



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

Newsletter

January 2006

Bioenergy Australia 2005 Conference

The *Bioenergy Australia 2005* Conference, with the theme 'Biomass for Energy, the Environment and Society', held at Rydges Melbourne on 12 and 13 December was a resounding success, attracting 198 delegates, including over 20 from overseas.

The conference was opened by the Victorian Deputy Premier and Minister for the Environment, the Hon. John Thwaites. The keynote speaker was Dr Juergen Vehlow, Institute for Technical Chemistry, FZK, Karlsruhe, Germany, an acclaimed expert in thermal waste conversion processes and a member of the European Union's Bioenergy Network of Excellence. The conference was coupled to an International Energy Agency Bioenergy Task 36 meeting on 'Energy from integrated solid waste management systems', bringing several international experts from that Task into the conference program.

The conference program had over 50 presentations, covering policies and programs, bioenergy projects and project development case studies, and covered bioelectricity, liquid fuels, gasification and pyrolysis and their applications, anaerobic digestion, energy from waste, plus overarching aspects such as green house gas emissions and life cycle analyses of bioenergy systems. There were up to three parallel sessions at the conference. Several posters on bioenergy were also on display. The program also included an extended panel discussion, facilitated by Professor Ralph Sims of New Zealand's Massey University's Centre for Energy Research, on boosting the role of bioenergy in Australia's future economy.

An optional technical tour to bioenergy facilities was conducted on 14 December. Tour destinations were Melbourne Water's Werribee Waste Water Treatment Plant to view biogas and cogeneration developments, and to Blue Circle Southern Cement near Geelong where waste and biofuels form part of the fuel mix. The tour group was transported on two Ventura Buslines 100 percent ethanol fuelled buses.

Besides the conference Proceedings provided to delegates, the conference presentations, papers, copies of posters, delegate list and other conference related materials have been consolidated onto a CD. This CD is available for sale (see article below).

Bioenergy Australia 2005 Conference CD

The CD ROM of the Bioenergy Australia conference, held in Melbourne, 12-14 December 2005 is now available for sale. The CD contains some 80 files, including the conference program, speaker profiles, presentation abstracts, full papers (where provided), delegate list (names and organisations), all the presentations in PDF format, and several photos from the technical tour. The cost of the CD is \$77 each (including GST, postage and handling). For further details and to place orders, please contact Steve Schuck on tel/fax: (02) 9416 9246, email: sschuck@bigpond.net.au or Emma Waygood of Conference Action, tel: (02) 9437-9333, email: emma@conferenceaction.com.au.

Early Expressions of Interest for Bioenergy Australia 2006 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 2006. Please contact Stephen Schuck, Bioenergy Australia Manager Tel/Fax: (02) 9416 9246 Email: sschuck@bigpond.net.au to express your interest.

Bioenergy Australia Membership Update

Bioenergy Australia currently has 50 member organisations, from both the private and government sectors. Recent new members are: Collex and BioMaxx Systems Inc. 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 (NTL) 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, the latest annual report with a special colour supplement on Anaerobic Digestion, and its Strategic Plan are available from web site: <http://www.ieabioenergy.com>.

IEA Bioenergy Meetings

Task 30 – *Short Rotation crops for Bioenergy Systems* is planning its next workshop in Oxford, UK during the week commencing 18 September 2006.

Task 31 – *Biomass Production for Energy from Sustainable Forestry* will be holding its next workshop *Biofuels and Bioenergy: Challenges and Opportunities*, in Vancouver, Canada, 28 August - 1 September, 2006. This will be organised jointly by Tasks 29, 31 and 39 of the IEA Bioenergy program, with the workshop co-hosted by the University of British Columbia's Faculty of Forestry. Task 31 is planning an optional 2-3 day field study tour immediately prior to the start of the workshop to enable participants to visit the mountain pine beetle outbreak area and to view the diverse range of landscapes and ecosystems between the central interior and the coast of British Columbia. This tour will probably start in Prince George in central British Columbia and end in Vancouver. The new, simpler, URL for Task 31 is: <http://www.ieabioenergytask31.org>.

Task 32 – *Biomass Combustion and Co-firing* – held its most recent meeting 17-21 October 2005 in conjunction with the *14th European Biomass Conference and Exhibition - Biomass for Energy, Industry and Climate Protection*. This meeting was attended by Associate Professor Moghtaderi of the University of Newcastle on behalf of Bioenergy Australia. The next meeting will be held in conjunction with the World Bioenergy Conference and Exhibition in Jönköping, Sweden on 30 May - 1 June 2006.

Task 36 – *Energy from Integrated Solid Waste Management Systems* held its most recent half yearly meeting in Melbourne, in conjunction with the annual Bioenergy Australia conference in December. Several participants in Task 36 gave presentations in a parallel session within the conference, and held their business meeting at Sustainability Victoria on 15 December. The Task 36, Topic 1, Stage 1 report on linking extended producer responsibility to energy-from-waste is now on the Web at: <http://www.wmaa.asn.au/efw/task36.pdf>.

Task 38 – *Greenhouse Gas Balances of Biomass & Bioenergy Systems* will be holding a combined workshop entitled *Greenhouse Gas Credits Trade Versus Biomass Trade – Weighing the Benefits* with IEA Bioenergy Task 40 (International Trade in Biomass), 5-6 April 2006 in Trondheim, Norway.

ExCo 56 (Executive Committee meeting) was held in Dublin, Ireland 11 – 13 October 2005. Part of the meeting included a tour of the £9 million, 50,000 tonnes per annum Balcas wood pellet factory and the associated 2.5 MWe cogeneration power plant at Inniskillen, Fermanagh, Northern Ireland. The next IEA Bioenergy Executive Committee meeting is to be held at IEA Headquarters in Paris, France from 17-19 May.

IEA Renewables Information 2005

The International Energy Agency has released its annual publication of renewable energy information. It provides a comprehensive review of historical and current market trends for renewables and waste energy sources in the OECD. It includes economic and energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewable and waste products. The 197 page report shows that combustible renewables and wastes provide some 10.6 percent of global total primary energy supply. Copies of the report can be obtained from <http://www.iea.org/bookshop/add.aspx?id=68>.

\$500 Million Low Emissions Technology Demonstration Fund - Round One

The Hon. Ian Macfarlane MP, Minister for Industry, Tourism and Resources and Senator the Hon. Ian Campbell, Minister for the Environment and Heritage officially launched the Low Emissions Technology Development Fund in mid October at Parliament House, Canberra. The *Low Emissions Technology Demonstration Fund* is a \$500 million merit based grants

program announced in the Australian Government's Energy White Paper *Securing Australia's Energy Future* in June 2004.

The objective of the Fund is to demonstrate the commercial potential of new energy technologies or processes or the application of overseas technologies or processes to Australian circumstances to deliver long-term, large-scale greenhouse gas emission reductions. To be eligible for support under the Fund, technologies will have to be commercially available by 2020 to 2030 and have the potential to reduce Australia's energy sectors greenhouse gas signature by at least two percent per annum in the longer term. The measure will operate from 2005-06 to 2019-20, with the first competitive selection round to be held in 2005-06. Subsequent selection rounds are expected to be held in 2008-09 and 2011-12, subject to the outcome of Round One.

Round One of the Low Emissions Technology Demonstration Fund is currently open and closes at 5pm (Australian Eastern Daylight Savings Time) on Friday 31 March 2006. The guidelines at:

<http://www.ausindustry.gov.au/content/level3index.cfm?ObjectID=91D6ABB3-F538-4876-BE254798CF2A1BC9&L2Parent=AEB901E5-7CB8-4143-A3BF33B2423F9DA6>

For further information phone the AusIndustry hotline on 13 28 46 or email: hotline@ausindustry.gov.au.

Renewable Energy Development Initiative - Round Two - Call for Applications

The *Renewable Energy Development Initiative* is a \$100 million, competitive merit-based grants program supporting renewable energy innovation and related early stage commercialisation. It provides eligible applicants with matching grants of up to \$5 million to undertake renewable energy technology activities. The *Renewable Energy Development Initiative* contributes to the reduction of Australia's greenhouse gas emissions and enhances the international competitiveness of Australian businesses by encouraging innovation and generating national benefits for the Australian economy.

