



- An alliance of organisations fostering biomass for energy and products -

NEWSLETTER #41

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Conference CD now available

Contains conference presentations, program, abstracts, speaker biographies, photos of posters, conference tour photos and delegate list at a cost of \$88 including GST, including handling and postage.

See www.bioenergyaustralia.org for details

Bioenergy Australia Update

Membership Brief

Bioenergy Australia is in the process of changing its structure to become a stand-alone, separate, legal entity – having operated as a sub-program of RIRDC for the last 14 years. This means that we'll be operating the same way as we have in the past, but with streamlined operations, and the new structure will allow for individual as well as corporate members. We will continue to have membership tiers to cater for universities and organisations with an annual turnover of less than \$5 million. We expect this changeover to occur in the early part of 2012.

We are always looking to further grow our membership and anyone interested in joining should contact Dr Stephen Schuck (02) 9416 9246 or email sschuck@bigpond.net.au.

Quarterly Meetings

Bioenergy Australia holds a series of day-long meetings for members which have evolved into a symposium format, with invited speakers, workshops and reports on Australia's participation in IEA Bioenergy. The presentations from the most recent meeting, held on 22 September in Canberra, are currently available in the public area of the Bioenergy Australia webpage at <http://www.bioenergyaustralia.org>. The next quarterly meeting is scheduled for 29 March 2012, in Canberra, with the venue to be notified closer to the time. Presentations from past meetings can be found in the Members' section of the website.

Bioenergy Australia 2011 Annual Conference

More than 300 delegates from 23 countries attended Bioenergy Australia's 12th annual conference, held on the Sunshine Coast, Queensland from 24 - 25 November 2011.

This year's conference was held in conjunction with IEA Bioenergy meetings. The IEA Bioenergy sessions held as part of the conference included a workshop on 'environmental sustainability of biomass,' a session on IEA Bioenergy Task 42 *Biorefineries: Co-production of fuels, chemicals, power and materials from biomass*, and a workshop on 'bioenergy and water' hosted by IEA Bioenergy Task 43 *Biomass feedstocks for energy markets*.

The 100 conference presentations, the final program, abstracts, speaker biographies, photos of posters, conference tour photos and delegate list are now available on CD via the website. For further information, see <http://www.bioenergyaustralia.org>.

We're currently collating survey responses from the Conference, and please let us know if you'd like to give a presentation at the 2012 conference.

IEA Bioenergy News

Publications

Two new strategic papers are now available on the IEA Bioenergy website. Please use the links below.

- Using an LCA approach to estimate the net GHG emissions of bioenergy
<http://www.ieabioenergy.com/MediaItem.aspx?id=7099>
- ExCo66 workshop 'Thermal Pre-treatment of Biomass for Large-scale Applications - summary and conclusions'
<http://www.ieabioenergy.com/LibItem.aspx?id=7190>

'Bioenergy, Land Use Change and Climate Change Mitigation – Background Technical Report'

Download from: <http://www.ieabioenergy.com/LibItem.aspx?id=6927>

This report was prepared by Associate Professor Göran Berndes, of Chalmers University of Technology in Sweden, with input from contributing authors Neil Bird of Joanneum Research in Austria and Professor Annette Cowie of Rural Climate Solutions, UNE in Australia. It was co-financed by IEA Bioenergy and the Swedish Energy Agency. The report addresses the much debated issue of bioenergy and associated land use change, and how climate change mitigation from the use of bioenergy can be influenced by greenhouse gas emissions arising from land use change. The purpose of this background report is to supply a more detailed, fully referenced version for practitioners and researchers, in support of the shorter version (IEA Bioenergy: ExCo:2010:03) which was aimed at policy makers.

The latest half-yearly IEA Bioenergy Newsletter is also available online at www.ieabioenergy.com and contains a feature on the Australian bioenergy industry, based upon our recent Bioenergy Australia conference.

Around Australia

CEC Capacity Building Workshop: Broadcasting Bioenergy

The Clean Energy Council will be holding an interactive workshop on 23 February in Sydney to better promote bioenergy to the public and decision makers. The focus will be on branding, stakeholder engagement and creating a communication strategy that will put bioenergy, in all its forms, on the agenda.

Facilitating this workshop is Matt Perry from Republic of Everyone, as seen on Gruen Nation, and specialising in simplifying the complex world of sustainability so that it can be explained to a mainstream audience. Matt Perry is a former advertising strategist for some of the world's biggest brands in London, New York, Sydney and Melbourne. He co-founded Republic of Everyone in 2007. Stephen Schuck of Bioenergy Australia will also be discussing Bioenergy Australia's new communications plan. Liz Hobman of the CSIRO will be discussing the results of a national internet survey that was conducted in July 2011 to investigate current knowledge, attitudes and perceptions towards bioenergy and their beliefs in climate change.

