



Newsletter

January 2005

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

Bioenergy Australia 2004 Conference

The South Australian Minister for Energy, the Hon. Patrick Conlon officially opened the fifth Bioenergy Australia conference '*Bioenergy Australia 2004 – Building the Australian Bioenergy Industry*' on 29 November 2004. The two day conference was attended by 148 registered delegates, including delegates from the USA, UK, Brazil and New Zealand. The conference was followed by a technical tour on 1 December to the Bolivar Waste Water treatment plant where a gas turbine is fired on digester gas, to the University of Adelaide's Roseworthy campus to view small-scale polyethylene digesters fed by pig manure and to view a Florasearch plant species selection trial for biomass and other values, to Keyneton to visit a wood fuel lot, and then to view plantation operations and to discuss biomass production. The tour was conducted on a sponsored biodiesel (B20) bus, being trialled by the South Australian government.

The conference program incorporated the 3rd International Pyrolysis and Bio-oil Workshop, as parallel sessions within the conference. There were some 55 presentations, covering policies and programs, projects and project development case studies, and emerging opportunities. The conference program considered many other facets of bioenergy including anaerobic digestion, ethanol and biodiesel, pyrolysis bio-oil, heat and power and co-products. Professor Tony Bridgwater of Aston University's (UK) Bio-Energy Research Group provided the keynote address and Professor Syd Shea, Chairman of the Oil Mallee Company was the conference dinner speaker, where he gave an illustrated presentation on the value of oil mallees for mitigating dryland salinity and providing a feedstock for bioenergy.

The Conference this year had two extended panel discussions and forums, moderated by Assoc. Prof. Ralph Sims of Massey University in New Zealand on the :

- Framework for Bioenergy in Australia
- Advancing Bioenergy - Making Bioenergy Mainstream.

The conference also included a sponsor's exhibition and several bioenergy poster presentations. In addition to the printed Conference Proceedings provided to conference delegates, the entire set of presentations have been consolidated onto a CD ROM.

Bioenergy Australia 2004 Conference CD and Proceedings

The CD ROM of the Bioenergy Australia conference program, delegate list (names and organisations), all the presentations from the entire conference (including the international pyrolysis bio-oil workshop) in PDF format, video presentations in MPG format, and several photos from the technical tour from the Bioenergy Australia 2004 conference, held in Adelaide, South Australia 29 November – 1 December are available for sale. The cost is \$66 each (including GST, postage and handling). The CD contains some 69 files. A limited number of conference folders containing the conference papers are also available for \$120 (including GST, postage and handling). Both the folder and CD are priced at \$150. For further details and orders please contact Steve Schuck on tel/fax: (02) 9416 9246 or email: sschuck@bigpond.net.au.

Early Expressions of Interest for Bioenergy Australia 2005 Conference

Expressions of Interest are sought from potential paper and poster presenters, sponsors, and trade exhibitors for the next Bioenergy Australia Conference, planned for December 2005. Please contact Stephen Schuck, Bioenergy Australia Manager Tel/Fax: (02) 9416 9246 Email: sschuck@bigpond.net.au to express your interest.

Bioenergy Australia Membership

The Bioenergy Australia has 43 member organisations, from both the private and government sectors. The membership list is on the Bioenergy Australia website, <http://www.bioenergyaustralia.org>. 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 specifically set up a membership tier to cater for universities and for organisations with an annual turnover of less than \$2 million per annum.

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 Tasks, in which it is participating:

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

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- Brendan George, NSW DPI, Task 31- John Raison, CSIRO Forestry and Forest Products; Task 32- Brett Corderoy, Delta Electricity; Task 36- Mark Glover, Waste Management Association; and Task 38- Annette Cowie, Forests NSW (DPI).

Should you or your organisation wish to obtain information on IEA Bioenergy or on participation in IEA Bioenergy 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 Task information and its Strategic Plan are available from web site: <http://www.ieabioenergy.com>.

IEA Bioenergy Meetings

Task 30 – *Short Rotation crops for Bioenergy Systems* – held its most recent meeting in association with the Short Rotation Woody Crops Operations Working Group, 8-11 November 2004 in South Carolina, USA. The meeting was attended by Brendan George on behalf of Bioenergy Australia. Planning is proceeding to hold the next Task 30 meeting, combined with the annual Task 31 meeting in August 2005, probably in Western Australia.

Task 31 – *Biomass Production for Energy from Sustainable Forestry* – held its 2004 workshop on "Sustainable Production Systems for Bioenergy: Forest Energy in Practice" in Sweden and Norway, 12-18 September 2004, with the post-workshop tour in Norway 19-21 September 2004. As noted above, plans are in train to hold the next annual Task 31 meeting in association with Task 30 in Australia in August 2005.

Task 32 – *Biomass Combustion and Co-firing* – held its last meeting from 30 August – 2 September in Victoria, Vancouver Island, Canada to coincide with the Science in Thermal and Chemical Biomass Conversion conference. This meeting was attended by Brett Corderoy, National Team Leader (NTL) for Task 32. The next meeting is scheduled for 16-17 March 2005 in Graz, Austria, where the meeting will be held in conjunction with an international workshop on aerosols from biomass combustion.

Task 36 – *Energy from Integrated Solid Waste Management Systems* held its most recent half yearly meeting in Montreal, Quebec, Canada from 19-21 October. The meeting was attended by Mark Glover, the NTL for Task 36. The next meeting will be held in Bath, England 25-27 April 2005, with a technical tour to the Compact Power plant at Avonmouth.

Task 38 – *Greenhouse Gas Balances of Biomass & Bioenergy Systems*. The most recent meeting was held at Victoria, BC, Canada from 13-16 September 2004. The meeting was attended by Annette Cowie, NTL for this Task. The next meeting is planned for Dublin, Ireland in the week 25-29 April 2005. The workshop will be held with Sustainable Energy Ireland, University College of Dublin and COST Action E31 ‘Management of Recovered Wood’ on the topic of ‘Greenhouse Gas Aspects of Biomass Cascading – Reuse, Recycling and Energy Generation’.

ExCo 55 (Executive Committee meeting) will be held in Copenhagen Denmark 24-26 May 2005 and ExCo 56 in Ireland in October 2005.

IEA Bioenergy will also be providing a two-hour workshop on bioenergy within the IUFRO World Congress in Brisbane, mid August 2005. This is planned to involve Mr. John Tustin, Secretary of IEA Bioenergy, Prof. Theo Verwijst, Task 30 Leader, Mr. Jim Richardson, Task 31 Leader, Prof. Jack Saddler, Task 39 Leader (Liquid Biofuels), Dr Annette Cowie, Task 38 National Team Leader, and Dr Stephen Schuck, Bioenergy Australia Manager.

IEA Bioenergy – Task 36 End of Task Report

IEA Bioenergy Task 36 – *Energy from Integrated Solid Waste Management Systems* has recently released its End of Task report for the triennium 2000-2003, in the form of a 22 page booklet and a CD of the final reports. The report profiles the Task, its aims and work program, the various meetings and site visits. The work program includes a series of topics on:

- Public perception and acceptance of energy from waste
- Best practice environmental option (BPEO) for solid waste management
- Waste gasification with ash melting
- Waste gasification in fluidised bed systems
- Small-scale waste conversion systems
- Heavy metal distribution in waste-fired systems
- Dioxin emissions from incineration – status and effect of the new EU regulations
- Review of waste processing technology for RDF
- High Efficiency Conversion in conventional grate-fired systems

The CD contains 18 reports stemming from the work program.

