

Newsletter



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

October 2004

Bioenergy Australia 2004 Conference

The annual Bioenergy Australia conference is to be held 29 - 30 November at the Hilton Adelaide, South Australia, with the conference tour on 1 December. This year the conference will incorporate the 3rd International Pyrolysis and Bio-oil Workshop, as parallel sessions within the conference. Registration for the conference is now open, with early bird registration open until 29 October. The updated conference program, registration and other details are on the Bioenergy Australia website at <http://www.bioenergyaustralia.org> and on the Conference Action website at <http://www.conferenceaction.com.au/current/Bio04regdoc.pdf>

The program will have some 55 presentations, covering policies and programs, projects and project development case studies, and emerging opportunities. The conference program will consider many other facets of bioenergy including anaerobic digestion, ethanol and biodiesel, pyrolysis bio-oil, heat and power and co-products. The Conference will include two extended panel discussions and forums, moderated by Assoc. Prof. Ralph Sims on the :

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

The South Australian Energy Minister, the Hon. Patrick Conlon will open the conference, with Professor Tony Bridgwater of Aston University's (UK) Bio-Energy Research Group providing the keynote address and Professor Syd Shea, Chairman of the Oil Mallee Company lined up to be the conference dinner speaker.

The conference tour will visit the anaerobic digester cogeneration plant at the Bolivar Waste Water Treatment Plant, plantation forestry and wood fuel production, the Florasearch Species Selection Trial (biomass resource R&D for multiple products), and a small scale polyethylene digester being developed at Adelaide University's Roseworthy Campus. The conference tour bus will be biodiesel powered.

The conference will also include a sponsor's exhibition and bioenergy poster presentations. Attendance over the past four conferences has averaged close to 150 delegates from across Australia and overseas.

For further information on the conference please contact Ms Emma Waygood of Conference Action, Tel: (02) 9437 9333 Email: emma@conferenceaction.com.au or Steve Schuck, the Bioenergy Australia Manager, Email: sschuck@bigpond.net.au.

Bioenergy Australia 2003 Conference Presentations CD

A limited number of CD ROMs of the presentations in [PDF](#) format from the December 2003 Bioenergy Australia conference are still available for those who missed the conference, for \$66 each (including GST, postage and handling). Contact Steve Schuck on tel/fax: (02) 9416 9246 or email: sschuck@bigpond.net.au.

Bioenergy Australia Membership Update

The Bioenergy Australia membership now includes 43 organisations, with a recent new members being Microbiogen, based at Macquarie University, Sydney. 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 new 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* – is planning to hold its annual meeting in 2004 in association with the Short Rotation Woody Crops Operations Working Group, 8-11 November 2004. The venue is the Francis Marion Hotel, Charleston, South Carolina, USA.

Task 31 – *Biomass Production for Energy from Sustainable Forestry* – held its most recent workshop on "Sustainable Production Systems for Bioenergy: Forest Energy in Practice" in Sweden and Norway, 12-18 September 2004. Post-workshop tour, Norway 19-21 September 2004. There is a strong possibility of the 2005 meeting being held in Australia.

Task 32 – *Biomass Combustion and Co-firing* – held its most recent meeting from 30 August – 2 September in Victoria, Vancouver Island, Canada to coincide with the Science in Thermal and Chemical Biomass Conversion conference.

Task 36 – *Energy from Integrated Solid Waste Management Systems* held its half yearly meeting in Montreal, Quebec, Canada from 19-21 October.

Task 38 – *Greenhouse Gas Balances of Biomass & Bioenergy Systems*. The most recent meeting was held at Victoria, BC, Canada from 13-16 September 2004.

ExCo 54 (Executive Committee meeting) was held in Ottawa, Canada, 5-7 October 2004. The meeting included a workshop on black liquor gasification, and its link to emerging alternative transport fuels. The meeting also included a technical tour to Iogen (production of ethanol from lignocellulosic material) and to forestry facilities. ExCo 55 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.

IEA Bioenergy Joint Meeting Presentations

The presentations from the joint IEA Bioenergy Task 32,33,36 seminar, entitled 'Operating Experience and Techno-economic Benefits and Environmental Benefits of Energy Recovery from Renewable Waste Materials', held in Japan in late 2003 are available on the Task 32 website at <http://www.ieabcc.nl/>.

Titles of presentations include:

- *Development of a gas engine using pilot oil for waste gas*, Sumio Koroda, Sumitomo Metal Co. Ltd, Japan.
 - *Introduction of waste power generation with natural gas repowering system*, Nishioka Tohru, Sakai Municipal Office, Japan.
 - *Biomass energy projects in the Asia region*, Hiroya Naramoto, J-Power, Japan.
 - *Combination – a novel concept to reduce costs without changing the environmental standards of waste combustion*, Dr. Juergen Vehlow, Germany.
 - *Practical experiences of the calorific value sensor and practical issues in optimising the control concept of grate combustion*, Robert van Kessel, TNO, Netherlands.
 - *Three fluidised bed gasification case studies*, Dr David Granatstein, CETC Natural Resources, Canada.
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Australian Greenhouse Office Strategic R&D Investment Plan Released

The Australian Greenhouse Office has released its Strategic R&D Investment Plan 2004-2008 (R&D Plan), and the call for Expressions of Interest for R&D that addresses identified priorities in agriculture and natural resource management in relation to managing greenhouse gas emissions and responding to climate change.

The R&D Plan forms a major component of the innovative research to be conducted as part of the Greenhouse Action for Regional Australia Program.

The aims, structure and operations of the R&D Plan are outlined in the document entitled 'Strategic R&D Investment Plan 2004-2008'. Further details on the R&D priorities together with guidance for lodging Expressions of Interest are provided in the 'Annual Prospectus 2005-2006'.

For projects to commence in February 2005, the closing date for the EOI is 5 November 2004, and for projects commencing in July 2005, the closing date is 11 February 2005.

Both the R&D Plan and the Annual Prospectus can be downloaded from <http://www.greenhouse.gov.au/nav/new.html>

Ergon Energy to Build \$23 Million Bioenergy Power Plant

Ergon Energy is to build a \$23 million, 25 MW cogeneration power plant at the Isis Central Sugar Mill, at Childers, Queensland. Construction is to begin almost immediately and the plant is expected to be fully operational by May 2006. The plant will be fuelled by sugar cane bagasse, and provide process steam to the sugar mill. The plant will generate Renewable Energy Certificates, as well as sell electricity into the grid.

Ergon Energy's \$23 million investment in the plant will comprise:

- \$12 million for a condensing steam turbine
- \$6 million for in-mill equipment
- \$4 million for a cooling tower
- \$1 million for a switch yard and electricals.

In addition, Ergon will also invest a further \$6 million to upgrade the Childers-zone electricity substation and convert part of the local power network from

11 kV to 66kV.