[Click here to register](#) or RSVP by Friday 18 February 2012 to Sasha Pell, who can be contacted by email at: sasha@cleanenergycouncil.org.au or phone +61 3 9929 4128.

New 1.2 billion Program to Support Business in Reducing Emissions

The \$1.2 billion Clean Technology Program, part of the Australian Government's Clean Energy Future Plan, will support business to reduce emissions and invest in clean technologies. This program is made up of three components:

- \$800 million Clean Technology Investment Program
- \$200 million Clean Technology Food and Foundries Investment Program
- \$200 million Clean Technology Innovation Program

The Clean Technology Investment Programs will provide merit based grants to help manufacturing businesses to invest in low-carbon and energy efficient equipment, processes and products. The Programs are expected to be open to applications in early 2012.

The Clean Technology Innovation Program will provide merit based grants to support business investment in research and development, proof of concept and early stage commercialisation activities that lead to the development of new clean technologies and associated services. The Program is expected to open to applications around the middle of this year.

Interested businesses should register their interest, so they can receive further information on the Programs once they become available. If you would like more information on the programs, or to register your interest, please visit:

<http://www.innovation.gov.au/Industry/CleanEnergyFuture/Pages/CleanTechnologyProgram.aspx>

Carbon Farming Initiative Progresses in Australia

Farmers and land managers across Australia will now be able to generate extra revenue by planting native forest trees while

reducing carbon in the atmosphere, as Australia's Carbon Farming Initiative (CFI) is now up and running. The Regulations giving effect to the CFI were made in early December by the Federal Government under the Carbon Credits (Carbon Farming Initiative) Act 2011, allowing farmers, landfill operators and other land managers to earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land. These credits can then be sold to others who want to offset their emissions.

Read more at <http://www.pulvermedia.com/fullstory/8a6gcdcek1fa3189f226e> or see the Australian Government's website at <http://www.climatechange.gov.au/cfi>

Australian Biofuels Study Released

In December the Minister for Resources and Energy, Martin Ferguson, released the findings of the *Advanced Biofuels Study*. The Study identifies the potential for the development of a competitive and sustainable biofuels industry in Australia and the most prospective technology pathways to get there. The Study and its Appendix are available at: <http://www.ret.gov.au/energy/clean/acre/Australian-Biofuels-Research-Institute/Pages/abri.aspx>

Research in Progress Bioenergy, Bioproducts & Energy 2010-11

RIRDC has released documents detailing projects undertaken in the Bioenergy, Bioproducts & Energy (BBE) Program. These detail completed projects in 2010-2011, and research in progress at June 2011. The Program aims to meet Australia's research and development needs for the development of sustainable and profitable bioenergy and bioproducts industries.

The objectives of the BBE Program are to:

- Develop sustainability guidelines for the Australian bioenergy and bioproducts industries
- Assess and adapt existing Australian and international feedstocks and develop new feedstocks for bioenergy and bioproducts
- Scope, compare and develop energy and cost efficient technologies, infrastructure and logistics for harvesting and processing biomass
- Evaluate conversion technologies and select, research and develop those which are competitive for Australian circumstances
- Develop bioproducts that complement bioenergy production systems
- Identify sustainable transition pathways for bioenergy in the context of a range of alternative energy futures, given different climate change, economic and policy scenarios
- Develop and implement an outreach program using existing and new networks to deliver the capacity of Australia's rural industries to utilise the results of this program.

The document is available at <https://rirdc.infoservices.com.au/items/11-146>

Biochar May Improve Agricultural Productivity

An Australian Bureau of Agricultural and Resource Economics (ABARES) report has found that biochar could help improve agricultural productivity and assist in reducing greenhouse gas emissions. The report, titled 'Biochar—Implications for agricultural productivity', examines the potential applications, benefits and risks of biochar as well as the research required to determine its productivity and sustainability potential. For further information, see the '[Biochar — Implications for agricultural productivity](#)' report on the DAFF website.

Opportunities for Primary Industries in the Bioenergy Sector

The Bioenergy National Research, Development and Extension Strategy (RD&E) has moved into the implementation phase, following its endorsement by the Primary Industries Ministerial Council. Under the National Primary Industries Research Development and Extension Framework, RIRDC will continue to play a leading role on this important Strategy. The Strategy aims to develop opportunities for primary producers to engage in the bioenergy supply chain, through coordinated and collaborative research, development and extension (RD&E).

