



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

Newsletter

June 2007

Bioenergy Australia 2007 Conference

Bioenergy Australia's eighth annual conference will be held on 26 and 27 November with a technical tour planned for Wednesday 28 November. The conference venue will be the Gold Coast International Hotel, Surfers Paradise, in south east Queensland.

At this early stage the conference program is being developed. Expressions of Interest are sought for potential paper and poster presentations, sponsors and trade exhibitors for the conference. The most recent conferences each attracted close on 200 delegates, with over 55 presentations per conference. Details of the conference will be made available through future newsletters and via the Bioenergy Australia web site.

Please contact Stephen Schuck, Bioenergy Australia Manager Tel/Fax: (02) 9416 9246 Email: sschuck@bigpond.net.au to express your interest in being involved in Australia's premier bioenergy conference.

Bioenergy Australia 2006 Conference CD

A limited number of copies of the CD ROM from the Bioenergy Australia conference, held in Fremantle, 6-7 December 2006 are still available for sale. The CD contains some 79 files, and includes the conference program, speaker profiles, presentation abstracts, delegate list (names and organisations), the presentations in PDF format and several photos from the technical tour. The cost of the CD is \$88 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.

Bioenergy Australia Membership Update

The Bioenergy Australia membership now includes 55 organisations. Recent new members are the University of Melbourne, the Department of Agriculture and Food WA, Crucible Carbon and NSW Private Forestry Development Committees.

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 government-industry bioenergy forum. Bioenergy Australia has 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 participation in various Tasks. As of June 2007, Bioenergy Australia has committed to the following Tasks for 2007-2009:

- Task 30 - *Short Rotation Crops for Bioenergy Systems*
- Task 38 - *Greenhouse Gas Balances of Biomass & Bioenergy Systems*
- Task 39 - *Commercialising First and Second Generation Biofuels.*

It is hoped additional support can be obtained to maintain continuity in Australia's participation in previous Tasks, such as Task 31 which concerns conventional forestry systems for the production of sustainable biomass for bioenergy, and Task 32 which covers biomass combustion and co-firing.

Subgroups from the Bioenergy Australia membership have formed to participate in the committed Tasks, with Bioenergy Australia members selecting National Team Leaders (NTL) to co-ordinate involvement at a technical level. Task leaders for 2007 – 2009 are for Task 30 - Brendan George of NSW DPI, Task 38 - Annette Cowie, also of NSW DPI, and Task 39 - Les Edey of Sugar Innovation and Research at the Queensland University of Technology.

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 IEA Bioenergy newsletter and annual report are available from <http://www.ieabioenergy.com>.

Grant Opportunities – State and Federal

The **Federal Government** has announced that it is seeking applications, including for biomass and biofuel projects, for its \$100 million **Renewable Energy Development Initiative (REDI)**. The committee meets regularly to consider eligible projects, and can provide matched funding grants between \$50,000 and \$5 million. Projects can run for up to three years. The program is competitive and merit-based, and aims to support the development of new renewable energy technology products, processes or services that have strong early-stage commercialisation and greenhouse gas emissions reduction potential. More information is available at <http://www.ausindustry.gov.au> or call the AusIndustry hotline on 13 28 46 for more information.

The **NSW Government** is establishing a **Climate Change Fund** incorporating the expanded Water and Energy Savings Funds, the Climate Action Grants Program and some funding from the Environmental Trust. The program will provide \$310 million over five years and includes a \$40 million Renewable Energy Development Fund for pilot and demonstration projects.

The **WA Government** recently announced a range of initiatives, as part of the WA Climate Change Action Statement, which include the establishment of a \$36.5million **Low Emission Energy Development Fund** to promote emission reduction and support technology advancements that cut greenhouse gas emissions, and the establishment of a 15 percent renewable energy target for the South-West Interconnected System by 2020, rising to 20 per cent by 2025. These initiatives build upon the State Government's recent commitment to purchase 20 percent of its electricity from renewable sources by 2010.

Inquiry into the Development of the Non-fossil Fuel Energy Industry in Australia

The House of Representatives Standing Committee on Industry and Resources has been conducting an inquiry into the development of the non-fossil fuel energy industry in Australia. The Committee is

now conducting a case study, examining the relative state of development of selected renewable energy sectors in Australia, and is seeking submissions on this subject. The sectors being considered are: solar, wave, tidal, geothermal, wind, hydrogen and as a recent addition - bioenergy. The Committee is examining these technologies' prospects for economically viable electricity generation, storage and transmission. Written submissions should be lodged by Friday 15 June 2007, and may be sent by email to: ir.reps@aph.gov.au, or post to:

Jerome Brown, Inquiry Secretary
House of Representatives Standing Committee on Industry and Resources
PO Box 6021
Parliament House
Canberra ACT 2600

The House Industry and Resources Committee's web address for further information is:
<http://www.aph.gov.au/house/committee/isr/renewables/index.htm>

APEC Biofuels Taskforce Conclusion

Bioenergy Australia has been a participant in the APEC Biofuels Taskforce, which culminated in a two day Energy Ministers' meeting in Darwin at the end of May. The Energy Ministers from 21 APEC economies have issued the Darwin Declaration, which includes moves to develop best practice towards energy efficient transportation, intensifying efforts to develop and deploy techniques for the cost-effective use of non-food feedstocks and encourage international collaboration on alternative fuels.

A copy of the Darwin Declaration is at: <http://www.industry.gov.au/apec2007mediacentre/>

South Australia's Strategic Plan

The South Australian Premier, Hon Mike Rann launched the update of South Australia's Strategic Plan earlier this year. Targets that are in place to help tackle climate change in our State include:

- Achieving the **Kyoto target** by limiting the state's greenhouse gas emissions to 108% of 1990 levels during 2008-2012, as a first step towards reducing emissions by 60% (to 40% of 1990 levels) by 2050.
- Supporting the development of **renewable energy** so that it comprises 20% of the state's energy production and consumption by 2014 .
- Improving the **energy efficiency of government buildings** by 25% from 2000-01 levels by 2014
- increase the **energy efficiency of dwellings** by 10% by 2014
- Reducing South Australia's **ecological footprint** by 30% by 2050
- **Reducing waste** to landfill by 25% by 2014.

More details at: http://www.saplan.org.au/plan_targets_obj3.php

Bioenergy Study for the Avon Region of Western Australia

The Sustainable Energy Development Office (SEDO) has granted \$37,500 to AVONGRO to investigate opportunities for producing energy from woody biomass grown in the Avon region in WA. AVONGRO has commissioned Col Stucley of Enecon Pty Ltd and Stephen Schuck of Stephen Schuck and Associates Pty Ltd to carry out the study. The Avon NRM region is 11.8 million hectares in size, of which 8.4 million hectares is currently used for agriculture or conservation. To balance regional groundwater tables to the extent required to halt the spread of

salinity, many millions of perennials need to be planted. Some of the innovative techniques and uses being developed nationally and internationally for bioenergy which may have relevance for the Avon are pellets for heat production, biomass to drive steam turbines to generate electricity, ethanol, pyrolysis (fast and slow) bio oil and potentially many specialist chemicals that might be by-products of some of these processes. The report is scheduled to be released at a public forum on Tuesday 7 August in the York Town Hall. The Minister for Energy, Francis Logan, is expected to attend the event which will be hosted by the Shire of York. The public forum is open to everyone.