The program is delivered by AusIndustry, which is the Australian Government's business program delivery division in the Department of Industry, Tourism and Resources.

Applications for Round Two of REDI close 9 March 2006 at 5pm (Australian Eastern Daylight Savings Time). For further information about the Renewable Energy Development Initiative see: <http://www.ausindustry.gov.au>.

Victorian Government Sets a Ten Percent Renewable Energy Target

The Victorian Government, as part of its Renewable Energy Strategy has announced a 10 percent renewable energy target to be reached by 2010. This measure is expected to require up to \$2 billion in capital investment and provide over 3,000 new jobs.

The new measure will be backed by a range of supporting measures and policies. Industry is invited to review the Issues Paper and provide written feedback. Submissions should be forwarded to the Department of Infrastructure by 10 February 2006. Copies of the Issues Paper can be obtained by calling the Department of Infrastructure on (03) 9655 6410 or from the Web at: <http://www.doi.vic.gov.au/energy>

Biofuels Action Plan

The previous issue of the Bioenergy Australia newsletter noted that the final report of the Biofuels Taskforce, established by the Prime Minister, had been released and was at: <http://www.pmc.gov.au/biofuels>. Subsequently, the Australian Government has received Action Plans from the major oil companies, members of the Independent Petroleum Group, and the major retailers, which collectively provide achievable annual volumetric milestones to underpin progress towards the government's target for 350 megalitres (ML) of biofuels production by 2010. This industry-government partnership has established a framework and foundation for a sustainable biofuels industry in Australia.

The Action Plans set out volumetric goals and business plans, including marketing and retail strategies, for both ethanol and biodiesel blended fuels. Based on the plans submitted, the 350ML target is now regarded as achievable by 2010.

The pathway towards achieving the 350ML per annum target by 2010 will increase annually from a base of 28ML in 2005 and is projected to exceed the biofuels target of 350 ML in 2010, based on the aggregation of each company's plans. These estimates are predicated on continued improvements in consumer confidence, reliable and multi-source supplies of biofuels at competitive prices and the removal of market barriers.

The Australian Government will monitor and review progress towards these targets on a six-monthly basis. The industry players have committed to update their company action plans on an annual basis and regularly assess their progress against the targets set out in their action plans. The Prime Minister's media release is at: http://www.pm.gov.au/news/media_releases/media_Release1734.html

WA Biofuels Taskforce Established

The Western Australia state government has set up a Biofuels Taskforce to place that state on the road to developing viable renewable fuels for the agricultural sector and the wider community. Agriculture Minister Kim Chance, in announcing the Taskforce, indicated that it will look at specific issues such as the need to improve the security of fuel supplies by developing alternative renewable fuel sources and to identify new biofuel industry opportunities focused on regional development. Mr Chance has asked the Taskforce to provide a report to Parliament within the next 12 months. The group will work with industry to provide recommendations and strategies on issues including:

- the impediments to the development of a biofuels industry in WA
- consumer acceptance of biofuels &
- the cost-effectiveness of using biofuels as alternatives to petrol and diesel, particularly in regional areas.

The Biofuels Taskforce will be chaired by Government MLC Graham Giffard and will include National Party leader Brendan Grylls MLA, Liberal Party Member Nigel Hallett MLC and representatives from the Department of Agriculture, Department of Planning and Infrastructure, the Department of Industry and Resources, Department of Premier and Cabinet, Department of Health, Office of Energy and the Department of Environment. The Taskforce will engage representatives from industry and community groups to gain input and to ensure their recommendations meet the needs of industry.

The BCSE Waste to Energy – A Guide for Local Authorities

The Business Council for Sustainable Energy (BCSE) has developed a Waste to Energy guide, with funding support from the Australian Greenhouse Office (part of the Department of Environment and Heritage), to provide senior management in Local Authorities with an overview of the opportunities and risks associated with waste-to-energy conversion. The 60 page report provides a number of Australian and international case studies such as the Kristianstad Biogas Plant in Sweden; MAV Anaerobic Treatment Plant, Belgium; ReOganic Energy at Ipswich, Queensland; Rocky Point Cogeneration Plant, Woongoolba, Queensland; Berrybank piggery, Ballarat, Victoria; Suncoast Gold Macadamia in Gympie, Queensland; and Malabar Sewage Treatment Plant in Sydney. The report may be downloaded from: http://www.bcse.org.au/docs/Publications_Reports/WasteToEnergy%20Report.pdf

WSN Environmental Solutions Wins \$150 Million Alternative Waste Technology Contract in Sydney

The MACROC group of councils, consisting of Campbelltown, Camden, Wollondilly and Wingecarribee Councils have awarded Bioenergy Australia member WSN Environmental Solutions a \$150 million, 15 year contract to build and run Sydney's largest alternative waste technology processing plant at the Macarthur Resource Recovery Park on the Jacks Gully landfill, in Sydney's south. The plant will process all the councils' 30,000 tonnes/year recyclables, 30,000 tonnes/year organics and up to 90,000 tonnes/year mixed solid waste to achieve some 70 percent diversion from landfill. The centrepiece of the plant will be the Ecolibrium Mixed Waste Facility, using Arrowbio technology from Israel's Arrow Ecology Group. The technology involves biological digestion with outputs of fertiliser, water and biogas containing some 75 percent methane. The facility will be completely self-sufficient in water, capturing moisture in waste to supply process requirements, and exporting excess water for on-site irrigation. The facility will also have a materials recycling facility, an education centre and a fully enclosed tunnel composting system. The plant is scheduled to open in 2008. See:

http://www.wasteservice.nsw.gov.au/dir138/publish.nsf/Content/news_mediarelease_macarthur_contract_dec05 and <http://www.arrowbio.com>.

Dalby Bio-Refinery

Dalby Bio-Refinery Limited announced on 8 Nov it will commence Stage One construction of an ethanol plant, worth \$54 million near Dalby, Queensland, during the first half of 2006. The first stage of the project will produce 40 million litres of ethanol annually while the full project will have an annual production of a minimum of 80 million litres per annum. The two companies behind the Dalby Bio-Refinery are Petro Fuel and Lubricants and the Queensland Fuel Group. The bio-refinery will be a dry mill ethanol plant. It is expected that the plant will be operational by mid-2007 and is being privately funded by banking partner NM Rothchild and Sons, while Suncorp Metway will provide the plant's working capital. The feedstocks are sorghum and wheat. The plant is reported to provide 24 permanent jobs in the operation stage and an additional 150 jobs during construction.

In a separate announcement, Caltex announced the acquisition of Petro Fuel and Lubricants, a Caltex branded independent fuel reseller based in Toowoomba, Queensland. Petro's service station network includes 11 sites selling Caltex E10 (10 percent ethanol in petrol).

Biofacts

- Ethanol production currently consumes about 11 percent of the total U.S. corn crop. There are currently, 94 plants producing 15.9 billion litres of ethanol per year. An additional 30 plants are under construction, poised to add another 5.7 billion litres of capacity in the next 12-18 months.
 - The EU currently has over three million hectares of agricultural land under rapeseed cultivation, an area approximately the size of Belgium. Some 20 percent of the rapeseed produced is converted to oil, the feedstock for biofuel.
 - The heating, or calorific value of biomass fuels is an important fuel parameter. This value is often cited as the Higher Heating Value. The HHV includes the energy from condensation of combustion products and is greater by between 5% (in the case of coal) and 10% (for natural gas), than the Lower Heating Value (LHV). For most biomass feedstocks this difference is in the range 6-7%, and depends mainly on the hydrogen content of the fuel. The appropriateness of using LHV or HHV when comparing fuels, and for calculating thermal efficiencies largely depends upon the application. For stationary combustion where exhaust gases are cooled before discharging (e.g. power stations), HHV is more appropriate. Where no attempt is made to extract useful work from hot exhaust gases (e.g. motor vehicles or open cycle gas turbines), the LHV is generally more suitable. Australia and North America generally use HHV, while Europe generally quotes LHV.
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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 26 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.