The end of Task report has been mailed to a representative of each Bioenergy Australia member organisation. Steve Schuck has some spare copies available for further distribution to members and other targeted organisations. If you wish to obtain a copy, please contact Steve Schuck, Bioenergy Australia Manager.

IEA Bioenergy Task 30 Report Released

The Joint Venture Agroforestry Program has released a report ‘Participation in IEA

Bioenergy *Short Rotation Crops for Bioenergy Systems* Task, which summarises Australia's participation in this IEA Bioenergy Task for the triennium 2001-2003. The report, RIRDC publication No 04/133, dated October 2004, and authored by Bioenergy Australia Manager, Dr. Stephen Schuck profiles this Task, and Australia's participation. Task themes for 2001-2003 were:

- Role of short rotation crops for improving water quality
- Harvesting and fuel supply logistics
- Nutrients (including water use efficiency)
- Diseases
- Co-products including externalities.

The outputs from the Task primarily comprise the Proceedings from annual Task meetings, as well as occasional technical papers. The report provides links to Task newsletters, and access to some 49 papers and presentations from the Proceedings of the three major annual Task meetings, held in Denmark, Brazil and New Zealand. An Appendix to the report is a paper prepared by Chris Borough of the participation group, entitled 'Prospects for Bioenergy from Short Rotation Crops in Australia – Update 2002'. The full 23 page report may be downloaded from the RIRDC Website at <http://www.rirdc.gov.au/reports/AFT/04-133.pdf> while a Summary Report is available at <http://www.rirdc.gov.au/reports/AFT/04-133sum.html>

Ethanol Discussion Paper

The Department of the Environment and Heritage commissioned the International Fuel Quality Center (IFQC) to prepare a technical paper on the quality and characteristics of fuel ethanol around the world. The objective of this paper is to inform stakeholders and generate comment, prior to developing an Australian standard for fuel ethanol. The 56 page discussion paper is at <http://www.deh.gov.au/atmosphere/ethanol/publications/standard.html>

Comments received will be used to inform future policy decisions in the formulation of a fuel quality standard for ethanol. The views and opinions expressed in this publication do not necessarily reflect those of the Australian Government or the Minister for the Environment and Heritage.

The Department of Environment and Heritage is inviting comment and seeks information on the issues raised in this paper. Comments are invited by 18 February 2005.

Comments received will be treated as public information unless marked as confidential. It is intended that the feedback will be posted in a web forum on the Department website.

Please send comments, preferably electronically in Word format, to email: fuel.quality@deh.gov.au or to Clean Fuels and Vehicles Section, Department's of the Environment and Heritage, GPO Box 787 Canberra ACT 2601.

Round Two Biofuels Capital Grants Program

The Australian Government has announced the outcome of the second and final round of the Biofuels Capital Grants Program, which supports the Government's target of 350 million litres of biofuels production by 2010. The successful applicants for one-off grants were:

- Riverina Biofuels Pty Ltd, for a biodiesel plant at Deniliquin, NSW (\$7.15 million)
- Lemon Tree Ethanol Pty Ltd, for an ethanol plant at Millmerran, Queensland (\$5.85 million).

Further details of this biofuels program are on the Invest Australia website at: <http://www.investaustralia.gov.au/biofuels>.

NSW Energy Green Paper

In December, the NSW Minister for Energy and Utilities, the Hon Frank Sartor MP, released the NSW Energy Green Paper which outlines the state Government's options to secure the State's power supplies for the future. The Energy Green Paper examines:

- A new power station
- Possible ways of reducing greenhouse gas emissions
- Regulatory and pricing certainty for investors
- Transparency in relation to planning of new infrastructure
- Demand management strategies to help industry and households use new technologies to become more efficient.

Submissions from the private sector and the community will close on 25 February 2005. The Government will consider the submissions and expects to announce final plans in mid-2005.

A copy of the Green Paper can be downloaded from the DEUS website by clicking on this link:

<http://www.deus.nsw.gov.au/new/NSW%20Energy%20Directions%20Statement%20-%20702KB.pdf>

NSW Bioenergy Handbook

As noted in previous issues of this newsletter, the NSW Dept of Energy, Utilities and Sustainability (DEUS) has been compiling a *NSW Bioenergy Handbook* to assist in the development of a wide variety of bioenergy project types in NSW. This builds on earlier biomass resource studies into wet wastes, dry agricultural wastes and forestry wastes, conducted by SEDA (now part of DEUS), which identified sufficient resources in NSW to meet the electricity consumption of 1.3 million homes.

The NSW Bioenergy Handbook compiles the most up-to-date information on feedstocks, processes and project planning as well as current NSW Government policies and legislation. The 194 page Handbook, prepared throughout 2003 and 2004, in extensive consultation with private sector, regulatory, environmental and scientific stakeholder groups, offers a balanced and objective overview of the opportunities, risks and benefits of a broad range of biomass fuels and technologies.

Section 1 of the handbook, introduces bioenergy, and covers various sustainability issues, such as climate benefits, air pollution, soil quality, water use, site-specific impacts and resource use issues. Section 2 provides an overview of bioenergy feedstocks, and covers agricultural residues, energy crops, plantation and native forest residues, wet wastes and municipal/industrial/commercial wastes. Section 3 provides coverage of biomass energy conversion processes and configurations, and their approximate costs. Section 4 addresses bioenergy from transportation, covering biodiesel, ethanol, methanol and biogas, as well as allied sustainability issues. Section 5 'Developing bioenergy projects' looks at issues such as fuel security and supply logistics, site selection, connecting to the electricity grid, community and stakeholder consultation, and economic and legal issues. This section also covers the NSW planning approval process and environmental protection licensing, as well as opportunities for government and other support. Section 6 provides a directory of contacts for further information and assistance. The NSW Bioenergy Handbook contains 11 Appendices of valuable information, lists abbreviations and has a glossary of technical terms.

This handbook is an essential tool for potential bioenergy project developers; and a central compilation of existing information for Councils or communities interested in new projects in NSW. Those outside New South Wales will also find this Handbook a valuable text for understanding and developing bioenergy projects.

The NSW Bioenergy Handbook is available through the NSW Government Online Bookshop <http://www.bookshop.nsw.gov.au> for \$22.00 (GST incl.). Go to <http://www.bookshop.nsw.gov.au/pubdetails.jsp?publication=5279>, or visit <http://www.bookshop.nsw.gov.au> and enter "bioenergy" in the keyword search.

The NSW Bioenergy Handbook was prepared for the Department of Energy, Utilities and Sustainability (DEUS) by Mark Ellis and Associates, in collaboration with:

- Bioenergy Australia
- CSIRO Sustainable Ecosystems
- Forests NSW
- Greenpeace Australia Pacific
- NSW Farmers' Association
- Renewable Fuels Australia.

Discovery Grant for Bio-Oil Research

A university consortium consisting of Monash University Departments of Mechanical and Chemical Engineering, Melbourne University Department of Mechanical and Manufacturing Engineering and the BioEnergy Research Group at Aston University, UK has been awarded a \$935,000 five year ARC Discovery Grant to research pyrolysis bio-oil. This will allow the building of a laboratory scale fast pyrolysis bio-oil facility plus the engagement of two full time researchers and a number of PhD scholarships. The research will cover both the chemistry, production and use of pyrolysis bio-oil as an alternative transport fuel.

For further information, contact Dr Damon Honnery of Monash University Email: damon.honnery@eng.monash.edu.au.