Integrated Wood Processing Plant Moves to the Next Stage

Energy generator, Verve Energy has completed the demonstration of its \$19 million Integrated Wood Processing (IWP) pilot plant at Narrogin, in Western Australia's wheat belt. A report by Verve Energy indicates that a full-scale IWP plant could be commercially viable. Verve Energy believes that they have identified the technical requirements to now move to a full-scale, 5MW plant. Verve Energy has issued an Information Memorandum and has been seeking Expressions of Interest from investors to invest at a large scale in commercial plants. Their vision is to start building the first fully functioning plant within two years at a cost of approximately \$40 million, probably near Narrogin. The company has stressed the need for a continuous harvesting system, and the project cannot proceed to commercial scale without the guarantee of a harvesting system in place before commissioning.

Web: <http://www.verveenergy.com.au>.

Sydney Water Announces New Biogas Capacity

Sydney Water has announced it is to invest \$45 million in renewable energy technologies. These include mini-hydro units, and five new biogas facilities at:

- Bondi Sewage Treatment Plant
- Glenfield Sewage Treatment Plant
- Liverpool Sewage Treatment Plant
- Warriewood Sewage Treatment Plant
- Wollongong Sewage Treatment Plant

Together the nine plants, (four hydro) will produce more than 50 GWh per annum and supply some 20 % of SW's energy needs by 2008. Three of the nine projects are to receive \$3.67 million from the NSW State's Energy Savings Fund. One of these plants is the Warriewood plant.

Oaklands Ethanol Project

Agri Energy Limited has submitted an application for development approval for their Oaklands Ethanol Project in southern NSW. The project is one of four projects in New South Wales and Victoria being considered by Agri Energy as its second ethanol project. The first is currently being constructed at Swan Hill in North Western Victoria and is scheduled for start up in the first half of 2008. The new project is planned to produce 200 million litres per year of fuel ethanol. The project will use a feedstock of maize, wheat, barley and sorghum and will require 600,000 tonnes of grain per annum at full production. Development approval is expected to take 4-6 months. If the decision is to proceed, construction is expected to commence in the first half of 2008, with production planned for mid-2009.

ROC Receives Approval for Darwin Bio-Oil Project

Renewable Oil Corporation (ROC), which plans to build Australia's first commercial scale plant for turning green waste into bio-oil, using Dynamotive Energy Systems fast pyrolysis technology, has received approval from Darwin City Council. The plant, in Darwin's Shoal Bay area, will host a new \$70 million green energy production facility that is scheduled to be in operation by the end of 2008. The project will consist of a 200 tonne per day pyrolysis plant providing fuel for around 8MW of electricity to be generated on a continuous basis at off-grid locations. The bio-oil will then be transported to mine sites for combustion in specially designed generators, sourced from Orenda Turbines (part of Canada's Magellan Aerospace Corporation). The yield from 100,000 tonnes of green waste is reported to be 45,000 tonnes of oil, and will significantly reduce waste going to landfill.

Biomass Power Plant Proposal for Bridgetown, WA

Western Australia Biomass Pty Ltd is proposing to construct a 40MW biomass power station near Bridgetown, southern Western Australia. The proposed \$90 million power plant will use timber residues from the plantation industry and will avoid using native forest timber. Approximately 380,000 tonnes of biomass per year will be trucked to site from plantations within a 40 to 50 km radius.

The plant will use conventional combustion technology, with the power plant being linked into the South West Interconnected System via the Bridgetown substation. Ash from the plant will be made available to the plantations as a soil conditioner. It is expected that the project will take 18 months to construct and employ 200 directly and indirectly at the peak of construction. Ongoing direct and indirect new jobs are estimated at 25-30 for the power station, harvesters and haulage contractors. The proposal requires Development Approval from the local Shire, and has been referred to the WA Government's Environmental Protection Authority (EPA).

Energy Supply Association Releases Energy Report

The Energy Supply Association of Australia has released a report which suggests that cutting greenhouse emissions by 30 per cent over the next 25 years will see a doubling of electricity prices. The peak body for Australia's energy generators has modelled a series of possible futures and found a 30 per cent reduction in emissions by 2030 will add up to \$40 billion in electricity generation construction costs. The report is the second stage of the ESAA's Energy and Emissions Study. The first stage, completed in November 2005, examined the likely electricity load growth to 2030, identified under current policy settings the existing generation facilities that would be retired in the period and calculated the size and timing of new generation plant construction that would be needed to meet the load at 2030. The second stage modelled what may constitute the least cost generation mix in Australia to meet projected load at 2030 for three potential greenhouse gas emission targets for the electricity generation sector. The targets modelled were: 140% of 2000 levels; 100% of 2000 levels and 70% of 2000 levels. The report can be found at http://www.esaa.com.au/papers_submissions.html

Plantation Energy to Build Pellet Facility in Albany, WA

Plantation Energy plans to build a wood pellet manufacturing plant in Albany, WA, to manufacture and export energy pellets, mainly to Europe. Initial production is likely to be 145,000 tonnes a year

with the feedstock sourced from harvest residues from the 120,000-plus hectare blue gum plantations that are grown on previously cleared farmland in the Great Southern region. The blue gums are grown in a 10-year harvesting cycle, leading to on average 12,000 hectares of blue gums harvested annually. This produces more than 2 million tonnes of woodchip for export, with associated harvest residues of around 600,000 tonnes per annum. Plantation Energy plans to locate the pellet manufacturing facility, storage and export depot within a designated timber precinct near the port of Albany. The precinct contains existing major woodchip operations, and there are plans to establish a biomass power station and other timber processing industries nearby. The projected total demand for energy pellets in Europe is estimated to be 60 million tonnes per annum by 2015.

Biofuels, Energy and Agriculture

The Academy for Technological Sciences and Engineering Crawford Fund's 2007 annual conference will be held on 15 August in the Theatre, Parliament House, Canberra. Entitled *Biofuels, Energy and Agriculture – Powering Towards or Away From World Food Security?*, it will discuss biofuels, energy, and agriculture and their role in food security and sustainable agriculture. It will be opened by The Hon Alexander Downer, Minister for Foreign Affairs; and the keynote address will be given by Dr Joachim Von Braun, Director General of the International Food Policy Research Institute. Lord Ron Oxburgh, Member of the UK House of Lords, Chairman of D1 Oils and former Chairman of Shell UK will highlight issues for the private sector, and speakers from Brazil and India will talk about biofuels in their respective countries. Australian speakers include Dr Steve Schuck, Manager of Bioenergy Australia and Executive Committee Member of the International Energy Agency's Bioenergy Program; Dr John Wright, Director of CSIRO Energy Transformed Flagship Program; Mr Mike Taylor, Secretary of the Department of Transport and Regional Services, and Dr Peter Core, Director of the Australian Centre for International Agricultural Research. Free online registration and further information will come online in late June at <http://www.crawfordfund.org>, but readers can register their interest now to receive notice of the event by contacting (03) 9347 8328 or emailing crawford@mira.net.

BEST Energies Wins Top 2007 UN Association of Australia's Award

BEST Energies along with project partner the NSW Department of Primary Industries (both Bioenergy Australia members), has won the top 2007 United Nations Association of Australia's World Environment Day Award for 'Meeting the Greenhouse Challenge'.

The slow pyrolysis technology developed by BEST Energies is particularly exciting because it not only produces renewable energy to displace the use of fossil fuel, but it also produces a very stable form of solid carbon which can be sequestered over the long term in soils. Australian of the Year and leading environmentalist, Tim Flannery has declared pyrolysis and its integrated use for producing biochar as one of the most important means available for stabilising the world's climate.

This process has been developed by BEST Energies Australia with support from the NSW Department of Environment and Climate Change and involves heating green waste or other biomass without oxygen to generate renewable energy and agrichar. BEST Energies has a fully integrated pilot plant operating at their demonstration site at Somersby, on the Central Coast of NSW.