Representatives from each state, relevant Research and Development Corporations, the university sector, CSIRO and the bioenergy industry worked together to develop the Strategy, and will now create a forum to implement it. The major priority areas for RD&E include:

- Sustainability
- Feedstocks
- Supply Logistics
- Policy Analysis
- Outreach, capacity building and networking.

Expert working groups will be established to assist coordination and collaboration in these priority areas. The first meeting of the new forum will be held in March 2012. The report, Opportunities for Primary Industries in the Bioenergy Sector - National RD&E Strategy is available for purchase or free download from the RIRDC website at <https://rirdc.infoservices.com.au/items/11-079>.

Government Invests \$2 Million in Biochar Research

The Federal Government has announced \$2 million in grants for research into biochar, as part of their \$45.6 million Carbon

Farming Initiative (CFI). The grants will fund the research that is needed to investigate how biochars can reduce carbon emissions, and to support the development of biochar offset methodologies. These methodologies will enable land managers to participate in carbon markets through the Carbon Farming Initiative.

Biochar is a stable type of char made by burning organic materials, such as wood or crop waste in a low oxygen environment. It can be added to soil to sequester carbon and improve soil health. The Biochar Capacity Building Program will help attract further research from scientists and independent experts and significantly expand knowledge of biochar and identify potential opportunities for landholders.

The program priorities are:

- Research that determines and quantifies how biochars mitigate greenhouse gas emissions
- Demonstration of integrated biochar systems in Australia, from the production of the biochar to its end use. This would include economic analysis and emissions life cycle assessments to inform land managers' decisions about biochar
- The development of biochar offset methodologies to enable land managers to participate in carbon markets through the CFI.

Applications are now open and close on 3 February 2012. For more information about eligibility and applying for funding, see <http://www.daff.gov.au/climatechange/cfi/biochar/grant-program-guidelines>

\$200m Renewable Energy Venture Capital Fund launched

Southern Cross Venture Partners has been appointed fund manager of the \$200 million *Renewable Energy Venture Capital Fund* by the Federal Government. Commencing this year, the Fund will be Australia's largest renewable energy venture capital fund, making available capital to support renewable energy companies. The fund is part of the Federal Government's *Clean Energy Future* plan, and will also provide management assistance to help Australian renewable energy companies achieve commercial success in Australia and overseas.

Federal Draft Energy White Paper Released

The Federal Government has released a draft *Energy White Paper* for public consultation, which sets out a series of proposed Government priority areas to address the challenges confronting Australia's energy sector. The draft paper identifies four priority areas for further action:

- Strengthening the resilience of Australia's energy-policy framework
- Re-invigorating the energy market reform agenda
- Developing Australia's critical energy resources
- Accelerating clean energy outcomes.

It is expected that over the next two decades, Australia will require massive investment in the gas and electricity sectors – around \$240 billion in generation, transmission and distribution. The White Paper also focuses on the next round of energy market reform, including further privatisation of energy assets and the removal of retail price regulation to increase efficiencies and remove distortions in markets that deter private sector investment and are harmful to consumers' interests.

Written submissions on the draft paper are being received until 16 March 2012 and the final paper is due to be released in mid-2012.

Australian Government's Alternative Transport Fuels Strategy Released

The Australian Government's Alternative Transport Fuels strategy was released on 13 December. The Minister's media release is available at <http://minister.ret.gov.au/MediaCentre/MediaReleases/Pages/DraftEnergyWhitePaperReleased.aspx>. The Strategic Framework and its three accompanying papers, the CSIRO modelling report and the fuel forum reports are now available on the Department's website via the following link:

http://www.ret.gov.au/resources/fuels/alternative_transport_fuels/strategy/Pages/AlternativeTransportFuelsStrategy.aspx.

Biofuels Plant Opens in Somersby

A commercial biofuels demonstration facility at Somersby on the New South Wales Central Coast has been opened by Licella, a subsidiary of Ignite Energy. The plant will produce bio-crude oil that has the potential to be refined into low-emission petrol, diesel and jet fuel. Trials of the catalytic hydro thermal reactor technology are set to take place early in 2012. Funding for the plant has partially been supported through a \$2.3 million grant from the Australian Government's *Second Generation Biofuels Research and Development (Gen 2) Program*.

