



Newsletter

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

April 2002

Bioenergy Australia Membership¹ Update

The Bioenergy Australia membership now includes 47 organisations, with recent new members being the Waste Management Association of Australia and Ergon Energy. 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 2001 Conference

Bioenergy Australia held a very successful second annual conference, *Bioenergy Australia 2001* "Realising the Potential of Bioenergy" at the Grand Mercure Hotel, Broadbeach, Gold Coast, Queensland on 3-4 December 2001. The conference included a technical tour to the newly commissioned 30 MW bioenergy plant at the Rocky Point Sugar Mill, and to the ReOrganic Biogas project at Swanbank Power Station. Two highlights of the program were a keynote address by Dr Josef Spitzer of Joanneum Research, Austria, the then Chairman of the International Energy Agency's Bioenergy Program, and a very well received presentation by Professor Tony Bridgwater of Aston University in the UK on the production of novel chemicals and fuels from the pyrolysis of biomass. The conference dinner speaker was Professor Ian Lowe of Griffith University. The conference program consisted of 33 papers covering numerous aspects of bioenergy plus a panel discussion. The conference also included a trade exhibition. The principal conference sponsor was the Joint Venture Agroforestry Program, with other sponsors being Alstom Power, the Australian Greenhouse Office, Delta Electricity, Renewable Energy Corporation Ltd, SEDA, and Stanwell Corporation.

Bioenergy Australia Conference Proceedings Available

Bioenergy Australia has a few sets of the Proceedings from both the December 2000 and December 2001 two-day Bioenergy Australia conferences available for sale. These are being sold for AUD \$120 (including GST, postage within Australia and handling) each. If you are interested in purchasing a set of these Proceedings, please contact Steve Schuck on tel/fax (02) 9416 9246. Email: sschuck@bigpond.net.au.

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, Renewable Energy Corp Ltd, CALM, Auspine Ltd, Gunns Forest Products, CSIRO Sustainable Ecosystems, (Carter Holt Harvey), Metasource, Primergy, Sugar Research Institute, Queensland EPA (Sustainable Industries), Enecon Pty Ltd, BioEnergy Australia Ltd, Forest Products Commission of WA, Victorian Sustainable Energy Authority, WMAA and Ergon Energy.

Expressions of Interest for Bioenergy Australia 2002 Conference

The 2000 and 2001 Bioenergy Australia conferences attracted approximately 150 delegates each and included an exhibition. Planning is now underway for the 2002 conference to be held at the end of the year. The venue is likely to be in either Sydney or Wollongong, with details to be finalised shortly.

Expressions of interest are being solicited from those interested in providing papers, poster presentations, exhibiting at the integrated exhibition, or co-sponsoring this conference. Please contact Dr Stephen Schuck, Bioenergy Australia Manager to indicate if you wish to provide a presentation, exhibit or co-sponsor the conference. Tel: (02) 9416 9246, or 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- Paul Wootton, 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* is planning to hold a meeting in Australia in late 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 is also scheduled to hold a future meeting in Australia in April 2003.

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. Both Task 32 –

Biofuels for Cleaner Transport

The Australian government has announced a AU\$50 million bio-fuels initiative to ensure that renewable fuels such as ethanol provide two percent of the country's transport fuel. The government will offer a capital subsidy of 16 cents for each litre of biofuel capacity constructed, which is equivalent to a capital subsidy of 16 percent on new plants. The target is to increase the use of ethanol and biodiesel in the transport sector from the current 40 million to 350 million litres a year by 2010 (two percent of the petroleum and one percent of the total liquid fuel market). Initially, the source would be sugar by-products and grain. The subsidy would be paid until the target of 350 million litres was reached, or until June 2007. At least five new ethanol distilleries are expected to be built, providing 2,300 construction jobs and 1,100 permanent jobs. Details on the implementation of the measure are yet to be announced.

National Energy Market Review

In June 2001 the Council of Australian Governments (COAG) agreed to establish a new Ministerial Council on Energy to provide a national framework to guide future energy policy decision-making. As part of this process, the Council agreed to an independent review of domestic stationary energy market directions. Two main objectives of this review are to identify long term strategic issues for Australian energy markets, and the policies required from Commonwealth, State and Territory Governments to reap the most significant benefits.

The Review has begun with the release of an issues paper which seeks submissions from industry, consumer and government groups from across Australia, as part of its public consultation process. The Issues Paper for the Review is at: <http://www.energymarketreview.org> (view 'What's New' box for the link to the Issues Paper). Pertinent questions posed in the Issues Paper include – options available to reduce greenhouse gas emissions within the energy market, incorporation of greenhouse gas benchmarks into energy market arrangements and at what cost and benefit, role of government in future energy market arrangements, and role of government in relation to innovative technologies that may promote or maximise the benefits of competitive energy markets.

Minister Macfarlane's media release regarding the Review is at: http://www.minister.industry.gov.au/media_releases.cfm?objectid=368BCB5A-6565-4F9F-83B1E2874832E392

The Review Secretariat's General Manager, Brad Page may be contacted on: Tel (02) 6230 7381, Email: EMR@industry.gov.au.