For further information contact Adriana Downie, email: adriana@bestenergies.com.au.

Biofacts

- **Australian plantation facts:** Australia's plantation area increased by 4.6% in 2006, according to new figures from the Bureau of Rural Sciences. 78,391 hectares of new plantations were established, however new softwood plantations made up only 11,000 hectares. The total area of softwoods in 2006 was 1,001,147 hectares, about 1% more than in 2005. Nearly 60% of the increase in area of softwoods is in New South Wales. The total area of hardwoods reported in 2006 was 807,437 hectares, 9% more than in 2005. Hardwoods are now over 44% of all plantations, compared with 43% in 2005 and 15% in 1994. Download more statistics from: <http://www.affashop.gov.au/product.asp?prodid=13683>
- **EU bioethanol production:** According to the European Bioethanol Fuel Association, EU-wide production of ethanol for fuels in 2006 amounted to 1.56 billion litres – an increase of 71% compared to 2005. Germany and Spain are the most important bioethanol manufacturers, with a production of 431 and 402 million litres respectively. See: http://gave.novem.nl/novem_2005/index.asp?id=25&detail=1434
- **Biomass globally:** According to REN21 *Global Status Report 2006*, global biomass power capacity added in 2005 amounted to 2–3 GW, bringing total capacity to about 44 GW. In 2004 Germany, Hungary, the Netherlands, Poland, and Spain registered annual capacity increases of 50%–100% or more. Some 70 MW of small scale biomass gasification systems for off-grid power generation and 3.8 million household-scale biogas plants are installed in India. China reported 17 million existing biogas users in 2005.
- **Ethanol in the USA:** Ethanol will consume 30% of the U.S. corn crop over the next decade, compared with current use of 20%, according to a ten-year estimate of farm production and prices by the U.S. Department of Agriculture. Land for corn, the main feedstock, will rise to 90 million acres by 2010, compared with 81.8 million acres last year. The American ethanol industry manufactured 18.4 billion litres of ethanol in 2006. This is an increase of 24.3% compared to 2005.
- **Corn vs. Cane:** Cane Industry Association (Unica) of Brazil estimates that Brazilian cane ethanol on average, yields more than 8 times more energy than is used in the production process, compared with US corn ethanol production, which yields between 1.1 to 1.7 times as much.
- **Cars running on alternative fuels:** In 2006 American consumers purchased 1.5 million cars that run on alternative fuels. This number exceeded sales prognoses by 50%. In total there are now 10.5 million cars running on alternative fuels in the USA. See a full article here: <http://www.wbcd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=MjMzNDg>
- **Bio vs. fossil:** A study by Colorado State University and the US Department of Agriculture, Agricultural Research Service concludes that biodiesel and bioethanol production leads to substantial emission reductions. The research team compared the life-cycle of fossil-based diesel and petrol with those of biodiesel and bioethanol. The following, more specific conclusions, were made:
 - grain and soya beans, as raw materials, lead to a 40% reduction
 - canary grass, as raw material, leads to an 85% reduction
 - American prairie grass and poplar wood lead to a 115% reduction.

See <http://www.renewableenergyaccess.com/rea/news/story?id=48083> for more details.

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 1,400 odd addresses given in the previous 28 issues of the Bioenergy Australia newsletters. These lists are consolidated as electronic links on Bioenergy Australia's web page at <http://www.bioenergyaustralia.org>. These links are available within an Excel file to allow interested persons to download the file and work with them off-line.

Alternative Fuels (ethanol)

<http://www.cpcb.nic.in/alternatfuel/ch10403.htm>

Anaerobic Digestion

<http://www.green-trust.org/2000/biofuel/methane.htm>

Aquaflow Algae to biofuels

<http://www.aquaflowgroup.com/home>

BEST Energies (pyrolysis)

<http://www.bestenergies.com/companies/bestpyrolysis.html>

Biodiesel additives (UK)

<http://www.biofuelsystems.com/uk2shop-2.htm>

Biodiesel – National Biodiesel Board

<http://www.biodiesel.org>

Biodiesel producers (list)

http://dmoz.org/Business/Energy_and_Environment/Renewable/Biomass/Biodiesel/

Bioenergy Gateway (wood to energy resource)

<http://www.bioenergy-gateway.org.nz/>

Bioethanol – good explanations

http://www.lurgi.com/website/fileadmin/user_upload/pdfs/13_Bioethanol-E.pdf

Biofuel Genomics site (BFG)

<http://www.biofuelgenomics.com>

Biofuel Production (IEA)

<http://www.iea.org/Textbase/techno/essentials2.pdf>

Biofuels - Food or Fuel?

http://journeytoforever.org/biofuel_food.html

Biogas in China

<http://www.i-sis.org.uk/BiogasChina.php>

Biogas - IEA Bioenergy Task 37

<http://www.iea-biogas.net>

Biogas Wiki

<http://biogas.wikispaces.com/>

Biolubricants

<http://www.pitt.edu/~soriano/biolub2.htm>

Biomass Energy Centre (UK)

<http://www.biomassenergycentre.org.uk>

Biomass Grate Furnaces

<http://www.bios-bioenergy.at/uploads/media/Paper-Scharler-CFDModelling-Estoril-2000-03-16.pdf>

Biomass for Power Generation and CHP (IEA)

<http://www.iea.org/Textbase/techno/essentials3.pdf>

Biomass Fuel Gasifier Cooker

<http://www.wattpower.com/wpindex6.html>

Boosting Bioenergy in Europe

http://www.itebe.org/telechargement/Brochures/Boostingbio_short_brochure_a3_72dpi_en.pdf

Brazilian Association for Biodiesel Industries – ABIODiesel

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

Choren Biomass to Energy site (Germany)
<http://www.choren.com/en/>

Coppice willow in Belgium
<http://unpeudesauile.blogspot.com/>

Drax co-firing using SRC willow
<http://www.power-technology.com/projects/drax/>

Energy for a Changing World (EU)
http://ec.europa.eu/energy/energy_policy/index_en.htm

Energy Options (small scale biodiesel)
<http://www.energyoptions.com.au>

Foster Wheelers fluidised bed presentation
<http://www.gastechnology.org/webroot/downloads/en/IEA/TEriksson.pdf>

GAVE (Dutch Climate Neutral Gaseous and Liquid Fuels)
<http://www.senternovem.nl/gaveknowledge>

Global Green Solutions (algae)
<http://www.globalgreensolutionsinc.com>

Oil from Algae
<http://www.oilgae.com/>

Olio Technology (small scale pellet mills – France)
http://www.oliotechnology.fr/index-eng.php?id_page=11

Pellet consumers & producers
<http://www.pelletBase.com>

Prairie Grass Pellet Energy
<http://www.engext.ksu.edu/biomass/>

Solix biofuels (Algae)
<http://www.solixbiofuels.com>

Stirling Gasifier systems
<http://www.stirling.dk/>

Syngas (Advanced Plasma Power)
<http://www.advancedplasmapower.com>

Third Generation Biofuels article
<http://biopact.com/2007/05/third-generation-biofuels-scientists.html>

Ti Tree Bioenergy Australia
<http://www.titreebioenergy.com.au>

U.S. Sustainable Energy Corp. (biofuels and bioenergy)
<http://www.greenpowergroup.com>

Vertigro Energy (algae to biofuels)
<http://www.globalgreensolutionsinc.com/s/Vertigro.asp>

VIDIR Biomass (small straw combustion system)
<http://www.vidir.biz/index-biomass.htm>

Western Renewable Energy Generation Information Systems – WREGIS (USA)
<http://www.wregis.org>

WorldisGreen (Blog)
<http://worldisgreen.com/>

International Developments

US DOE Awards US\$585 Million Funding for Biorefineries

The U.S. Department of Energy (DOE) announced in May that it will provide up to US\$200 million over the next five years to support the development of small-scale cellulosic biorefineries in the United States. This support comes in addition to the \$385 million pledged for six full-scale refineries

earlier in the year. The full-scale biorefineries will focus on near-term commercial processes, while the small-scale facilities will experiment with new feedstocks and processing technologies. This recent Funding Opportunity Announcement seeks projects to develop biorefineries at ten percent of commercial scale that produce liquid transportation fuels such as ethanol, as well as bio-based chemicals and bioproducts used in industrial applications. These grants aim to advance President Bush's goal of making cellulosic ethanol cost-competitive with petrol by 2012, assisting in reducing America's petrol consumption by 20% in ten years by expanding the availability of alternative and renewable transportation fuels.

