



Biomass Taskforce

November 1999

Biomass Taskforce Membership¹ Update

The Biomass Taskforce now has 24 members, with recent new members being Agriculture Fisheries Forestry Australia (AFFA), from the Federal Government and Tarong Energy, from Queensland. Twenty-six organisations now formally participate in the Biomass Taskforce, with the CSIRO Divisions of Energy Technology and Forestry and Forest Products sharing a membership, and Energy Developments Ltd being joined by their subsidiary, Biomass Energy Services and Technology. The Biomass Taskforce wishes to further expand its membership and invites interested organisations to contact the Biomass Taskforce Manager, Dr Stephen Schuck on tel/fax 02 9416 9246 or email: Steve.Schuck@bigpond.com in this regard.

IEA Bioenergy – Australia to Participate in Additional Tasks

Readers of this newsletter will be aware that the Biomass Taskforce has been fostering participation in the International Energy Agency's Bioenergy program by providing Australia's annual membership fee to the IEA Bioenergy Executive Committee. The Biomass Taskforce Manager has been convening a group which has been participating in IEA Bioenergy Task 17, *Short Rotation Crops for Bioenergy* since the beginning of 1999. The Biomass Taskforce will now also directly participate in four additional Tasks in 2000, with the Biomass Taskforce providing the additional Task membership fees, with groups of Biomass Taskforce members participating in the Tasks and separately funding attendance at international meetings. The Tasks and participating groups for 2000 are presently:

Task 18-Conventional Forestry Systems for Bioenergy

- Bureau of Rural Sciences
- CS Energy
- CSIRO Forestry and Forest Products
- Forestry Tasmania
- Natural Resources and Environment
- Rural Industries Research and Development Corporation
- State Forests NSW

Task 19-Biomass Combustion

- CS Energy
- CSIRO Energy Technology
- CSIRO Forestry and Forest Products
- Delta Electricity

¹ Founding members: ERDC (replaced by DISR), RIRDC, Environment Australia (now Australian Greenhouse Office), GRDC, BRS. Membership now also includes CSIRO Div of Energy Technology & Div of Forestry and Forest Products, FPA of NSW, Pacific Power, Delta Electricity, Macquarie Generation, Waste Service NSW, EDL & BEST, SEDA, SPM/CPM, Forestry Tasmania, State Forests of NSW, Western Power Corporation, ABB Power Generation Ltd, Western Sydney Waste Board, Stanwell Corporation, CS Energy, NRE -Forest's Service, the Northern Sydney Waste Board, AFFA and Tarong Energy.

- Pacific Power
- Stanwell Corporation
- Tarong Energy
- Western Sydney Waste Board

Task 23-Energy from Thermal Conversion of MSW and RDF

- CS Energy
- CSIRO Energy Technology
- Delta Electricity
- Energy Developments Ltd/Biomass Energy Services and Technology
- Pacific Power
- Tarong Energy
- Waste Service NSW
- Western Sydney Waste Board

Task 25-Greenhouse Gas Balances of Bioenergy Systems

- Bureau of Rural Sciences
- CSIRO Forestry and Forest Products
- Natural Resources and Environment
- Rural Industries Research and Development Corporation
- Stanwell Corporation
- State Forests NSW
- Sustainable Energy Development Authority (SEDA)

Stephen Schuck, the Biomass Taskforce Manager represents Australia on the Executive Committee of IEA Bioenergy and attended the 44th Executive Committee meeting in Kyoto, Japan 10-12 November where Australia's application to participate in these additional Tasks from 2000 was unanimously accepted.

Should you or your organisation wish to obtain information on IEA Bioenergy and possible participation in this program, please contact Steve Schuck on tel/fax: (02)9416-9246, or email Steve.Schuck@bigpond.com. The IEA Bioenergy has its home page at URL: <http://www.forestresearch.co.nz/ieabioenergy/home.htm> which provides links to the IEA Bioenergy Task sites and information such as the Annual Report and the Strategic Plan.

Delta Electricity Calls for Expressions of Interest for Biomass Energy Plants

Delta Electricity, a member of the Biomass Taskforce, has called for expressions of interest for the design, supply, installation and commissioning of two biomass cogeneration plants at Condong and Broadwater sugar mills in northern New South Wales. Delta Electricity and the NSW Sugar Milling Co-operative Ltd have been working together to further develop the electricity generating capability at the Co-operative's three mills. The first stage of the development will be the installation of high efficiency biomass fuelled cogeneration plants, each of approximately 30 MWe capacity at Condong and Broadwater. Subsequent phases will include an additional plant at Harwood and additional capacity at Broadwater, bringing the total installed capacity to around 100 MWe. The cogeneration plants will provide process steam to the mills during the crushing season and export excess electricity for sale as renewable energy. During the non-crushing season, all electricity will be exported. Fuel for the plants will come from bagasse, cane trash and other biomass fuels such as saw mill waste, forestry products and other green waste. Expressions of interest closed 19 October 1999.