Biomass Co-firing at Muja Power Station

Bioenergy Australia member, Western Power Corporation has entered into an agreement with pine pallet manufacturer, Pinetec Ltd, which will result in a new saw milling and manufacturing centre adjacent to the Muja Power Station, at Collie, Western Australia providing some 78,000 tonnes of pine sawmill residue per year to the power station for co-firing with coal. In turn, Western Power Corporation will make seven hectares of land near the coal-fired power station available to Pinetec to build the new sawmill and pallet making facility. Western Power will also invest about \$3 million connecting power and steam to the new Pinetec plant and will install a conveyor and handling system for the pine sawmill wood waste. Co-firing at Muja will see coal consumption decrease by 45,000 tonnes per year, produce 70,000 Renewable Energy Certificates, and result in an 87,000 tonnes per year reduction in greenhouse gas emissions.

Pinetec's new sawmill and plant will cost about \$16 million, making it one of the largest integrated saw milling and pallet manufacturing plants in Australia. The WA State Government has provided \$2 million in financial assistance under the South-West Industry Assistance Scheme to assist with the project's capital costs. Site works on the new sawmill and plant began in October 2004, with operations expected to start in May 2005.

Carbon Credit Contract

In what is believed to be Australia's largest carbon offset agreement, Origin Energy has entered into a carbon credit contract with CO2 Group Limited that will involve the establishment of up to 6,500 hectares of Mallee eucalypt plantations across regional NSW. It is reportedly the first carbon sinks deal of its type under an emissions trading system anywhere in the world, and is reported to be valued at up to \$20 million.

The plantations will be located in western NSW and will be integrated with cereal cropping agricultural systems. The plantations will not be harvested and will be in place for more than 100 years. The CO2 Limited media release is at:

<http://www.co2australia.com.au/documents/CO2ASXMediaRelease22-11-04.pdf>

ABARE Carbon Capture and Geological Storage Report Released

ABARE, the Australian Bureau of Agricultural and Resource Economics, has released a new report 'Near Zero Emissions Technologies' (<http://abareonlineshop.com/product.asp?prodid=12890>) which concludes that the use of carbon capture and geological storage technologies in the electricity sector is expected to reduce the costs of achieving reductions in carbon dioxide emissions. 'Carbon capture and geological storage technologies applied to

coal and gas fired electricity generation could provide significant opportunities to reduce carbon dioxide emissions over the period to 2050,' explains Dr Brian Fisher, Executive Director of ABARE. Dr Fisher notes that carbon capture and geological storage technologies are one aspect to managing carbon dioxide emissions.

ABARE modeling indicates that using carbon capture and geological storage technologies could significantly reduce the global economic costs of meeting an international carbon emissions constraint. This is because carbon capture and geological storage provides most regions in the world with additional large scale emission abatement opportunities.

Geosequestration opportunities for bioenergy are being examined in IEA Bioenergy, in which Bioenergy Australia participates. The combination of capturing greenhouse gas emissions from bioenergy and biomass co-firing facilities would provide a net greenhouse gas sink.

The ABARE media release is at: <http://www.abare.gov.au/pages/media/2005/18Jan.htm>

Biofacts

- There are currently, 82 ethanol plants in the U.S. with a combined capacity of 3.5 billion gallons (13 billion litres) a year. Another 16 ethanol plants are under construction with a combined annual capacity of 2.8 billion litres.
 - Of the 43 million tons of oil equivalent (Mtoe) produced from wood in the EU15 countries, 83.4% is used for heating, with 16.6% used to generate electricity. (Source: EurObserv'ER in its latest 'Wood Energy Barometer.')
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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 1,300 odd addresses given in the previous 22 issues of the Bioenergy Australia newsletters. These lists are consolidated as electronic links on Bioenergy Australia's web page at <http://www.bioenergyaustralia.org>. Recently these links have been converted into an Excel file to allow interested persons to download the file and work with it off-line.

Palm oil plants

<http://www.asd-cr.com/>

http://www.tropicaltraditions.com/red_palm_oil.htm

US tax law on renewable energy incentives (including open and closed loop biomass)

<http://www.treepower.org/section45.html>

FERCO Enterprises, Inc.

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

IEA Bioenergy Task 29 bioenergy information site

<http://www.aboutbioenergy.info>

Biodiesel Industry Directory

<http://www.biodieselindustrydirectory.com>

Methanol

<http://www.woodgas.com/methanol.htm>

Evolve Cleaner Fuels (ethanol)

<http://www.evolvecleanerfuels.com>

Garn wood boilers

<http://www.dectra.net/garn/>

BioRegional Newsletter for November 2004

<http://www.bioregional.com/news%20page/newsletters/newsletters.htm>

Coco-Nut Oil for Fuel (Samoa)

<http://www.extremesamoa.com/compare.htm>

Coconut Oil Fuel Data

[http://www.extremesamoa.com/myweb5/coconut oil for fuel.pdf](http://www.extremesamoa.com/myweb5/coconut%20oil%20for%20fuel.pdf)

BioMaxx Systems Inc.

<http://www.biomaxxsystems.com>

Canadian ethanol program (Office of Energy Efficiency)

<http://oee.nrcan.gc.ca/transportation/fuels/ethanol/eep.cfm?attr=8>

California Energy Commission report "Ethanol/Electricity from Biomass"

http://www.energy.ca.gov/pier/renew/biomass/bioch_en/ethanol.html

E-diesel explained (American Society of Agricultural Engineers)

<http://www.asae.org/imis/staticcontent/3/mar03/e-diesel.html>

Forum for European-Australian Science and Technology Cooperation Newsletter

http://www.feast.org/docs/Newsletter16_Dec04.pdf

Small-Scale Biodigester Designed and Built in the Philippines (by Gerry Baron)

<http://www.habmigern2003.info/biogas/Baron-digester/Baron-digester.htm>

RENABIO (Brazilian Bioenergy Association) – updated address

<http://www.renabio.org.br>

Rubber Manufacturers Association

https://www.rma.org/scrap_tires/

SunGas Energy

<http://www.sungasenergy.com>

The Journal of Industrial Ecology - special edition on bioenergy and bio-based products

<http://mitpress.mit.edu/catalog/item/default.asp?sid=E3975233-4279-4123-BBE8-C759122E0CDE&ttype=4&tid=32>

BTG Bio-oil properties

<http://www.btgworld.com/technologies/bio-oil-applications.html>

Sodra (Swedish company)

<http://www.sodra.com>

ME3's biomass page

<http://www.me3.org/issues/biomass/>

Ecospeakers

<http://www.ecospeakers.com>

EC Baltic Renewable Energy Centre, EC BREC

<http://www.ibmer.waw.pl/ecbrec>

Small steam boiler power plant

http://stonepower.com/product_info.htm

Oregon Department of Agriculture - Smoke Management and Field Burning

<http://www.oda.state.or.us/nrd/smoke/>

Biomass Development Company (Florida, USA)

<http://www.biomassdev.com>

Andritz Biomass Pellet Press

http://www.andritz.com/ANONIDZ4EF42CD62819939D/ft/ft-about_us/ft-biomassfuel.htm

Blue Sun Biodiesel (USA)

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

Gasifier Inventory (BTG)

<http://www.gasifiers.org/>

FAO gasifier paper

<http://fmb.no/arnt/elspa/stand-alone.html>

Oregon Cellulose-Ethanol Study - Oregon Department of Energy

<http://www.energy.state.or.us/biomass/document/OCES/OCES.PDF>

ISKA percolation technology (al la GRL Eastern Creek)