Ergon Energy and Tully Sugar Limited have entered into a separate 11 year agreement to convert 205,000 tonnes of bagasse each year to 40,000 MWh of bioelectricity.

Queensland Sustainable Energy Innovation Fund (QSEIF) Call for Proposals

The Queensland Government is calling for proposals under its Queensland Sustainable Energy Innovation Fund (QSEIF) program. QSEIF assists commercialisation of new products/technologies that reduce environmental impacts from fossil fuel use.

Funding can be provided to assist:

- Development of new products/technologies that reduce energy use or environmental impacts resulting from fossil fuel use
- Development of industrial process improvements that enhance energy efficiency
- Creation of Centres of Expertise involving collaborative sustainable energy projects.

Applicants must be Queensland-based organisations, and be in a position to make a significant cash or in-kind contribution to the project. Projects must be undertaken within Queensland. Applications must comply with the criteria described in the guidelines, and are evaluated and selected on a competitive basis.

Guidelines and information about previous QSEIF projects, and Fact Sheets for completed projects, can be viewed at www.epa.qld.gov.au/environmental_management/sustainability/energy/energy_innovation_fund_qseif. Prospective applicants should contact Dr Martin Gellender on (07) 3224 8606 or email: martin.gellender@epa.qld.gov.au to discuss their proposals.

The closing date for applications is 17 December 2004.

Selected projects are expected to be announced in April 2005. Project proposals should be prepared with this expected starting date in mind.

NSW Bioenergy Handbook Nearing Completion

The NSW Dept of Energy Utilities and Sustainability has been compiling a bioenergy handbook to assist in the development of a wide variety of bioenergy project types in NSW. To this end consultants have compiled a 191 page draft final report which is now awaiting sign-off and release. For further information contact Rebecca Short of DEUS email: rebecca.short@deus.nsw.gov.au

Western Australian Greenhouse Strategy Released

In mid September, the Western Australian government launched the Western Australian Greenhouse Strategy which sets the direction to manage the risks associated with climate change by fostering research programs, providing Government leadership and representing Western Australian interests nationally and internationally.

A total of \$2.36 million had been provided for several new initiatives in the strategy including the establishment of a Western Australian Greenhouse Unit to co-ordinate the implementation of the strategy, a Western Australian Greenhouse Gas Inventory based on mandatory reporting by significant emitters and research to investigate the potential vulnerability of WA's plants and animals to climate change.

Government agencies will in future report their greenhouse gas emissions to the Inventory, indicate actions to reduce future emissions, offset emissions from the Government vehicle fleet, and purchase five per cent of electricity from renewable supplies by 2006-07.

The Western Australian Greenhouse Strategy can be viewed at <http://www.greenhouse.wa.gov.au>.

Mobile Biodiesel Unit Commissioned in Western Australia

The Western Australian Department of Agriculture has develop and commissioned a mobile oilseed processor and biodiesel unit. The unit, still being commissioned and trialled, is expected to be fully operational in time for this year's canola harvest starting in November.

The unit is being used to demonstrate and promote the use of canola and alternative oilseeds in the manufacture of bio-fuels, bio-lubricants and bio-materials. The Agriculture Department's research stations at Avondale, Newdegate and Merredin will use biodiesel produced as part of its 'Greening' initiative. The Department is aiming to replace 25,000 litres of mineral diesel with biodiesel for use in selected vehicles, whose performance is to be monitored over a period of time.

The biodiesel unit has a throughput of approximately 125 kilograms/hour to produce up to 400 litres of biodiesel per day. It is built on a six-metre trailer, with the unit comprising two oilseed presses, powered by biodiesel, mixing tanks, filters, decanting tank, pumps, augers and fuel storage tanks.

For further information contact Paul Carmody, Oilseeds Industry Development Officer, WA Department of Agriculture by email at: pcarmody@agric.wa.gov.au.

WA Government Set to Auction for 320 MW Additional Capacity

The Western Australian Government has approved the market rules for the state's competitive electricity market. This has cleared the way for a call for expressions of interest to provide reserve generation capacity for the WA south-west interconnected electricity grid. A new body, the Independent Market Operator, expected to be established in January 2005, will have responsibility for operating the market and setting and procuring the level of capacity needed to meet electricity demand. The south-west interconnected electricity system is experiencing load growth of around 3 percent per year and also faces the need to replace plant scheduled for retirement. As a result, a Reserve Capacity Auction will be undertaken in 2005 to meet an expected additional capacity requirement of around 320 MW for the 2007/08 summer peak period. The Expression of Interest for this capacity closes on 10 December. Proponents need to register to submit EOIs. See: <http://www.eri.energy.wa.gov.au/eoi> or Tel: (08) 9420 5750.

Biofacts

- Approximately 30 percent of all petrol used in the USA is being blended with ethanol. Ethanol production is increasing rapidly in the USA, and stood at 222,000 barrels a day by June 2004. (source: www.ethanolrfa.org)
- Rapeseed production in Germany has reached 5.17 million tonnes, a new harvest record. Some 1,26 million hectares of land is cultivated with rapeseed, with an average yield of 4.09 tonnes per hectare. The farmers of the province of Mecklenburg-Vorpommern are leading with an average harvest of 4.60 tonnes seed / ha, which corresponds to approximately 2 tonnes of biodiesel per hectare. (Source: UFOP – Germany)
- The following table provides the typical energy content of various biomass fuels:

Typical Energy Content of Biomass Fuels	
Biomass Fuels	Net Heating Values (MJ/kg)
Wood (wet, freshly cut)	10.9
Wood (air dry, humid zone)	15.5
Wood (air dry, dry zone)	16.6
Wood (oven dry)	20.0
Charcoal	29.0
Bagasse (wet)	8.2
Bagasse (air dry)	16.2
Coffee husks	16.0
Rice hulls (air dry)	14.4
Wheat straw	15.2
Corn (stalk)	14.7
Corn (cobs)	15.4
Cotton stalk	16.4
Coconut husks	9.8
Coconut shells	17.9
Dung cakes (dried)	12.0

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.