Collex's Bioreactor technology

<http://www.collex.com.au/innovations/bioreactor>

Energy Tech (Austria)

<http://www.energytech.at>

Dalby Bio-Refinery

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

Energy Efficiency and Renewable Energy Center (US)

<http://www.eere.energy.gov/informationcenter/>

European Environmental Agency Reports

<http://reports.eea.eu.int/>

Australian Biodiesel Group

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

Dry fermentation of biomass

<http://www.dryfermentation.com/index.html>

Waste Streams article on alternative energy

http://www.wastestreams.com.au/ws/white_papers/paper_122005a.asp

Bioenergy Feedstock Information Network

<http://bioenergy.ornl.gov>.

Powerhearth

<http://www.3ialternativepower.com/>

Thermpant biomass boilers

<http://www.savingwater.com.au/Download.html>

Nepal Biogas Plant -- Construction Manual
http://journeytoforever.org/biofuel_library.html#nepgas

Updraft gasifier
<http://www.zamer.com.pl/Eng/zgaz.htm>

Biogas Plants
<http://www.renewableenergyaccess.com/rea/news/story?id=38422>

Canadian report on Ethanol
<http://www.ghgenius.ca/reports/nrcanethanolphase1.pdf>

Canadian Report on Biodiesel
<http://www.ghgenius.ca/reports/nrcanbiodieselphase1.pdf>

Ethanol Discussion Paper - Warren Centre
<http://www.warren.usyd.edu.au/Ethanol/Ethanol04.pdf>

Energy Power Resources (UK)
<http://www.eprl.co.uk>

Smelting Iron Using Charcoal
<http://www.europa.com/~heritage/charcoal.html>

The Hydrogen Economy - Energy and Economic Black Hole- article
http://www.energypulse.net/centers/article/article_print.cfm?a_id=940

liquefaction of landfill gas
<http://www.ch-iv.com/cryo/lfg.htm>

Tree Oils India
<http://www.treeoilsindia.com>

Bio-power site (waste vegetable oil)
<http://www.bio-power.co.uk/makeit.htm>

DEC – Guidance Note: Assessment of Non-Standard Fuels
<http://www.environment.nsw.gov.au/resources/nonstandardfuel05149.pdf>

Units and Conversion factors (biomass and fossil fuels_
<http://www.geog.umd.edu/homepage/courses/jboberg/units.htm>

Thermoselect (waste to energy)
<http://www.thermoselect.com>

Enviro Carboniser (ex South Africa)
<http://www.repp.org/discussiongroups/resources/gasification/hofmeyr/enviro.html>

Steam tables
http://www.efunda.com/materials/water/steamtable_sat.cfm

Energy and Environment – Finland newsletter on renewables
<http://www.energy-enviro.fi>

Article on Australia's oil depletion
<http://www.financialsense.com/editorials/powers/2005/0203.html>

Science in Europe.net
<http://www.scienceineurope.net/>

Electronic public library
<http://www.ibiblio.org/>

ISES White Paper - Transitioning to a Renewable Energy Future
<http://whitepaper.ises.org>

PURAC (UK company that sells Ultrasonics for sludge treatment - Sonix)
<http://www.purac.net>

Fecon Resource Recovery Equipment and Systems
<http://www.fecon.com/bullhog/>

PMC Biomass LLC
<http://www.pmcproduction.com/biomass.html>

Forestry Commission Wood Fuel (UK)
<http://www.woodfuelresrouce.org.uk>

Wood fuel pack
<http://forestresearch.gov.uk/woodfuel>

Papyrus Australia

<http://www.papyrusaustralia.com.au/>
California Biomass Collaboration
<http://biomass.ucdavis.edu/>
Xethanol
<http://www.xethanol.com>
SOPAC work on Biofuels
<http://www.sopac.org/tiki/tiki-index.php?page=Energy+Projects+COPRA>
Biodiesel Production Equipment
<http://www.biodiesलगear.com>
University of Tropical Agriculture Fondation (AD and gasifier)
<http://www.utafoundation.org/>
Australian Biodiesel Standards
<http://www.deh.gov.au/atmosphere/biodiesel/index.html>
Ethanol report (Natural Resources Canada)
<http://www.ghgenius.ca/reports/nrcanethanolphase1.pdf>
Biodiesel report (Natural Resources Canada)
<http://www.ghgenius.ca/reports/nrcanbiodieselphase1.pdf>
Seghers Képpel
<http://www.seghersgroup.com>
Econergy Ltd (UK)
<http://www.econergy.ltd.uk>
Wood Heat Organization Inc.
<http://www.woodheat.org>
Biodiesel (IFEU - Institut für Energie- und Umweltforschung Heidelberg gGmbH)
http://www.ifeu.de/englisch/agri/seiten/a_refb.htm
GlobalSpec - Engineering Search Engine
<http://www.globalspec.com/Click/Go?Vol=IEEESept04>
Ultrasonic unit for sludge treatment
<http://www.hielscher.com/ultrasonics/sludge02.htm>
The Association for Secondary Raw Materials and Waste Disposal, Germany
<http://www.bvse.de>
European Fuel Oxygenate Association
<http://www.efoa.org>
Austrian Biofuels Institute
<http://www.biodiesel.at>
AVONGRO Wheatbelt Tree Cropping
<http://www.avongro.com.au>
BIOCAP Canada
<http://www.biocap.ca/>
Community Power Corporation gasifiers
<http://www.gocpc.com/>
Cogeneration and On-Site Power Production site
<http://www.earthscan.co.uk/defaultCOSPP.asp?sp=&v=4>
Methane to Markets
<http://www.methanetomarkets.org>
West Virginia Alternative Fuels Data Center
http://www.eere.energy.gov/afdc/progs/search_state.cgi?afdc/WV

International Developments

E.ON UK Approves 44 MWe Wood Fired Power Station in Scotland

Power company E.ON UK, which owns Powergen, has given the final go-ahead for its 44MWe, £90m (\$218 million), dedicated biomass power station to be built at Lockerbie, Dumfriesshire, in Scotland. The power station will be the largest dedicated biomass power

station in the UK. The 220,000 oven-dried tonnes of fuel required for the station every year will come from the local area, with initial contracts to be for forestry residues. Within four years of operation, it is expected that up to 45,000 oven-dried tonnes a year will come from willow harvested by local farmers. It is estimated that the power station, which will be located at Steven's Croft, will create 40 direct jobs and 300 indirect jobs in forestry and farming. The power station is expected to commence commercial operation in December 2007.

E.ON UK will be working with a consortium of Siemens and Kvaerner to build the power station, which will be a bubbling fluidised bed combustor, having first started development of the project in January 2003 and receiving outline planning permission in July 2004.

The biggest of the National Lottery distributors, the Big Lottery Fund, is reported to be supporting the development of the new biomass plant with a grant of £18m from their Bioenergy Capital Grants Scheme. See http://www.supergen-bioenergy.net/?_id=335 & <http://www.scotsman.com/?id=2080382005>.

Investigation into the Production of Cellulose Ethanol in Germany

The Bioenergy Australia newsletter has previously run articles on Canadian company, Iogen and their cellulosic biomass to ethanol pilot plant in Ottawa, Canada, noting Shell's investment in Iogen. In a new development, German auto manufacturer, Volkswagen, together with Shell and Iogen are to study the economic feasibility of building a commercial plant in Germany, to produce ethanol from agricultural and forestry residues. The three companies signed a letter of intent on 8 January at the annual car show in Detroit. This is the first time that plans have been made to produce second-generation biofuels commercially in Europe. See: http://www.iogen.ca/news_events/press_releases/2006_01_08.html

EU Biomass Action Plan

The European Commission has adopted an *Action Plan for the Promotion of Biomass Energy*, which includes some 20 measures to shape the development and improvement of biomass technology, and as a result, enable a better use of biomass to produce energy, in particular heat. The Commission has recently announced a bill designed to promote the market for cooling and heating from renewable energy sources. The EU estimates a probable percentage of renewable heating and cooling of 25 percent by 2020. See: http://europa.eu.int/comm/energy/res/biomass_action_plan/green_electricity_en.htm

British Biomass Taskforce Reports on Heating

The British Biomass Task Force has conducted a year-long study into the use of biomass for heating, and concludes that some 20 million tonnes of biomass are available annually and that biomass could reduce that nation's carbon emissions by almost three million tonnes a year if used to provide heating. The carbon saving would be the equivalent of taking 3.25 million cars off the road. The study was commissioned by the government departments DEFRA and the DTI.