Earlier this year, the six large-scale projects to be awarded funding were:

- **Abengoa Bioenergy Biomass of Colwich, Kansas, up to US\$76 million**
The proposed plant, located in Kansas, will produce 43 million litres of ethanol annually and enough energy to power the facility, with any excess energy being used to power the adjacent corn dry grind mill. The plant will use 700 tons per day of corn stover, wheat straw, milo stubble, switchgrass, and other feedstocks.
- **ALICO, Inc. of LaBelle, Florida, up to US\$33 million.**
The proposed plant will be in LaBelle, Florida. The plant will produce 52 million litres of ethanol a year and 6.3 MW electricity, as well as 8.8 tons of hydrogen and 50 tons of ammonia per day. For feedstock, the plant will use 770 tons per day of yard, wood, and vegetative wastes and eventually energycane.
- **BlueFire Ethanol, Inc. of Irvine, California, up to US\$40 million.**
The proposed plant will be in Southern California. The plant will be sited on an existing landfill and produce about 72 million litres of ethanol a year. As feedstock, the plant would use 700 tons per day of sorted green waste and wood waste from landfills.
- **Broin (POET) Companies of Sioux Falls, South Dakota, up to US\$80 million.**
The plant is in Emmetsburg, Iowa, and after expansion, it will produce 470 million litres of ethanol per year, of which roughly 25 per cent will be cellulosic ethanol. For feedstock in the production of cellulosic ethanol, the plant expects to use 842 tons per day of corn fiber, cobs, and stalks.
- **Iogen Biorefinery Partners, LLC, of Arlington, Virginia, up to US\$80 million.**
The proposed plant will be built in Shelley, Idaho, near Idaho Falls, and will produce 68 million litres of ethanol annually. The plant will use 700 tons per day of agricultural residues including wheat straw, barley straw, corn stover, switchgrass, and rice straw as feedstocks.
- **Range Fuels (formerly Kergy Inc.) of Broomfield, Colorado, up to US\$76 million.**
The proposed plant will be constructed in Soperton (Treutlen County), Georgia. The plant will produce about 150 million litres of ethanol per year and 34 million litres per year of methanol. As feedstock, the plant will use 1,200 tons per day of wood residues and wood based energy crops.

For the new initiative, DOE is requesting applicants to design, construct and operate an integrated biorefinery demonstration facility, employing lignocellulosic feedstocks for the production of some combination of liquid transportation fuel(s), biobased chemicals, and substitutes for petroleum-based feedstocks and products. The projects require a minimum of 50 percent cost share from applicants.

More information can be obtained from DOE's e-Center at <http://e-center.doe.gov>, or from <http://www.grants.gov>.

New US Report Raises Important Questions about Biofuels Feedstocks

According to a report by Soyatech LLC and Highquest Partners, titled *Biofuels 2006: Production, Supply and Reality*, U.S. biofuels production is projected to grow to over 60 billion litres per year by 2015. Ethanol will account for 53.5 billion litres of this total, increasing from 16.9 billion litres in 2006. This amount of ethanol will equal just under 10 percent of projected total petrol consumption. At a projected 8.1 billion litres per year by 2015, biodiesel will equal approximately 4 percent of total estimated diesel consumption. The report states that production at these levels will impact not only use of agricultural resources, but is also likely to alter the dynamics of international trade in certain commodities. For example, corn used for ethanol fuel production will come out of stocks now allocated to exports and animal feeds. Since the U.S. supplies more than 60 percent of the international trade in corn, reallocation of this resource is likely to translate into higher prices for corn around the world. At the same time, the increase in biodiesel production is expected to have a significant impact on the import of oils. The U.S. is currently a net importer of vegetable oil at approximately 2.2 million tonnes per year. The report (available for US \$3,500) projects that these imports will reach 9.3 million tonnes in 2015, an increase of more than three hundred percent and a figure that represents more than 13 percent of world trade in vegetable oils. See: <http://www.soyatech.com/pdf/06biofuels.pdf>

New EU Directive on Biofuels

The European Commission (Directorate General for the Environment) has issued a proposal of new directive that modifies Directive 98/70 for fuel quality. In summary:

- Between 2011 and 2020 transportation fuel distributors will have to reduce their greenhouse gas emissions (on life-cycle analysis basis) by 1% per year, reaching 10% by 2020
- Maximum oxygen content of gasoline has been revised upward, allowing for blends of 10% ethanol
- Diesel will have to contain a maximum 10 ppm of sulfur, starting on 1 January 2009.

This comes in addition to a directive that 20% of all energy consumed in the EU must be derived from renewable energy by 2020. A copy of the directive can be downloaded here:

http://bioenergie.celeonet.fr/itebenet/dotclear2/public/Documents/702/com07_018e.pdf

Biomass for the Future of the EU

Specific targets for the European Union for 2010 are to increase the share of renewable energy from 6% to 12% of gross energy consumption, for green electricity from 14% to 21% of gross electricity production, and for liquid biofuels to 5.75% of total fuel consumption. Amongst renewable energy sources, the biggest contribution at 63% is derived from biomass.

Currently energy from biomass already contributes to about four percent of the total EU energy supply, predominantly in heat, and to a lesser extent, in combined heat and power (CHP) applications. By 2010, biomass is expected to provide as much as 8% of the total EU energy supply. Biomass is currently the only available renewable energy source that can produce competitively-priced fuels for transport in larger quantities. Other benefits include the reduced need to import oil, increased security of supply, reduction of emissions, job creation and an improvement of the local environment.

Research and technological development play a key role in the area of bioenergy, and the European Union has supported biomass related research under several successive Framework Programs. The recently published European Commission proposal for Framework Program 7 (FP7 - see link) also foresees support for this area, highlighting the opportunities biomass can offer to the EU's energy

supply, and shows how research supported by the European Union has contributed to the current state of biomass technology.

FP7 brochure: <http://www.managenergy.net/download/r1270.pdf>

BP Selects Partners in Bioscience Initiative

BP has selected three U.S. universities to join a US\$500 million research programme to explore how bioscience can increase energy production and reduce the impact of energy consumption on the environment. The University of California Berkeley and its partners, University of Illinois Urbana-Champaign and the Lawrence Berkeley National Laboratory, will work with the Energy Biosciences Institute to focus initially on green biofuels for road transport. Later research will examine the conversion of heavy hydrocarbons to clean fuels, improved recovery from existing oil and gas reservoirs, and carbon sequestration. BP's decision to devote resources to biofuels is part of its strategy to identify low carbon and renewable fuels, and follows the company's announcement of BP Alternative Energy, a dedicated alternative energy business for solar, wind, hydrogen and combined-cycle-gas-turbine power generation. It is the largest oil and gas producer in the U.S. and is a major player in the global biofuels market, blending and distributing 2.2 billion litres of ethanol and 263 million litres of biodiesel in 2005.