<http://www.iska-gmbh.de>

<http://www.t-plus-gmbh.de>

standardized tar testing

<http://www.tarweb.net/index.shtml>

Conifer Sawdust Burner (Hern Iron Works)

<http://www.hernironworks.com/conifer.html>

Supercritical Water Gasification of Biomass (Iowa State University)

<http://www.energy.iastate.edu/renewable/biomass/cs-water.html>

Supercritical Water Gasification (BTG- Netherlands)

<http://www.btgworld.com/technologies/supercritical-gasification.html>

Biomass and Bioenergy Production for Economic and Environmental Benefits (USDA Forest Services)

<http://www.woodycrops.org/>

Biomass to methanol

<http://www.woodgas.com/methanol.htm>

Biodiesel (Wikipedia)

<http://en.wikipedia.org/wiki/Biodiesel>

Energy balances in the growth of oilseed rape for biodiesel and of wheat for bioethanol

<http://www.biodiesel.co.uk/levington.htm>

FAO report -Alcohol and cotton oil as alternative fuels for internal combustion engines

<http://www.fao.org/docrep/T4470E/t4470e08.htm>

Draft Guidelines for Best Available Techniques and Best Environmental Practices for Incineration of MSW (17pp)

http://www.pops.int/documents/meetings/bat_bep/2nd_session/inf10/

[EGB2_INF10_munwaste_incineration.pdf](http://www.pops.int/documents/meetings/bat_bep/2nd_session/inf10/EGB2_INF10_munwaste_incineration.pdf)

Innovate Australia (web site for Australia's 13 R&D Corporations)

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

Biodiesel Now

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

Kentucky Enrichment Inc. (poultry and alternative energy)

<http://www.kentuckyenrichment.com/pages/energy/index.html>

Gasifier construction details (small scale)

<http://www.gengas.nu/byggbes/index.shtml>

USDA pamphlet (4pp) on no till practices for biomass production

<http://soils.usda.gov/sqi/files/agronomy3.pdf>

Wood Alcohol

http://journeytoforever.org/biofuel_library/wood_alcohol.html

Mother Earth Alcohol Fuel

http://journeytoforever.org/biofuel_library/ethanol_motherearth/meToC.html

SmartWood

<http://www.smartwood.org>

Dantrim biomass burners

<http://www.dantrim.dk/Imatic.htm>

National Non-Food Crops Centre (UK)

<http://www.nnfcc.co.uk/>

American Stirling Company (kits for demonstrating technology)

<http://www.stirlingengine.com>

Anaerobic Digester for fish waste (Nutri-Wave®)

http://www.envirem.com/environment/nutriwave/anaerobic_digestion_plant.html

Wood Energy Barometer for 2003

http://www.energies-renouvelables.org/observ-er/stat_baro/eufores/baro164.pdf.

OECD Workshop on Biomass and Agriculture, Vienna, Austria, 2003 Proceedings

<http://webdomino1.oecd.org/comnet/agr/BiomassAg.nsf>

Biomass for steel making – CSIRO

<http://www.minerals.csiro.au/processoct04>

Comparison of biofuels study

<http://www.ufop.de/>

International Developments

Northern Wood Power Project - New Hampshire, USA

The Public Service of New Hampshire (PSNH) is replacing a 50 MW coal-fired boiler at its Schiller Power Station, in Plymouth, New Hampshire with a similar capacity wood-fueled boiler, that will use wood chips and other clean wood waste, in a US\$75 million project. The project will become a major renewable energy contributor in the region, and will provide a new market for wood waste from state state's logging operations. The project will require some 400,000 tons of wood chips annually, and is likely to boost the local economy by some US\$20 million annually. PSNH estimates that the wood-fired boiler will result in a reduction of more than 380,000 tons of greenhouse gas emissions annually, while offering a major boost of renewable energy to the local electric grid.

The nearby states of Massachusetts and Connecticut are in support of the project. The 50 MW power plant meets the strict efficiency and environmental standards for the renewable energy programs in Massachusetts and Connecticut. The Northern Wood Power Project has been certified by both states as a new, renewable energy source, enabling it to produce and sell 'Renewable Energy Certificates' (RECs) to suppliers seeking to satisfy renewable energy requirements. The Massachusetts Technology Collaborative has made long term REC

commitments, thereby adding an important revenue stream for the new facility.

The Northern Wood Power Project is expected to be in commercial operation by mid 2006.

Renewables Information 2004

The International Energy Agency (IEA) has published *Renewables Information 2004* to provide reliable statistics on renewable energy for electricity and heat production, supply and final consumption, and installed capacity of renewables and waste sources.

In addition to data from the 30 OECD countries, the 204 page volume (based on 2003 data), provides selected statistical data on non-OECD countries. The report indicates that of the World's total primary energy supply of some 10,231 million tonnes of oil equivalent, 13.4% was produced from renewable energy sources. This compares to a share of 34.9% for oil, 23.5% for coal, 21.2% for natural gas and 6.8% for nuclear energy. Of the 13.4% renewables, 10.8% of this figure was derived from combustible renewables and waste (i.e. solid biomass, charcoal, renewable municipal solid waste, gas from biomass and liquid biomass). Support for increasing renewable energy's role in the energy sector has never been greater, and this publication seeks to increase understanding of the current market and trends over recent years.

The report, available as a CD or in hard copy (ISBN 92-64-10754-1 – paper; 92-64-10756-8 - CD-ROM) can be ordered from the IEA. See <http://library.iaea.org/bookshop/add.aspx?id=68>

Methane to Markets Partnership Progresses

The governments of Argentina, Australia, Brazil, China, Columbia, India, Italy, Japan, Mexico, Nigeria, Russia, Ukraine, the UK and the USA have signed the Terms of Reference formally creating the *Methane to Markets* Partnership. This new global initiative, serves to advance international cooperation on the recovery and use of methane as a valuable clean energy source. The *Methane to Markets* Partnership reportedly has the potential to reduce net methane emissions by up to 50 million metric tonnes of carbon equivalent a year by 2015, and then continue at that level or higher in the future. In greenhouse gas emission terms, this would be equivalent to removing 33 million cars from roadways for one year or eliminating emissions from fifty 500 MW coal-fired power plants. For further information see <http://www.epa.gov/methane/international.html>.

DynaMotive West Lorne Pyrolysis BioOil Project Update

DynaMotive Energy Systems Corporation of Canada has been constructing and commissioning a cogeneration facility at West Lorne, Ontario, Canada which will include a 2.5 MWe gas turbine fuelled by up to 48 tonnes per day of pyrolysis bio-oil. The

cogeneration plant will meet the power requirements of the adjacent Erie Flooring company (suppliers of the wood processing wastes used as fuel) and export electricity to Ontario's electricity grid. Surplus heat generated by the turbine will produce up to 5,454 kg of steam per hour for Erie Flooring's processing operations. Upon completion, the West Lorne plant will be the largest biomass to bio-oil cogeneration facility in the world and the first based on pyrolysis bio-oil. The plant is expected to process 100 tonnes per day of biomass to produce approximately 70 tonnes of bio-oil, 20 tonnes of char and 10 tonnes of non-condensable gases.

DynaMotive announced in December that all major systems of its plant have been completed and that commissioning had commenced. Full commissioning will be finalised once the certificate of acceptance by the Ministry of Environment of the Province of Ontario has been received and final grid connection (currently pending inspection) has been approved. DynaMotive has disclosed that key systems have been tested and have operated within design parameters. The DynaMotive engineering team has completed the initial testing of the pyrolysis loop, charcoal handling system and receiving tanks. The final commissioning will test combustion systems and feed input to the reactor. A major milestone was completed in December, when the company conducted a "Big Circle" test of systems. All systems were reported to have operated successfully.