Australian Government Grantslink site

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

ESD Consulting (Rod Bristow)

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

DEFRA (UK) Biomass Taskforce Announcement

<http://www.defra.gov.uk/news/2004/041015a.htm>

Soy Growers (USA)

<http://www.SoyGrowers.com/newsroom/news.htm>

ABC Landline Storey on Macadamia Nut Bioenergy Australia

<http://www.abc.net.au/landline/stories/s962653.htm>

SAFF Biodiesel

<http://www.farmersfuel.com.au/SAFF%20Biodiesel.htm>

Environment Law and Policy Center- Farm Bill Clean Energy Website (USA)

<http://www.farmenergy.org>

Small scale charcoal manufacture

<http://www.geocities.com/envirocharcoal>

Wood for energy production report (Denmark)

<http://www.videncenter.dk/uk/index.htm>

Bioenergy's Role in the EU Energy Market - Report by BTG

http://europa.eu.int/comm/energy/res/sectors/bioenergy_publications_en.htm

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

<http://mitpress.mit.edu/catalog/item/default.asp?sid=A5F961B9-2E2E-45B7-861C-1CCBCBD54FF3&ttype=6&tid=12239>

BIOS Bioenergiesysteme GmbH (Austria)

<http://www.bios-bioenergy.at>

Australian Sustainable Industry Research Centre Ltd (Monash University – Gippsland Campus Churchill, Victoria)

<http://www.asirc.org.au>

California Integrated Waste Management Board

<http://www.ciwmb.ca.gov/>

CRC for Environmental Biotechnology (EBCRC)

<http://www.ebcrc.com.au/index.htm>

Pellet Fuels Institute - pelletizing and ancillary equipment list

<http://www.pelletheat.org/3/commercial/suppliers.cfm>

Supergen Project

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

<http://www.supergen-bioenergy.net>

Yahoo newsgroup on wood energy in the UK

http://groups.yahoo.com/group/wood_energy/

AEBIOM European Biomass Association

<http://www.ecop.ucl.ac.be/aebiom/main.html>

BIOHEAT Project Promoting biomass heating in large buildings and blocks

<http://www.bioheat.info/>

Chariton Valley Biomass Project (Switchgrass in Iowa)

<http://www.cvred.org/biomass.htm>

Fiber Futures Fiber Crop Mapping Project (Washington and Oregon)

<http://www.fiberfutures.org/fibercrop/>

The Queensland Greenhouse Strategy

http://www.epa.qld.gov.au/environmental_management/sustainability/greenhouse

Greenhouse Gas Impacts of Harvested Wood Products

<http://www.vtt.fi/inf/pdf/tiedotteet/2003/T2189.pdf>

International Developments

British Government Creates Taskforce to Promote Biomass Use for Energy

The British Government has appointed a former head of the National Farmer's Union, Sir Ben Gill to head a year long task force to stimulate biomass supply and demand in a bid to help meet renewable energy targets and to boost farming, forestry and the rural economy. The task force is part of a new £3.5 million Bio-Energy Infrastructure Scheme that will provide grants to harvest, store, process and supply biomass for energy production. Biomass is an important element in the British government's plans to increase renewable energy sources and cut greenhouse gases. Since 2002 the government has given £66 million in capital grants for biomass projects, and the government's Renewables Obligation requires electricity suppliers to obtain 15 percent of their electricity from renewable sources, including biomass, by 2015. The government's Energy White Paper indicates that renewables should supply 10 percent of UK electricity by 2010 and 20 percent by 2020.

The Department for Environment Food and Rural Affairs (DEFRA) has paid farmers £1 million since 2001 under the Energy Crops Scheme, which gives grants of up to £1,600 per hectare to support biomass crops production. The crops eligible for grants under this Scheme are wood fuel including sawdust, short rotation coppice (willow or poplar), tall woody miscanthus grass, other grasses and straw. By 2008, the UK government expects to have provided £500 million in capital grants and research funding for renewable energy and low-carbon technologies.

Cambridge University has also been commissioned to provide data on the economics of energy crops by April 2005.

For more details about the Bio-Energy Infrastructure Scheme see: <http://www.defra.gov.uk/farm/acu/energy/infrastructure.htm>

For details about the Biomass Study Task Force, see: <http://www.defra.gov.uk/farm/acu/energy/biomass-taskforce/index.htm>

British Government Response to Royal Commission on Environmental Pollution Report on Biomass Energy

The June 2004 issue of the Bioenergy Australia Newsletter reported on a 96 page report from the UK Royal Commission on Environmental Pollution entitled 'Biomass as a Renewable Energy Source'. On 15 October the British Government released its response to the Royal Commission on Environmental Pollution report on biomass. Essentially the British government agrees with the Commission that biomass has the potential to provide a significant contribution to the reduction of carbon dioxide levels if substituted for fossil fuel in the generation of heat and electricity. Biomass has the potential to help significantly towards meeting renewables targets in the electricity supply. The government also indicates that it shares the Commission's view that biomass can make an important contribution in the generation of renewable heat and combined heat and power. The Government response is at: <http://www.defra.gov.uk/farm/acu/energy/energy.htm>.

USDA Funds Renewable Energy Projects

The US Department of Agriculture has announced the approval of 97 Value-Added Agricultural Product Market Development Grants, totaling over US \$13.1 million. The Value-Added Agricultural Product Market Development Grants program provides an funding to refine agricultural commodities and products to increase their value in the marketplace.

Of the \$13.1 million announced, \$2.1 million will fund 16 renewable energy proposals ranging from determining the feasibility of marketing ethanol from a 200 million litre/a dry grind ethanol plant in Illinois, to determining the feasibility of converting dairy biogas into purity pipeline or automotive quality fuel in Idaho. In support of President Bush's 2001 energy plan, 16 percent of the proposals selected support biomass/renewable energy related ventures. A complete list of the selected grant recipients and projects can be found at <http://www.rurdev.usda.gov/rd/>

OECD Biomass and Agriculture Report

A report *Biomass and Agriculture: Sustainability, Markets and Policies* was recently published by the OECD. It:

- Examines the sustainability - economic, environmental, social dimensions of agricultural biomass production and use
- Reviews current policy and market approaches used by OECD countries to promote agricultural biomass and use
- Explores possible policy options and market approaches to address policy and market failures in agricultural biomass markets.

The report is comprised of a series of papers presented by international experts, representing farmers, consumers, biomass associations, agri-business and environmental interests, and argues that a significant shift could take place this century from a fossil fuel to a biomass-based economy. To aid this process it suggests creating carbon markets which would provide credits to biomass producers for displacing fossil fuels.

The report also reveals that:

- The prices of some niche market bioproducts such as plastics derived from arable crops are already competitive with certain petroleum-based

plastics. The car industry, for example, is making increasing use of bioplastics.

- Around 7% of heat generation and 1% of total electricity in OECD countries is provided by agricultural bioenergy. In developing countries an estimated 25% of total energy demand is met by biomass, principally in the form of firewood and animal dung.
- Because bioethanol, produced from sugar and grains, can be used in existing engines with little modification, it is easier to exploit than other alternative transportation fuels such as hydrogen.

The report calls for international standards and codes of practice to be established for biomass products to ensure that greenhouse gas emissions are reduced and environmental benefits are maximised. A better assessment of costs and benefits taking into account economic, environmental and social aspects is therefore needed. It adds that clear lines of communication should be established between the suppliers, processors and potential users. Also, public education campaigns about the biomass sector should be developed.

For further information see the OECD website at <http://www.oecd.org/agr/env>, or contact Kevin Parris, OECD's Food, Agriculture and Fisheries Directorate (tel: +33 1 45 24 95 68 or kevin.parris@oecd.org).