The Task Force has made 42 recommendations, including a call for the introduction of capital grants to fund more biomass heating boilers. The Task Force concludes that one of the biggest barriers to progress is ignorance and recommends that the Government acts in the next 6 months to create a single information point on biomass for the country.

In receiving the report, Malcolm Wicks, Energy Minister at the Department for Trade and

Industry noted that this wide-ranging report leaves the Government in no doubt that biomass has the potential to make a real and lasting contribution toward renewable energy and heat in the UK. He noted that the UK Government has already committed £66 million of Bioenergy Capital Grants that have funded 22 projects to date and that £5 million has been given to supporting smaller-scale schemes through the Clear Skies program.

The full report is published at: <http://www.defra.gov.uk/farm/acu/energy/biomass-taskforce/index.htm>.

DynaMotive Grants Eastern European Licences

DynaMotive Energy Systems Corporation of Canada, developers of a pyrolysis bio-oil production technology, and who have completed a 100 tonnes/day bio-oil plant at West Lorne in Ontario, Canada have announced that it has granted a master license to Rika Ltd., a company that has extensive operations in Latvia and Ukraine. Under the Agreement, Rika has agreed to market DynaMotive's technology as well as develop and operate facilities in the territories. Two projects are initially targeted for development.

Rika Ltd. and DynaMotive have further agreed to scope the feasibility of bioenergy crops in Ukraine, where Rika has leased 25,000 hectares of farm land. The companies are considering the allocation of 10,000 hectares for growth of biomass for bio-oil production. This will potentially provide for a total production capacity of 300,000 tonnes annually of biomass. See <http://www.dynamotiv.com> for further details.

Handbook on Biomass Gasification

Over twenty European experts in the field of biomass gasification, who have been involved in the European GasNet project, which operated from between 2001 and 2004, have combined to produce a Handbook on Biomass Gasification. The Handbook summarises the main results of the GasNet project, and covers different areas of biomass gasification and related topics. The Handbook is set to be a valuable tool for newcomers and those already involved in R&D, industry, policy makers and end-users. The Euro 90 book may be ordered from the Dutch BTG biomass technology group BV. More information can be found on <http://www.gasnet.uk.net> or <http://www.btgworld.com> or email: Knoef@btgworld.com.

USDA Awards US\$12.6 Million for Biomass Research And Development

Since the issue of the last newsletter, the US Department of Agriculture has announced that 11 biomass research, development and demonstration projects were selected to receive US\$12.6 million for the *Biomass Research and Development Initiative*, a joint effort of USDA and the Department of Energy. The total value of the projects is nearly US\$19 million, including cost sharing by the private-sector partners. The recipients, project titles and amounts granted are:

- University of Idaho (Moscow, Idaho) – Increasing the Potential for the Utilization of Cellulose from Straw for Biofuel and Bioproduct Production - \$693,285
- The Samuel Roberts Noble Foundation, Inc. (Ardmore, Okla.) – Development of Low-Lignin Switchgrass for Improved Ethanol Production - \$670,166
- The Tampa Bay Area Ethanol Consortium (Florida) – Implementation of a Scale-Up Pilot Plant Demonstration Facility toward the Commercialization of Florida Biomass Feedstocks for Ethanol Production - \$1,920,000
- University of Montana, College of Technology (Missoula, Mont.) – Biopower Demonstration and Educational Outreach - \$990,500

- North Carolina State University, Department of Chemical and Biomolecular Engineering (Raleigh, N.C.) – Conversion of BioDiesel Derived Glycerol to Glycidol, Glycerol Carbonate and C-3 Oxygenates by Catalytic and Biocatalytic Pathways - \$1,606,265
- Iowa State University (Ames, Iowa) – Environmental Enhancement through Corn Stover Utilization - \$1,853,996
- Oak Ridge National Laboratory (Oak Ridge, Tenn.) – Carbon Fiber from Biomass Lignins - \$1,083,770
- Clarkson University – (Potsdam, N.Y.) – Environmental and Economic Performance of an Integrated, Digester-Cogeneration-Value-Added Process - \$805,938
- University of Minnesota, Morris (Morris, Minn.) – Biomass Gasification: A Comprehensive Demonstration of a Community-Scale Biomass Energy System - \$1,896,493
- University of Florida (Gainesville, Fla.) – Bioenergy: Optimum Incentives and Sustainability of Non-Industrial Private Forests in the U.S. South - \$656,525
- Environmental Resources Trust (Washington, D.C.) – Incentives for Biomass Commercialization: Pioneering Markets for Biomass Using Renewable Energy Certificates, Emission Reduction Credits and Incentive Programs for Ammonia, PM10 and PM2.5 Reductions - \$449,993

The details of the individual projects is at <http://www.bioproducts-bioenergy.gov/pdfs/BiomassGrantWinners.doc>

Forthcoming Events

- *National Biodiesel Conference and Expo 2006*, 5-8 February 2006, San Diego, California, USA. Web: <http://www.biodiesel.org/expo2006/>
- *Bioenergy World 2006*, 9-12 February 2006, Verona, Italy. Organizer: BioEnergy Events and Services. Contact: Paul Stuart Email: paulstuart@bees.biz Web: <http://www.bioenergy-world.com>
- *Biofuels Markets*, 16-17 February 2006, Brussels, Belgium. Web: <http://www.biofuelsmarkets.com>
- *Climate Change and Business*, 2nd Australia-New Zealand Conference, 20-21 February 2006, Adelaide Hilton, South Australia. Web <http://www.climateandbusiness.com>.
- *11th Annual Renewable Fuels Association National Ethanol Conference*, 20-22 February 2006, Las Vegas, Nevada, USA. Email: info@ethanolrfa.org Web: <http://www.ethanolrfa.org/nec.shtml>
- *Biodiesel Finance & Investment Summit*, 27–28 February 2006, Doubletree Guest Suites Times Square, New York City, USA. Web: <http://www.infocastinc.com/biodiesel.html>.
- World Sustainable Energy Days 2006, 1-3 March 2006, Wels, Austria. Web: <http://www.esv.or.at/esv/index.php?id=217&L=1&contUId=0>
- *ESAA Power Station Chemistry Conference and Training Course*, 5-10 March, Peppers Fairmont Resort, Leura, NSW. Email: meetings@tmm.com.au Tel: (02) 9264 1677.
- *Bioenergy - I: From Concept to Commercial Processes*. 5-10 March, 2006, Tomar, Portugal. Web: <http://www.engconfintl.org/6ae.html>
- *2nd Bioenergy and Wood Products Conference*, “Bioenergy & Wood Products Conference II: Innovations in Restoring Forests and Strengthening Economies”, 14-16 March 2006. Denver, Colorado, USA. Sponsored by the USA’s Western Governors’ Association, Departments of Agriculture, Interior, and Energy, and other organisations. Web <http://nationalbiomassconference.org/>
- *3rd International Exhibition on New Energy and Energy Conservation 2006*, 16-18 March 2006. Intex Shanghai, Shanghai, PR China. Email: general@coastal.com.hk Web site: <http://www.coastal.com.hk>
- *Veg Futures 2006: The conference in the Field*, 19- 23 March 2006. Albury-Wodonga. Contact: Greening Australia, PO Box 74, Yarralumla ACT 2600. Tel: 02 6281 8585, Email: exchange@greeningaustralia.org.au, Website: www.greeningaustralia.org.au.