Biomass Taskforce Review

The Biomass Taskforce was formed in July 1997 for an initial three year period by the then Energy Research and Development Corporation (ERDC), the Rural Industries Research and Development Corporation (RIRDC) representing the Joint Venture Agroforestry Program, Environment Australia (now the Australian Greenhouse Office) and the Grains Research and Development Corporation (GRDC). There are now 24 members of the Biomass Taskforce. The Centre for International Economics has been engaged by RIRDC on behalf of the Biomass Taskforce members to conduct a review of the Biomass Taskforce with a view to its continuation beyond June 2000. The outcome of this review will be reported through this newsletter.

ENERSLUDGE[®] Technology Commissioned at Subiaco Waste Water Treatment Plant

A 30 dry tonnes per day waste sewage sludge to oil conversion plant utilising the Environmental Solutions International's ENERSLUDGE[®] technology has been commissioned at the Subiaco waste water treatment plant in Perth. The plant has been built for the Water Corporation of Western Australia by the ESI-Clough Joint Venture. The ENERSLUDGE[®] thermo-chemical process is set to produce up to 8,000 litres of bio-oil per day, sufficient to produce 1.2 MW of electricity. The ENERSLUDGE[®] technology has been under development for several years, with a pilot plant having been established at Subiaco in 1988. Results from the pilot plant are reported to indicate that each tonne of sludge will be converted to 340 kg of diesel grade oil, 420 kg of char, 120 kg of useful gas and 110 kg of reaction water. The bio-oil produced at the plant will be used on-site to generate electricity and save the Water Corporation of Western Australia about \$500,000 per year in energy costs. The total project cost is reported to be \$22.6 million, and should be recovered during the 40 year projected life of the plant. About 1.4 tonnes of greenhouse gases are avoided per tonne of sludge processed. Byproducts of the process include dried sludge, activated char, oil for use as a fuel, oil for use as a specialty chemical, and ash for use in building materials. Trevor Bridle of ESI gave a presentation on this process at a Biomass Taskforce Symposium held in Canberra in October 1997. Trevor may be contacted on tel: 08 9242 2422, email: esi@qnet.net.au.

Energy Equipment International Pty Ltd Develops FBC Biomass Plants

Sydney based company, Energy Equipment is developing a number of biomass energy projects in Australia, using its fluidised bed combustor (FBC) technology. The company built a FBC for Letona Foods in Leeton, NSW in 1989 (using coal tailings as fuel) and has subsequently completed nine FBC projects, the most recent being at the Subiaco plant (see above article), fuelled by effluent sludge. Energy Equipment is currently developing a 20 MWe green wood waste to energy project at Yatala, near Brisbane. The plant should be completed by November 2000 with Energex believed to be purchasing the renewable energy produced. Other similar sized projects based on the FBC technology are under development for Somersby, NSW and George Town, Tasmania (fuel-wood waste, potato peelings and onion leaves).

Energy Equipment may be contacted on (02) 9966 1938, fax: (02) 9966 1309, email: energye@energyequipment.aust.com.

Renewable Energy Equity Fund (REEF) Manager Announced

The REEF program was announced by the Prime Minister in November 1997. The Commonwealth government, through the Australian Greenhouse Office, is providing \$20 million with the private sector providing an additional \$10 million to set up a venture capital fund specifically for renewable energy. The fund will operate according to guidelines and eligibility criteria set by the Industry Research and Development Board, in consultation with the Australian Greenhouse Office. The fund manager, private investors and government will share the profits from REEF which has a life of ten years. CVC REEF has been offered the fund licence to act as manager for REEF. CVC REEF is a joint venture between CVC Investment Managers Pty Ltd and Magma Pty Ltd. Contact: Mr Merv Johnston, CVC REEF Ltd, Level 3, 24 Marcus Clarke St, Canberra 2601. Tel: 02-6257-0000, fax: 02-6257-0003 or Mr Vanda Gould, Level 40, 50 Bridge St, Sydney 2000. Tel: 02 9223-8800, fax: 02-9223-9808.

Renewable Energy Commercialisation Program Round 2 - Grant for Bioenergy

A grant of \$1,000,000 has been made to Manildra Energy Australia Pty Ltd by the Federal Government through the Australian Greenhouse Office to assist the development of a commercial scale advanced technology fuel ethanol plant using wheat starch as a feed stock. The plant is located at Bomaderry, NSW and has sourced wheat from farms in Western NSW, milled at the company's Manildra plant. It will incorporate two technological innovations developed and proven in an existing pilot plant. These are Manildra's continuous fermentation technology and a molecular sieve dehydration system; both will deliver significant energy and cost efficiencies. The project represents a major advance in the commercialisation of ethanol fuel in Australia in terms of meeting current and future demand for renewable transport fuel and is expected to produce up to 700 million litres of ethanol-blended fuel. This has the potential to reduce transport industry greenhouse gases by up to 7 percent in NSW and the ACT according to industry estimates.