The West Lorne Project has secured a Cdn \$5 million contribution from Sustainable Development Technology Canada (STDC) for its development and demonstration phases, including plant commissioning. STDC is a foundation created by the Government of Canada that operates a \$350 million fund to support the development and demonstration of clean technologies that address issues of climate change and air quality. (source: DynaMotive)

Canada's Ethanol Expansion Program

The Government of Canada has set a target of increasing the proportion of its petrol that is blended with bioethanol, a renewable fuel, from approximately 7 percent today to 35 percent by 2010. The Government announced its Ethanol Expansion Program (EEP) in 2003, as part of Canada's climate change plan, geared towards its Kyoto Protocol participation.

The EEP is providing financial contributions toward the construction of new or expansion of existing fuel ethanol production plants in Canada. A total of up to Cdn\$100 million in contributions will be allocated to projects under two rounds. See <http://oee.nrcan.gc.ca/transportation/fuels/ethanol/eep.cfm?attr=8>. For more information on the EEP, please contact: Christopher Johnstone, Chief, Fuels Policy and Programs, Transportation Program, Office of Energy Efficiency, Natural Resources Canada. Email: ethanolexp@nrcan.gc.ca

Greenness of Biobased Products

An article in the January 2005 issue of the US Bioenergy Initiative Newsletter entitled *Investigating the Greenness of Biobased Products* examines the field of Industrial

Ecology for assessing the environmental impact of moving to widescale use of biomass for industrial products, including heat, power, fuels, chemicals and materials. Industrial ecology is primarily concerned with materials' choice, the opportunities for environmental improvement through technological innovation, and the insights to be gained from systems-based analyses, and is especially well positioned to examine whether a dramatic shift from petrochemicals to biobased materials is environmentally advantageous.

Industrial ecology provides a powerful prism through which to examine the environmental character of bio-based materials. Industrial ecology is an emerging field that examines local, regional, and global uses and flows of materials and energy in products, processes, industrial sectors, and economies. It focuses on the potential role of industry in reducing environmental burdens throughout the product life cycle and encompasses:

- material and energy flow studies (industrial metabolism);
- dematerialization and decarbonization;
- technological change and the environment;
- life-cycle assessment, design, planning, and management;
- design for the environment;
- extended producer responsibility (product stewardship);
- eco-industrial parks (industrial symbiosis);
- product-oriented environmental policy; and
- eco-efficiency.

The article refers to various peer reviewed papers in a special issue on this topic in the *Journal of Industrial Ecology* (a Harvard University publication). All of the articles in the special issue are free and available in full text at <http://mitpress.mit.edu/jie/biobased>. These include articles on the identification of promising biological processes for displacing fossil fuel, an article from NREL that describes a life cycle model that comprehensively addresses the impacts of corn stover collection (for biobased products) on soil health, measured in terms of both of soil erosion and soil organic matter. Although there is still a great deal that is not known about what constitutes agricultural sustainability, their model is the first of its kind and may serve as a framework for discussing the benefits and trade-offs of substituting a petroleum fuel with one made from an agricultural by-product.

Forthcoming Events

- *10th Annual National Ethanol Conference*. 7-9 February 2005, Camelback Inn, Scottsdale, Arizona, USA. Web: <http://www.ethanolrfa.org>
- *5th International Slovak Biomass Forum*. 7-8 February, Bratislava, Slovak Republic. Web: <http://ecbratislava.sk/>.
- *4th Australian Life Cycle Assessment Conference- Sustainability Measures for Decision Support*. 23-25 February 2005, Novotel Sydney on Darling Harbour. Web: <http://lca-conf.alcas.asn.au> or contact 'The Conference Organiser', Tel: (03) 9509 7151 or Email: info@conorg.com.au
- *ABARE's Outlook Conference – 'Pathways to profit and growth'*, 1-2 March 2005, Canberra. See <http://www.abareconomics.com/outlook>.
- *European Pellets Conference*, 2-3 March 2005 in Wels, Austria in conjunction with

the World Sustainable Energy Days 2005. Web: <http://www.energiesparverband.com/esv/>

- *Biocycle West Coast Conference*, 7-9 March 2005, Cathedral Hill Hotel, San Francisco, USA. Topics for the conference include: Key Renewable Energy Trends, Managing and Regulating Air Emissions, Compost Specifications Analysis, Anaerobic Digestion Technologies and a whole host of other topics related to composting, organics recycling, and renewable energy. Web: <http://www.jgpress.com/conferences1/conferences1.html>
- *Global Alternative Fuels 2005 Exhibition and Forum*. 8-10 March 2005, Berlín, Germany. Contact: Claire Pallen, Email: c.pallen@theenergyexchange.co.uk, Tel: +44 (0)1242 529090.
Organizer: The Energy Exchange Ltd. Website: <http://www.theenergyexchange.co.uk>
- *Third USDA Symposium on Greenhouse Gases & Carbon Sequestration in Agriculture and Forestry*. 21 – 24 March 2005, Wyndham Baltimore - Inner Harbor Baltimore, Maryland. Website: <http://soilcarboncenter.k-state.edu/conference/index.html>
- *2nd Asian International Renewable Energy Equipment & Technology Exhibition (REAsia 2005)*, 7-9 April 2005. Beijing, China. Contact Person: Ms. Vivian Li <http://www.re-asia.com>. Tel: 86-10-8225-2695 Fax: 86-10-8225-2651. Email: vivian@gracefair.com, harry@gracefair.com
- *22nd Biennial Conference of the Institute of Foresters of Australia 'Burning Issues in Forestry'*, 10-14 April 2005. Mount Gambier, South Australia. Web: <http://www.forestry.org.au>.
- *Anaerobic Digestion Short Course*, 12-14 April 2005, Presented by the University of Canterbury, Christchurch, New Zealand. Enquiries: ian.mason@canterbury.ac.nz.
Course Details and Enrolments: <http://www.ucshortcourses.ac.nz>.
- *BIOSquare 2005*, 13–15 April 2005, Lyon, France. Web: <http://www.ebdgroup.com/biosquare/>
- *World Congress on Industrial Biotechnology and Bioprocessing 2005*. 20-22 April 2005, Orlando, Florida, USA. Organisers: Biotechnology Industry Organization (BIO), the American Chemical Society (ACS) the National Agriculture Biotechnology Council (NABC) and the Society for Biological Engineering (SBE). Web: <http://www.bio.org/worldcongress>
 - *BIO-Windhover 2005*. 25–27 April 2005, Washington, DC, USA. Web: <http://www.biowindhover.com/>
 - *BCSE National Conference*, 27-29 April 2005, The Grand Hyatt, Melbourne <http://www.bcse.org.au>. Tel: 03 9530 6777 Fax: +613 9349 3049 Email: general@bcse.org.au
- *27th Symposium on Biotechnology for Fuels and Chemicals*, Denver, Colorado, USA, 1-4 May 2005. Web site is at http://www.eere.energy.gov/biomass/biotech_symposium/
- *Clean Energy Technology & Investment Exhibition*, 5-7 May 2005. The Business Design Centre, London. Brochure download: <http://www.clean-energy-expo.com/brochure.pdf>
- *2005 International Ethanol Conference Ethanol – the Smart Way Forward*, 9-10 May 2005, Brisbane Convention and Exhibition Centre. Contact: Kaye Farmer, Department of State Development and Innovation, PO Box 15168 Albert Street, City East QLD 4002. Websites: <http://www.sdi.qld.gov.au/ethanolconference&> <http://>