- *Central Biofuels Conference & Expo II*, 21-23 March 2006, Marriott, Panama City, Panama. Web: <http://www.centralbiofuels.com>.
- *International Conference on Agricultural Wastes, ICAW 2006 / CHIMATRA*, 21-23 March 2006. Kuala Lumpur, Malaysia. Firms are invited to give presentations or provide posters and material. See <http://www.icaw06.com> or email i.koerner@tu-harburg.de or conference@chimatra.com
- *Biofuels Markets in Latin America*. 27-28 March 2006. Rio de Janeiro, Brazil. Web: <http://www.greenpowerconferences.com/Biofuels.htm>
- *Waste 2006: Waste Avoidance & Resource Recovery Conference*, 28-31 March 2006. Opal Cove Resort, Coffs Harbour, NSW. Web: <http://www.impactenviro.com.au/waste2006>.
- *GLOBE 2006*, 29-31 March 2006. Vancouver, Canada. Web <http://www.globe2006.com>.
- *Breakthroughs in Biomass and Biorefinery Deals*, 29-31 March 2006, Washington DC. Web: <http://www.infocastinc.com/biomass/biomass.pdf>
- *7th European Gasification Conference*, 25-27 April 2006, Barcelona, Spain.
- Contact: Mrs Rosemary Cragg, Email: rcragg@icheme.org.uk, Web: www.icheme.org/gasification2006/
- *28th Symposium on Biotechnology for Fuels and Chemicals* (The Society for Industrial Microbiology), 30 April - 3 May 2006 Nashville Airport Marriott Nashville, Tennessee, USA. Web: <http://www.simhq.org/html/meetings.html>.
- *Organic Resource Residuals Processing*, Professional Short Courses into (1) the Composting Process and (2) Anaerobic Digestion. University of Canterbury, Christchurch, NZ. 1-5 May 2006. NZ\$2025. Email: psc@canterbury.ac.nz.
- *BCSE National Conference and Exhibition*, 3-4 May 2006. Brisbane Hilton. Web <http://www.bcse.org.au>
- *Ethanol Australia 2006*, 8-11 May 2006, Hilton International Hotel Brisbane, Queensland. See Website: <http://www.ethanol2006.com>.
- *Enviro 06 Conference & Exhibition*, 9-11 May 2006. Melbourne Exhibition & Convention Centre. Web: <http://www.enviroaust.net/e6/>
- 17th International Conference on Chemical Reactors *CHEMREACTOR-17* and post-Symposium *Catalytic Processing Of Renewable Sources: Fuel, Energy, Chemicals*. 15-19 May 2006, Athens-Crete, Greece. Web: <http://www-sbras.nsc.ru/ws/CR-17/index.en.html>
- *REAsia 2006*, 3rd Asian Renewable Energy Fair & Conference, 29- 31 May 2006, Beijing, China. Web: http://www.gracefair.com/reasia_home.htm
- *Eastern Biofuels Conference & Expo II*, 29 May – 2 June 2006, Intercontinental Hotel, Budapest, Hungary. Web: <http://www.easternbiofuels.com>.
- *World Bioenergy*, 30 May - 1st June 2006, Jönköping, Sweden. Information and contact <http://www.svebio.se>
- *Pellets 2006 - 2nd World Conference on Pellets*, to be held in conjunction with World Bioenergy 2006, 30 May – 1 June 2006. Jonkoping, Sweden. Web: <http://www.pellets2006.com>
- *BioEnergy Conference and Exhibition*, International Conference on Bioenergy. 31 May – 1 June 2006, University of Northern British Columbia, Prince George BC Canada. In conjunction with Forest Expo 2006. Web: <http://www.bioenergyconference.org>
- *Biofuels Markets Asia*, 5-6 June 2006, Bangkok, Thailand. Web: <http://www.greenpowerconferences.com/events/Biofuelsasia.htm>
- *Corn Utilization and Technology Conference*, 5-7 June 2006. Dallas, Texas, USA. Web: <http://www.corntechconf.org>.
- *8th International Conference on Greenhouse Gas Control Technologies* (GHGT-8), 19-22 June 2006, Trondheim, Norway. Web: <http://www.ieagreen.org.uk/ghgt8.html>
- *International Fuel Ethanol Workshop & Expo*, 20-23 June 2006, Midwest Airlines Center, Milwaukee, Wisconsin, USA. Web: <http://www.fuelethanolworkshop.com>.

- *Eco Show Australia 2006*, 7-9 July 2006, Rosehill Gardens Exhibition Centre, Sydney. <http://www.ecoshow.com.au>.
 - *3rd World Congress on Industrial Biotechnology and Bioprocessing*, 12-14 July 2006, Toronto Canada,. Web: <http://www.bio.org>
 - *Tropical Crop Biotechnology Conference 2006*: 16-19 August 2006, Cairns International Hotel, Cairns, Queensland. Web: <http://www.tcbc2006.com.au>.
 - *World Renewable Energy Congress*, 19-25 August 2006. Florence, Italy <http://www.wrenuk.co.uk/downloads/WRECix1stcall.pdf>
 - "Biological Waste Management- From Local to Global" *5th International conference ORBIT 2006*, in Weimar, Germany. 15-17 September 2006. Call for papers and other details at <http://www.orbit2006.de>.
 - *4th i-CIPEC Conference* (International Conference on Combustion, Incineration/Pyrolysis and Emission Control), 26 – 29 September 2006, Kyoto, Japan. Web sites: <http://icipec.com/index/html> and <http://www.kyoto-u.ac.jp/index-e.html>
 - *Renewable Energy 2006*, 9-13 October, 2006, Makuhari Messe Japan, Web: <http://www.re2006.org>.
 - *Asia Biofuels Conference & Expo IV*, 10 – 12 October 2006, Great Wall Sheraton Hotel, Beijing, China. Web: <http://www.asiabiofuels.com>.
 - *ISAF XVI*, International Symposium on Alcohol Fuels, 27-29 November 2006, Rio de Janeiro, Brazil. Web: <http://www.isaf2006.org>.
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Residues

- Dr Stephen Schuck, the Bioenergy Australia Manager gave an extended presentation on bioenergy to Sydney University's Warren Centre's Energy Committee on 16 November.
- Steve Schuck participated in a formal panel discussion at the 16th Power and Electricity Congress, Sydney Convention and Exhibition Centre, Darling Harbour 21-23 November 2005. The panel on 22 November was entitled 'Integrating renewable energy into the National Electricity Market'.
- Steve Schuck has been interviewed by Nature Biotechnology magazine's Stephan Herrera (from New York) for an article on biofuels and the investment climate in Australia.
- Steve Schuck has been nominated to be on the World Renewable Energy Congress' Bioenergy steering committee. The conference will be held 19-25 August 2006 in Florence, Italy. See Forthcoming Events above.
- Dr Juergen Vehlow of FZK, Germany, the keynote speaker at the Bioenergy Australia 2005 conference was interviewed 'live' on ABC Summer Breakfast radio for some 10 minutes on 13 December. The interview was on the general topic of energy from waste.
- Steve Schuck is representing Bioenergy Australia on the REEEP (Renewable Energy and Energy Efficiency Program) Oceania's Interim Steering Committee. See <http://www.reeep.org>.
- The December 2005 IEA Bioenergy Newsletter (8 page) is downloadable from: http://www.ieabioenergy.com/library/188_IEABioenergyNews172.PDF
- In early 2005, Biotechnology Australia gathered a group of experts together in Canberra to assist in identifying and verifying Australia's Biotechnology capabilities. Steve Schuck, Manager of Bioenergy Australia participated in the workshop on 'industrial biotechnology'. Biotechnology Australia has produced a public document, *Australia's Biotechnology Capabilities* to provide, for the first time an overview of Australia's national capabilities across the four main sub-sectors of biotechnology – agribiotech, biomedical, environmental and industrial. The report was launched at *Ausbiotech 2005* in Perth in November and is available on Biotechnology Australia's website, <http://www.biotechnology.gov.au>.
- Bimonthly issues of the Australian Emission Trading Forum Review are available for downloading. Go to www.aetf.net.au and click on 'AETF Review'.

- *Australia's Fourth National Communication on Climate Change* report indicates that by 2010, stationary energy emissions are expected to increase by 146% over the 1990 baseline and transport emissions by 153%.
- The US Department of Energy's Office of the Biomass Program website contains various project fact sheets. See: http://www.eere.energy.gov/biomass/project_factsheets.html.
- Diamond Energy is developing a 1.1 MW_e biogas project at Tatura, Victoria with the support of the Sustainability Victoria's Renewable Energy Support Fund. The engine contract has gone to Energen Solutions who will be using a DEUTZ TCG2020V12 gas engine.
- The UK Biomass Task Force was established in late 2004 to help the UK Government and industry develop biomass energy in support of government renewable energy targets, sustainable farming and forestry and rural objectives. The Biomass Taskforce's final report was published on 25 October 2005 and can be downloaded from: <http://www.defra.gov.uk/farm/acu/energy/biomass-taskforce/>
- VTT Processes of Finland has released a comprehensive report entitled 'Small-Scale Biomass CHP Plant and District Heating'. The body of the report is 129 pages with 7 pages of Appendices. The report considers in-depth the market and technologies for combined heat and power units from biomass in the range up to 20 MW_e. Finland's potential for biomass CHP was found to be 80 MW_e and 214 MW_{th}. The full report is at: <http://www.vtt.fi/inf/pdf/tiedotteet/2005/T2301.pdf>.
- The European Environment Agency (EEA) has recently produced a number of reports about Europe's energy and environment. These include:
 - EEA Report No 1/2005, 'Climate change and a European low-carbon energy system'
 - EEA Briefing 4/2004, 'Transport biofuels: exploring links with the energy and agriculture sectors'
 - EEA Briefing 2/2005, 'How much biomass can Europe use without harming the environment?'

