp. It lists 51 papers by well known gasification expert, Dr Tom Reed from when he was at NREL, as well as profiling some substantial work on small scale gasifier developments in India.
- Black & Veatch of the USA is currently performing a renewable energy study for the European Bank for Reconstruction and Development (EBRD). The project will assess the potential for renewable energy in 27 countries located throughout Central and Eastern Europe and the former Soviet Union. The ultimate objective is to identify a flow of renewable energy projects suitable for further investigation and possible financing by the EBRD. The final report to EBRD including country profiles, identified projects, and maps for each of the 27 countries will be available later this year. It is intended that this will be a valuable resource for the biomass and broader renewable energy communities.

Further information (including initial report) on the project is available at http://projects.bv.com/ebrd.

- A report by ETSU *Technology Status Report - Embedded Generation and Electricity Studies* - part of the UK's Department of Trade and Industry's (DTI) New and Renewable Energy Program is available on the Web at http://www2.dti.gov.uk/renewable/embedded.htm
- A 16 page report by ETSU for the DTI's New and Renewable Energy Program entitled *Technology Status Report – Biofuels (Energy from Forestry and Agriculture)* is available as a downloadable pdf . It is one of several 'route maps' for DTI. See http://www2.dti.gov.uk/renewable/pdf/biofuels.pdf
- Latin America's first manure-based power plant is to be built in Tizayuca, a ranching area 60 kilometers north of Mexico City. The 75 MW plant will cost US $70 million and will supply electricity to 12 rural municipalities north of the Mexican capital. The power plant will help decontaminate the ranching area in the Hidalgo state. Work is scheduled to commence in September with the plant expected to go into operation in 18 months.
- The presentation material from the Australian Ecogeneration Association (now BCSE) March 2002 conference is on the web at http://www.ecogeneration.com.au/ecogen2002.
- The Royal Dutch Shell Group has purchased a US$29 million equity stake in Iogen Energy Corporation (slightly more than 20 percent), a Canadian based bioethanol technology company that is focused on producing ethanol from woody feedstocks such as wood and cereal straws. Iogen employs 100 staff.
- A new Flemish website (with English summary) on anaerobic digestion contains information about digestion installations, local legislation, a laboratory and the functioning of the platform for AD in Flanders, Belgium. The objective of the website is to give an introduction and an overview of all necessary information to implement anaerobic digestion for waste treatment. See: http://www.platformvergisting.be
- A good resource for wood to ethanol processes is an article by environment Canada . It covers technologies from Arkenol, Iogen, ACOS and others. See http://www.pyr.ec.gc.ca/ep/wet/section16.html
- An $85 million straw-fired power station has just been commissioned at Sutton, near Ely in eastern England. The power plant will produce 36MW.
- Tasmania's TEST Energy is reported to have secured funding for its waste-to-energy power plant at Brighton near Hobart. TEST plans to commence construction of the Brighton plant in late 2002, which government planning permission having been granted.
- A comprehensive 82 page report from NREL for the IEA Implementing Agreement on Hydrogen entitled "Hydrogen from Biomass-State of the Art and Research Challenges" is available on the Web at http://www.eren.doe.gov/hydrogen/iea/pdfs/hydrogen_biomass.pdf. The report covers intermediate storage mediums such as methanol an ethanol. The authors would welcome feedback on the report.
- The Spanish government has agreed to loan US$45 million to China for a US$82.13 million waste-fueled power plant project to be built in Beijing. U.S.-based Golden State Group Corporation is reported to be investing the remaining US$37.13 million. The power plant is expected to be in full operation by 2008. (source: SolarAccess)
- The Federal Government has appointed Mr. Peter Byrne as the inaugural National Farm Forestry Coordinator to coordinate the network of Regional Plantation Committees throughout Australia. He will promote farm forestry issues and represent the sector's stakeholders at the national level. Peter was formerly with the Queensland Department of Primary Industry and a participant in IEA Bioenergy Task 17.
- A Bureau of Rural Sciences report on the National Plantation Inventory indicates that Australia's plantation area is set to treble from 1996 to 2020. In 2001 Australia's plantation area increased by 86,000 hectares. The report is available from the National Forest Inventory. Tel: (02) 6272 4921 Email: nfi.info@brs.
- SVZ of Germany is producing methanol and CHP from mixed biomass and waste residues. This is said to be the first gasifier plant producing methanol commercially. Site is http://www.svz-gmbh.de/index.html.