www.ethanol.qld.gov.au/conference

- *SYNBIOS - the Syngas Route to Automotive Biofuels!* Second Generation Automotive Biofuels conference. 18-20 May 2005 in Stockholm, Sweden. <http://www.ecotraffic.se/synbios>. Tel: +46 8 545 168 03 Email: synbios@ecotraffic.se
- *2005 World Renewable Energy Congress (WREC) in conjunction with All Energy Opportunities 2005*. 22-27 May 2005, Aberdeen, Scotland, UK. Contact: Victoria Withy, WREC2005 Congress Secretariat Tel: +44 (0) 1224 824824 (switchboard). Web: <http://wrec2005aberdeen.co.uk/> and AECC Website: <http://www.aecc.co.uk>
 - *WasteTech – 4th International Trade Fair and Congress on Waste Management*. 31 May – 3 June 2005, Moscow, Russia. Contact: Ms. Ksenia Shishkina Tel: +7 095 101 46 21 Fax: +7 095 101 46 21 Email: shishkina@sibico.com Website: <http://www.sibico.com/waste-tech/2005/?content=information/news&ParentID=1>
- *3rd International Fair of Devices and Technologies for the Wood Pellets Industry 'Pellets-Expo'*, Bydgoszcz, Poland. Web: <http://ctpiik.com.pl>.
 - *BIO 2005 Annual International Convention*. 19–22 June 2005, Philadelphia, PA, USA. Web: <http://www.bio.org/events/2005/>
 - *2005 International Fuel Ethanol Workshop & Expo*, 28 June – 1 July 2005, Kansas City, Missouri, USA. Call for abstracts from FEW Program Director, BBI International, PO Box 159, Cotopaxi, CO 81223 Tel: +(0011 1) 719-942-4353 Email: adamman@bbibiofuels.com
 - *2005 Environmental Engineering Society National Conference 'Creating Sustainable Engineering Solutions'*. 18 – 19 July, 2005 at the Powerhouse Museum, Sydney. Web: <http://www.iceaustralia.com>
 - *NSW Waste Management Conference and Expo, 'Building the Vision'*, 20 - 22 July 2005, Star City, Sydney. <http://www.nswwasteconference.com.au>

IUFRO XXII, Forests in the Balance- Linking Tradition and Technology, 8-13 August, Brisbane Convention and Exhibition Centre. <http://www.iufro2005.com>

- *BIOENERGY 2005*, 12 –15 September 2005 with the International Bioenergy and Wood Exhibition in Jyväskylä, Finland. Web: <http://www.finbioenergy.fi/bioenergy2005>
 - *6th Asia Pacific Roundtable for Sustainable Consumption and Production*. Melbourne, Australia, 10-12 October 2005. Web: <http://www.6aprscp.com/> Email: 6aprscp@currentevents.com.au
 - *14th European Biomass Conference and Exhibition - Biomass for Energy, Industry and Climate Protection*. 17-21 October 2005, Palais des Congrès, Paris, France. Abstract Submission Deadline: 7 April 2005. On-line submission of abstracts is available at: <http://www.conference-biomass.com/abstracts>. Email: biomass.conf@etaflorence.it
 - *Bioenergy 2005 International Nordic Bioenergy Conference*, 26-28 October 2005, Trondheim, Norway. Email: post@nobio.no Web: <http://www.nobio.no>.
 - *Eurolipids: International Trade Fair for Fats & Oil*, 2-4 November 2005. Messe Frankfurt, Germany. Contact: Mrs. Caroline Curik, Tel: +49 (0)611 – 951 66-28 Email: eurolipids@mfa.messefrankfurt.com Website: <http://www.mfa.de>.
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Residues

- The Bioenergy Australia Manager, Steve Schuck gave a keynote presentation at the December 2004 Environmental Engineering Research Event (EERE) held at Wollongong University on the topic of 'Bioenergy as a Source of Sustainable Energy'.
- An article profiling bioenergy, *In pursuit of Bioenergy*, authored by Steve Schuck appeared in the November 2004 edition of the University of Sydney's Warren Centre's e-newsletter. The article gives an overview of bioenergy in Australia and is at: <http://www.warren.usyd.edu.au/bulletin/NO40/ed40art3.htm>
- Steve Schuck has been invited to give a presentation on the 'Advances in Biomass' at the Energy Supply Association of Australia's annual Residential Summer School, at the University of NSW on 10 February.
- The Web address for viewing the IEA Bioenergy Task 38 – *Greenhouse Gas Balances of Biomass and Bioenergy Systems* case studies is: <http://www.joanneum.ac.at/iea-bioenergy-task38/projects/task38casestudies/>
- A status report on biomass gasification in countries participating in IEA Bioenergy Task 33 (Biomass Gasification) and the European Union GasNet forum, dated October 2004 is available on the Web at: <http://www.gastechnology.org/webroot/downloads/en/IEA/BiomassGasificationCountryReportsOct2004.pdf>. The 3.7 MB, 178 page report lists various types of gasifiers by type, capacity and status, and for 17 countries covers policies and programs, institutes involved in gasification, industry participants, projects and implementation of gasification.
- The two reports MBAC Consulting prepared as part of the NAFI/MBAC REID Project on wood as renewable energy source are now available to be downloaded from the MBAC website: <http://www.mbac.com.au>.
- The Australian Business Council for Sustainable Energy has completed its 'Technical Guide for Connection of Renewable Generators to the Local Electricity Network'. The Guide, funded by the Australian Greenhouse Office, has been developed to address some of the information barriers that renewable generation project proponents face in arranging technical connection of their generators to local distribution networks. The Guide is available in electronic form at <http://www.bcse.org.au>.
- Beacons International is at an advance stage of planning two 38.5 MW scale bioenergy projects, based on wood waste in Western Australia. The plants are slated for the northern outskirts of Perth and for Albany.
- Bimonthly issues of the Australian Emission Trading Forum Review are available for downloading. Go to www.aetf.net.au and click on "AETF Review".
- Now that Russia has ratified the Kyoto Protocol, it will come into effect from 16 February 2005.
- A report, 'Demonstration of Biogas Production Using Low Moisture Content Beef Cattle Manure', commissioned by the Western Regional Biomass Energy Program under Grant No. 55008, is available on the Web at <http://www.westbioenergy.org/cattle/>.
- IEA Bioenergy Task 38 has authored a paper on Approaches for inclusion of harvested wood products in future GHG inventories under the UNFCCC, and their consistency with the overall UNFCCC inventory reporting framework. The paper aims to provide technical information on the consistency of previously proposed accounting approaches for wood products with IPCC Inventory Guidance for the land use change and forestry sector. The paper does not necessarily reflect the opinions of all IEA Bioenergy Task 38 participants. Download the paper from <http://>