Wärtsilä to Supply Six Biopower Power Plants to Germany

German company, Bayernfonds BestEnergy has ordered six turnkey biomass-fuelled power plants from Finnish company, Wärtsilä with a total value of around EUR 100 million. Construction is planned to start in July 2007, dependent upon permits being issued by local authorities. Each plant has an identical configuration - an output of 5.6 MWe, and incorporates the patented Wärtsilä BioGrate combustion technology, which provides high combustion efficiency, low NOx and CO emissions, and can process fuel with moisture content up to 55 percent. The plants will burn wood residues from local forests, and the electricity will be fed into the main grid. It is anticipated that all six power plants will be completed by end of 2008.

Green Biologics to Develop Biobutanol for Transport

Green Biologics Ltd based in Oxfordshire, UK, is set to develop biobutanol, a new, low-cost, 'next generation' biofuel after receiving £250,000 from the British Government and £310,000 from shareholder investors and business angels. Biobutanol is produced by the *Clostridial* fermentation of starch and sugars. Green Biologics plans to develop a way of manufacturing biobutanol which will reduce the cost of production by up to a third, by using thermophiles for enzymatic hydrolysis and genetically engineered microbial strains for fermentation. It is particularly interested in the isolation of thermophiles from compost environments because of their high metabolic activity, fast growth and robustness. Butanol is a liquid fuel that can be readily integrated into the existing fuel infrastructure, has a high energy yield, low vapour pressure and can easily be stored, handled and transported via pipelines. The British Government intends that biobutanol should count as a renewable transport fuel under the Renewable Transport Fuel Obligation (RTFO).

Chinese Make Big Plans for Ethanol

PetroChina plans to produce second-generation biofuels, made from low-input feedstocks, such as woodchips or straw, together with China's State Forestry Administration. By 2010 it hopes to have the

capacity to produce more than 2 million tons of non-grain based ethanol a year or 40% of the projected national output. In December 2006, PetroChina signed a memorandum of understanding (MOU) to explore the production of ethanol fuel from non-food agricultural materials in Kunming, Yunnan, as well as biodiesel from oil-rich plants, such as jatropha. In November, PetroChina signed another MOU to build in Sichuan a 600,000-ton-a-year ethanol plant by 2010, using sweet potatoes as feedstock, and a 100,000-ton-a-year biodiesel plant using jatropha seeds as raw material.

NZ to Mandate Biofuel

The New Zealand Government announced this February that all its petrol and diesel must contain at least 3.4% biofuel by 2012, and warned oil firms face multi-million dollar penalties if they fail to comply. However, according to the *New Zealand Herald*, there are concerns that many cars in New Zealand are unsuitable for blends of more than 3% ethanol. Also, in March, Diversa Corporation, a leader in the development of high-performance specialty enzymes, announced that it has formed a research program with New Zealand Crown Research Institutes Scion and AgResearch which could ultimately see New Zealand's entire vehicle fleet running on New Zealand-grown and manufactured biofuels. (Source: Diversa)

Forthcoming Events

- 10th International Congress on Biotechnology in the Pulp and Paper Industry
10-15 June 2007, Madison, Wisconsin USA
http://www.bact.wisc.edu/ICBPPI_2007/
- Nordic Bioenergy Conference 2007
11-13 June, Stockholm, Sweden
<http://www.nordicbioenergy2007.se>
- Biofuels Markets Asia
12-13 June 2007, Orchard Hotel, Singapore
<http://www.greenpowerconferences.com>
- Climate Action Network Australia Conference 2007 - Converting Concern into Action
18 - 19 June, Parliament House Theatre, Canberra
<http://www.cana.net.au/2007Conference/>
- Biofuels and Transportation 2007
18-19 June, Singapore
<http://www.cmtevents.com>
- The Australian Carbon Trading Summit
'Developing Corporate Strategies for a Carbon Constrained World'
25-26 June, 2007 Four Points by Sheraton, Sydney
<http://www.iir.com.au/carbontrading>
- China Biofuels and Ethanol Outlook '07
26-29 June 2007, Regent Hotel Beijing, China.
<http://ibc-asia.com/chinabioethanol>
- 23rd International Fuel Ethanol Workshop and Expo
26-29 June 2007, St Louis, Missouri, USA

Call BBI International: +1-303-527-2966
Email: fewregistration@bbibiofuels.com
Web: <http://www.fuelethanolworkshop.com>.

- WMAA National Energy from Waste Conference 2007
18 - 20 July 2007, Manly Pacific Hotel
Manly Beach, Sydney, Australia
<http://www.wmaa.asn.au>
- *How bioenergy from forests & forest industries can help save the planet from global warming.*
VAFI seminar. Monday 23 July 2007, from 8.30 am to 12 noon at Rydges, Melbourne. RSVP
please to: Maritza Kefalianos on (03) 9611 9002 or email maritzak@vafi.org.au.
- Residues to Revenues,
23-24 July, Rydges Hotel Melbourne
<http://www.fiea.org.nz/next-event.html>
- 5th Annual Biotechnology Australia Summit
1-2 August, 2007, Sydney Exhibition and Conference Centre
<http://www.acevents.com.au/bio2007/>
- The IEA Bioenergy Task 30 Conference
12-17 August, 2007, University of Guelph, Ontario, Canada
http://www.envbio.uoguelph.ca/IEA%20Bioenergy/IEA_index.htm
- *Biofuels, Energy and Agriculture – Powering Towards or Away From World Food Security?*
ATSE Crawford Fund's 2007 annual conference. 15 August 2007. Parliament House
Theatrette, Canberra. Free online registration and further information will come online in late
June at <http://www.crawfordfund.org>. Register your interest now to receive notice of the event
by contacting (03) 9347 8328 or emailing crawford@mira.net.
- Electric Energy Society of Australia 83rd Annual National Conference – Electricity 2007:
Power to the People
15-17 August 2007, Melbourne Hilton Hotel
<http://www.materialsaustralia.com.au/EESAElectricity2007/>
- Malaysian Palm Oil Board (MPOB) International Palm Oil Congress (PIPOC) Congress
Theme-Palm Oil: Empowering Change
26-30 August 2007 Kuala Lumpur Convention Centre, Malaysia
<http://www.soyatech.com/sponsor.php?id=45>
- Chemeca 2007
23- 26 September, Melbourne
Email: jan.althorp@icheme.org.au
Web: <http://www.chemeca2007.com>
- Renewable Raw Materials for Industry: Contribution to Sustainable Chemistry
17-18 October, 2007, Brussels, Belgium.
Email: mvanboven@europoint.eu
Web: <http://www.greentech.com>
- Biorefinery Conference
20 – 23 October, 2007, Beijing, China,
<http://www.biorefineries.cn>