Construction of Anaerobic Digester at Camellia, New South Wales

EarthPower Technologies Sydney, in association with Bioenergy Australia member Babcock and Brown and contractor McConnell Dowell Constructors (Aust) Pty Ltd is constructing a state-of-the-art anaerobic digester at Camellia in Sydney's western suburbs.

The \$30 million facility will process food wastes and food processing wastes to produce 7 MW equivalent of methane gas and high nutrient organic fertilisers. It will have the capacity to process 82,000 tonnes per year of delivered waste (approx. 20,000 dry tonnes digestible solids), representing approx. 10 percent of available organic waste in Sydney. Currently, preliminary design work is also being carried out to include a 3.2 MW_e cogeneration unit, which will satisfy the requirements of the plant and export excess electricity into the grid.

The innovative combination of the patented German BTA pre-treatment process already used in Europe and North America has been combined with local Australian technology by consultant Ron Mendelsohn and New Zealand based Waste Solutions, and commercialised with management consultancy, CMR.

The works that McConnell Dowell Constructors (AUST) Pty. Ltd are carrying out comprise the design, supply, construction, testing and commissioning of the digester plant, fertiliser plant, water treatment plant and allied infrastructure.

The plant is scheduled for completion in October 2002 and should be in operation by the end of the year.

Waste Management Association of Australia Awarded RECP Grant

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 their 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.

A Working Group has been established to oversee the project. This group will also exercise editorial control over the developing documents. The Working Group consists of: Mark Glover (Chair), Ron Wainberg (NSW Branch WMAA), Jeff Angel (Total Environment Centre), Stephen Schuck (Bioenergy Australia), Tony Wright (Wright Corporate Strategy), Neil Chapman (Resource NSW), Graeme Jessup (SEDA), Raymond Kidd (Environment Australia) with interstate representation from Jenny Pickles (EcoRecycle Victoria), David Moy (Qld), Carinda Rue (Tas), Lilius Bovell (WA) and Yolande Stone (Planning NSW) as an observer.

Contact: Mark Glover, Tel: 02 9664 5552 Email: mark@ecowaste.com.au

Biodiesel Developments

Australia has recognised the potential of biodiesel with a number of projects reaching fruition. Australian Renewable Fuels (ARF), a wholly owned subsidiary of Amadeus Energy Ltd plans to complete construction of a 40 million litre per year plant by the end of 2002 at Hazelmere, WA using low grade tallow. ARF have an exclusive licence to European technology from Energea which will be used in this and any subsequent projects.

Australian Biodiesel Consultancy and Collex are currently operating a trial 40,000 litres per day biodiesel plant at Wyong, New South Wales. This plant mainly uses recycled cooking oil and tallow as the feedstock.

At the December Bioenergy Australia 2001 conference on the Gold Coast in Queensland, Stanwell Corporation indicated how it was investigating using tallow, waste cooking oil and ethanol (a renewable fuel) for manufacturing biodiesel for electricity production in Remote Power Supply Systems.

For further information see ARF at <http://www.ausrf.com.au>, Australian Biodiesel Consultancy at www.biodiesel.net.au and Stanwell Corporation at www.stanwell.com.

Biofacts

- ❑ Biomass and waste combustion continue to be the largest source of non-large hydro renewable electricity in the USA. In 2000 the respective contributions were:
 - Biomass 39,498 GWh
 - Waste combustion 24,590 GWh
 - Geothermal 14,197 GWh
 - Wind 4,953 GWh
 - Solar 844 GWh

(source: Energy Information Administration, Monthly Review Interactive Data Query System)
 - ❑ There are 1,075 biopower facilities in the U.S. with a total capacity of approximately 12,600 MW.
 - ❑ Florida leads the USA in biopower with over 1,000 MW of capacity at 61 facilities.
 - ❑ In total, companies owning biobased facilities employ over 100,000 people in the U.S. and sell goods valued at over US\$50 billion.

(source: Biobased Products and Bioenergy newsletter)
 - ❑ Sweden has more than 400 buses running on neat ethanol.
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Biomass on the Internet

The Internet provides a valuable source of information on biomass and allied topics. Below are some Internet addresses to supplement the 900 plus addresses given in the previous fifteen 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.

Department of Industry, Tourism and Resources (ITR) (new address)

<http://www.industry.gov.au>

IEA Bioenergy Task 29 – Socio-economic Aspects of Bioenergy Systems

<http://www.iea-bioenergy-task29.hr>

Bioenergy Australia/ACRE forum 21 February 2002, UNSW

http://alpha400.ee.unsw.edu.au/acre/aepgbioenergy/BioenergySeminar.htm#_top

Australian EcoGeneration Association

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

SEDA Agwaste study

<http://www.seda.nsw.gov.au/pdf/agwastes.pdf>

Biobased Information System Website

<http://biobased.org>

1st WORLD PELLETT CONFERENCE

<http://www.pellets2002.com>

IEA Bioenergy Task 38 "Carbon accounting and emissions trading related to bioenergy, wood products and carbon sequestration" Workshop, Canberra, 26-30 March 2001 video