These reports may be downloaded from: <http://reports.eea.eu.int>.

- An NREL report, 'Determining the Cost of Producing Ethanol from Corn Starch and Lignocellulosic Feedstocks' (525 kB pdf file) is downloadable from the Web at: <http://devafdc.nrel.gov/pdfs/4898.pdf>
- The Denver, USA 2004 Bioenergy Conference 'Regional Breakouts' generated discussion on how to progress bioenergy for regional areas in the USA. Action items arising are summarised at: http://www.healthyforests.gov/initiative/biomass_conference/action_items.html
- A Bureau of Rural Sciences report, 'Socio-economic Impacts of Plantation Forestry', funded by the Forest and Wood Products Research and Development Corporation can be downloaded from <http://www.fwprdc.org.au> or <http://www.brs.gov.au>.
- Hawaii National Energy Institute researchers reported at the January 2006 Pacific Rim Summit on Industrial Biotechnology and Bioenergy that they had identified algae varieties with an oil content of up to 40 percent that would be suitable as a feedstock for biofuel production.
- The US National Biodiesel Board anticipates 284 million litres of biodiesel production in 2005, three times the 95 million litres produced in 2004.
- Global production of biofuels (ethanol and biodiesel) exceeded 33 billion liters in 2004, about 3 percent of the 1,200 billion liters of petroleum fuel consumed.
- Europe currently treats 50 million tonnes of waste at some 400 waste to energy plants each year. France has 123 WTE plants, followed by Germany with 58 and Denmark 31.
- The January issue of *Spectrum*, the IEEE flagship magazine, carries an article 'Barbados has a Sweet Idea' noting that the West Indies Central Sugar Cane Breeding Station has developed a breed of sugar cane specifically suited to fuel electric power plants. While conventional bagasse is typically 15 percent fibre, the new variety is 25-30 percent fibre and as such yields almost twice the burnable biomass per hectare. World-wide there is

some 3,700 MW of bagasse electricity generation capacity. The new cane is reported to be able to be regrown almost twice as many times as conventional cane before it needs to be replanted, thus making it cheaper to grow for farmers.

- Velocys (<http://www.velocys.com>), a subsidiary of Battelle Memorial Institute, is receiving an additional \$1m in funding from the US Department of Defense for further development of a compact Fischer-Tropsch reactors that could enable the production of Gas-to-Liquids (GTL) synthetic fuels near the point of use. See http://www.greencarcongress.com/2006/01/dod_extends_com.html#more
- It is the International Energy Agency's practice to offer free pdf downloads of IEA publications two calendar years after issue. A new batch has just been added to the free publications list. See http://www.iea.org/Textbase/publications/free_all.asp
- The FEAST secretariat (Forum for European-Australian Science and Technology Cooperation) has recently placed its January issue (No. 19) newsletter on the Web: See http://www.feast.org/newsletters/FEAST_019_2006-01-19.pdf
- Freedom Fuels Retail of Queensland is the first company to receive a grant under the Queensland Ethanol Conversion Initiative, to embrace E10 (a ten percent ethanol blend with petrol). The Initiative is part of the \$7.3 million Queensland Ethanol Industry Action Plan. The group has some 24 refueling sites in south-east Queensland.
- BP Australia has launched E10 in the ACT region.
- On 28 Nov, the NSW Premier announced that all Government vehicles will be required to use biofuels where available across the State. The next State Fuel contract will call for tenders to come from suppliers which can provide biofuels such as blended ethanol-petrol and biodiesel. The current fuel contract ends 30 June 2006. More than 3,000 vehicles use the State Fuel contract.
- A report, 'Investigation into municipal solid waste (MSW) gasification for power generation', prepared for Alameda Power and Telecom by Advanced Energy Strategies and URS Corporation in May 2004 is available on line at <http://www.alamedapt.com/newsroom/reports/finalgasification.html>.
- A quick-reference list of conversion factors provided by the Bioenergy Feedstock Development Programs at the Oak Ridge National Laboratory in the USA is at: http://bioenergy.ornl.gov/papers/misc/energy_conv.html
- China requires its power sector to provide five percent of its electricity from renewable energy sources by 2010 and 10 percent by 2020 (excluding hydropower). China's power sector last year had some 508,000 MW of installed capacity, up nearly 15 percent over the previous year. This is expected to exceed 1 million megawatts of installed capacity by 2020.
- There has been some controversy regarding the energy balance of ethanol, most notably ethanol derived from corn in the USA. Some studies showing positive energy balances, and worth viewing are:
<http://devafdc.nrel.gov/pdfs/5700.pdf>
http://www.ethanolrfa.org/net_energy_balance_2004.pdf
<http://www.pewclimate.org/docUploads/ustransp.pdf>
http://www.agriculture.com/ag/story.jhtml?storyid=/templatedata/ag/story/data/agNews_050328crETHANOL.xml&catref=ag1001
http://www.ncga.com/public_policy/issues/2001/ethanol/08_22_01b.htm
- Energy Developments Limited has commissioned its new 8MW Pitsea landfill gas power station in Essex, UK. This brings EDL's UK landfill gas generation capacity to 55 MW.
- Babcock & Brown Limited has acquired Enersis II SGPS S.A., an integrated renewable energy company with substantial hydro and wind projects in Portugal, Spain and France. Enersis also has a small investment in biofuels, with the main activity being a proposed 28 million litre/year biodiesel project slated for Portugal.
- AMP Capital has produced a report "*Climate Change and Company Value*" which is available on the Web at: <http://www.ampcapital.com.au/advisers/sri/papers.asp>

- Shell Australia has launched its new flagship 100 Octane petrol, formulated with 5% ethanol and sold under the brand name of Shell Optimax Extreme. The fuel will be manufactured at Shell's Geelong, Victoria refinery and available exclusively through selected Coles Express service stations in Melbourne, Sydney, Canberra, Brisbane and the Gold Coast. For technical information see <http://www.shell.com.au/extreme>.
- Babcock and Brown Environmental Investments Limited (ASX:BEI) has announced it has entered into contracts to acquire 100% interest in Diversified Energy Company, LLC (Denco), a US ethanol producer and operator, which has interests in several US ethanol plants.
- Australian Biodiesel Group listed on the ASX on 14 December, raising \$20 million via \$1.00 shares. ABG has a 40 ML biodiesel plant at Berkeley Vale, 75 km north of Sydney. Construction is currently underway of a new 160 ML plant at Narangba, Queensland, which is set for completion in mid 2006. \$9 million of the raised funds are to complete the Narangba plant. ABG is reported to have a supply agreement with Gardner Smith for a significant portion of the feedstock. Dr John Keniry, a current director of Gardner Smith is the non-executive Chairman of ABG. The listing prospectus is on the Web site: <http://www.abgbiodiesel.com>.
- All the presentations from the 7th Nordic Bioenergy Conference, held in Trondheim, Norway in October 2005 are available for download at: http://www.bioenergy2005.no/?page=parallell_downl_en.html
- A 250KW 'Direct FuelCell' unit provided by FuelCell Energy, Inc. of the USA is being installed at the Tacheon Sewage Treatment Plant, Seoul, South Korea. The fuel cell unit will operate on biogas from the plant, which processes some 19 percent of Seoul's sewage.
- The New York State Energy Research and Development Authority (NYSERDA) is funding 32 distributed generation/CHP projects. Amongst these are assistance of US\$1 million to Global Common, LLC, in Cayuga County for a proposed biogas digester and gasifier, which will provide 5.25 MW of electricity at start up. This is set to increase to 15 MW over the projects twenty year life.
- A report 'Evaluation of the Comparative Energy, Global Warming and Socio-Economic Costs and Benefits of Biodiesel' by the Resources Research Unit, Sheffield Hallam University, UK, dated January 2003 is available as a downloadable pdf file from: http://www.senternovem.nl/mmfiles/benefits_of_biodiesel-2003_tcm24-171155.pdf.
- A 155 page, 3.6MB pdf report "Rice Husk Gas Stove Handbook" by Alexis Belonio (2005) has been placed on the REPP Stove website at: <http://www.repp.org/discussiongroups/resources/stoves/>
- A European Union funded project called *Cropgen* is investigating the use of agri crops and wastes for energy production using biogas technology. To see detailed information about the project, visit: <http://www.cropgen.soton.ac.uk/>.
- The Governor of the US state of Indiana, has declared the tiny town of Reynolds the world's first 'Biotown', requiring the 500 townspeople to lease or buy vehicles that run on corn-derived ethanol or soy-derived biodiesel. Gas from pig manure is to be used for electricity generation in the town.
- The Organisation for the Promotion of Energy Technologies in Finland profiles the world's largest biofuel CHP plant, Alholmens Kraft, Pietarsaari in Finland at: http://www.tekes.fi/opet/pdf/Alholma_2002.pdf
- The background papers and presentations from the International Energy Agency Seminar *Assessing the Biofuels Option*, held in Paris, France on 20 June 2005. are available on the Web at: http://www.iea.org/Textbase/work/workshopdetail.asp?WS_ID=224. This high-level event, organised by the United Nations Foundation, the Brazilian Government and the IEA, explored the near-term and longer-term global prospects for biofuels, focusing mainly on the development of new markets. The seminar explored the elements of a sound national strategy, and addressed not just biofuels for transport, but also the socio-economic/sustainable development component which involves rural community