www.joanneum.at/iea-bioenergy-task38/hwp_july_2004.pdf

- The US Congress approved in November the 'Volumetric Ethanol Excise Tax Credit' (VEETC), see http://www.e85fuel.com/news/101104_veetc_release.htm. This new law is aimed at the streamlining of the previously complex legislation concerning the blending of ethanol and biodiesel in the USA. Expectations are that this will give an added boost to the distribution and sales of E85, an eighty-five percent ethanol blend with petrol.
- According to the latest World Energy Outlook 2004, from the International Energy Agency (IEA), global energy demand will rise by 60 percent by 2030. Much of this will be in developing countries, with huge greenhouse gas emission implications. See <http://www.worldenergyoutlook.org>.
- Husky Energy of Canada, is constructing an ethanol plant that will produce 130 ML per year and be the largest ethanol facility in western Canada when it is operational by mid-2006.
- Sustainable Development Technology Canada has approved funding for ten projects that will involve an investment of Cdn\$20 million and Cdn \$60 million of leveraged investment from other sources. Among the recipients are: Alternative Green Energy Systems - to demonstrate a system for converting wet biomass waste materials into usable green fuel; Genesis Projects - to demonstrate the viability of an integrated 'biomass-to-renewable-energy' ecosystem; and Great Northern Power - to demonstrate a system for producing electricity and heat using wood waste.
- The US Department of Energy has partnered with the Biobased Manufacturers Association to establish the 'Biobased Supercenter', a website where Federal employees can purchase biobased products. The Supercenter can be accessed via the Web site: <http://www.biobased.com/>.
- World Energy (<http://www.worldenergy.net>), a leading US producer and distributor of biodiesel fuel has announced an exclusive production agreement with Dow Haltermann Custom Processing (DHCP), a Dow business unit that operates within The Dow Chemical Company, and Johann Haltermann, Ltd. This agreement will further enhance World Energy's biodiesel production and distribution capabilities in North America. DHCP will source the raw materials and produce biodiesel to World Energy's specifications at its Houston location, exclusively for World Energy.
- UK's Centrica has signed a long-term power purchase agreement with NM Renewable Energy, a joint venture of Macquarie Bank and Novera Energy, to deliver 300 GWh of green power to British Gas customers every year. The agreement will start in April and will meet 5% of Centrica's renewables obligation.

(source: REFocus)

- The U.S. Department of Agriculture and the Environmental Protection Agency have signed an agreement to advance renewable energies in rural areas. The inter-agency partnership will promote methane gas recovery via anaerobic digestion of animal waste, and will consider expanding support to other areas. The 2002 Farm Bill directs USDA to encourage development of renewables and, in the latest fiscal year, invested US\$16.9 million in 67 anaerobic digester projects that will serve 11,300 rural homes, generate 127 GWh, and create 120 jobs.

(source: REFocus)

- A paper, 'Bioenergy's role in the EU energy market', looks at likely developments in the EU energy market until 2020; discusses how public perception of bioenergy might be improved in the EU; looks at biomass availability in Europe and identifies the important players in the European biomass sector. Download a copy at http://europa.eu.int/comm/energy/res/sectors/bioenergy_publications_en.htm

- Genencor International and the US Department of Energy's National Renewable Energy Laboratory (NREL) have announced that Genencor has exceeded their contractual goals by achieving an estimated cellulase cost in the range of US\$0.10-\$0.20 per US gallon of ethanol in NREL's cost model. This represents an approximate 30-fold improvement in enzyme cost in the NREL model.
- Finnish company, Wärtsilä Biopower Oy has received a 9 million Euro order for a 17 MW (thermal), 3.5 MW (electrical) cogeneration biomass facility for Trollhättan, Sweden.
- On 1 January 2005 the European Union launched the world's first international carbon emissions trading scheme. The scheme is designed to help Europe meet its Kyoto Protocol target of reducing greenhouse gas emissions by 8% from 1990 levels. The scheme involves 12,000 plants across the EU.
- European nations provided subsidies of Euro 29.2 billion to energy sources in 2001, of which Euro 5.3 billion went to renewables according to the European Environment Agency.
- The company, Environmental Solutions International (ESI), who pioneered the Enersludge technology for converting sewage sludge into synthetic diesel has been sold by receivers to Tenix Alliance, a Sydney based contracting company. The receivers are reported to still be assessing offers for the Enersludge technology.
- As required by the NSW Electricity Supply Act, the Independent Pricing and Regulatory Tribunal (IPART) has determined the key factors for 2005 in accordance with the methodologies set out in the Greenhouse Gas Benchmark Rule (Compliance) No 1 of 2003. The key factors were published in the NSW Government Gazette on 26 November 2004. A key parameter of note is that the NSW pool coefficient for greenhouse gas emissions equates to 0.913 t CO₂-e /MWh.
- Seventeen US states have now enacted renewable energy requirements for their utilities. For example New Mexico, requires 10 percent renewable electricity by 2011, Nevada requires 15 percent renewable electricity by 2013 and New York State requires that 25 percent of its electricity come from renewable sources by 2013.
- According to testimony by the German Institute for Economic Research, (http://www.diw.de/english/dasinstitut/info/20041022_vortrag_kemfert.html), worldwide global damage of up to US\$ 214 trillion can be expected in the next 50 years due to a temperature increase of 1°C ascribed to global warming.
- Global Renewables Ltd has announced to the Australian Stock Exchange that its Eastern Creek UR-3R Facility has reached a throughput of 70% of its design capacity. See: http://www.grd.com.au/pdf/1102376894_041207_EC_UR3R_Throughput_Reaches_70_pct_Design_Capacity.pdf.
- A Taskforce appointed by the Governor of Wisconsin, USA, has recommended a 'Rural Energy Initiative'. A BioEnergy and BioFuel Coordinator position would be added to the state's Department of Agriculture, Trade and Consumer Protection (DATCP), which is responsible for coordinating federal and state programs for renewable energy projects related to agriculture. See <http://energytaskforce.wi.gov/index.asp>
- Ceramic Fuel Cells Limited (CFCL) and Powerco of New Zealand have formed a partnership to conduct a trial of CFCL's solid oxide fuel cell (SOFC) energy system, using biogas. A dairy farm located at Taranaki, NZ will host the power trial. The SOFC scheduled for the demonstration project is a 1 kW combined heat and power unit that can supply enough electricity and heat for an average home. The initial trial will span two years, commencing at the beginning of 2005.