<http://www.joanneum.at/iea-bioenergy-task38/fnew2.htm>

IEA Bioenergy Task 29 social and economical aspects of bioenergy systems

<http://www.iea-bioenergy-task29.hr>

Department of Energy's Office of Industrial Technologies
<http://www.energy.gov/>

Implications of Salinity for Biodiversity Conservation and Management report (ANZECC)
<http://www.environment.sa.gov.au/biodiversity/pub.html>

World Bank Prototype Carbon Fund
<http://www.prototypecarbonfund.org>

Pacific Ethanol Conference & Expo 2002, 4-5 June 2002
<http://www.pacificethanol.com>

Australian Emission Trading Forum Feb/March 2002 newsletter
<http://www.aetf.net.au/ContentStore/pdf/ReviewFebMar2002.pdf>

Fischer-Tropsch related research
<http://www.fischer-tropsch.org/>

ABARE paper on the potential economic impacts of the Kyoto protocol
<http://www.abareconomics.com/conferences/OL2002/climatechange.pdf>

USDA biobased products site
<http://www.usda-biobasedproducts.net/public>

COAG Energy Market Review
<http://www.energymarketreview.org>

Solena Group
<http://www.solenagroup.com/html/home.asp>

Bioenergy Association of NZ
<http://www.bioenergy.org.nz>

Bioenergy Atlas Website
http://www.gisca.adelaide.edu.au/~lzimmerm/bioenergy_atlas/atlas_index.html

John Deere article on biodiesel use
<http://www.deere.com/deerecom/newsroom/ecofriendbio.htm>

Urethane Soy Systems Co (spray foam insulation)
http://www.unitedsoybean.org/lib_fs_artview.cfm?id=10&type=one

Bioferm (Anaerobic Digestion – German site)
<http://www.bioferm.de/>

Gengassidan (wood gasifier for automotive use)
<http://www.gengas.nu/byggbes/index.shtml>

Fuel Cells – descriptions and analysis (Ben Wiens Energy Science)
<http://www.benwiens.com/energy4.html>

Gasification Reference Sites (ex CREST list)
http://www.crest.org/articles/static/1/1011975339_6.html

ASAN ONLINE (Australian Salinity Action Network)
http://www.eco-rewards.com/asan_home.htm

Canberra Times article John Raison ‘Forest Conservation and Use a Balancing Act’ 10 Jan02
http://canberra.yourguide.com.au/detail.asp?class=Features&story_id=119743&subclass=science&m=1&y=2002

Canberra Times Article Lindenmayer and Mackey “Native Forests Can’t Take More Harvest Pressure” (28 Feb 02)
http://canberra.yourguide.com.au/detail.asp?class=Features&story_id=131153&sublass=science&m=2&y=2002

BioMatNet (BioMaterials research results)
<http://www.nf-2000.org/secure/FP5/S1209.htm>

icWales article on energy crops in Wales
<http://icwales.icnetwork.co.uk/0100news/1000farming/page.cfm?objectid=11734585&method=full&siteid=50082>

IEA BioenergyTask 29 (socio-economic aspects of bioenergy)
<http://www.iea-bioenergy-task29.hr>

JF Bioenergy Inc (pyrolysis oil)
<http://www.jfbioenergy.biz>

Australian Venture Capital Guide 2002
<http://www.vcjournals.com.au>

AGO/CSIRO lifecycle analysis for alternative fuels report
<http://www.dar.csiro.au/res/ggss/Life%20Cycle%20Analysis%20for%20Alternative%20Fuels.htm>

Issues paper "Setting the Ethanol Limit in Petrol"
<http://www.ea.gov.au/atmosphere/transport/fuel/index.html>

Australian Paper Industry Council (formerly Pulp and Paper Manufacturers Federation)
<http://www.apic.asn.au>

US Dept of Agriculture, Agricultural Waste Characteristics Handbook (24 pp)
<ftp://ftp.ftw.nrcs.usda.gov/pub/awmfh/chap4.pdf>

PAMUCEAF (Poplar: A Multiple Use Crop for European Arable Farmers)
<http://www.wit.ie/dipinforestry/pamuceaf/>

Pioneer Technology Converts Corn to Energy Alternative (click Media Info, Press Releases, Corporate News)
<http://www.pioneer.com/>

OECD "Environmental Outlook"
<http://www1.oecd.org/env/>

Energy Australia ceases taking on new Green Power customers
http://www.ethicalinvestor.com.au/news/story.asp?Story_ID=279

Fuel Cells 2000
<http://www.fuelcells.org/>

Ecoforestry Institute
<http://ecoforestry.ca/>

Ukrainian Conference on Biomass for Energy
<http://www.biomass.kiev.ua>

North America Waste to Energy Conference
<http://www.swana.org>

Animal Residuals 2002
<http://www.wef.org>

The Bryan and Bryan 2001 ethanol handbook
http://www.bb ethanol.com/ethanol_info/handbook.html

Plantation Timber Association of Australia
<http://www.ptaa.com.au>

Energy Developments Limited
<http://www.energydevelopments.com.au>

State Salinity Council in Western
<http://www.salinity.org.au>

Our Forests (Victorian forestry)
<http://www.ourforests.com.au/>

Ethanol Plant Development Handbook

BBI International has released its latest Ethanol Plant Development Handbook. Some topics covered in the Handbook include the following:

- Initial Considerations
- Project Assessment
- Financing
- Cooperatives
- Permits
- Having an "Edge"
- Plant Capacity
- Cellulosic Ethanol Insert
- Feedstock Management
- Utilities
- Boiler Requirements
- Starch Conversion
- Process Control Systems
- Fermentation
- Distillation
- Dehydration
- DDGS
- Water Treatment
- Wastewater/Effluent Treatment
- Energy Efficiency
- Plant Safety
- Public Relations
- New Technologies

Cost is US \$100 for orders outside USA. For more information on this guidebook and about factors involved in putting together an ethanol project see:
http://www.bb ethanol.com/ethanol_info/handbook.html

International Developments

Small Modular Biopower Development in USA

The Biopower Program in the US Department of Energy's Office of Power Technologies is providing cost-share funding for research activities to advance Small Modular Biopower:

- Flex Energies Inc., Capstone Turbine Corporation, and BG Technologies are designing and developing a modular biomass-fueled microturbine electricity generator system. The units will be designed to generate 30 kW of electric power using biogas (landfill gas, anaerobic digester gas), gasified wood, or crop residues. The entire system will be mounted onto a trailer, allowing it to be moved to any location where resources are available.
- Aurora Power Corporation and Shell International Renewables are producing a modular down-draft biomass gasifier system coupled with an internal combustion engine. The units will be designed to generate power in the 5 to 25 kW range by gasifying biomass fuels such as coconut shells and husks, bagasse, rice hulls, wood residues, wood, and palm nut shells.

For more information see: <http://www.eren.doe.gov/biopower/> (source: biopower newsletter)

U.S. Chariton Valley Biomass Project

Alliant Energy is conducting co-firing trials of switchgrass, a native prairie grass, at its coal-fired Ottumwa Generating Station in Iowa, USA. Switchgrass provides high yields per hectare and is an attractive energy crop. The project, supported by farm equipment giant John Deere involves more than 80 farmers managing 2,800 hectares of switchgrass. The project aim is to eventually provide five percent of the fuel at the generating station, or approximately 200,000 t/a from switchgrass, a renewable resource.

Pyrolysis News from DynaMotive

DynaMotive Energy Systems Corporation has received *The Energy Research and Development Award* from the Canadian Institute of Energy for its project, "BioTherm Technology: Renewable Fuels from Biomass Waste". The award recognizes outstanding R&D achievement in the field of energy technology in British Columbia, Canada.

DynaMotive is an energy systems company that is focused on the development of innovative energy solutions based on its patented pyrolysis system. The Company currently has one prototype plant and one pilot plant producing BioOil in British Columbia with rated capacities of two and ten tons per day, respectively. DynaMotive is in the process of building a further plant in the UK with a rated capacity of 100 tons per day and is in the final stages of determination with Canadian Forest Products-Canada's largest lumber producer--for a 200 tpd plant in British Columbia. DynaMotive estimates that within five years export into Europe could exceed 10,000 tons a day of BioOil. The Company has in its books 70 MWe of renewable energy production contracts with the UK Government that would require 2,000 tons of BioOil per day over a 15 year period.

For more information on DynaMotive see Web site: <http://www.DynaMotive.com>.

Ensyn Expands Pyrolysis Oil Production

United States Ensyn Group Inc. has announced that it has successfully completed the commissioning of its latest commercial RTP™ biomass pyrolysis unit, which increases the RTP™ capacity to greater than 200 tonnes per day (wet basis). The world's largest RTP™ facility now processes 150 tonnes per day at one location.

Commercial operation has now commenced for the new RTP™ biomass refinery, which converts wood into liquid bio-oil used for fuel applications and for the production of specialty chemical products. This expansion will meet Ensyn's increased customer demand for natural chemical products, including polymer and co-polymer products for industrial use, natural chemical products for the food industry, carbon, and bio-oil renewable energy products. Ensyn's bio-oil production capacity now exceeds 19 million litres per year.

For further details see Web site: <http://www.ensyn.com>

BioMatNet

BioMatNet disseminates results of European research and technology development in the field of biological materials for non-food products (renewable bioproducts), focusing on the chemical, pharmaceutical, textile, material and construction industries. The site <http://www.nf-2000.org/> makes available around 800 results of projects supported by the European Commission. It includes final results from the FAIR Program (FP4) and ongoing research from the Fifth Framework Program (FP5). Results from AIR (FP3) and ECLAIR (FP2), as well as other information collected under previous activities, can be accessed by clicking on the NF-2000 logo. Hyperlinked topics are:

- [Bulk Chemicals](#)
 - [Integrated Crop Protection](#)
 - [Cosmetics, Drugs & Vaccines](#)
 - [Bioplastics, Polymers](#) and [Packaging](#)
 - [Non-wood Fibre](#)
 - [Wood Products](#)
 - [Speciality Chemicals](#)
 - [Other Products](#)
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Biomass Biorefinery for Production of Polymers and Fuel