For further information contact Bob Gordon of the Fuel Ethanol Association of Australia on tel: 02 6295 2399.

Renewable Energy Commercialisation Program - Round 4 (RECP4)

The Australian Greenhouse Office administers this program, which provides grant funding through a competitive process. Grants under RECP are normally expected to be in the range of \$100,000 - \$1 million. The Australian Greenhouse Office encourages intending applicants to contact the Renewable Energy Team and to submit draft applications prior to making formal submissions. The fourth round, RECP4 is scheduled to open 7 March 2000, and close six weeks later. Information on previous rounds and the current application form can be found on the AGO's web site www.greenhouse.gov.au.

Further information is available from the Australian Greenhouse Office. Contact Gillian McDonald, Program Manager, Renewable Energy Grants Programs, telephone 02 6274 1376 or the Renewable Energy Hotline on 02 6274 1880.

NSW Alternative Waste Technologies and Practices Inquiry

As reported in the previous issue of the Biomass Taskforce Newsletter, the NSW Government has established an Inquiry to investigate current and emerging waste management technologies and practices. The findings of the Inquiry will be used to inform decisions of Government, Waste Boards and the waste industry about future waste

management infrastructure and practices in NSW. The Biomass Taskforce Manager provided a submission to the Chairman of the Inquiry, Mr Tony Wright. Other Inquiry members are Ms Cathy Zoi and Dr Garry Smith. Tony Wright may be contacted by email at tony.wright@wrightstrategy.com, tel: (02) 9954 1200.

Third Paper Released on Emissions Trading

The Australian Greenhouse Office has released the third of four discussion papers on Emissions Trading. The first paper *Establishing the Boundaries* was released in March this year and discussed the comprehensiveness of a national emissions trading system within Australia, focusing on the greenhouse gases and sectors of the economy that could be covered. The second paper *Issuing the Permits* covered issues related to the allocation of permits, including grandfathering, auctioning, and recognition of early abatement action, permit duration, and the transition towards possible emission trading within Australia. The third discussion paper, *Crediting the Carbon* was released on 30 September and describes how carbon sinks could be incorporated into a national emissions trading system by issuing a 'carbon credit' for the change in carbon stock of carbon dioxide equivalents sequestered over a commitment period.

The Australian Greenhouse Office is seeking comment on the discussion paper which is available on the Internet at <http://www.greenhouse.gov.au/emissionstrading> or request a copy by phoning the AGO on 02-6274 1888. Email: emission.trading@greenhouse.com.au.

New Renewable Energy Initiatives from the Australian Greenhouse Office

As part of the *Measures for a Better Environment* announcement in May by the Prime Minister as part of the revised GST package, the Government is providing additional funding of up to \$321million over four years for renewable energy, commencing 1 July 2000.

Funding of \$264m over four years will be made available to the states and territories in the form of Special Purpose Payments to subsidise cash rebates up to 50% of the capital value of renewable remote area power supply (RAPs) systems, where it can be demonstrated that the renewable RAPs system will replace an existing diesel system, or for new systems. The program is being designed by the AGO in consultation with stakeholders. \$31m will also be made available over the four years to encourage the application of photovoltaics.

The Renewable Energy Commercialisation Program will be expanded from its original \$29 million by an additional \$26 million. This expansion of RECP has led to the AGO reviewing the scope and objectives of this program.

Action Agendas for Emerging and Renewable Energy, and for the Forestry Industry

Two 'Action Agendas', a key part of the Commonwealth government's industry strategy have commenced. The term 'Action Agenda' refers to a process of identifying outcomes and developing an action plan for and with industry. The Emerging and Renewable Energy Action Agenda gets underway with the first meeting scheduled for 9 December. Mr Greg Bourne, Regional President of BP Australia Ltd will chair the Emerging and Renewable Energy Leadership Group. The Biomass Taskforce Manager, Dr Stephen Schuck, has been invited to be an adviser to the Leadership Group. He is likewise participating on the Forestry Industry Action Agenda convened by Agriculture Fisheries Forestry Australia (AFFA).

Information on the Action Agenda process may be found on the web at:
www.isr.gov.au/agendas

BioFacts

Producer gas from a skid mounted 1 MW gasifier:

- Gas from 3.3 kg biomass (18 MJ/kg calorific value) has the energy of one litre diesel fuel
- Gas from 2.5 kg biomass has the energy of one litre petrol
- 1 kg of biomass (20% moisture) produces 2.3 cubic metres producer gas
- Gas density is approximately 1.06 kg/Nm³

Conversion Factors: Much USA biomass information is still in Imperial Units. Useful conversion factors are:

1 Btu = 1.055 kJ

1 kWh = 3,600 MJ = 3413 Btu.

Australia produced 2,313,000 m³ of coniferous and 1,244,000 m³ broadleaved sawnwood in 1998/99. In addition 68,000 m³ railway sleepers were produced. The ABS also reports the export of 4,315 kt of woodchips and 139.2 kt wastepaper.