Wood Cofiring with Coal at NZ Golden Bay Cement Kiln

Northland-based Golden Bay Cement has spent NZ \$1 million to adapt its plant to burn woodwaste with coal. It is substituting 10-12 percent of its coal consumption with wood residues. The wood waste arrives in 18 truck and trailer loads per week from CHH subsidiary Futurebuild. Most comes from the company's laminated veneer lumber plant at Marsden Point. The cement plant is 8 km south of Whagarei at Portland. Golden Bay Cement is a wholly owned subsidiary of Fletcher Challenge.

Previously Golden Bay Cement imported 80,000 t/a Australian coal to make 700,000 t of cement per year. It is expected that only 72,000 t of coal will now be needed, with 15,000-20,000 t of wood residues taking up the shortfall. Golden Bay Cement has signed a five year contract with CHH for wood waste supplies. (source: Energy Wise Newsletter)

Finland's Action Plan for Renewable Energy Sources

The current Finnish National Action Plan for Renewable Energy Sources has as a target the increased use of renewable energy by at least 30 percent this decade. Electricity produced from renewable energy sources is planned to account for 31.5 percent of the total consumption of electricity in Finland in 2010.

The use of forest fuels is foreseen to increase 4-fold, biogas 6-fold, agrofuels 6-fold and bioliquors 8-fold in this timeframe. Of all the renewable energy sources, bioenergy will increase the most in absolute terms, accounting for about 85 percent of the total growth. The vision for the year 2025 is to increase the use of renewable energy to about 67 percent of the present production.

The new plan is in line with the goals of the European Union, which aims at doubling the percentage of total primary energy generation provided by renewable energy, from 6% to 12%, by 2010.

DynaMotive West Lorne Pyrolysis BioOil Project Update

DynaMotive Energy Systems Corporation has provided an update on the construction of the West Lorne, Ontario, Canada Cogeneration Facility, covered in several previous issues of the Bioenergy Australia Newsletter. Currently construction is progressing, with completion of the BioOil plant and commissioning now expected at the end of November 2004.

Plant costs have been revised to US \$13.5 million up from US \$10.7 million. Commissioning costs are projected to be U.S.\$0.4 million, and technology development and R&D costs US \$1.4 million. Over 90 percent of this funding has been secured to date and the balance of funding is expected to be finalized in November, ahead of the plant commissioning.

Schedule changes and increased costs are largely a result of improved design modifications to the plant and site preparation requirements. Upon completion, the West Lorne plant will be the largest biomass to BioOil cogeneration facility in the world and the first pyrolysis oil fuelled co-generation facility. The plant is a showcase for DynaMotive's pyrolysis and Magellan Aerospace, Orenda Division's industrial generation technologies. The plant is expected to process 100 tonnes per day of biomass and to produce approximately 70 tonnes of BioOil, 20 tonnes of char and 10 tonnes of non-condensable gases.

Up to 48 tonnes of BioOil per day will be utilised to fuel a gas turbine developed by Magellan Aerospace, Orenda Division, to produce up to 2.5 MWE of electricity. This will meet the power requirements of Erie Flooring 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 industrial operations.

DynaMotive also disclosed that it has agreed terms with a third party, located in Ontario for the sale of excess BioOil, char and electricity produced at the West Lorne BioOil plant. The terms will establish a fixed price for the product for three years. This agreement accounts for the balance of electricity generated, 90 percent of excess BioOil produced and two-thirds of the char output. The Company had previously entered into a wood residue, power and steam supply agreement with Erie Flooring and Wood Products. Based on contracts entered and the terms agreed upon, its projected annual revenue at full plant operations (100 metric ton per day input feed) would be approximately US \$2 million. (Source: DynaMotive)

Emissions of Biomass Feedstocks

A report prepared for Natural Resources Canada and the National Research Council Canada compares greenhouse gas emissions per tonne of biomass feedstock and per hectare for energy crops. The report finds that most crops currently used for ethanol and biodiesel production have very low yields and thus give only small reductions in emissions. Better results can be achieved with high-yielding species. The report also includes information on waste management options. The report, *Identifying Environmentally Preferable Uses for Biomass Resources - Stage 2 Report: Life-Cycle GHG Emission Reduction Benefits of Selected Feedstock-to-Product Threads* is at: <http://www.cec.org/files/PDF/ECONOMY/Biomass-StageII-Final.pdf> while the earlier stage 1 report may be downloaded from: http://www.cec.org/files/PDF/ECONOMY/Biomass-StageI_en.pdf.

World Biomass Report 2004-2013

A new 224 page report 'World Biomass Report 2004-2013' has been published by Douglas-Westwood Limited of Canterbury in the UK. The report covers the environmental, commercial and agricultural drivers, and covers feedstock categories, supply logistics, conversion technologies, biomass regions, and provides a market analysis and forecasts.

A total of 12,172 MW of biomass capacity is forecast for installation between 2004 and 2013 worldwide. Large thermal biomass plants represent the bulk of this capacity, with 9,868 MW being installed in the next ten years. Landfill gas is the second largest sector, with 1,887 MW of installations forecast. The anaerobic digestion market will grow, but it is a smaller sector than either large thermal or landfill, with only 417 MW of new capacity forecast over the next ten years. The landfill gas sector is projected to peak in 2006, from which point installation rates are expected to fall rapidly. The strong large-thermal sector is responsible for the overall growth rate more than making up for the declining landfill market.

The biomass market attracted an annual expenditure of US\$863 million in 2000. This will rise to US\$1,276 million by the end of 2004, and to US\$2,145 million by the end of 2013. Over the next decade the authors forecast that some \$18 billion of capital investment will be made.

A total capacity of 9,868 MW is forecast to be brought online from large-scale thermal plants over the ten year period. Annual installed capacity will more than double; 568 MW is forecast for installation in 2004, which will grow to 1,432 MW per year by 2013.

While Europe and North America will continue to develop, with 2.4 GW and 4.4 GW forecast for installation over the next ten years respectively, it is other regions where the most dramatic rates of growth will be found. Asia and Latin America will see the highest growth as these regions have held massive potential for a long period which is now beginning to be developed.

Large-scale thermal development will attract a total Capex over the future ten year period of US\$13,908 million. Western Europe is the largest market with \$5.6 billion of expenditure forecast. While North America is the second most valuable market with \$3.4 billion of expenditure over the next ten years, it is Asia that is the most interesting region – the rapid growth here means the market is worth a substantial \$2.1 billion between 2004 and 2013.

The report can be ordered through <http://www.dw-1.com> for £2200.00.

(Source: Biomass Initiatives and www.dw-1.com).