development, environmental impacts, income generation and the foreign currency aspects.

- The BIOCAP Canada Foundation, a multi-stakeholder research foundation, and EnergyINet Inc., a national energy innovation network, have announced they are joining forces to facilitate development of a bioenergy strategy for Canada. The new partnership will focus on developing a vision for bioenergy in Canada and integrating bioenergy into the existing energy system as part of an environmentally sound and sustainable energy supply, while addressing the long-term energy challenges of the future. See http://www.biocap.ca/images/pdfs/BIOCAP_EnergyINet_Announcement_Oct24_FINA_L_ENG.pdf.
- A 49 page report from Canada's BIOCAP Foundation entitled, *Feedstock Availability and Power Costs Associated with Using BC's Beetle-Infested Pine - Final Report* dated 3 November 2005 can be downloaded from: http://www.biocap.ca/files/reports/2005-11-03_MPB_Study-Phase2-Final_Report.pdf
- The National Renewable Energy Laboratory in the USA has produced *Biomass feedstock composition and property database*, 2005 which is available at: http://www.eere.energy.gov/biomass/feedstock_databases.html
- Community Power Corporation of Littleton, Colorado, USA has developed commercial small scale (less than 100 kW), modular biomass gasifiers, mainly aimed at the distributed generation market. See: <http://www.gocpc.com/>.
- Wartsila of Finland has announced that they have been awarded of a contract to supply the Belgian municipality of Amel in the Ardennes with a biomass-fuelled cogeneration power plant. The plant will use Wartsila's BioGrate combustion technology and will generate electricity for the electricity grid and thermal energy for two local factories. The plant will burn wood residues from the local forestry industry and will also include an oil-fuelled boiler.
- The Malaysian Palm Oil Board, is investing RM60 million (approx. \$A20 million) in three biodiesel plants based on palm oil as the feedstock. Each will have a capacity of 60,000 tonnes biodiesel per annum. Two of the plants will be in Port Klang and the third in Pasir Gudang, Johor. The plants are to be on a joint venture basis with local partners.
- *The Special Report on Carbon Capture and Storage* (CCS) from the Intergovernmental Panel on Climate Change (IPCC) which studies the options for capturing carbon dioxide from fossil fuel combustion and storing it underground or in oceans is available at: <http://www.ipcc.ch/press/IPCC-SPM-2005.pdf>.
- A story about the production of biogas and its use as a transportation fuel in Sweden, including for powering a train is at: <http://news.bbc.co.uk/go/em/fr/-/2/hi/science/nature/4373440.stm>
- An article on the world's largest straw-fired power plant is available at: http://www.nemesis.at/publication/gpi_99_1/articles/27.html
- A 200 kW Ankur gasifier (Indian technology) has been adapted for use in North America at the University of North Dakota's EERC Center for Biomass Utilization. See: <http://www.undeerc.org/centersofexcellence/biomass/default.asp>
- A September 2005 report from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety reports that dioxin emissions from waste incineration plants in Germany have reduced a thousand fold since 1990. Total dioxin emissions from all 66 waste incineration plants in Germany have reduced from 400 grams to less than 0.5 grams as a consequence of the installation of filter units stipulated by legislation. This report *Waste incineration — a potential danger? Bidding farewell to dioxin spouting* (0.1 MB) is available from the German Ministry's website: http://www.bmu.de/files/pdfs/allgemein/application/pdf/muellverbrennung_dioxin_en.pdf
- The National Electricity Market Management Company, NEMMCO, has published its 2005 Statement of Opportunities. The Statement of Opportunities provides information about the adequacy of electricity supplies and the capability of the transmission network in Australia's National Electricity Market to meet projected demand for the next 10

years. The SOO covers the future need for electricity supply capacity, demand side management and transmission network augmentation. See:

http://www.nemmco.com.au/nemgeneral/soo_2005.htm

- Minnesota has become the first U.S. state to mandate that diesel contain a portion of biodiesel. The new law requires diesel sold in the state to contain at least 2 percent biodiesel.
- Cargill will build a 200,000 tonnes per year, Euro 25 million, biodiesel plant near Mainz, Germany. The plant is scheduled to commence production in August 2006.
- Nepal's Biogas Support Program plans to have 200,000 small-scale biogas plants installed by 2009.
- A report entitled 'Thermal Treatment Options' by Tony Griffiths, Professor in process engineering and Keith Williams, Professor in environmental engineering at the Centre for Research in Energy Waste and the Environment (CREWE), Cardiff School of Engineering, Cardiff University, UK may be viewed at: <http://www.earthscan.co.uk/news/printablearticle.asp?sp=&v=5&UAN=456>. The report provides statistics on waste processing in the EU, USA and Japan and also provides a good overview of technologies for treating the waste, focusing on the energy recovery aspects.
- An article 'Forestry in the Name of Climate Change' by Patrick Moore, one of the founders of Greenpeace, advocating the use of forestry for mitigating greenhouse gas emissions, appeared in the Washington Times and may be viewed at: http://washingtontimes.com/commentary/20060121-104330-7044r_page2.htm
- The Japanese Nippon Paper Group has announced plans to use biomass and refuse derived fuels at four of its subsidiary companies; Nippon Paper Industries Asahikawa Mill, Nippon Paper Industries Iwanuma Mill, Nippon Daishowa Paperboard Tohoku, and Nippon Daishowa Paperboard Yoshinaga, to reduce greenhouse gas emissions and to offset soaring fuel-oil costs. The plants are scheduled for completion between November 2007 and September 2008. The total capital cost is reported to be ¥31 billion (\$357 million). See: http://www.paperloop.com/inside/stories/wk01_16_2006/88.html
- Canada's Ontario government's Ministry of Natural Resources is funding the Ontario Forestry Research Institute to develop a pilot project, scheduled to begin in February 2006 to take unused forest waste and turn it into bio-oil to power electricity generation. The project is part of the provincial government's ReNew Ontario program. The mobile, experimental device for the process is being supplied by Ottawa's Advanced BioRefinery Inc. See: <http://www.biobased.org/list2.php?storyid=8135>.
- An on-line book about briquetting of biomass from the United Nation's Food and Agriculture organisation is at: <http://www.fao.org/docrep/T0275E/T0275E00.htm#Contents>
- The 50,000 tonnes per annum wood pellet factory and associated 2.5 MWe cogeneration power plant at Inniskillen, Northern Ireland received £2 million funding from the Department of Trade and Industry (DTI), with a £1 million interest free loan through the SMART (Sustainable Management of Assets and Renewable Technology) program from Northern Ireland Electricity (NIE). NIE's SMART Program encourages alternative electricity supplies in Northern Ireland. See <http://www.power-technology.com/projects/balcas/> for detail of the project.
- The 60 papers and presentations from the 26-28 September 2005 International Symposium of Alcohol Fuels (ISAF XV), held in California, USA are on the Web at: <http://www.eri.ucr.edu/ISAFXVCD/ISAFTCAP.htm>
- Five percent of all fuel sold in the UK will be required to come from renewable sources by 2010. This will require a twenty-fold increase over current levels of fuel sales. The news release and links to the related feasibility study are at: http://www.dft.gov.uk/pns/displaypn.cgi?pn_id=2005_0116.
- An article by David Morris entitled *Energetics of Ethanol: An Introduction and Links to Studies*, contains numerous Links to studies on the issue of energy balances of ethanol production. The article is at: <http://www.newrules.org/agri/netenergy.html>. One link

provides video streaming of a presentation to the US National Press Club by the Institute for Local Self Reliance.