The opening coincides with Licella signing MoUs with Virgin Australia and Air New Zealand to explore the potential to use the new system to create an alternative, sustainable source of jet aviation fuel. Licella has also joined with Norkse Skog to form a new joint venture company called Licella Fibre Fuels (LFF). More on Licella's progress is available at: biofuelsdigest.com.

QSEIF Funding for Developing Energy and Water-Saving Technologies

Project proposals are invited from Queensland organisations seeking to develop innovative technologies that reduce environmental impacts resulting from energy and water consumption. Funding will be provided through the Queensland Sustainable Energy Innovation Fund (QSEIF), operated by the Department of Environment and Resource Management.

Draft applications for the current QSEIF round must be received by **24th February 2012**, with selected projects expected to be announced in July-August.

Funding proposals will be evaluated on a competitive basis against the program guidelines. Applications will be assessed on technical feasibility and commercial viability, and on the applicant's ability to fund, manage and commercialise project results.

To be eligible for QSEIF funding, applicants must be Queensland-based organisations and the main activities of the project must be undertaken within Queensland.

A maximum of \$200,000 may be provided for any one project. Applicants are expected to contribute at least 20 percent of project costs. QSEIF funding does not offset internal staff and overhead costs.

Payment of QSEIF funding is contingent upon achievement of project milestones.

Funding is NOT available to State or Federal government departments or to government-owned corporations.

Guidelines and further information can be obtained at www.derm.qld.gov.au/qseif

Clean Energy Council's Recent Downloadable Documents

The Bioenergy webpage on the CEC website has been recently updated to contain the Council's most recent work in the bioenergy space. Available from this page for download are the following documents:

1. Australian Bioenergy Roadmap
2. Removing Barriers Facing Bioenergy in Australia
3. Bioenergy Industry Report 2010
4. Waste-to-Energy Fact Sheet
5. Energy Crop Fact Sheet
6. The Bioenergy Banners used Clean Energy Week 2011

You can find these resources at - <http://www.cleanenergycouncil.org.au/cec/technologies/bioenergy.html>

Australian Biofuels 2011-12, New Release

APAC Biofuel Consultants have just released **Australian Biofuels 2011-12, 'Taking Stock'** - the latest annual independent client study on the Australian biofuel industry. **Australian Biofuels 2011-12** covers a range of issues, such as biofuel demand/supply in Australia, supply shortages, new government policies, government strategies, cost of imports, subsidies, mandate suspensions, aviation fuel leadership and advanced biofuel technology developments in Australia.

See <http://www.eccoaustralia.com/media/files/1822.pdf> for the *Study Contents and Order Form* which sets out the extent of the research covered (93 pages) in **Australian Biofuels 2011-12**.

National Emissions Trading Scheme

Australia will move forward with a national emissions trading scheme, with the Commonwealth Parliament passing reforms that will introduce a carbon price of \$23 per tonne of pollution beginning on 1 July 2012. For the first three years, there will be a fixed price on carbon pollution. The price will rise by 2.5 percent a year in real terms until 1 July 2015. The carbon price mechanism will then transition to an emissions trading scheme where the price will be determined by the market. The package also establishes a Clean Energy Finance Corporation, or green investment bank, with an A\$10 billion, five-year budget. More than A\$5 billion of that is earmarked to support investment in renewable energy, with the rest to be spent either on renewables, low-emission technologies or energy efficiency measures.

Further information is available at www.cleanenergyfuture.gov.au

ACT Climate Change Plan Released for Public Comment

The ACT Government has released *Weathering the Change Draft Action Plan 2* for public comment. The purpose of Draft Action Plan 2 is to consult on strategies and actions that will place the ACT on a pathway towards zero net emissions and increase its ability to adapt to a changing climate. Legislation has committed ACT targets of zero net emissions by 2060 and a 40% reduction in greenhouse gas emissions from 1990 levels by 2020. Five alternative plans have been put forward for comment. The consultation is open until Friday 2 March 2012. For further information, see: <http://timetotalk.act.gov.au/climate-change/>

ACT Waste Strategy Released

The ACT's new waste strategy was released in December 2011, together with a report evaluating a number of possible improvements to the ACT waste management system. The waste strategy and full report can be found at <http://www.environment.act.gov.au/waste>.

A discussion paper on options for reducing GHG emissions in the ACT has also been released (see above article). It highlights energy from waste as one of the more cost effective options available. The paper is available at:

http://www.environment.act.gov.au/climate_change/weathering_the_change_action_plan_2.