Forthcoming Events

- **Bioenergy Australia 2004** (incorporating the 3rd International Pyrolysis and Bio-oil Workshop), 29 November – 1 December 2004, Hilton Adelaide, South Australia. <http://www.bioenergyaustralia.org>. Contact: Emma Waygood, Conference Action Tel: (02) 9437 9333 Email: emma@conferenceaction.com.au.
- **Waste to Renewable Energy: New Developments**. 2-4pm, Friday 29 October 2004. Sustainable Energy Authority of Victoria. Contact: John Chiodo, Tel (03) 9655 3226. Email: john.chiodo@seav.vic.gov.au.
- **Energy Efficiency Conference & Trade Fair**, 2 December 2004. Adelaide Convention Centre (immediately after Bioenergy Australia 2004). Tel: (08) 8236 0900. Email: chagi@sa.propertyoz.com.au.
- **European Legislation to Promote Bioenergy**, 8-9 November 2004, Brussels, Belgium. The conference is divided into four sessions: "Current Developments from the EU Parliament", "News from the EU Commission", "Solid Biomass", and "Financing Bioenergy". The complete program is available at <http://www.energie-server.de/ebbf>.
- **Biomass and Bioenergy Production for Economic and Environmental Benefits**. 8–11 November 2004, Charleston, South Carolina (Historic Francis Marion Hotel). Contact: Mark Coleman, USDA Forest Services. Website: <http://www.woodycrops.org/>
- **World Ethanol 2004 & Ethanol Production Workshop**. 8–10 November 2004, London, United Kingdom. For more information, to register, or to order your CD-Rom of the conference: Tel: +44 (0) 1892 533813 Fax: +44 (0) 1892 544895 Email: marketing@agra-net.com.
- **Business and Carbon Sequestration – Realising the Potential for Bio and Geo Sequestration in Australia**. 17 November 2004, Melbourne Business School, 200 Leicester Street, Carlton, Victoria. See AETF website <http://www.aetf.net.au>
- **Sustainable Waste Management**, 24 - 26 November 2004, Carlton Crest Hotel, Melbourne. Contact: Veronica Dullens, Waste Management Association of Australia
Tel: (02) 9599 9133 Fax: (02) 9599 6032 Email: veronica@wmaa.asn.au
<http://www.sustainablewm.com.au>
- **Solar 2004 – 42nd ANZSES conference "Life the Universe and Renewables"**, 1-3 December 2004. Web <http://energy.murdoch.edu.au/solar2004>
- **Canadian Renewable Fuels Summit**, 7 December 2004, Fairmont Royal York Hotel, Toronto, Ontario, Canada. Web: <http://www.bbifbiofuels.com/crfs>
- **10th Annual National Ethanol Conference**. 7-9 February 2005, Camelback Inn, Scottsdale, Arizona, USA. Web: <http://www.ethanolrfa.org>
- **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/>
- **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
- **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. 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>
- **27th Symposium on Biotechnology for Fuels and Chemicals**, Denver, Colorado, USA, 1-4 May 2005. Abstract Deadline: 30 November 2004. The Symposium Web site is at http://www.eere.energy.gov/biomass/biotech_symposium/
- **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 AECW Website: <http://www.aecw.co.uk>
- **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@bbifbiofuels.com

- *BIOENERGY 2005*, 12–15 September 2005 with the International Bioenergy and Wood Exhibition in Jyväskylä, Finland. Web: <http://www.finbioenergy.fi/bioenergy2005>

Residues

- Steve Schuck gave a presentation at the July 2004 IIR Conference ‘Towards Zero Emissions’ in Brisbane on bioenergy and also participated on a panel discussion.
- 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/>
- The joint ACF/JVAP consultancy report *Fuelling Landscape Repair - A Bioenergy Industry as a Sustainable Land-use and Energy Option for Australia*, covered in the last Bioenergy Australia Newsletter has now been released by the Rural Industries R&D Corporation. The report builds the case for public and private investment in biomass plantings and also deals with salinity/greenhouse issues. The report finds that the development of a biomass energy industry, with short-rotation tree crops established on cleared farmland, could yield substantial economic, environmental and social benefits across the country by reducing the impacts of dryland salinity. Such an industry would also help to reduce Australia’s dependence on fossil fuels and cut the nation’s greenhouse gas emissions, and promote sustainable regional development. The summary report is downloadable from <http://www.rirdc.gov.au/reports/AFT/04-098sum.html> while the full report is at <http://www.rirdc.gov.au/reports/AFT/04-098.pdf>.
- The Australian Greenhouse Office’s budget for 2004-05 will be \$116.6 Million. This is an increase of \$19.5 million over 2003-04. \$2.6 million is also being provided to the Office of the Renewable Energy Regulator (ORER) in 2004-05 for the continued administration of the Mandatory Renewable Energy Target (MRET).
- 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>
- Five biofuels projects in four states have been offered grants totalling \$24.6 million under the first round of the Federal Government’s Biofuels Capital Grants Program. CSR Distilleries Operations and Schumer, are to receive support for ethanol plants, while Biodiesel Producers, Biodiesel Industries Australia and Australian Renewable Fuels are being supported for their biodiesel plants.
- Back issues of the AETF Review are available for downloading. Go to www.aetf.net.au and click on "AETF Review".
- The Australian Gas Light Company (AGL) opened its second landfill gas power station in Western Australia, at the Gosnells landfill site, on 30 September. The power station is expected to have an annual output of 15,700 MWh.
- An 11 page report on waste/biomass co-gasification with coal is downloadable from: <http://www.dti.gov.uk/energy/coal/cfft/cct/pub/tsr017.pdf>
- Biodiesel Magazine, published by BBI International in the US is composing a Biodiesel Industry Directory and is inviting inserts in the issue. For further information visit: <http://www.biodieselinustrydirectory.com>
- The Waste Management Association of Australia’s (WMAA) Sustainability Guide and Code of Practice are now available for free download from <http://www.wmaa.asn.au/efw/download.html>. Visitor’s to the site who download the documents are asked to leave basic contact details to ensure new editions of both the Sustainability Guide and Code of Practice can be publicised when revised.
- The US Congress recently passed a tax break that will facilitate development of waste-to-energy systems using poultry waste as fuel. The Working Families Tax Relief Act of 2004 included a renewal of tax incentives for systems that produce electricity from poultry waste, wind and closed-loop biomass produced from plants grown specifically as fuel for electric generation. The measure provides a US 1.8 cent per kWh benefit for the first 10 years of a facility’s operation. It was renewed through 2005.
- Ergon Energy has awarded Peter Brotherhood Ltd of the UK a \$7.7 million contract for the supply of a 25.5 MW extraction condensing steam turbine and turbo-alternator for the Isis Central Sugar Mill in the Bundaberg region of Queensland, for delivery in 2005 and operation mid 2006 (see article above). The generating capacity of the mill is being upgraded to generate additional bioelectricity from bagasse, the fibrous residue produced from crushing sugar cane.
- The University of NSW has recently established an interdisciplinary Centre for Energy and Environmental Markets (CEEM). The creation of CEEM is sponsored by the Faculties of Engineering and Commerce and Economics but it also involves staff from the Faculties of Science and Arts, the Australian Graduate School of Management and the Institute of Environmental Studies. CEEM will bring together researchers in UNSW and partner organisations with the key objective of providing Australian research leadership in the interdisciplinary design, analysis and performance monitoring of energy and environmental markets and their associated policy frameworks. Hugh Outhred and Tony Owen have been appointed as Joint Centre Directors of CEEM while Karel Nolles, Iain MacGill and Eddie Anderson have been appointed as Research Coordinators for the Faculties of Commerce and Economics, Engineering and the AGSM respectively. The website is at <http://www.ceem.unsw.edu.au>.
- The University of NSW site, <http://www.ergo.ee.unsw.edu.au> has been updated with the following publications:
 - q P.W. Tham, Hugh Outhred and Iain MacGill, “Derivative Markets in the Australian NEM: Roles and Issues,” Australasian Universities Power Engineering Conference, AUPEC 2004, Brisbane, September [pdf].
 - q Iain MacGill, “CEEM - a new UNSW Research Centre for Energy and Environmental Markets” Presentation at the Australasian Universities Power Engineering Conference, AUPEC 2004, Brisbane, September [pdf].
 - q Iain MacGill “The ethics of climate change and the electricity industry,” Presentation to ELEC4011 –Ethics and Electrical Engineering Practice, UNSW, September 2004 [pdf].
 - q Hugh Outhred, “Electricity Industry Restructuring - A review of progress” Seminar presentation at the University of Otago, New Zealand, September 2004 [pdf].
 - q Tony Owen, “Environmental Externalities, Market Distortions and the Economics of Renewable Energy Technologies,” The Energy Journal, Vol. 25, 127-156, 2004 [pdf].
- Green Energy Resources of New York is purchasing three biomass power plants in Italy following its recent acquisition of ICL. The company will also export two million tonnes of woodchips from the U.S. to Sweden, Netherlands and Britain.
- An international coalition including Australia has been formed to develop and promote cooperation on the recovery and use of the greenhouse gas methane as a fuel. The *Methane to Markets Partnership* will focus on deploying cost-effective technologies in landfill gas-to-energy projects, methane recovery projects at coal mines, and improvements in natural gas systems. The partnership, involving Australia, the US, India, Italy, Japan, Mexico, the UK and Ukraine, reportedly has the potential to reduce net methane emissions by up to 50 million tonnes of carbon equivalent a year by 2015. For more information go to <http://www.epa.gov/methane/international.html>
- The Russian parliament has legislated to ratify the Kyoto Protocol. The Kyoto Protocol will most probably come into force internationally early 2005.
- Russia could earn US\$10 billion by selling emission credits following its decision to ratify the Kyoto Protocol, according to Point Carbon.
- Exus Energy, a *Northern Ireland-based renewable energy technology company has signed its first major licensing contract for the renewable energy market. Exus Energy’s innovative wood-fuelled gasification system will now be manufactured and sold into the Japanese market by TSK (Tsukishima Kikai Co. Ltd), a large Japanese industrial company.* More information on Exus Energy Ltd, and its products, can be obtained from the company’s website at <http://www.exusenergy.com>
- The University of North Dakota’s Energy & Environmental Research Center (EERC) has successfully completed over 100 hours of continuous