- The US Oak Ridge National Laboratory, Bioenergy Information Network report, "Use of Plantation-grown Biomass for Power Generation" is at <http://bioenergy.esd.ornl.gov/reports/fuelwood/chap3.html>
- Canada's government of Ontario recently announced that the province will require that petrol sold in Ontario contain an average of 5 percent ethanol by 2007. Effective 1 January 2007, a wholesaler's annual petrol sales must achieve an average of at least 5 percent ethanol content. This may be accomplished by the actual blending of ethanol or through the trading of renewable fuel credits.
- HSBC is the first major bank in the world to commit to going carbon neutral, in a program that could cost up to £3.6 million in the first year. HSBC made the announcement at the 10th Conference of the Parties of the UN Framework Convention on Climate Change in December. HSBC's commitment to carbon neutrality will include buying green electricity, as well as offsetting some carbon dioxide emissions by investing in carbon credit or allowance projects.
- In late October 2004, IEA Bioenergy and the United Nation's Food and Agriculture Organisation (FAO) held a Biomass Business Forum at FAO headquarters in Rome to discuss international biomass trade and to identify actions needed to develop the potential for sustainable bioenergy trade. The meeting was attended by approximately 60 delegates from business, government agencies and NGOs from Europe, the US, Africa and South America. The speakers presentations are available on <http://www.fairbiotrader.org/>.
- Ozmotech, a Melbourne-based manufacturer of a waste-to-fuel technology has signed a \$35 million contract to export seven of its ThermoFuel units to the UK.
- The December issue of the IEA Bioenergy newsletter can now be viewed and downloaded at: <http://www.ieabioenergy.com/library.php>
- EHN is investing Euro 24 million in a biodiesel plant in Navarre, northern Spain.
- Capstone Turbine of California will provide a biogas-to-energy demonstration project in India's West Bengal. The project at a dairy farm will be commissioned by mid-2005 and will be the first installation of a 'MicroTurbine' system in India. It will use two anaerobic digesters which create biogas from manure and a microgrid to export power.
- U.N. projections show that Kyoto will brake rising world temperatures by only about 0.1°C, compared to a forecast rise of 1.4-5.8°C by 2100.
- The European Commission has a number of free paper and web version magazines such as RTD Info: <http://europa.eu.int/comm/research/rtdinfo/> and Technology Transfer and Innovation: <http://www.cordis.lu/itt/itt-en/home.html>.
- The 72 page Joint Venture Agroforestry Report, 'Wood for Alcohol Fuels - Using farm forestry for bioenergy' is downloadable at no cost from the RIRDC web site. The URL for this 1.37 MB report is <http://www.rirdc.gov.au/reports/AFT/03-018sum.html>
- A 27 page report 'Biofuel Potential in the EU' from the European Commission may be downloaded at no cost from <ftp://ftp.jrc.es/pub/EURdoc/eur21012en.pdf>. The EU currently uses 0.3% biofuel, and has set itself the ambitious target of 5.75% by 2010. To attain this target, this would require 6% of Europe's arable land, which is the equivalent of the land that is currently 'set aside' in Europe.
- The British Government is providing some £9 million to renewable energy technologies that foster innovation and boost the economy. Bioenergy related projects to be funded by the Department of Trade and Industry include:
 - £600,000 to Civic Environmental Systems for sustainable hydrogen production from biomass waste

- £800,000 to BLC Leather Technology Centre for unique power generation via modular biomass gasification and microturbines systems.
- The most recent 'Wood Energy Barometer' released by EurObserv'ER indicates that more than 83% of the wood energy in Europe is used for heating, with 17% used to generate electricity. For 2003, Finland generated 11.10 TWh of electricity from wood, with the total for the EU15 countries being 31.37 TWh of electricity from wood. (The MRET target from all forms of renewables in Australia is 9.5 TWh by 2010). Primary energy production from wood in 2003 amounted to 43 million tonnes of oil equivalent (Mtoe) for the EU15 members, an increase of 6.1% over 2002. The full nine page French/English report is at: http://www.energies-renouvelables.org/observ-er/stat_baro/eufores/baro164.pdf.
- Minnesota has more than 100 filling stations selling E85, an ethanol and gasoline mix consisting of 85 percent ethanol and 15 percent gasoline that can be used in flexible fuel vehicles. More than 200 Minnesota filling stations now offer B2, a diesel fuel blended with 2 percent biodiesel made predominantly from soybeans.
- The Køge Energi E2 straw and wood pellet plant in Denmark is the largest in Europe, producing 330,000 tonnes of biomass fuel pellets per annum for the local market.
- A report, '30 years of Energy Use in IEA Countries' has been published by the International Energy Agency. The 211 page report covers issues such as energy demand and greenhouse gas emissions. The report shows that energy use does not reflect much concern for climate change. The report can be ordered from <http://www.iea.org/dbtw-wpd/bookshop/add.aspx?id=174>.
- In December, DynaMotive Energy Systems Corporation announced that it had contracted Tecna P y O SA (Tecna) for the design and development of a 200 tonnes per day modular pyrolysis bio-oil plant. This design will represent a 100% increase in capacity of the West Lorne Co-generation plant (see article above). The design contracted with Tecna calls for a plant capable of processing 200 tonnes per day of dry biomass that is capable of producing 140 tonnes of bio-oil and 40 tonnes of char per day (equivalent in energy to 440 barrels of hydrocarbon oil per day). DynaMotive expects to deploy the design internationally. The conceptual engineering process is planned to be complete by March 2005 with fabrication of a first 200 tonnes per day plant to be launched soon thereafter.
- A small-scale biodigester designed and built in the Philippines by a Gerry Baron is described and illustrated at the Web site: <http://www.habmigern2003.info/biogas/Baron-digester/Baron-digester.htm>
- The Public Service Company of New Mexico, USA, that state's biggest power company has announced that it plans to spend more than US\$1.4 million on solar- and biomass-power projects. Included is a US\$850,000 feasibility study for a power plant to be fueled by residues from forest-thinning operations.
- SNC-Lavalin Power has signed a US\$142 million contract with Fibrominn for the engineering, procurement and construction of a 50 MW biomass fueled power plant in the city of Benson, Minnesota. The plant will use the manure and bedding from the poultry industry as its primary fuel, which will be burned to power a boiler and turbine power generator. Power produced at the plant is under contract for sale to Xcel Energy. Work on the new power plant has already begun, and the plant should begin operating in the first quarter of

2007.

- Essent Energy of The Netherlands is currently establishing jointly with Solidaridad (a Dutch development NGO) an accreditation scheme called *Green Gold* to track and trace biomass imports supplying its power plants.
- Novera Energy Limited and Macquarie Bank Limited announced on 20 December that they have established Novera Macquarie Renewable Energy Limited (NMRE), a 50:50 joint venture company whose purpose is to acquire and operate renewable energy assets, initially in the United Kingdom. NMRE has commenced operation as one of the largest diversified renewable energy portfolios in the UK, purchased from Novera Energy Limited and United Utilities plc, with an approximate enterprise value of £120.5 million (approximately \$300 million).
- US Laidlaw Energy Group is reported to have received a US\$1 million grant from the New York State Energy Research & Development Authority for a for its Ellicottville project that will convert a natural gas cogeneration plant into a plant that will use only biomass wood chips as fuel.
- A brochure, *Electricity from Renewable Energy Sources - Encouraging Green Electricity in Europe*, published by the EU's Directorate-General for Energy and Transport explains the EU directive on electricity from renewable sources. Current technologies for green electricity generation are summarised. The brochure is downloadable from: http://europa.eu.int/comm/energy/res/publications/doc/2004_brochure_green_en.pdf
- The Centre for Energy and Environmental Markets (CEEM) at the University of New South Wales has now activated its website at <http://www.ceem.unsw.edu.au>. Among papers and presentations available on the website are:
 - Presentation and background paper from 30 November 2004 seminar on "Analysing the performance of the Australian National Electricity Market" presented by Dr Xinmin Hu, AGSM and CEEM research fellow, UNSW.
 - Paper by Dr Iain MacGill and Assoc. Prof. Hugh Outhred "Abatement technologies assessment – Carbon Capture and Storage (CCS)", Unisearch Report for the Victorian Government's Greenhouse Challenge for Energy Study by the Allen Consulting Group.

Opportunities Corner

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

- The Banksia Environmental Foundation is calling for entries to compete for the 2005 awards which will be presented in Adelaide on 4 June 2005. See details at <http://www.banksiafdn.com/>

Resources for the Future, Inc. of Washington, DC in the USA runs the 'Gilbert F. White

Postdoctoral Fellowship Program' to provide support for fellows to conduct in-residence research in areas related to natural resources, energy, or the environment. Fellows are normally in residence at RFF for eleven months. Since fellows will interact closely with RFF staff members, selection criteria will include the nature of the applicant's proposed research program and how it fits with RFF work in progress. The Program URL is at: http://www.rff.org/rff/About/Fellowships_and_Internships/White/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=15454

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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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