The U.S. Department of Energy (DOE), Office of Industrial Technologies-Agricultural Team (OIT) has awarded US\$14,794,000 to a consortium consisting of: Metabolix, Inc; University of Tennessee; University of Central Florida; Oak Ridge National Laboratory; Cornell University; National Renewable Energy Laboratory; Porcelli Consultants, Inc; University of Massachusetts, Amherst and Lowell; University of Texas for a project to genetically engineer switchgrass (a native prairie grass used as an energy crop) to produce a biodegradable polymer, polyhydroxyalkanoate (PHA), that can be processed into film, fibers, coatings, molded objects, and converted into other useful chemicals. See URL: <http://e-center.doe.gov>

Forthcoming Events

- *Biohydrogen 2002*, 21-24 April 2002, Ede, The Netherlands
<http://www.ftns.wau.nl/prock/Research/Rene/Biohydrogen%202002.htm>

- 3rd International Congress & Trade Show Green-Tech 2002 with 5th European Symposium Industrial Crops and Products, 24-26 April 2002, Floriade, The Netherlands
<http://www.europoint-bv.com/events/greentech2002/index.htm>
- *BioCat2002*, 25-26 April 2002. Philadelphia, Pennsylvania USA. Email: cnf@catalystgrp.com Web: <http://www.catalystgrp.com>
- *Wood Wastes 2002 – Residues to Revenues*, Forest Industry Engineering Association (NZ). 29 April 2002, Holmesglen Conference Centre, Melbourne. Program and Registration details on Bioenergy Australia website. Tel: 1800 126 398, Email: fiia@clear.net.nz Fax: +64 7 921 1381. Inquiries: Brent Apthorp: apthorpb@es.co.nz.
- 24th Symposium on Biotechnology for Fuels and Chemicals, 28 April - 1 May 2002, Gatlinburg, Tennessee USA. <http://www.ct.ornl.gov/symposium/>
- Commercialising Sustainable Energy 2002, Utilicon, 29 April – 1 May 2002, Avillion Hotel, Sydney. Tel: (02) 9210 5777, Web <http://www.utilicon.com.au>
- North America Waste to Energy Conference, 6-8 May 2002, Philadelphia, PA, USA. Details at: <http://www.swana.org>
- *Animal Residuals 2002*, 6-8 May 2002, Washington, DC. Web: <http://www.wef.org/pdf/files/Animal2002program.pdf>
- *REGA Forum 2002*, 29-31 May 2002, Novotel Opal Cove, Coffs Harbour, NSW. Tel: 03 6224 3773 Email: lee@cdesign.com.au
- Pacific Ethanol Conference & Expo, 4-5 June 2002, Hilton Hotel, Brisbane. The deadline for attendee and exhibitor registration is May 17, 2002. For complete conference information and event registration, see: <http://www.pacificethanol.com/>
- 12th European Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection. 17-21 June 2002, Amsterdam, The Netherlands. Email: biomass.conf@etaflorence.it Fax: (0015 39) 055 57 34 25.
<http://www.etaflorence.it/events/amsterdam2002/conf-home.htm>
- Inaugural Annual Australasian Conference: "Valuing the Environment - Economic and Social Values in Environmental Decision-Making", July 2002 in Brisbane, <http://www.teroma.coffs.com.au>
- World Conference and Exhibition on Oilseed and Edible, Industrial and Specialty Oils, 12-16 August 2002, Istanbul, Turkey.
<http://www.aocs.org/meetings/turkey/index.htm>
- NSW Waste Management Conference and Expo 2002. 14-16 August 2002, Australian Technology Park, Sydney. Email: conference@environetz.com.au
- 1st World Pellet Conference, 2-6 September 2002, Stockholm, Sweden. (This is the first world event for densified fuels with the aim to match the increasing international interest for densified fuels in general and wood pellets in particular.) The main organiser is SVEBIO, the Swedish Bioenergy Association. Details at <http://www.pellets2002.com>

- World Summit on Sustainable Development, 2-11 September 2002, Johannesburg, South Africa. <http://www.johannesburgsummit.org/>
- 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>
- 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
- 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).
- 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.cdeshign.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/>
- IUFRO - Division 5 Conference 11-15 March 2003, Rotorua, New Zealand. See <http://www.forestresearch.co.nz/site.cfm/alldiv5iufroz>

Residues

- The program and presentations from a joint Bioenergy Australia/ACRE forum on Sustainability Issues for Bioenergy Developments, held on 21 February 2002 at UNSW, Sydney (attended by 80 people) is available on the Web at: http://alpha400.ee.unsw.edu.au/acre/aepgbioenergy/BioenergySeminar.htm#_top
- The videos of the presentations at the IEA Bioenergy Task 38 Workshop "Carbon accounting and emissions trading related to bioenergy, wood products and carbon sequestration" (Canberra, 26-30 March 2001) are available online at Web address: www.joanneum.at/iea-bioenergy-task38/fnew2.htm
- The IEA Bioenergy Task 17 (Short Rotation Crops for Bioenergy) Proceedings from the Albany WA two day meeting have been installed on the Bioenergy Australia website at www.users.bigpond.net.au/Bioenergyaustralia.