- The International Energy Agency has produced a report “Energy & Poverty". It is downloadable from: http://www.worldenergyoutlook.org/weo/pubs/weo2002/energypoverty.pdf
- The largest renewable energy generating facility in Africa has been commissioned at a sugar mill in Hippo Valley in Zimbabwe. It consists of a 20 MW Peter Brotherhood turbo-alternator set powered from the combustion of bagasse. The power is fed into the national grid. This bioenergy unit is reported to be 50% larger than any similar unit operating on the African continent.
- The USA’s ASTM has issued Specification D 6751, Standard Specification for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels, following eight years of work on this Standard by the ASTM Biodiesel Taskforce. D 6751 covers blending pure biodiesel (B100) with conventional diesel fuel up to 20 percent by volume (B20).
- The world’s largest biomass-fired cogeneration power plant, the Alholmens Kraft Power Plant, has commenced operation at a UPM-Kymmene mill at Wisaforest, on the west coast of Finland. Steam capacity is 550 MW_{th}. The electrical capacity is 240 MW_e in condensing mode, and 205 MW_e plus 100 MW_{th} of process steam for the mill and 60 MW_{th} of district heating . The fuel for the plant includes bark, sawdust, wood chips and peat, with coal as a backup fuel.
- Wärtsilä has expanded its power plant range to include biomass fuelled plants through the acquisition of Finnish company Sermet Oy, which specialises in small to medium size boiler plants running on biofuels, oil and gas. Sermet’s net sales in 2001 were approximately EUR 20 million.
- Hewin International has produced a comprehensive report “Biomass Markets and Technologies – An Opportunity for the 21st Century” . The report covers photosynthesis and biomass yields, dedicated biomass feedstocks, biomass residues and wastes, conversion technologies and energy products, lignocellulosic Fermentation, technologies, energy analysis of biomass systems, biofuels and the environment, and future prospects. Price for first copy is US $4,500; additional copies US $550. US Fax: 1-917-229-3501 Email: technicalinsights@frost.com. Web: www.frost.com
- Country Energy has entered into a Power Purchase Agreement with EarthPower for electricity and Renewable Energy Certificates from the 3.2 MW_e anaerobic digestor currently under construction at Camellia, NSW (see article in April edition of Bioenergy Australia newsletter).
- ‘Fast Pyrolysis of Biomass: A Handbook Volume 2’, edited by Professor Tony Bridgwater, is available from CPL Press Online Bookshop at www.cplbookshop.com.
- Waste Service New South Wales, Sydney’s largest waste disposal manager has announced it has selected two private sector technology providers, Novera Energy Ltd and Global Renewables Ltd to establish world class waste processing technologies in the metropolitan area of Sydney. The GRL system comprises mechanical and manual recovery of recyclable materials, biological digestion to clean the organic fraction and recover biogas for energy production and composting and refining the organic material. The Novera Energy systems utilise materials separation and biological treatment to produce compost, and energy through gasification of waste.
- EnviroStar’s 5 MW biomass fluidised bed combustor plant at Staplyton, Queensland is now well under construction, with precommissioning reported to have begun.

Opportunities Corner

The Bioenergy Australia Manager would like to assist and facilitate biomass and bioenergy projects and businesses by providing information and industry contacts to link project developers, resource managers, energy companies, and sources of finance. If you or your organisation are interested in such assistance, please contact Steve Schuck for a free listing.

(1) A climate change and bioenergy specialist with over six years work experience is currently seeking new opportunities. Experience and knowledge include:

- Effect of land use, land use change and forestry (LULUCF) on carbon balances
- Assessment of carbon sinks in plantation forests
- Greenhouse gas assessment of (bio)energy systems
- Quantification of forest and wood processing residues available for bioenergy
- Greenhouse gas reporting guidelines
- International experience e.g.: work placement, UNFCCC reviews, conferences etc
- International climate change policy

Please contact Stephen Schuck for further details.

(2) Upper Murray Business Inc. (UMBI) is seeking private sector investors prepared to become principals in a proposal to construct and operate a biomass energy plant at Corryong, north eastern Victoria. UMBI has a brochure prepared on the proposal. For further information contact Towong Shire Council, Tel: (02) 6071 5100, Web: www.towong.vic.gov.au or Mr. Bob Barker Tel: (02) 6076 1498 Email: rbarker@corry.albury.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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