- Asian International Biomass Energy Conference & Exhibition
23-25 October 2007, Beijing Exhibition Centre, China.
<http://www.bioenergy-asia.com>
 - 2nd International Specialized Exhibition "BIOENERGETICS – 2007"
6 - 9 November 2007, Crocus Expo Exhibition Centre, Moscow, Russia.
<http://www.energy-bio.ru/engl>
 - 20th World Energy Congress
THE ENERGY FUTURE IN AN INTERDEPENDENT WORLD
11-15 November 2007, Rome
<http://www.rome2007.it>
 - 2nd Annual Pacific Rim Summit on Industrial Biotechnology and Bioenergy
14-16 November 2007, Hilton Hawaiian Village, Honolulu, Hawaii
Web: <http://www.bio.org/> Email: pacrim@bio.org
 - **Bioenergy Australia Conference 2007**
26-2* November 2007, Gold Coast International Hotel, Queensland
<http://www.bioenergyaustralia.org>
 - Central European Biomass Conference 2008
16 - 19 January 2008, Graz, Austria.
Conference languages are German, English, Italian, Polish and Hungarian
<http://www.biomasseverband.at/biomasse/?cid=24803>
 - Bioenergy World Europe 2008
7-10 February 2008, Verona, Italy.
<http://www.bioenergy-world.com>
 - GLOBE 2008 Conference
12-14 March 2008, Vancouver, Canada.
Email: info@globe2008.ca
Web: <http://www.globe2008.ca>
 - World Sustainable Energy Days
5-7 March 2008
<http://www.esv.or.at>
 - World Bioenergy 2008 Conference and Exhibition on Biomass for Energy.
27-29 May 2008, Jönköping Sweden.
<http://www.worldbioenergy.se>
 - 3rd International Bioenergy Conference and Exhibition
3-5 June 2008. Prince George, British Columbia, Canada.
www.bioenergyconference.org
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Residues

Bioenergy Australia conference presentations: Dr Stephen Schuck, Bioenergy Australia Manager gave presentations at a Bega and Bombala, NSW, at two forums on bioenergy and carbon trading organised by South East NSW Private Forestry, the Southern Rivers Catchment Management Authority and Australian Forest Growers. Some 150 people attended the Bega forum. Steve Schuck will be similarly giving presentations at the Victorian Association of Forest Industries (VAFI) forum on 23 July, at the 'Residues to Revenues' biennial conference 23-24 July, at the Crawford Fund Biofuels conference 15 August and at the Electric Energy Society of Australia annual conference on 16-17 August. See Forthcoming Events section above.

RIRDC publishes two bioenergy reports: The Rural Industries Research and Development Corporation has now published two Joint Venture Agroforestry Program bioenergy reports. These are 'Biofuels Database: a database of energy-related characteristics for Australian biomass' and 'An improved online bioenergy atlas of Australia'. These publications may be viewed at: <http://www.rirdc.gov.au>.

Emissions Trading Report: The much publicised Priministerial Task Group's final report on Emissions Trading is at: <http://www.pmc.gov.au/publications/emissions/index.cfm>

United Nations report 'Sustainable Bioenergy: A Framework for Decision Makers': The U.N. Commission on Sustainable Development, UN-Energy has recently released its report "Sustainable Bioenergy: A Framework for Decision Makers." The full report is downloadable from: <http://esa.un.org/un-energy/pdf/susdev.Biofuels.FAO.pdf>

Algae Biodiesel: PetroSun Incorporated of the US announced in April that its Board of Directors have issued an exclusive algae to biofuel production technology license to PetroSun BioFuels for the Austral-asian market. PetroSun BioFuels is a wholly owned subsidiary of PetroSun and was formed to cultivate algae and refine the algal oil into biodiesel for distribution under the PetroSun brand throughout Australasia. PetroSun BioFuels is to establish offices in Brisbane and Perth for sales and marketing.

Chinese palm oil plans: China has agreed to invest in a US\$5.5 billion biofuels project on the islands of New Guinea and Borneo. The plan promises to be controversial among environmentalists, who say that it will destroy some of the planet's most biodiverse and threatened ecosystems. See: <http://news.mongabay.com/2007/0118-borneo.html>

Chevron biofuels alliances: Chevron Corporation and Weyerhaeuser Company have announced a letter of intent to jointly assess the feasibility of commercialising the production of biofuels from cellulose-based sources. In late 2006, Chevron and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) formed a five-year strategic research alliance to develop biofuels. Researchers from Chevron and NREL will collaborate on projects to develop the next generation of process technologies for converting cellulosic biomass into ethanol and biodiesel.

D1 Oils reduces production: UK based biofuels company, D1 Oils, has reduced its production of biofuels due to the higher price of raw materials, combined with the lower price of conventional biodiesel. Manufacturers of biodiesel had recently increased their production capacity, in readiness for the compulsory blending of biodiesel which will start in the UK in 2008.

Wilmott Forests invests in Ethtec: In March, Bombala, NSW-based softwood forestry company Wilmott Forests Limited, Australia's largest developer of new softwood plantations, announced that they had acquired a 51% share of Ethanol Technologies Limited (Ethtec), which has a worldwide

exclusive license from Apace Research Ltd to develop their technologies for lignocellulosic biomass. The total cost of the acquisition was \$2.9 million.

Neste Oil to build second biodiesel plant at Porvoo: Neste Oil of Finland is to build a second plant to produce premium-quality renewable diesel at its Porvoo refinery in Finland. The capital cost of the plant, scheduled to begin production towards the end of 2008, is estimated to be around EUR 100 million. The plant will have the same capacity - 170,000 tonnes per annum - as the first one at Porvoo, due to start up in mid 2007.

Anticipated report: *Brazil's Biofuels Industry: Outlook for a Global Leader*, was scheduled for completion by the end of the third quarter, 2007. The report aims to assess the technical, commercial and policy status of existing and anticipated biofuel and biofuels-related activities in Brazil. It will consider critical elements of the Brazilian biofuels supply chain, examine related markets such as flexible-fuel and dedicated ethanol vehicles, and forecast future developments. It will also profile Brazil from a global perspective, highlighting local opportunities as well as key issues for companies considering investment options worldwide. For subscriptions received prior to June 30, 2007, the cost will be US\$9,500. After June 30, 2007, the cost will be US\$12,000. Email: ktg@nexant.com. Source : <http://www.nexant.com>

Swan Hill Ethanol Project - Victoria, Australia: In May 2007, the Australian Federal Government approved road and infrastructure funding of \$9,118,600 to the Swan Hill Rural City Council to support upgrading of bridges, intersections and roads in the Swan Hill region to support the movement of corn and cereal crops from both the Victoria and New South Wales side of the Murray River to the Swan Hill Ethanol Project. This means that previous financial obligations of Agri Energy for any offsite construction of the Swan Hill Ethanol Project, under the project development licence issued by Swan Hill Rural City Council in 2004, are eliminated.

Mission Biofuels acquires Jatropha plantations: Australian company, Mission Biofuels Ltd through its 70% held Indian subsidiary Mission Biofuels India Private Ltd, gained access to 22,000 acres of planted *Jatropha curcas*, which produces an inedible oil suitable for use in biodiesel production. Mission plans to increase the planted area to 100,000 acres by the end of 2007 and gradually to 250,000 acres by 2010. Mission has entered into partnership agreements with The Energy and Resources Institute (TERI) and Tamil Nadu Agricultural University (TNAU) to provide technical assistance and R&D on *Jatropha curcas* plantation technology, improvement of product and by-product yields, farm extension and agronomics.

Portable biodiesel production: A new portable biodiesel machine has been unveiled by SAFF to produce biodiesel using a variety of raw materials. The machine can use oils from canola, sesame seeds, olives and peanuts as well as animal fats such as tallow. The 'Continuous Biodiesel Machine' was developed by SAFF with the assistance by venture capital manager CVC REEF (a Bioenergy Australia member), which manages the Australian Government's Renewable Energy Equity Fund. A plant is expected to be operational in South Australia by mid-year to produce 15 ML of biodiesel per year. Modules will allow this to be increased in 5 ML stages.

Babcock & Brown acquires Iroquois: Babcock and Brown has entered into a definitive agreement to acquire all of the membership interests in Iroquois Bio-Energy Company LLC, (IBEC) based in Rensselaer, Indiana, USA - its fourth investment in the US ethanol industry. IBEC recently commenced the operation of a 150 million litres per year ethanol production facility which it has built over the last 18 months.