SEDA's Wet Wastes and Forestry Energy Studies Available on CD-ROM

The two biomass energy studies "An investigation of potential for electricity generation potential from forestry by-products in NSW" and "An assessment of energy generation potential from wet waste streams in NSW" are now available from the NSW's Sustainable Energy Development Authority (SEDA) on CD-ROM in MS Office 97 format. The forestry study, conducted by Enecon Pty Ltd in association with CSIRO Forestry and Forest Products found a generating potential of 330,000 MWh per annum and considered in detail seven case studies, including preliminary costings and financial evaluations. The wet wastes energy study covers piggery and feedlot effluent, abattoir waste, dairy and poultry processing wastes, and food and beverage processing wastes. Six existing sites were showcased, having a combined potential of 11,000 MWh per annum. The wet wastes study was conducted by the UNEP Working Group for Cleaner Production in the Food Industry, based at Queensland University. Each of these reports are available for purchase for \$100 per copy. Contact Deborah Zadik at SEDA on tel: 02 9299 1519, fax: 02 9291 5260, email: seda@seda.nsw.gov.au

Australian Renewable Energy Internet Site

Part of the Prime Minister's 'Safeguarding the Future' announcement in November 1997 related to expenditure of \$300,000 to establish a high quality Internet site to promote the use of renewable energy and to develop the Australian renewable energy industry (see article in the July 1999 Biomass Taskforce newsletter). The Renewable Energy Internet Site is now up and running. The backbone of this Australian Greenhouse Office's site is a comprehensive searchable database of the Australian renewable energy industry.

The Australian Greenhouse Office hopes the Internet site will evolve into a 'one stop shop' for industry wanting to know about government support for industry. It provides the gateway for Commonwealth government programs and provide contact details for State Government

assistance. Inquiries to: Caroline Le Couteur of the AGO on 02 6274 1027. The Internet address is <http://renewable.greenhouse.gov.au>.

International Greenhouse Partnerships Program: Call for Project Proposals

The International Greenhouse Partnerships Office within the Department of Industry, Science and Resources is calling for proposals from organisations wishing to participate in cooperative projects between Australia and other countries to reduce, avoid or sequester greenhouse gas emissions. The call for proposals closes on Friday 17 December 1999. Information may be obtained from the DISR web site at:
http://www.isr.gov.au/resources/energy_greenhouse/igp/index.html. Tel: Dr Mark Stevens on (02) 6213 7891.

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 addresses given in the eight previous issues of the Biomass Taskforce newsletters. These lists are consolidated as electronic links on the Biomass Taskforce's web page at [http:// www.users.bigpond.com/Steve.Schuck/ABT](http://www.users.bigpond.com/Steve.Schuck/ABT)

CO2 Forest Sinks Pty Ltd

<http://www.co2forestsinks.com.au>

Suncor's M.D.'s Speech notes at Emissions Trading Forum

<http://www.suncor.com/01about/01framee.html>

Australian Forest Growers Conference 2000

<http://www.afg2000.com>

ABARE's publication on forest plantations on cleared agricultural land

<http://www.abare.gov.au/pubcat/forestry.htm>

AGO's paper on renewable transportation fuels

<http://www.greenhouse.gov.au/transport/pdfs/issues.pdf>

Internet Conference on Material Flow Analysis of Integrated Bio-Systems (IC-MFA-IBS),
March - October 2000

<http://www.ias.unu.edu/proceedings/icibs/ic-mfa/>

<http://segate.sunet.se/archives/et-w11.html>

Biomaster (pyrolysis of wood for co-combustion)

<http://www.biomaster.nl/english/projects/PE0143.html>

Toups Technology (conversion of waste into clean burning fuel and carbon black)

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

US Department of Environment draft report on carbon sequestration science and technology

<http://www.fe.doe.gov/sequestration>

US Dept of Energy - Office of Energy Outreach

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

US consumer attitudes to renewables

http://www.bpa.gov/Energy/N/renewables/main_page.htm

Murray Darling Basin Commission

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

APEC Virtual Center for Environmental Technology Exchange

<http://www.apec-vc.or.jp/index.htm>

'Producer Gas for Motor Vehicles' - book (address correction from last issue)

<http://www.lindsaybks.com/bks/producer/index.html>

IEA Renewable Energy Working Party Report 'The Evolving Renewable Energy Market'

<http://www.iea.org/new/releases/1999/renew.htm>

European Network of Energy Agencies Report on New Energy Technologies

<http://europa.eu.int/en/comm/dg17/atlas/atlas-hp.htm>

Allied Business Intelligence (market outlook for cogeneration world wide)
http://www.alliedworld.com/html_side/energy.htm