- Rendering company Rothsay, a division of Maple Leaf Foods Inc. and Canada's largest independent rendering company has announced Canada's first commercial-scale biodiesel plant. The plant will produce 35 million litres of biodiesel annually using a feed stock of tallow and recycled cooking oil. Rothsay has operated a small biodiesel pilot plant in Montreal for the past three years.
- The Chinese government has set a target to provide 15 percent of its energy needs from non-fossil sources by 2020. See:
<http://www.guardian.co.uk/climatechange/story/0,12374,1636753,00.html>
- The Australian Business Council for Sustainable Energy report *Waste to Energy: A Guide for Local Authorities* can be downloaded from:
http://www.bcse.org.au/docs/Publications_Reports/WasteToEnergy%20Report.pdf.
- The Australian Pork Limited's 113 page report *Technical, Economic and Financial Implications of Using Piggery Waste to Generate Electricity* can be accessed on the Web at:
http://www.apl.au.com/media/Renewable_Energy_Industrty_Development_Report.pdf
- A report *Alternative Uses Of Sugarcane and its Byproducts in Agroindustries* by J.M. Paturau for the FAO is at <http://www.fao.org/docrep/003/s8850e/S8850E03.htm>.
- The Spanish Renewable Energy Plan (*Plan de Energías Renovables en España*, PER) maintains the commitment to meet at least 12% of total energy use from renewable sources by 2010, while incorporating other indicative targets; 29.4% of electricity generated from renewable sources and 5.75% of transport fuel need to be met from biofuels by 2010. The 81 page report (in English) can be downloaded from http://www.senternovem.nl/mmfiles/Resumen PER 2005-2010 in english_tcm24-153702.doc.
- A database of 100 countries and their position on renewable energy market and policies has been posted on the internet by the International Energy Agency. See:
<http://www.iea.org/textbase/pamsdb/grindex.aspx>
- The NSW Minister for the Environment has announced that the state's Section 88 Waste Levy will be increasing over the next five years from \$22.70 per tonne, rising to approximately \$58 per tonne from 1 July 2010. These increases are in support of diverting material from landfill and to increase the viability of resource recovery.
- A 302 page report in pdf form discussing the US Department of Energy's biodiesel research from 1992-1997, including an overview of all the biodiesel from microalgae research is at: http://www.eere.energy.gov/biomass/pdfs/biodiesel_92-97.pdf
- Global investment in renewable energy hit a record US\$30 billion in 2005, accounting for 20 to 25 percent of all investment in the power industry, according to a Worldwatch Institute report. The Worldwatch Institute media release is at:
<http://www.worldwatch.org/press/news/2005/11/06/>. The report *Renewables 2005 Global Status Report* (904 KB pdf) is at:
<http://www.worldwatch.org/brain/media/pdf/pubs/ren21/ren21-2.pdf>, while notes and references (455 KB pdf) to the report are at:
<http://www.worldwatch.org/brain/media/pdf/pubs/ren21/ren21-2-notes.pdf>
- The American Council On Renewable Energy (ACORE) announced in December a new initiative named the Biomass Coordinating Council (BCC). BCC, a new entity with joint membership in ACORE, will work to accelerate the adoption of renewable biofuels, biopower and biobased products into mainstream American society through policy initiatives, convening, networking and communications. These efforts will enable BCC to further the goals of reducing dependence on imported oil, a cleaner environment and expanded markets for rural America.
- Greg Manning's downdraft gasification web page is at <http://www.inetlink.ca/a31ford/cgcmf/>. It provides substantial detail on the construction of a small gasifier.

- The world largest power plant running on liquid biofuel (palm oil from Malaysia) in the world, built by Wärtsilä, is operated in Monopoli, Italy.
- Analysis by the Australian Bureau of Agriculture and Resource Economics (ABARE) for the Asia-Pacific Partnership on Clean Development and Climate, which involves India, Korea, Japan, China, the USA and Australia, shows various projections of population and energy related statistics up to 2050. The report has sparked some controversy, in that the Prime Minister's office has stated that the report shows emissions under the Partnership will be some 20 percent lower than without the Partnership, with the WWF pointing out that the report indicates global emissions will in fact increase by 100 per cent by 2050 under the Partnership plan, which would increase average global surface temperatures by 4 degrees Celsius. The report is at: http://abare.gov.au/publications/2006/RR06_1_ClimateAsiaPacific.pdf.
- Following the Asia-Pacific Partnership on Clean Development and Climate meeting (AP6) in Sydney in January, the Australian Government announced the establishment of a \$100 technology development fund, of which \$25 million is to be dedicated to renewable energy technology research and development.
- The NSW Government has announced its long awaited Greenhouse Plan which is supported by \$24 million funding to reduce emissions and research the effects of climate change. See: <http://www.greenhouseinfo.nsw.gov.au>.
- The public listing of Australian green power company, Axiom Energy, has been delayed following the government announcement that it would tax its synthetic diesel product. Axiom closed its initial public offer in October, oversubscribed at A\$37.6 million. See Axiom Energy's Website: <http://www.axiomenergyltd.com.au>.

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.

- Entries to compete for the 2006 Banksia Environmental Awards open on 2 February and will close on 10 May. See details at <http://www.banksiafdn.com/>
- Mr. Jim Stewart of Gunnedah has 32 acres of land at Gunnedah and is keen to team up with a proponent of a bioenergy project, providing the land as an equity contribution. Contact: (02) 6742 5214; PO Box 847 Gunnedah 2380.
- Peter and Kerry Davies have been appointed exclusive Australian agents for PowerHearth gasifiers. The PowerHearth gasifier was designed and built by the Jack Humphries from NZ, who first became interested in gasification in 1939. It is a mature linear hearth downdraft design with a claimed unprecedented reliability and flexibility, so much so it is offered with a lifetime 30 year warranty. Peter reports automatic ash removal, remote management and monitoring and tar-free gas as core features. Modules are available from 50KWe to 3MWe and these can be clustered to produce plants of 30MWe or more. In gas-only configurations they are suited for co-firing woody residues with natural gas peaking plants and existing coal fired stations or can be coupled with almost any engine or steam plant to provide stand-alone heat and power. For further information please contact Peter and Kerry Davies on (02) 6454 4009 or email: pm_davies@bigpond.com.
- Biomass Energy Services and Technology Pty Ltd is seeking a mechanical engineer with at least 10-15 years of practical experience in the process industry or energy generation to develop renewable energy technologies. Contact Dr Stephen Joseph, Tel: (02) 4340 4911 Email: joseph@biomass.com.au.

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The Bioenergy Australia Newsletter is a complimentary service provided by Bioenergy Australia to stimulate interest and involvement in biomass and bioenergy in Australia. Email is the preferred way of distributing these newsletters. If you do not wish to receive future newsletters, please advise Steve Schuck.

Bioenergy Australia Newsletter is interested in your organisation's bioenergy related activities. Please send all press releases, article leads, and conference announcements to Steve Schuck. Fax: (02) 9416 9246 Email: sschuck@bigpond.net.au .
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Editor: Dr. Stephen Schuck, Bioenergy Australia Manager

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