- The Proceedings of the IEA Bioenergy final Task 17 meeting in The Netherlands and Sweden at the end of the year 2000 is now in print. It can also be found on internet: http://www.lto.slu.se/english/news/internat_coop.htm
- Stephen Schuck has recently completed editing a 'coffee table' book entitled "Sustainable Energy Innovation – a new era for Australia" which includes coverage of bioenergy. The book is currently being printed and is expected to be launched mid-2002 by CL Creations Pty Ltd.
- Australia Post has indicated it will be 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.
- A study undertaken by the Australian Cooperative Research Centre for Renewable Energy (ACRE), the AEA and REGA has shown the substantial jobs and local industry benefits of three bioenergy technologies; the Narrogin WA Integrated Wood Processing technology being built by Western Power Corporation, Enecon, CALM and The Oil Mallee Company; Brightstar Environmental's SWERF plant at Whytes Gully near Wollongong; and the Rocky Point Cogeneration plant near Beenleigh, Queensland. The report provides comparisons of these three bioenergy projects with the Albany windfarm, a gas turbine plant and an advanced coal-fired power station. The full 45 page report may be viewed on the AEA Web site <http://www.ecogeneration.com.au>.
- RIRDC has released the following reports:
 - Plantations, Farm Forestry and Water - A Discussion Paper (01/137)
Full report (488k) <http://www.rirdc.gov.au/reports/AFT/01-137.pdf>
Summary (24k) <http://www.rirdc.gov.au/reports/AFT/01-137sum.html>
 - Emerging Markets for Environmental Services - Implications and Opportunities for Resource Management in Australia (01/162 CIE-12A)
Full report (162k) <http://www.rirdc.gov.au/reports/AFT/01-162.pdf>
Summary (12k) <http://www.rirdc.gov.au/reports/AFT/01-162sum.html>
 - Conifers in the Dry Country (01/46 CSF-57A)
Full report (375k) <http://www.rirdc.gov.au/reports/AFT/01-146.pdf>
Summary (12k) <http://www.rirdc.gov.au/reports/AFT/01-146sum.html>
 - Integrated Tree Processing of Mallee Eucalypts (01/160 OIL-3A)
Full report (280k) <http://www.rirdc.gov.au/reports/AFT/01-160.pdf>
Summary (17k) <http://www.rirdc.gov.au/reports/AFT/01-160sum.html>
 - Agroforestry R&D Priorities for Northern Australia (01/142 GRE-1A)
Full report (390k) <http://www.rirdc.gov.au/reports/AFT/01-142.pdf>
Summary (13k) <http://www.rirdc.gov.au/reports/AFT/01-142sum.html>
- Brightstar Environmental Pty Ltd won a Golden Globe for Innovation in Bioenergy at SEDA's Green Globe Awards, on 25 October. Dr Stephen Joseph of Biomass Energy Services and Technology was runner-up in the Renewable Energy Champion category. Steve Schuck, the Bioenergy Australia Manager was one of eight nominees in the same category.
- A comprehensive lifecycle analysis for alternative fuels report is available on the Internet at: <http://www.dar.csiro.au/res/ggss/Life%20Cycle%20Analysis%20for%20Alternative%20Fuels.htm>. An issues paper "Setting the Ethanol Limit in Petrol" is also available on the Internet at the URL: <http://www.ea.gov.au/atmosphere/transport/fuel/index.html>.
- The Sustainable Energy Development Authority of NSW (SEDA) has completed a study assessing the availability of dry agricultural waste biomass in NSW (see story in June 2001 newsletter). The study, entitled "The Potential for Electricity Generation Using Dry Agricultural By-products in New South Wales" is now available on CD-ROM from SEDA, at a cost of \$110. Contact SEDA for an order form on Tel: (02) 9249 6100, or download from <http://www.seda.nsw.gov.au/pdf/agwastes.pdf>.
- The Australian Venture Capital Guide 2002 is now available. The Guide contains 177 sources of private equity. Further information is on the Web <http://www.vcjournal.com.au>. Contact: Victor Bivell, Australian Venture Capital Journal, Tel: 02 9713 760 Fax: 02 9713 1004 Email vbivell@vcjournal.com.au