Advanced Alternative Energy (hybrid biomass/wind system)
<http://www.aecorp.com>

DTI's Direct Methanol Fuel Cell
<http://www.imall.com/stores/dtienergy/>

Proton Energy Systems (fuel cells)
<http://www.protonenergy.com/>

Waste News
<http://www.wastenews.com>

Fifth Conference of Parties (COP-5)
<http://www.unfccc.de>

USA Executive Order to triple the use of bioenergy
<http://www.ubeca.org/pubs/press/bio-announce081199.html>

New Uses Council
<http://start.at/NewUses>

Sugar Information
<http://www.sugarinfo.co.uk/index.htm>

NICERT, University of Ulster
<http://www.ulst.ac.uk/faculty/science/nicert/>

Combustion Gasification Propulsion Laboratory (India - Prof Mukunda)
<http://aero.iisc.ernet.in/~mukunda/stand-alone.html>

E3 Consultants (Queensland)
<http://www.ethree.com.au>

Indian Renewables site
<http://www.renewingindia.org>

CSIRO FFP effluent guidelines
http://www.ffp.csiro.au/pff/effluent_guideline/

15th Australian Biotechnology Association Conference
<http://www.aba2000.im.com.au>

Charcoal Museum homepage
<http://www.iip.co.jp/minabegawa/sumialfa.html>

Union of Concerned Scientists
<http://www.ucsusa.org/energy/>

Office of Regulator General - Victoria
<http://www.reggen.vic.gov.au>

Biomass tube fouling pictures
<http://www.clydebergemann.com/>

AG Fiber Technology News
<http://www.agrotechfiber.com/050374.html>

B9 Energy Biomass (N. Ireland- gasifiers)
<http://www.b9energy.co.uk>

Small scale downdraft gasifier
<http://members.tripod.com/costich>

NREL's photolibrary (new address)
<http://www.nrel.gov/data/pix/pix.html>

GTZ (gasification of rice hulls)
<http://gate.gtz.de/isat>

Biotechnology India 2000
<http://www.exhibitionsindia.org>

Stirling engine (NZ)
<http://www.whispertech.co.nz>

Stirling engine
<http://www.stirling-tech.com>

EarthDay
<http://www.earthday.net>

Macquarie Generation's news release regarding co-firing
http://www.macgen.com.au/news/news_990802.htm

Small scale (10kW) biomass gasifier
<http://www.snowcrest.com/tomb/gasifier.htm>

PRE consultants BV (Netherlands- Life Cycle Analysis software)
<http://www.pre.nl>

DISR paper on Developing Australia's Biotechnology Industry
<http://www.disr.gov.au/new/index.html>

Anergen (multicell AD)
<http://www.anerengcorp.com>

Combustion Consultants Ltd (Waterwide)
<http://www.waterwide.co.nz/>

Biomass for Rural Development (NREL)
http://www.nrel.gov/research/industrial_tech/biorural.html

Burlington Electric (Vermont gasifier)
<http://burlingtonelectric.com>

ARISA Ltd (wheat straw pulp mills)
http://www.arisald.com.au/info_paper.html

Energieonderzoek Centrum Nederland (ECN) (Energy from Biomass and Waste)
<http://www.ecn.nl/>

Thetford chicken litter power plant
<http://www.fibrowatt.com/ThetfordPow.html>

Global Energy Exposition and Energex 2000 (USA)
<http://www.globex.com>

Environmental Engineering Corporation (US)
<http://www.eeco.net>

Energia
<http://www.ENERGIA.org>

GEMIS (LCA model)
<http://www.oeko.de/service/temis>

Technology Development Group, University of Twente, Holland
<http://www.utwente.nl/tdg>

Pyrolysis and biodiesel
<http://www.care.demon.co.uk/>

LB International
<http://www.PureFlame.com>

UBECA (United BioEnergy Commercialization Association)
<http://www.ubeca.org>

Biodiesel site
<http://www.premiumdiesel.com>

CSIRO-DIMA workshops on physical economy to 2050 and beyond
<http://www.dwe.csiro.au/futures/ecumene/DIMAwshopMAIN.htm>

Danish Centre for Biomass Technology
<http://www.ens.dk>

1st World Conference and Exhibition on Biomass for Energy and Industry
<http://www.etaflorence.it>
<http://www.wip-munich.de>

Greener Marketing: A Global Perspective on Greening Marketing Practice
<http://wire0.ises.org/wire/independents/Literatu.nsf/H/O?Open&0001688E>

The Future for Renewable Energy: Prospects and Directions (EUREC)
<http://wire0.ises.org/wire/independents/Literatu.nsf/H/O?Open&00012EC2>

The Carbon War (historical account of global warming)
<http://wire0.ises.org/wire/independents/Literatu.nsf/H/O?Open&000128C2>

European Renewable Energy Centers Agency - EUREC
<http://wire0.ises.org/wire/independents/Organisations.nsf/H/O?Open&00010926>

Food and Agriculture Organization of the United Nations (FAO): Sustainable Development Department - Energy
<http://wire0.ises.org/entry.nsf/E?Open&orgprof&00017A5A>