RIRDC Publications

RIRDC publications [11/064 Eucalypts for Biofuel Production in Northern Australia](#) and [11/065 Bioenergy from Native Agroforestry](#) have been published on the RIRDC website.

Facilitating the Adoption of Biomass Co-firing for Power Generation

RIRDC has released this report, prepared by E3 International, covering biomass co-firing, a method to reduce greenhouse gas (GHG) emissions by substituting biomass, a renewable fuel, for a proportion of the coal used to generate electricity in coal-fired power stations. The focus of this report is on factors affecting the adoption of co-firing rather than on the technology itself. Biomass co-firing has been proven and commercially adopted around the world, facilitated by a range of supportive policies. At low levels of co-firing, minimal capital expenditure is required, making this one of the most cost-effective ways to reduce GHG emissions. The 1.9 MB report is at: <https://rirdc.infoservices.com.au/downloads/11-068>

Mitr Phol Group's Bioenergy Plans for Australia

Thai-based sugar producer, Mitr Phol Group, has revealed that it is planning to invest extensively in biopower and ethanol production in Australia. The company is in the process of completing a takeover of Queensland's MSF Sugar Ltd (formerly Maryborough Sugar Factory). Mitr Phol Group, a major global sugar producer, hopes to complete the \$313 million takeover of MSF Sugar by the end of the first quarter of 2012. After the takeover is completed Mitr Phol has indicated that it will then move to invest in biopower plants at the MSF Sugar plants.

Evaluation of Biomass Potential of Some Australian Native Grasses

This RIRDC report outlines the evaluation of a small range of Australian native grass species to determine whether they could be an attractive alternative feedstock for biofuel generation. Perennial grasses offer advantages over annual grasses of being more ecologically sound through reduced soil erosion potential, higher soil carbon retention and sequestration and reduced cost and risk to the producer. Australia has many native perennial grass species that have long lives, are hardy and produce significant biomass quantities. The 400 kB report is at: <https://rirdc.infoservices.com.au/downloads/11-101>

Australian Algae Project Features Unique Pond System

Australian companies Algarythm Pty. Ltd., the operating company of Darke Peak Algae Biofuel Commercialization project, and Fishace Pty Ltd., trading as Fishace Ecological Engineering, recently announced the development of a new method to produce algae on a commercial scale. The project will be constructed on a 2.4-hectare site Fishace owns in Darke Peak, South Australia and is being developed in conjunction with the Materials and BioEnergy Group of Flinders University, Adelaide.

The pilot demonstration project will be capable of producing an estimated 165 tonnes of algae biomass per year, with the oil portion of that biomass estimated to be sufficient to produce 100,000 litres of biodiesel. It will also feature low cost, simple, earth-based pond systems along with red LED algae photobioreactors, used to increase algae densities. The facility will also feature oloid pond mixing nanotechnology and biofuel processing systems, and will feature local saline algae species. The project will use a series of clay-lined ponds that are connected by pipes in a gravity-fed water circulative series. Native food fish will be stocked in one of the ponds, where their waste will act as a nutrient to support algae growth.

Contract Awarded for \$120 million Cogeneration Plant in Queensland

Mackay Sugar, Australia's second largest sugar mill, awarded a \$14 million contract to G&S Engineering for the construction of a \$120 million, 37.25 megawatt cogeneration plant in Mackay. G&S Engineering are involved in installing the boilers and turbine, as well as providing all related piping and auxiliary equipment. The cogeneration plant project will provide one-third of Mackay with bioenergy from bagasse, the fibre waste left over from crushing cane. Preliminary site works for the plant commenced earlier this year, with the commissioning phase expected to start by the end of 2012.

Source: http://www.ecogeneration.com.au/news/contract_awarded_for_120_million_cogeneration_plant_in_queensland/062878/

GE Joins Consortium to Develop Australian Aviation Biofuel

GE has announced it will join Virgin Australia and a consortium of other partners to research and develop commercial biofuel for the aviation industry. The consortium will focus on pyrolytic conversion of biomass from mallee eucalypt trees and aims to have a pilot biofuel production unit operating in Australia next year.