- The brochure of an Indian gasification technology (up to 250 kWe), from Malahat Energy is downloadable from <http://www.malahatenergy.com/i/pdf/brochure.pdf>
- Queensland Government fleet vehicles will in future be fuelled by E10 ethanol-petrol blended fuel.
- An Australian Forests Standard is to be developed by mid 2002 to provide a basis for forest owners and managers to demonstrate the sustainability of their management through voluntary third-party certification of forest management.
- *Biogas!* is new Microsoft Windows software for the lay-out and cost estimation of biogas plants. A free demonstration version is available for downloading from the Web site: <http://www.biogas.ch/software.htm>
- RMIT and Agriculture Victoria have conducted a RIRDC funded collaborative research project entitled 'Re-use Potential of Agri-Industry Wastes In the Melbourne/ Metropolitan Region (01/144 RIRDC RMI-10A)'. The report considers wool scouring, tannery, wine, food processing and municipal putrescible wastes. Web access is: Full report <http://www.rircd.gov.au/reports/Ras/01-144.pdf>
Summary Report <http://www.rircd.gov.au/reports/Ras/01-144sum.html>
- Electricity retailer Energy Australia is not accepting new customers for its Green Power-approved Pure Energy scheme, because it has not secured enough compliant renewable energy supplies to meet demand.
- The Biobased Information System (BIS) website is a comprehensive source for biobased information, connecting biobased information to websites and consumers around the globe. It includes information on bioenergy, agfiber, and new crops and new uses. The objective of the web site is to sort and administer information between originators and publishers of biobased information for consumers interested in biomass information. Submitted informational sources in the system consist of editorial stories, biobased news, and biobased research. The URL is: <http://biobased.org>.
- The Bioenergy Association of New Zealand has been formed. Its web page is www.bioenergy.org.nz.
- The following reports have been added to the Biomass Information Resources Page of ME3 (USA) at <http://www.me3.org/issues/biomass/>
 - Energy Department to Award Over \$30 Million to Develop New Bioproduct Technologies and Train Graduate Students in the Bioproducts Field - DOE Release.
 - The 2002 Farm Bill: Revitalizing the Farm Economy Through Renewable Energy Development - Environmental and Energy Study Institute.
 - Minnesota Power, Blandin Paper Plan to Build Major Biomass Energy Cogeneration Facility - Allele Release.
 - Rapids Power LLC - company is proposing a 225 MW cogeneration power plant adjacent to the Blandin Paper Company's plant in Grand Rapids, MN. The company is seeking regulatory approval from the Minnesota Public Utilities Commission.
 - Corporation for Future Resources.
- The following have been added to the ME3 Ethanol and Biofuels Resources Page: <http://www.me3.org/issues/ethanol/>
 - Supply and Demand of Soybeans as Feedstock for Soy Diesel (Biodiesel) - Market Report - prepared by Su Ye, Minnesota Department of Agriculture.
 - Final Report for Soy-Based Diesel Fuel Study - by Kenneth Bickel and Kelly Strebig, University of Minnesota Center for Diesel Research.
 - Economic Impact of Soy Diesel in Minnesota - summary, Minnesota Department of Agriculture.
 - Economic Analysis of Increasing Soybean Oil Demand Through the Development of New Products - USDA, July 2001.
 - U.S. Ethanol Industry Production Capacity Outlook – California Energy Commission.
 - West Central Cooperative – biodiesel.
 - American Ethanol Exchange.
 - Effects of Fuel Ethanol Use on Fuel-Cycle Energy and Greenhouse Gas Emissions - by M. Wang, C. Saricks, D. Santini.

- Well-to-Wheel Energy Use and Greenhouse Gas Emissions of Advanced Fuel/Vehicle Systems - General Motors, Argonne National Lab, BP, ExxonMobil and Shell.
- Fibrominn LLC, part of the UK Fibrowatt group is developing a 50 MW power plant near Benson, Minnesota, USA that will be fueled by 500,000 tons of poultry litter per year. Fibrowatt has built three such power plants in the UK, the largest being 38.5 MW and is planning additional plants worldwide.
- John Deere has approved the use of soy-based biodiesel in all of its diesel-powered products. Their engineers have developed a number of guidelines for optimum use of biodiesel. These include ensuring the biodiesel fuel meets fuel specifications, using concentrations of up to 5% biodiesel to minimize problems with fuel degradation, and keeping storage and vehicle tanks as full as possible to prevent moisture. See: <http://www.deere.com/deerecom/newsroom/ecofriendbio.htm>
- The European Union's FAIR-CT95-1147 Report, entitled "Demonstration of the small bio-power plant for rural application" is available on line at: <http://www.nf-2000.org/secure/Fair/F826.htm>
- DynaMotive Energy Systems Corporation and the Business Enterprise Development Council (BEDCO), a community development corporation based in northern New Hampshire, USA, have signed a Memorandum of Understanding to establish the feasibility of developing commercial energy projects based on DynaMotive's proprietary BioOil technology.
- A summary of discussions and full presentations from the first Australian Cooperative Research Centre forum on *Sustainability of Renewables* may be found on the Web at: http://alpha400.ee.unsw.edu.au/acre/acre_whshop1.htm. Presenters included David Rossiter, Regulator from the Office of the Renewable Energy Regulator, Steve Waller of Metasource, Glen Klatovsky of the Wilderness Society, Jason Nunn of BHP-Billiton and Steve Schuck, Bioenergy Australia Manager.
- The U.S. National Renewable Energy Laboratory reports that for every megawatt of biomass power produced, 4.9 jobs are created. Currently, over 100,000 jobs are associated with bioenergy and an estimated 180,000 new bio-related jobs could be added to the U.S. economy by 2010.
- An excellent source of photographs on many aspects of bioenergy is the photo library of the US National Renewable Energy Laboratories. The URL is: <http://www.nrel.gov/data/pix/>
- The first soy-based two-stroke engine oil, designed for air-cooled engines, on the US market is Terresolve's EnviroLogic 440. The lubricant is biodegradable, virtually nontoxic, and meets or exceeds requirements established by the American Society for Testing and Materials (ASTM) for two-cycle, air-cooled engines. It is used when motor oil leakage would otherwise pose a threat to the environment. Research and development of the new lubricant was partially funded by Checkoff Investments and the United Soybean Board. For more information, see the United Soybean Board website: http://www.unitedsoybean.org/lib_fs_toc.cfm?ID=5
- "The Economist" has reported that the top five countries for R&D spending in 1999 were Sweden (3.5% of GDP), Finland (3.1%), Japan (3%), Switzerland (2.7%) and the US (2.6%). Overall, 2.2% of OECD countries' total GDP was spent on R&D. Australia's R&D spending was 1.5% of GDP.
- Chariton Valley Biomass Project paper entitled: 'Evaluation of an Integrated Biomass Gasification/Fuel Cell Power Plant' is available on the Web at http://www.cvrcd.org/ResearchPapers/evaluation_paper.htm
- Eyeforfuelcells.com reports in an article entitled 'Scientists Turn Algae Into Hydrogen Gas, Discover Renewable Fuel Source' that scientists from the University of California, Berkeley, working with a team at the National Renewable Energy Laboratory (NREL) in Golden, Colorado, have found a metabolic switch that triggers algae to turn sunlight into large quantities of hydrogen gas, a valuable fuel, for the first time. The news appears in the March 2002 issue of the journal *Plant Physiology*. See <http://www.eyeforfuelcells.com/ReportDisplay.asp?ReportID=1182>