European paper industry: Wood for Energy is a Waste: The European paper industry has published an independent study showing that using wood as a resource for paper products first, and only using it as a source of energy at the end of the product life cycle adds four times more added value to the economy and retains six times more jobs than simply burning wood for energy. The published study (<http://www.cepi.org>) is the first of a number of major projects that CEPI is currently

undertaking to provide the European Commission with data on the future fibre availability in Europe and the paper industry's potential to help provide the bio-solution to climate change.

Ethanol plant for Pinkenba: Primary Energy proposes to develop an ethanol plant at Pinkenba in Brisbane's industrial port area on the Brisbane River. Once fully operational, the proposed plant would process around 400,000 tonnes of grain per annum, producing 160 ML of ethanol, 240,000 tonnes of fertiliser, 16,000 tonnes of ammonia and 23 MW of green electricity.

International forum for biofuels: Brazil, the USA, China and the EU have launched an initiative to encourage the development of biofuels on the international market. These countries, together with India and South Africa, plan to create an international forum to encourage the production, distribution and use of biofuels: See: <http://www.forbes.com/feeds/ap/2007/03/03/ap3481762.html>

Fuelling research into cutting greenhouse emissions: CSIRO has been allocated AU\$59.6 million over four years to increase research into renewable and non-renewable natural resources which can produce low emission transport fuels. Under the Energy Transformed National Research Flagship, work will be expanded to include research related to the conversion of coal to liquids, gas to liquids, solar gas to liquids, biofuels and storage of high density natural gas for transport.

Biomass power plant to create jobs, taxes: In Connecticut, USA, a PricewaterhouseCoopers economic impact report commissioned by Plainfield Renewable Energy LLC has found that a proposed US\$130 million biomass wood-burning power plant could contribute more than US \$10 million in tax revenue to the town over 10 years – double previous projections – along with adding 37 MW to the state's energy capacity. The report also estimated that the project would create 82 new jobs directly, and another 98 indirectly across the state, as well as 181 construction jobs.

Japanese second generation biofuel plan: The Tokyo Metropolitan Government, Nippon Oil Corporation, Toyota Motor Corporation and Hino Motors, Ltd have announced the start of a joint project aimed at commercialising bio-hydrofined diesel (BHD), a second-generation biodiesel fuel.

Philippines initiative: With the passing of the Philippines Biofuels Act in December 2006, all gasoline products in that country should have an ethanol content of at least 5% within two years. All diesel vehicles should use a minimum 1% biodiesel blend within three months of the law coming into effect. Coconut oil is being used as the main feedstock to achieve this. The mandated blend will rise to 2% for biodiesel after two years, and to at least 10% for bioethanol after four years.

Biodiesel plant in Scotland: Europe's largest biodiesel production plant will be built in Scotland, with an investment of £70 million by Ineos Enterprises, owner of Scotland's oil refinery. The project will receive £9 million in regional assistance from the Scottish Executive, creating 20 jobs at Grangemouth, for enhancing Scotland's role in renewables. By 2010, all transport fuel sold in the UK must contain 5% green fuel to displace the emission of 1 Mt of carbon per year.

UK: first waste-wood to fuel plant: The UK's first large-scale facility to recycle waste wood into fuel for biomass power generation has opened in Middlesbrough UK. Wood Recycling opened its £8 million facility near Redcar and will provide around 80,000 tonnes of recycled woodchip each year to the nearby Wilton 10 power plant on Teesside.

Green Energy TV: A new internet-based television show - Green Energy TV - aims to show successful green energy projects to its viewers around the world. The program airs videos from companies, installers, inventors or universities, with newly completed projects or breakthroughs in technology. Videos can be uploaded directly on the website: <http://www.greenenergytv.com>.

Hydrogen funding: The Council of Australian Governments, COAG, has agreed to fund a \$405,000 hydrogen Roadmap that will be developed with funding provided by the Commonwealth,

New South Wales, Victorian and Queensland Governments. In addition, solar thermal, geothermal and coal gasification roadmaps will be funded.

IPCC report: The second in a series of four reports about the effects of climate change has been released by the Intergovernmental Panel on Climate Change. The report can be downloaded here: <http://www.ipcc.ch/SPM6avr07.pdf>.

EU: Livestock fodder to become cheaper thanks to biofuels: European Commissioner Adris Piebalgs has said that livestock fodder, and thus meat (and possibly dairy products) could become much cheaper via large-scale biofuel production. In a reply given to questions from the European Parliament Mr Piebalgs referred to the results of a number of studies commissioned by the EC into expanding biofuel production within the EU. According to the Commission, the greater the biofuel production, the more residues become available. Thus, the price of livestock fodder would fall, because an abundant supply would become available from within Europe. See: http://ec.europa.eu/energy/energy_policy/doc/07_biofuels_progress_report_en.pdf

Critique of biofuels: 'Peak Soil: Why Cellulosic Ethanol and other Biofuels are Not Sustainable and are a Threat to America's National Security' by Alice Friedemann: http://www.culturechange.org/cms/index.php?option=com_content&task=view&id=107&Itemid=2#content

New enzymatic hydrolysis trials: Here is a press-release announcing first enzymatic hydrolysis trials by NILE at their lignocellulosic ethanol pilot plant in Sweden: http://www.nile-bioethanol.org/doc/PR_NILE_05Dec06_pr.pdf
More information can be found at <http://www.nile-bioethanol.org>

New resource: A statistical compendium *Biomass Energy Data Book* of US biomass industry data has been prepared by Lynn Wright, Bob Boundy, Bob Perlack, Stacy Davis and Bo Saulsbury and published by the Oak Ridge National Laboratory. It covers ethanol, biodiesel, BioOil, the use of biomass for electrical power generation and heating, biorefineries, and feed-stocks that are produced and used in the biomass industry. This first edition is only available online at: <http://cta.ornl.gov/bedb/download.shtml>.

Book available for download: *Towards cleaner technologies: a process story on biomass gasifier for heat applications in small and micro enterprises*, launched by HE Mamadou Lamine Loum, former Prime Minister of Senegal during DSDS 2007 in Delhi is available at: http://www.cosmile.org/papers/book_gasifier.pdf. Also see publications downloadable from www.cosmile.org for further information on small-scale gasification in India.

New newsletter: *Burning Bio News* is a newsletter edited and distributed by Mark Jenner. To subscribe, see his website at: <http://www.biomassrules.com>. A summary of bioscience, bio-projects and biopolicy can be read at: *Burning Bio News*, Volume 1, Number 3: download from: <http://biomassrules.com/eNews/BBNv1n3.pdf>

New fuel for France: The French oil company Total has introduced a new fuel, Ecolium 30, in France, otherwise known as B30 (diesel with 30% FAME made from rapeseed oil) for fleet owners that have their own storage and distribution facilities.

Presentation: A presentation by Biomass Engineering Ltd about their gasification systems: http://www.gastechnology.org/webroot/downloads/en/IEA/Fall06ChicagoTaskMeeting/IEA_WS6UK10-06.pdf

Latest Saab BioPower on sale: Saab has launched its second flex-fuel car in the UK capable of running on bioethanol E85. <http://www.saabbioenergy.co.uk/>. SAAB is also endeavouring to introduce the an E85 vehicle into Australia.