The following papers on Biogas usage were delivered at the International Solar Energy Society's 1995 Solar World Congress in Harare; they can be viewed and downloaded in PDF format at no cost from the ISES web-based information system WIRE (World-wide Information System for Renewable Energy):

- Biogas technology transfer to rural communities in Egypt, S. El Shimi S. Arafa
<http://wire0.ises.org/wire/doclibs/HarareConf.nsf/DefaultView/56AE4D1E9087C662C125659900512A73>
- Current initiations in biogas implementation, J Savickas A Klementavicius
<http://wire0.ises.org/wire/doclibs/HarareConf.nsf/DefaultView/2294C16F5D09CE9DC125659900520052>
- Biogas utilization and its agricultural implications in Ghana, Christine Osei-Safo
<http://wire0.ises.org/wire/doclibs/HarareConf.nsf/DefaultView/F9CCC28053FF916CC12565990051D736>
- Socio-economic implications associated with wider use of bio-energy and wind energy technologies, P.Turyareeba
<http://wire0.ises.org/wire/doclibs/HarareConf.nsf/DefaultView/667EF9601D1D70C8C1256599005250CA>

These papers were delivered at the Solar World Congress 1997 in Taejon, Korea:

- Pilot Scale Anaerobic Digestion of Korean Food Waste for Biogas Recovery, J.P. Lee S.K. Lee J.S. Lee S.C. Park
<http://wire0.ises.org/wire/doclibs/KoreaConf.nsf/DefaultView/DE1DDA369214DDBDC12565A0004F5678>
- On the Applications of Renewable Energy Technology in Farm Settlements, M.A.C. Chendo E.O. Ugoji
<http://wire0.ises.org/wire/doclibs/KoreaConf.nsf/DefaultView/0F9D2AEF998702EEC12565A0004F35B8>
- Implementation of and Possibilities for Renewable Energy in the Caribbean with special reference to Trinidad and Tobago, Indra Haraksingh
<http://wire0.ises.org/wire/doclibs/KoreaConf.nsf/DefaultView/5DC584DA98C75B98C12565A0004EEB6B>

Forthcoming Events

- 5th International Conference on Thermochemical Biomass Conversion, Tyrol, Austria, 17-22 September 2000. **Note new date!** Main topics to be covered are: Feedstock Preparation, Pretreatment, Conversion, Products, Applications, and Systems. Deadline for one page abstracts is 31 January 2000. Contact: Prof. Tony Bridgwater, Bio-Energy Research Group, Aston University, Birmingham, B4 7ET, UK. Fax: +44 121 359 6814, Email: a.v.bridgwater@aston.ac.uk.
- Carbon Credits, Permits and Sinks: Understanding the next step towards an emissions trading system. 6-7 December, 1999, Sydney Marriott Hotel. ICM Conferences, tel: 02 9238 7200.
- 1st World Conference and Technology Exhibition on Biomass for Energy and Industry, 5-9 June, 2000. Seville, Spain. A joint millennium event of the 11th European Conference on Biomass for Energy and Industry and the Biomass Conference of the Americas. Contact EnergiaTA-Florence, Piazza Savonarola 10, I-50132 Florence. Fax +39-055 573425. Web: <http://www.etaflorence.it> & <http://www.wip-munich.de>