operation of a biomass gasifier firing wood chips, dual fuelling a 100-horsepower John Deere diesel engine. This project includes emission testing. Project sponsors include the U.S. Department of Energy; the California Energy Commission; FlexEnergy; the North Dakota Department of Commerce Division of Community Services; Primeboard, Inc.; the Biomass Energy Resource Center; the National Renewable Energy Laboratory; and the Massachusetts Technology Collaborative. For more information contact: Darren Schmidt, Research Manager, Energy & Environmental Research Center (EERC). Email: dschmidt@undeerc.org Web site: <http://www.undeerc.org>.

- The Board of WWF Australia has appointed Mr. Greg Bourne as CEO of WWF Australia. Greg has held a number of senior roles with BP, including Regional President of BP Australasia. He has also been a Chair of the Sustainable Energy Authority of Victoria, Board member of Earthwatch Institute (Australia), Chair of NSW Greenhouse Office Advisory Panel, Chair of the CSIRO Sector Advisory Council for the Environment and Natural Resources Management and acted as a Member of the WA Sustainability Round Table.
- RWE npower of the UK has entered into a long term contract with ESD Biomass for the supply of 30,000 tonnes of coppiced willow annually. This is believed to be the first major supply contract in the UK of a crop specifically grown for energy. The fuel will be co-fired with coal at the Dicot power station. This supply will entail the cultivation of some 3,000 hectares of land.
- Hawaii has become the second American State (after Minnesota) to implement a mandatory 10% ethanol additive for petrol. This directive is due to start in April 2006.
- Minnesota has announced an initiative to replace E10 (ten percent ethanol blended with petrol) with E20. This regulation must be implemented by 2010 at the latest, or whenever at least half of the new cars purchased are capable of running on E20.
- General Motors has recently introduced the [three-fuel Astra sedan](#) in Brazil, the first car to run on petrol, a mixture of petrol with up to 85% ethanol, or natural gas. The car has a fuel tank for both petrol and ethanol, and works like a conventional FFV (flexible fuel vehicle) car, but also has a separate tank for natural gas.
- The Asian Development Bank has approved US\$550,000 for a technical assistance study on renewable energy in Pakistan. ADB says 50 percent of the country has no access to electricity, and the extension of the national grid into rural areas is not economically viable.

(source: REFocus)