The agreement comes as the aviation industry becomes covered by emissions trading schemes around the world. As part of GE's ecomagination initiative, the company is already leading the way in the development of fuel efficient jet engines within its sustainable transport portfolio. The consortium includes Renewable Oil Corporation, the Future Farm Industries CRC, and Canadian biofuels company Dynamotive Energy Systems Corporation alongside Virgin Australia and GE. Source: GE News Centre. For full report see: <http://www.genewscenter.com/content/detailemail.aspx?releaseid=13064&newsareaid=2&changecurrentlocale=5>

Melbourne to Get First Biochar Plant

Pacific Pyrolysis has been awarded a \$4.5 million grant to build the country's first commercial biochar plant, to turn green waste

into energy and store carbon dioxide. PacPyro's 'carbon-negative electricity' pilot-scale project will turn two tonnes of municipal organic and wood waste an hour into electricity and biochar and store as much as 50,000 tonnes of carbon dioxide per year. The grant was from the Victorian Government's Energy Technology Innovation Strategy, designed to support projects with high technology risk.

Read more: <http://www.theage.com.au/national/melbourne-to-get-first-biochar-plant-20110905-1ju9m.html#ixzz1XFwp9S1S>

NSW Ethanol Mandate Now 6 percent

The NSW Government's ethanol mandate increased to 6 percent as scheduled from 1 October 2011. The ethanol mandate was introduced in 2007 by the former Labor Government. It sets the amount of ethanol sales that primary petrol wholesalers need to meet out of the total volume of their NSW sales. The mandate, previously set at 4 percent, rose to 6 percent as scheduled from 1 October 2011. In the last three years, the ethanol mandate has seen an investment of around \$200 million in regional NSW and a further \$150 million is expected to be invested over the next 12 months. The NSW Government continues to monitor ethanol supply conditions.

New South Wales Delays B5 Biodiesel Mandate

Plans to increase the biodiesel blend in New South Wales to 5% from the current 2%, as planned under the 2007 *Biofuels Act*, have been suspended because the country's domestic production isn't sufficient to supply the increased demand.

National Mirror Committee - ISO TC 248 Sustainability Criteria for Bioenergy

Standards Australia has approved a proposal to participate on the International Standards Organisation's TC 248 *Sustainability Criteria for Bioenergy*. A National Mirror Committee EV-020 has been established and Standards Australia has invited several Bioenergy Australia members and other stakeholders to participate. Standards Australia has appointed Heather Brodie of the BAA to chair the mirror committee. The standards being developed by TC 248 will address standardisation in the field of sustainability criteria for the protection, supply chain and application of bioenergy technologies. This includes terminology and aspects related to the sustainability of bioenergy. The international standards being developed by TC 248 are expected to be published in April 2014.

Next Generation Biofuels Project Launched in Queensland

Energy Parks Australia Pty Ltd is partnering with Aquaflow Bionomic Corporation to develop the infrastructure to produce advanced biofuels from multi biomass sources. The first site has been identified on the Sunshine Coast in Queensland, while others are being researched for suitability. Aquaflow is reported to have expertise in the chemistry, design and building of its own renewable bio-fuels plant, and has a collaborative agreement with CRI Catalyst relating to the use of IH₂ thermal conversion of algae and other biomass to 'drop-in fuels'. Initially the partnership plans to build 'demonstration plants' and progressively scale up to 2000 tonnes per day plants in strategic locations over the next few years, and to produce fuel which is cost competitive with today's prices.

See: <http://www.energyparks.com.au/projects.php> and <http://www.aquaflowgroup.com>.

Accelerating Renewable Energy Industry in Queensland

The Queensland Government has unveiled a plan to attract and accelerate investment and development of the renewable energy sector. The Renewable Energy Industry Development Plan (REIDP) outlines 23 initiatives to be undertaken over two years to facilitate economic development of the state's renewable energy industry, generate green jobs, reduce greenhouse gas emissions and accelerate deployment of renewable energy projects.

The REIDP also defines five key priorities to address market impediments and drive industry growth:

- Innovation - facilitating development of renewable energy and enabling technologies
- Renewable Energy Zones - Mount Isa, Surat Basin, Central and the Far North Coast have been identified as regions with the best renewable energy resources, local demand and access to transmission and distribution networks
- Jobs - prioritise opportunities for renewable energy skills development and job creation
- Regulatory reform - streamlining regulation impacting on the renewable energy industry; and
- Incentives - renewable energy incentives to bring forward investment in renewable energy generation.

Renewable energy proponents will be assisted at the state and regional level to identify potential renewable energy development opportunities and, where possible, to access state and federal support programs.

More information about the Renewable Energy Industry Development Plan is available at www.cleanenergy.qld.gov.au.

Methane Emissions Stand to Boost Farmers' Income

The Australian Government has launched the first methodology to be approved under the Carbon Farming Initiative, which will provide pig farmers with the opportunity to earn carbon credits for reducing methane emissions from manure. Over 680 commercial piggery operations in Australia stand to benefit from the CFI.