- The Changing Land of Europe - The First European conference of Renewable Energy and Agriculture, 12 -14 March 2000, Leeuwenhorst Congress Centre, Noordwijkerhout, The Netherlands. An Altener conference (Program of the European Commission DGXVII), supported by Novem. Details from European Media Marketing, email: sustain@emml.co.uk, Fax: +44181 289 8484. Web http://www.emml.com/changing_land
- Internet Conference on Material Flow Analysis of Integrated Bio-Systems, March - October 2000. The Institute of Advanced Studies of the United Nations University (Tokyo) (<http://www.ias.unu.edu>) and the UNU/IAS Integrated Bio-Systems Network (<http://www.ias.unu.edu/proceedings/icibs/ibs/ibsnet>), in cooperation with other organisations. Scope is municipal biodegradable solid recycling and conversion systems; wastewater treatment and utilisation systems; integrated aquaculture systems; small farming systems; large plantations, farms and feedlots; constructed building complex, greenhouse and eco-house systems; industry and eco-industrial parks; resource utilisation and conservation in sustainable eco-systems; small islands, community villages and cities; global issues related to food security, environment and climate change; and tools and methodology for design and analysis of integrated bio-systems. Abstracts for papers are currently being sought. Contact Mr Jacky Foo on email at foo@swipnet.se, fax: +46-8-314620.
- Solar '99 ANZSES Conference. Geelong Victoria, 1-4 December. Fax: 03-5227-8303, email: luther@deakin.edu.au, web: <http://www.ecse.monash.edu.au/prof/solar/solar99.htm>.
- Renewable Energy for the New Millennium (combining the 6th ESAA Renewable Energy Technologies & Remote Area Power Supplies Conference, 2nd World Solar Electric Buildings Conference, and Solar Thermal 2000 International Conference). 8-10 March 2000, Sydney. Contact The Meetings Manager Pty Ltd, tel: 02 9241 5354, fax: 02 9241 2955, Web: <http://www.esaa.com.au>.
- 99-ICAE, 99 International Conference on Agricultural Engineering, 14-17 December 1999, Beijing, P.R. China. Mail: ICAE, P.O. Box 101, East Campus, China Agricultural University, Qinghua Donglu, Beijing 100083, China. Email: icae@bjaeu.edu.cn. Web: <http://www.lib.bjaeu.edu.cn/icae/index.htm>.
- Fifth Australian Waste Convention/Enviro 2000, 9-13 April 2000. Tel: 02-9410 1302, email: quitz@dot.net.au.
- Cogen 2000, 22-24 March 2000, Brisbane Convention and Exhibition Centre. Australian Cogeneration Association. Conference secretariat tel: 03 9530 6777, fax: 03 9530 6526, email: services@profconferences.com.
- International Workshop on Sustainable Construction: Use of Incinerator Ash, 20-21 March 2000, Dundee, Scotland, UK. Contact Professor R K Dhir, email: r.k.dhir@dundee.ac.uk.
- ISES 2001 Solar World Congress, Nov/Dec 2001, Adelaide. Web: <http://www.unisa.edu.au/ises2001congress>
- 15th Australian Biotechnology Association Conference, ABA2000, Brisbane 2-6 July 2000. Contact ABA2000 secretariat, tel 07 3369 0477, fax: 07 3369 1512. Web: www.aba2000.im.com.au.
- The Australian Review's Third Annual Emissions Forum, 30-31 March 2000. Parkroyal, Sydney. Call 02 8235 5300.
- (USA) National Conference on Ethanol Policy and Marketing, 22-24 March 2000, San Francisco. Sponsored by the Renewable Fuels Association. Contact: Nicole Graf, tel: 0011-1-719-942 4353, email: bbincole@ris.net
- The Global Business and Technical Outlook for Decentralised Power, 7-9 February 2000. Nice, France. (US version to be held 25-27 September 2000 in Arlington, Virginia). Email: info@intertechusa.com, tel: 0011-1-207-781-9800.
- The Australian Greenhouse Conference, Enviro2000, 9-13 April 2000, Sydney. Contact: tel: 02 9410 1302 fax: 02 9415 1599.
- Global Energy Exposition and Energex 2000, 23-28 July 2000, Las Vegas, Nevada, USA. Web site: www.globex.com. Email: clydon@ntsdev.com.
- Australian Forest Growers 2000 Conference, 4-6 September 2000, Cairns, Queensland. Web: www.afg2000.com.

- Fifth International Conference on Greenhouse Gas Control Technologies, Cairns Convention Centre, 13-16 August, 2000. Contact Colin Paulson, tel: 02-9490 8790, fax: 02-9490 8819, email: c.paulson@det.csiro.au.
 - 23rd IAEE International Conference , Energy Markets and the New Millennium: economics, environment, security of supply. Sydney, 7-10 June 2000. Email: r.bartels@econ.usyd.edu.au.
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Residues

- Stephen Schuck, the Biomass Taskforce Manager delivered a paper at the Fourth Biomass Conference of the Americas (Aug/Sep) entitled 'The Role of the Australian Biomass Taskforce in Bioenergy Development'. The paper was presented at the Policy and Programs session as well as being presented at an interactive poster presentation session. Biomass Taskforce members have been provided with a comprehensive report on the conference and associated exhibition.
- The Biomass Taskforce is set to release a six page glossy brochure entitled *Biomass - Energy and Products* to inform a wider community what biomass is and what opportunity it affords. The brochure provides a general introduction on biomass, and covers biomass conversion technologies and the benefits of biomass energy. The brochure is being printed on behalf of the Biomass Taskforce by RIRDC and should be available in December.
- Australian Independent Power, the newsletter of the Australian Cogeneration Association, of which the Biomass Taskforce is a reciprocal member, reproduced two pages of the July Biomass Taskforce Newsletter in its July/August edition.
- The Biomass Taskforce is again listed as an Australian organisation involved in climate change activities in the Environment Australia/Bureau of Meteorology's 185 page report *Climate Activities in Australia 1999*.
- Troups Technology is reported to have demonstrated its PCM[®] (Pyrolytic Carbon Extraction) process which turns solid waste into a clean burning fuel and carbon black. Their commercial scale demonstration unit can be scaled to process up to 454 kg waste per hour. The combustible off-gases can be used as fuel for generating power. Web: <http://www.toupstech.com/> (source: ENERGIES)
- Smart Energy Solutions Pty Ltd, the R&D arm of Orion Energy Management, Inc. has announced the launch of its Plasma Turbine[®] Engine, which has been developed in Australia over the past three years. The constant speed engine is reportedly based on an 'isothermal Carnot cycle' and is said to be 75% thermal efficient. The engine can use any combustible liquid or gas as a fuel. For further information contact Stephen Riddell of Smart Energy Solutions Pty Ltd on tel: 02 9959 1024, fax: 02 9959 3003, email: energys@ibm.net.
- The US government has released a 200 page draft report detailing the emerging science and technology of carbon sequestration. See <http://www.fe.doe.gov/>
- The International Solar Energy Society, supported by the German Government, maintains the World-wide Information System for Renewable Energy, which can be found at <http://wire.ises.org>. Free registration at <http://wire0.ises.org/wire/wirereg.nsf> allows access to additional functions. Users can create their own structured document entries and add them to this web-based information database.
- Advance Energy has signed an agreement with CSR Oberon to undertake a \$286,000, three stage feasibility study for the development of a renewable energy and waste water management project using locally sourced biomass. The work is aimed at reducing CSR's landfill waste, extending the life of the Oberon Council's landfill, and improve management of waste water. The biomass energy plant will generate enough energy to power more than 35,300 households, and would be one of the largest biomass plants in NSW.