- A new organic waste treatment and power generation field evaluation facility, consisting of Kajima's packed-bed thermophilic methane fermentation system and a 2,400-kilowatt phosphoric acid fuel cell (PAFC) has been completed in Kobe, Japan in a project of the Ministry of Environment. The Ministry plans to commence operation of the facility from August to evaluate system performance including the effect of variations in the organic waste input, biogas production and the electricity output over three years. See http://www.kajima.co.jp/topics/news_notes/vol18/v18b.htm
- Associate Professor Ralph Sims' book, 'The Brilliance of Bioenergy', publicised at the Bioenergy Australia 2001 conference has now been published by James & James (Science Publishers) Ltd. Details of the 138 page book may be found on the Web at <http://www.jxj.com>.
- The International Bio-Systems Network, established in 1995 by the United Nations University, Tokyo, Japan, is now a part of the International Organisation on Biotechnology and Bioengineering. This network connects people via the Internet for forums and co-operation in the applications of the integrated bio-systems approach to agriculture, industry, forestry and habitat. Details of their activities, news, and selected publications and conference proceedings may be accessed from URL: <http://www.ias.unu.edu/proceedings/icibs/ibs/ibsnet/>
- 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).
- Researchers at the University of Texas - Austin have developed an enzyme-based biofuel cell that has enough power output to run small silicon-based microelectronics. Its power density is five times better than that of the previous best biofuel cell. The fuel cell uses micro fibers instead of flat electrodes and enzyme-based electroactive coatings to achieve its size and performance. (source: *Chemical & Engineering News*)
- US Department of Agriculture has established a Web site specifically on biobased products, <http://www.usda-biobasedproducts.net/public>. The site currently offers product sources in the categories of Alternative Fuels and Fuel Additives, Lubricants and Functional Fluids, and Solvents/Cleaners and will soon identify product sources in additional categories.
- The development of large-scale production of BioOil from sugar cane waste- bagasse, in Brazil may move forward following an preliminary agreement between DynaMotive Energy Systems of Canada and Intracom, an energy trader in Brazil. DynaMotive has been working with one of the largest sugar and ethanol producers in Brazil for two years to validate the production of BioOil from sugar cane residue. (source: Solar Access)
- The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) is conducting a US\$639,000 project to develop a filter to remove potential pollutants from systems that produce energy from biomass. The project uses Community Power Corp. of Littleton, Colorado and MagStar Technologies of Hopkins, Minnesota, as subcontractors.
- In December 2001 the IBSnet in cooperation with IEES and Lincoln University (Christchurch, NZ) organized the Internet extension of the Conference on Ecological Engineering for Landscape Services and Products. The webpage <http://www.ias.unu.edu/proceedings/icibs/iees-nz> has now been updated and contains the discussion messages (edited), abstracts and additional materials.
- The first commercial fuel cell power unit in China has been installed at a pig farm in Guangdong province, 150 km from Hong Kong, to generate power for equipment on the farm and to export surplus power. Initially fueled by liquefied petroleum gas, plans call for the fuel cell to be powered by renewable methane fermentation gas produced by pig waste. (source Solar Access)
- A biodiesel demonstration project in Montreal, Canada will fuel 155 buses with a combination of regular diesel and recycled vegetable oil and animal fat for one year. The \$1.3 million (US\$815,000) project is being funded by the Government of Canada,

Canada Economic Development (CED), and the Technology Early Action Measures component of the Climate Change Action Fund (CCAF). The demonstration project will require 500,000 liters of biodiesel in two blends, B5 and B20, which have a mix of 5 percent and 20 percent respectively of biodiesel to regular diesel. Buses will be supplied with biodiesel from March 2002 to March 2003. (source Solar Access)

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.

Back Issues of Bioenergy Australia Newsletters – Downloadable from the Bioenergy Australia homepage: <http://www.users.bigpond.net.au/bioenergyaustralia>

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