Under the 'Methodology for the Destruction of Methane Generated from Manure in Piggeries', farmers capture harmful methane emissions produced by manure and destroy the gas by flaring to prevent it entering the atmosphere or alternatively

use the methane to generate heat and electricity. Farmers can trade the offsets they generate for carbon credits, which they can then sell to generate income. The cost of installing basic methane capture infrastructure is likely to range from around \$75,000 to \$200,000 depending on the size of the piggery. For further information see: <http://www.climatechange.gov.au/minister/mark-dreyfus/2011/media-release/November/mr20111110.aspx>.

Victoria's Biofuels Sector Expanding

A new \$1.3 million bioenergy production facility will be built near Echuca in Victoria, allowing regional industries access to an alternative energy source that will help lower their carbon footprint. The project, scheduled for completion by the end of 2012, will involve production of 1.5 million litres of biodiesel and 4,000 litres of animal feed at Ecofuels' new bioenergy production facility at Madowla Park. The Victorian Government is contributing \$500,000 to the project, which includes:

- sourcing locally grown Indian mustard or canola to use as oilseed
- pressing oilseed for oil to convert to biodiesel
- pelletising press-cake or meal; and
- operating the biodiesel and blending plant.

Sustainable Bioproducts Collaboration

A \$10 million, four-year project at the University of Sydney, in collaboration with the CSIRO, will investigate sustainable ways to produce plastics, foams, paints and other everyday materials. Led by Professor Thomas Maschmeyer, the research will build on Professor Maschmeyer's current research making biocrude oil from sustainable feedstocks, including forestry waste and seaweed, in a process that uses water at very high temperatures and high pressures. This new project will find ways to use the products that are created in addition to the biocrude oil. It is anticipated these gases and chemicals could be put to a range of uses, including making the polyethylene and propylene that is commonly found in furniture and plastics, and material called aromatics that are used in resins, foams, rubbers, coatings, varnishes and solvents.

At Sydney University the research will be conducted together with Professor Brian Haynes, primarily at a purpose-built facility known as the NCRIS biomass reactor, using waste products already being generated by the timber industry. The second part of the project will be conducted by the CSIRO, focusing on enzymatic routes towards renewable chemicals as well as on the gaseous products of the HTU process. Researchers predict that in future sea grass and algae could provide the raw materials for the production, which by taking place in salt water offshore, has the advantage of competing with neither current land, nor fresh water uses.

The project has the support of major industry players such as Lyondell-Basell, Dow Australia, Visy, Amcor and Ignite Energy, as well as the Department of Resources, Energy and Tourism and the Department of Innovation, Industry, Science and Research, with each of these bodies having a seat on the project's advisory board. The project - called the Advanced Catalytic Processes for Renewable Chemicals Manufacture - is funded by a \$5 million cash grant from the Science and Industry Endowment Fund (SIEF), matched by \$5 million in-kind funding from CSIRO and the University of Sydney.

For further information, see: <http://sydney.edu.au/news/84.html?newscategoryId=2&newsstoryid=8241>

International Developments

First EU Sustainability Schemes for Biofuels Get the Go-Ahead

The European Commission has recognized seven voluntary schemes for sustainability criteria for biofuels. These voluntary schemes, that verify where and how the biofuels are produced, adequately cover the sustainability requirements of the Renewable Energy Directive (RED) and can therefore be used by all 27 Member States to comply to the RED.

The EU has set itself an objective to achieve a minimum share of 10% renewable energy in transport by 2020. Where biofuels are used to achieve this target, these must meet a set of sustainability requirements. The Commission has thoroughly checked several schemes against the sustainability requirements and is satisfied that seven schemes are recognized for five years:

- **ISCC** – German government financed scheme covering all types of biofuels
- **Bonsucro EU** – Roundtable initiative for sugarcane biofuels, focusing on Brazil
- **RTRS EU RED** – Roundtable initiative for soy based biofuels, focusing on Argentina and Brazil
- **RSB EU RED** – Roundtable initiative covering all types of biofuels
- **2BSvs** – French industry scheme covering all types of biofuels
- **RSBA** – Industry scheme for Abengoa covering their supply chain
- **Greenergy** – Industry scheme for Greenergy covering Brazil sugar cane ethanol

The Commission is currently in discussions with other voluntary schemes to improve their standard in order to meet the sustainability requirements for biofuels. The recognised schemes and the assessment reports will be published on the [Transparency Platform](#). Further details can be found in the [MEMO/11/522](#). For further information, [click here](#).