- The Proceedings of the *OECD Workshop on Biomass and Agriculture*, held in Vienna, Austria, 10-13 June 2003 can be downloaded free of charge or purchased in a paper copy through the OECD's Website <http://webdomino1.oecd.org/comnet/agr/BiomassAg.nsf>.
- D1 Oils of the UK is reported to have secured plantation rights to approximately 37,000 hectares of land in Africa, India and South East Asia for the cultivation and production of Jatropha oil, and has a further 6 million hectares under option. The Jatropha tree, a durable, non-edible tree that can produce oil bearing seeds over a 30 year life span, rather than the EU's favoured rapeseed. The company has invested in refining technology and is in the final stages of development of small scale modular refineries designed to convert crude vegetable oil into biodiesel. See http://www.edie.net/news/news_story.asp?id=8925&channel=1
- The UK government has developed plans to encourage the non-food application of certain crops (see <http://www.defra.gov.uk/farm/acu/energy/energy.htm>). The Department for Environment, Food and Rural Affairs has recently [consulted](#) market parties in order to arrive at a comprehensive strategy. The UK's [Energy White Paper](#) also indicates that, in addition to producing hydrogen from renewables, biomass production also offers good opportunities for the future. The UK's agricultural sector has, until now, primarily concentrated on cultivating traditional crops, but the British government is now pointing out new opportunities for farmers wishing to produce biofuel crops. The UK government mentions a number of examples on its website, including [sugar beet, rapeseed and grain products](#).
- The EurObserv'ER reports in the Biofuels Barometer (http://www.energies-renouvelables.org/observ-er/stat_baro/eufores/baro161.pdf) that European biofuel production increased in 2003 by 26% to 1,434,000 tonnes. Some 82% of the total European biofuel production is biodiesel, though ethanol is also an important biofuel with a production of 309,500 tonnes.
- The NSW Greenhouse Office have released a study by CSIRO on effects of climate change on the state of NSW. It can be downloaded from: <http://www.cabinet.nsw.gov.au/greenhouse/>
- Pellet Fuels Institute maintains a list of members that manufacture pelletising and ancillary equipment: <http://www.pelletheat.org/3/commercial/suppliers.cfm>
- The government of Canada will fund US\$250,000 to assess the potential for using waste from Indonesia's palm oil mills as a source of green power. The grant will match funding from the Asian Development Bank. (source: REFocus)
- The National Electricity Market Company, NEMMCO has released its latest Statement of Opportunities. The annual report provides information about the adequacy of electricity supplies in Australia's National Electricity Market (NEM) to meet projected demand for the next 10 years. For a copy of the Statement go to <http://www.nemmco.com/publications/soo/soo2004.htm>
- Fiber Futures <http://www.fiberfutures.org/> is a US non profit organization dedicated to the use of agricultural residues and non wood fibers. They have managed the Fiber Futures Fiber Crop Mapping Project (<http://www.fiberfutures.org/fibercrop/>) which was part of an assessment done in 2001 of alternative uses for wheat straw in Eastern Washington State and Oregon. The map illustrates the wide variability in straw residues using local agronomic criteria. The Fiber Futures web site also has a good compendium of information on straw utilization: <http://www.fiberfutures.org/straw/main.html>
- Conference materials from the June 2004 USDA sponsored event, "Agriculture as a Producer and Consumer of Energy" are now available online at <http://www.farmfoundation.org/projects/03-35AgAsEnergyProducerAndConsumer.htm>
- The University of Queensland's Dr Bill Clarke is assessing the potential of bananas as an alternative energy source for North Queensland for the Australian Banana Growers' Association. The research program involves the anaerobic digestion of 400kg of bananas.
- The Union of Concerned Scientists (USA) has estimated that biomass-based energy supplies almost 30 times more energy in the USA than wind and solar power combined.
- An Australian Government web site listing some 162 available grants is at <http://www.grantslink.gov.au>
- Genencor International and a team from the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) have been selected by R&D Magazine for its 'Top 100 Technologically Significant Products for 2004.' The organisations were cited for their progress toward an economical process for converting biomass to ethanol.
- The International Energy Agency has published a recent study *Biofuels for Transport: An International Perspective*. This book looks at trends in biofuel production and considers what the future might hold if such alternatives were to displace petroleum in transport. It covers several important emerging technologies. See the [press release](#). To consult the Executive Summary and order, visit IEA's [Online Bookshop](#).
- The world's largest biodiesel complex has started construction on the northeast coast of England. Biofuels Corp will invest £48 million on the first of two biodiesel processing plants in Seal Sands, Middlesbrough, with production of 284 million litres of biodiesel using seed oil as its feedstock. The second plant will bring total production to 568 million litres by 2006.
- Edie magazine has provided a keynote article on energy entitled "Biomass should be biomassive!!" which note that UK energy policy focuses overwhelmingly on wind and neglects other valuable renewable sources. Gaynor Hartnell, Director of Policy at the Renewable Power Association provides an article on the potential of biomass to help meet energy needs. The article is on the web at <http://www.edie.net/library/features/ENG044.html>
- Within the 15 European Union Member States (prior to 1 May 2004) the market for biodiesel has doubled over the past three years (1.4 Mt in 2003), most of which is produced in Germany, France and Italy. Germany has 1717 petrol stations selling biodiesel, 1332 of which are monitored through a quality control system. Bioethanol is also produced in Germany (270,000 m3/year).
- The Los Angeles City Council has approved an agreement for the Los Angeles Department of Water and Power (LADWP) to purchase 40 MW of bioelectricity from a biogas power plant that will use recycled green material as the feedstock. Under the agreement, LADWP will purchase the

renewable energy from BioConverter LLC, a Delaware-based company, for approximately US\$16 million per year for 20 years beginning in 2008. In producing renewable energy, the biogas facility will process 2,700 tons per day of garden clippings and other green materials through an anaerobic digestion system. LADWP will operate the facility's electric generating units, while BioConverter LLC will manage the anaerobic digester.