Energy security and Renewable Energy report: A 40 page, freely downloadable report from the World Watch Institute and the Center for American Progress, titled ‘*American Energy – the renewable path to energy security*’ is downloadable below. It includes coverage of both biofuels and bioenergy. http://www.americanprogress.org/issues/2006/09/american_energy.html/AmericanEnergy.pdf

Developing countries: A 15 page paper from *Biomass and Bioenergy* entitled ‘Identifying the Role of Gasification in Rural Electrification in Developing Countries: the economic perspective’ by Roland Siemons is on the Web at: <http://www.cleanfuels.nl/Projects%20&%20publications/Role%20gasification%20in%20DCs.pdf>

APEC presentations: The presentations from the recent APEC Biofuels conference in Japan on 1 and 2 February are available for download at <http://www.nedo.go.jp/english/archives/190305/190305.html>

Treesmart: Australian-based TreeSmart, which offers subscriptions to enable carbon dioxide emissions from travel to be sequestered in eucalypt trees grown for eventual harvesting and replanting, has included 25,000 recently planted trees in the UN's ‘Billion Tree Campaign’ and has pledged a further 50,000 trees. See: <http://www.treesmart.com.au/index.html>

Conference papers: The papers from “Agricultural Wastes, Residues and Bi-Products as a Fuel for Combustion”, held on 25th January 2007 at the Novotel Birmingham Centre, UK are at: http://www.supergen-bioenergy.net/?_id=376

Life cycle analysis: A new life-cycle study prepared by Germany’s Öko-Institut (Institute for Applied Ecology) looks at 16 different power systems, and finds that biogas has the best greenhouse balance. See: <http://biopact.com/2007/05/co2-balance-of-large-scale-energy.html>

Biofuels that resemble petroleum: Biofuel company LS9 Inc., the Renewable Petroleum Company™, is using synthetic biology to produce proprietary biofuels that resemble petroleum — but which are designed to be “renewable, clean, domestically produced, and cost competitive.” The company has said that it raised US\$5 million in its first round of venture funding from Flagship Ventures and Khosla Ventures, two early-stage investment firms. See: <http://www.ls9.com/pr031207.htm>

Iogen Receives C\$7.7 Million for Cellulosic Ethanol Project: Iogen has received a C\$7.7 million repayable investment from the Canadian Government for a C\$25.8 million research and development project designed to advance its cellulosic ethanol technology.

Bioenergy Pelletsmap: The Bioenergy International magazine released the *Pelletsmap 2007*. This map registers 286 pellet producers across Europe. To download the *Pelletsmap* you need to be a subscriber. See: <http://www.bioenergyinternational.com>.

Response to Pimentel: Below are a series of rebuttal responses to the Pimentel report, which concludes that biofuels have a negative energy balance:

- National Biodiesel Board: <http://eerc.ra.utk.edu/etcfc/docs/pr/PimentelStudy-NBBDetailedResponse~July05.pdf>
- USDOE: http://www.eere.energy.gov/afdc/altfuel/eth_energy_bal.html
- Independent source: http://www.radnoesis.info/rmarchives/2005/07/27/pimentels_biofuel_study_is_bunk.php

First commercial landfill gas to LNG plant: Prometheus Energy Company has begun producing liquid natural gas (LNG) from what it claims to be the world's first landfill gas-to-LNG plant. The plant was installed in late 2006 at the Frank R. Bowerman Landfill in Orange County, California. The Bowerman Landfill currently flares enough landfill gas to make approximately 150,000 litres of LNG

per day, and this amount is increasing each year. The current plant being built is the first of three phases, and will have a production capacity of 18,800 litres per day.

Wood-based Ethanol Plant Slated for Georgia: Wood waste from millions of acres of indigenous Georgia Pine will be the main source of biomass for a new cellulosic ethanol production facility in Treutlen County, Georgia. The plant, built by Colorado-based Range Fuels, will use a two-step thermo-chemical conversion process to convert biomass into a synthetic gas and then gas to ethanol. The company estimates that this plant, combined with others to follow, will have the capacity to produce more than 3.78 billion litres of ethanol per year.

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. Please note notices are placed using supplied information, without checking its veracity. Interested parties should make their own inquiries to verify the below information.

- **EU-Australian partnerships:** The first calls for the EU's Seventh Framework Program have been launched. The new Framework Program will run from 2007 to 2013, and provide over €50 billion for European research. Australians can participate in FP7 on a number of levels. FEAST has posted a guideline for FP7 on its website, with particular reference to Australian participation: www.feast.org/fp7
- **Travel Grants:** The Australian Academy of Science is inviting applications for grants for short-term scientific visits (14 - 40 days) to Europe, North America (USA, Canada, Mexico) and Asia (China, Japan, Korea, Taiwan) in FY 2007-2008, to foster collaborations between Australian and overseas researchers. Closing date for applications is 20 July 2007. Information, deadlines and application forms are available on the web site: <http://www.science.org.au/internat/europe.htm>
- **Supercritical Water Gasification:** Mr Willi Krüger, Manager of KontraTech Pty. Ltd is keen to link up with people or groups to further the development and commercialisation of gasification via Supercritical Water. His particular interest is to utilise supercritical water gasification for the treatment and energy extraction from sewage sludge. Contact: willi.kruger@kontratech.com.au, Mobile: 0448 856 631
- **Bioenergy Learning Materials:** A project funded by the German Federal Ministry of Education and Research has developed learning materials for topics such as biogas from renewable resources, maintenance of biogas installations, energy creation from forest cuttings, among others, in order to facilitate professional training and continuing education. These materials have already been applied in classes. Target groups are farmers, foresters, and tradespeople in related industries, as well as students with no previous knowledge. For all of these thematic areas, the Engineering Company Witzenhausen has teaching handouts available, which can be modified for use in foreign countries. Contact: www.nawaro-bildung.de or carola.westphalen@bionet.net
- **Placement needed:** Gundula Tschernigg is looking for a 5-month research placement in Australia in the biomass field. She is currently studying a MSc in Renewable Energy, based in England and Spain, and has 4 years work experience in heating systems and renewable energy. Her first degree is in Building Technology and Management. Email: Gundula.Tschernigg@arsenal.ac.at
- **Internship required:** Mikaël Lehébel, from France, is looking for a 3-month internship in Australia from July to October 2007 in the bioenergy field. He is especially interested in biodiesel and the gasification of biomass. Email: mikael5446@hotmail.com
- **Internship required:** Amandine Désétables is graduating this year with a Master's degree in International and Regional Development from Grenoble University, France, and is looking an

internship in the management of sustainable development projects. Email: a-desetables@hotmail.fr

- **Job wanted:** Javier Agis Iglesias is a qualified Energy Engineer from Spain, who is currently working in England, and is looking for a job in Australia in the energy sector. Email: agisminer@hotmail.com

Self-Managed Subscription to Bioenergy Australia Newsletters

An email distribution list has been set up, to allow readers of this newsletter to self-subscribe (and unsubscribe) to the Bioenergy Australia Newsletters and to receive our conference notices. To self-subscribe, go to:

<http://groups.google.com/group/bioenergyaustralia/subscribe>

Joining this list is purely to facilitate management of the distribution of Bioenergy Australia newsletters and the annual conference notices. It will only be used for this purpose and you will not receive other emails through this list. It is intended that over time, this will be the primary way of distributing the Bioenergy Australia newsletters and conference notices. Self-subscribing will require you to take on a list password. It would be much appreciated if you would join this group, as in the not too distant future this will be the only way newsletter notices will be disseminated. If you have any queries, please contact Steve Schuck.

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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.

Privacy Statement

Stephen Schuck, through Stephen Schuck and Associates Pty Ltd maintains an email mailing list and other contact information for disseminating this complimentary email newsletter and publicising bioenergy related activities on behalf of Bioenergy Australia. These details are used only for this purpose. Email addresses will not be disclosed to a third party unless it is for the purpose of informing about a Bioenergy Australia endorsed activity.

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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