- Construction of the VISY Tumut Pulp and Paper Mill has commenced with a ground breaking ceremony on 3 November. The mill will incorporate a 17 MWe biomass fired cogeneration power plant.
- The IEA's Renewable Energy Working Party has recently published a report 'The Evolving Renewable Energy Market'. For further information and to obtain a copy visit the IEA website at <http://www.iea.org/new/releases/1999/renew.htm>
- Members of the European Network of Energy Agencies have conducted a two year survey of new energy technologies. The study gathered information on all the latest energy technologies in the energy supply sectors of renewables and heat and power. The report is on the web at: <http://europa.eu.int/en/comm/dg17/atlas/atlas-hp.htm>
- A Princeton University study indicates that low levels of energy technology research is jeopardising the world's ability to cope with environmental problems and the growing demand for energy. Money spent in industrialised countries on improving the use of energy resources has dropped to a 20-year low, while investment in other types of research has soared. The top ten nations have dropped energy R&D by 39% since 1980. See web site: <http://www.princeton.edu/pr/news/99/q3/0729-energy.htm>
- The United States' President Clinton issued an Executive Order in August requiring the USA to triple the use of bioenergy by 2010. The US administration wants to generate 7.5% of power from renewable energies in 2010. Last year President Clinton ordered US agencies to use biomass products when possible, and proposed tax credits for biomass-based electricity production. See web sites: <http://www.ubeca.org/pubs/press/bio-announce081199.html> & <http://wire0.org/wire/CurrentAffairs/Renews.nsf/H/O?Open&0000DF0A>
- The 'Handbook of Biogas Utilization' is now available from General Bioenergy for US\$30 (outside the USA), surface postage included. Orders may be placed by fax: 0015-1-256 740 5530 or to General Bioenergy, SERBEP, PO Box 26, Florence, AL 35631-0226, USA. Visa and MasterCard credit cards are accepted. Orders must include card type, number, expiration, the name of card holder. This handbook covers biogas sources and characteristics, biogas properties, conversion technologies, handling and storage, instrumentation and controls, health, safety, and environmental considerations, and system economics. Appendices include vendor listings, a glossary of terms, and a listing of relevant (US) organisations. The text without appendices is about 180 pages. The Biomass Taskforce Manager has a copy if you want further information.
- A 180 page publication, *A Survey of Biomass Gasification 2000*, by Tom Reid and S. Gaur for the US National Renewable Energy Laboratory and the Biomass Energy Foundation is now available for US \$25 plus \$8 air postage. The book surveys both large and small gasifiers and gasifier research institutions with descriptions of the major types of gasifiers and a listing of these world-wide. Email orders to reedtb2@CS.com or mail orders to The Biomass Energy Foundation Press, 1810 Smith Road, Golden, CO 80401. Fax: 0015 1 303 278 0560. Invoices will be sent with books.
- The South Australia State Energy Research Advisory Committee has granted the University of Adelaide \$10,000 for the Development of an Advanced Low-Temperature Pyrolysis Technology for Energy Recovery from Municipal and Industrial Wastes.
- Anergex Corporation has announced it has perfected a multi-cell anaerobic technology to process biodegradable wastes into methane and other benign products. They claim production of over 87% methane in the biogas. Contact via: <http://www.anergencorp.com>.
- Blair Fox Generation is reported as planning a \$26 million chicken litter fired power plant for Western Australia. The plant is planned for the Wanneroo landfill site and will produce enough electricity for 13,000 homes. The WA Minister for Energy, Colin Barnett said the WA government is considering paying a premium for electricity from such projects.
- The well publicised Burlington, Vermont (USA) 200t/day gasifier ran on full steam gasification for 3 hours in late September. Web: <http://burlingtonelectric.com>