- Queensland Government has announced its vehicle fleet will be powered by fuel containing 10 percent ethanol.
- A rendering facility near Montreal will become Canada's first plant for the commercial production of biodiesel. A subsidiary of Maple Leaf Foods will invest Cd\$14.5 million to expand biodiesel production that uses agro industry residues (animal fat and recycled cooking oil) as the main raw materials to produce 35 million litres a year. (source: REFocus)
- A United States Department of Agriculture (USDA) program, using loan guarantees of US\$50 million, hopes to create a market niche to assist the government's efforts to control bovine spongiform encephalopathy (BSE), better known as 'Mad Cow Disease'. This program will provide guaranteed loans for rural small businesses to develop the means to effectively destroy specified risk materials from cattle while providing a bio-based source of energy. The USDA's loan guarantees are to be administered by the agency's Rural Business-Cooperative Service (RBS). According to the RBS Notice of Funds Availability, the RBS expects, "projects to be constructed that will produce energy through the destruction of cattle," and the program would provide guaranteed loans for "developing renewable energy systems from the use of diseased livestock as a process raw material for the energy source."
- Tenaga Nasional of Malaysia has signed two agreements to buy power from a 5 MW power plant that uses oil palm waste as biomass fuel, and a 5 MW plant that uses municipal solid waste as fuel. The plants were developed by Sunquest and Recycle Energy under the Small Renewable Energy Program launched by the government in 2001.
- The European Parliament and Council earlier this year confirmed that incineration of packaging waste will continue to count towards recovery targets. It has also called for a general review of the issue. The decision comes after a meeting of the EU conciliation committee which has been ironing out some issues over future implementation of the EU Packaging Waste Directive. See: <http://www.solidwaste.com>
- The European Union has the objective that in 2005, two percent of the energy content of all transport fuels (petrol and diesel) should consist of biofuels and, in 2010, this percentage should be 5.75 percent. The EU Member States have until 31 December 2004 to incorporate this guideline into their national legislation.
- The Danish company [Novozymes](#) is reported to have succeeded in reducing the [costs of enzymes](#), when converting from biomass to ethanol, by a factor of twelve. Novozymes was commissioned to carry out this research into cost reductions by the US Department of Energy.
(source: <http://gave.novem.org>)
- The International Energy Agency (IEA) has launched a new website which offers easier access to information on all the IEA's areas of work on advancing security of energy supply, economic growth and environmental sustainability through energy policy co-operation. Innovative features include a page for online access to a range of [free IEA surveys and newsletters](#). Also, two calendar years after publication, pdf versions of many of IEA's [publications](#) are downloadable free of charge.
- A six page brochure, 'Alternative Generation' which profiles existing and emerging renewable energy technologies, including bioenergy, is downloadable as a pdf file (163 kB) from http://europa.eu.int/comm/research/energy/pdf/4rene_11.pdf
- Europe will be spending 11.5 billion Euro a year subsidising renewable energy sources by the year 2010, according to a report from Eurelectric. Web: <http://eurelectric.org>.
- Abengoa Bioenergía operates two bioethanol plants in Spain - Ecocarburantes Españoles and Bioetanol Galicia S.A. - with a total installed capacity of 142 and 168 million litres per year, respectively. A third plant, Biocarburantes de Castilla y León, is under construction in Salamanca, with Ebro Puleva as a partner. This plant's annual production will be 200 million litres, of which five million litres will derive from the conversion of the biomass content in cereal. Bioconversion will be achieved using a novel technology that Abengoa is developing. The company also operates three bioethanol plants in the United States, with a total annual capacity of 360 million litres, making Abengoa Bio-energía the world's second largest, and Europe's number one, bioethanol producer.
- Nepal's Biogas Support Program, with Dutch and German involvement, has built 95,400 household-scale biogas plants in 10 years. These are fixed dome biogas plants, designed in Nepal. Sizes are from 4 to 20 cubic metres. The feedstock is cattle dung and water (but other feedstocks will work as well). For instance, the 4-cubic-metre plant requires input from 2-3 cattle, the 10-cubic-metre plant needs 6-9 cattle. The construction manual for these GGC 2047 Model Biogas Plants, with full construction details, plans and data is at http://journeytoforever.org/biofuel_library/methane_nepal.html
- Landfill Gas and Power of Western Australia has opened its new 2.5 MW landfill gas power plant at Perth's Tamala Park Landfill.
- *The Roadmap for Agriculture Biomass Feedstock Supply in the United States*, released by the U.S. Department of Energy (DOE) in 2003, outlines how these various feedstocks are currently being used in the United States. Wood residues are the most commonly used feedstock, while crop residues, such as corn stover, are the most widely available feedstocks. Research efforts are focusing on the feasibility of growing dedicated energy crops. The Roadmap is downloadable from http://www.bioproducts-bioenergy.gov/pdf/Ag_Roadmap.pdf
- RENergy reports that Mount Herron Engineering is to build new 1.2 MW biogas plant south of Mandurah in WA. It is a project selected under the first round of Western Power Corporation's RECs procurement process.
- The EU Joint Research Centre has studied the Well-to-Wheels energy balance and greenhouse gas emissions of a wide range of (bio)fuels (including end-use). A standard method and dataset has thus been developed for this project. Separate comprehensive reports describe the transparent analysis of the production and end-use. See: http://gave.novem.nl/novem_new/index.asp?id=6
- 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>
- The Dutch ECN site has material on FischerTropsch synthetic fuels. See: <http://www.ecn.nl/biomassa/research/poly/ftsynthesis.en.html>
- The Board of Indcor Limited has announced that Mitsui & Co (Australia) Ltd has become a major investor in its Swan Hill Ethanol Project Definitive Feasibility Study. Mitsui joins Multiplex as a major investor in the ethanol business of Indcor. At the same time as announcing Mitsui's investment, the Board announced that Praj Industries Ltd, a major Indian technology and engineering company has been appointed as the technology provider for the Swan Hill Ethanol Project.
- Australia's Energy White Paper *Securing Australia's Energy Future* is on the Web at http://www.pmc.gov.au/energy_future. Amongst other measures, it indicates the establishment of a \$500 million fund to leverage private sector investment of at least \$1 billion for the demonstration of low emission technologies and makes provision of \$134 million to support commercialisation of renewable technologies.
- European Union biodiesel production for 2003 was 1,434,000 tonnes. Ethanol contributed another 309,500 tonnes. Biofuels production in the EU was up 26 percent on the previous year.
- A new life cycle assessment study from the World Energy Council shows renewable energy sources in a favourable light. The analysis shows, for instance that for heating technologies, wood chips are lowest at 10 to 23 tonnes CO₂(equivalent) per GWh of thermal energy. The report can be ordered through <http://www.worldenergy.org/wec-geis/publications/default/launches/lca/lca.asp> for £40.
- The ACT Government have announced that they will adopt the NSW Greenhouse Gas Abatement Scheme, by mirroring the NSW Legislation.
- Biomass Solutions will produce RDF from Coffs Harbour regional waste processing operation. The 20-year contract includes building and operating a \$15 million regional facility comprising an industrial building for waste processing and recovery as well as an education centre. See <http://www.coffsharbour.nsw.gov.au/www/html/55-regional-waste-treatment-facility.asp>.

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, and sources of finance. If you or your organisation are interested in such assistance, please contact Steve Schuck for a free listing.

- A Finnish company that offers biomass burning CHP power plants in the range of 2 to 15 MW is seeking contact with Australian companies with a view to possible joint ventures. The proponent indicates that the plants can be fuelled by all types of timber, cuttings, wood chips, bagasse, straw, with moisture content of the fuel not being a problem. The plants can be constructed in modules, easy to increase the output by adding only the needed modules. The process is patented (a few patents control the whole process), highly automated, with unmanned operation possible. For reference, the first power plant has been established in Finland, with the second currently being constructed in Japan, and negotiations being held with Hungarian and German companies. Please contact Mr. Seppo Hartikainen (the representative of the Finnish company), Tel: (02) 6259 9437 Fax: (02) 6259 9438 Email seppo@pcug.org.au.
- Capital Technologies - Biodiesel Division of Carnegie Mellon University, Pittsburgh, Pennsylvania, USA has been in Australia seeking joint venture partners. Their focus has been on the rendering and the farming industry. They have a new biodiesel manufacturing process, that does not require the catalyst materials to circulate in the product biodiesel and glycerin. They have a 20 million litre/year pre-assembled unit in a standard shipping container. Contact: Leonard Hintz, Director International Markets, Capital Technologies International Email: lhintz@capital-technologies.com Tel: (0011 1) 412-268-5093 office.

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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: Bioenergy Australia 7 Grassmere Rd, Killara, NSW 2071 Phone/Fax: (02) 9416 9246 Email: sschuck@bigpond.net.au Web: http://www.bioenergyaustralia.org
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