Oxford Catalysts Wins Biofuel Reactor Order

Following the successful demonstration of its microchannel Fischer-Tropsch (FT) reactor for small-scale production of biofuels at a biomass gasification plant in Güssing, Austria, the Oxford Catalysts Group has now received an order for two full-scale FT microchannel reactors from a Fortune 500 company. According to Oxford Catalysts, the customer plans to use the reactors in a commercial synthetic fuels plant in the US. The plant, which has a nominal capacity of about 50 barrels per day, is expected to begin operating in 2012.

According to Oxford Catalysts, distributed production – the production of synthetic fuels in small scale plants located near the source of the feedstock and markets for the fuels – based on the use of microchannel reactors provides a way to turn this 'wasted' resource into a valuable commercial product. This is the third commercial order received by the Oxford Catalysts Group for its microchannel FT technology. The previous two orders were received from the Portuguese company SGC Energia in December 2010 and April 2011 for use in a biofuels plant due to begin operating in Brazil in 2012.

For full article: <http://www.renewableenergyfocus.com/view/19784/oxford-catalysts-wins-biofuel-reactor-order>

Biodiesel Energy Balance Surpasses 5-to-1

A report co-authored by researchers from the University of Idaho and the USDA, titled "Energy Life-Cycle Assessment of Soybean Biodiesel Revisited," found that for every unit of fossil energy needed to produce biodiesel, it returns a stunning 5.54 units of renewable energy. This energy-in, energy-out ratio is called energy balance or fossil energy ratio. The study also compared biodiesel with other alternative fuels receiving mainstream attention such as liquefied propane and natural gas. A comparison with gasoline was also evaluated.

In comparison to an earlier 2009 study, the new study found: the energy input in soybean agriculture was reduced by 52 percent; the energy input in soybean processing was reduced by 58 percent; the energy input in biodiesel production (transesterification) was reduced by 33 percent, per unit volume of biodiesel produced; overall, the energy input reduction was 42 percent for the same amount of biodiesel produced.

For full article: <http://www.biodieselmagazine.com/articles/7948/biodiesel-energy-balance-surpasses-5-5-to-1>

Biomass Could Provide 5th of Global Energy – Without Damaging Food Supply

Up to one fifth of global energy could be provided by biomass without damaging food production, according to a new report by the UK Energy Research Centre (UKERC). The report reviews more than 90 global studies on the subject, and finds the main reason scientists disagree about the potential role of biomass to meet energy needs, is their different assumptions about population, diet, and land use. The worldwide demand for fossil fuels is equivalent in biomass terms to all global agriculture and commercial forestry combined – something that would only be possible if a greater amount of food could be grown on a smaller amount of land.

Read more at: <http://www.renewableenergyfocus.com/view/22557/biomass-could-provide-5th-of-global-energy-without-damaging-food-supply/>

Advanced Waste Gasification Plant will Handle Newburgh, NY Garbage

The City of Newburgh, NY, north of New York City, plans to save as much as \$14 per tonne on its waste disposal by sending it instead to a soon-to-be-built biomass gasification plant in nearby Montgomery, NY. The plant, being built by Taylor Biomass Energy, features a proprietary biomass gasification system that can convert a wide variety of feedstocks into a synthesis gas (syngas) which is converted into clean energy in a process the company believes to be more efficient than competing technologies. Taylor says that it can achieve an overall power generation efficiency of over 40%, nearly twice that of conventional combustion technologies. Source: <http://www.wastebusinessjournal.com/news/wbj20110726H.htm>

Neste Oil Opens Rotterdam Renewable Diesel Plant

Neste Oil opened its Rotterdam facility to produce hydrotreated vegetable oil (HVO) renewable diesel on 19 December 2011. The Rotterdam refinery produces NExBTL renewable diesel, Neste Oil's proprietary product. The plant employs 150 people. This follows the start of production in Singapore and Finland, adding a further 800,000 tonnes to its capacity and bringing the total output to two million tonnes of HVO. The refinery cost approximately €670 million to build. The amount of diesel produced on site will be enough to fuel half a million cars and will reduce GHG by about 1.5 million tonnes a year. Neste also plans to build a pilot plant which will use waste-based microbial oil on the site of its Porvoo, Finland refinery, which is anticipated to be the first plant of its kind in Europe that will produce microbial oil for use in manufacturing renewable fuel from waste-based raw materials.

Global Bioenergy Partnership Report Released

The Global Bioenergy Partnership (GBEP) endorsed the report, *The Global Bioenergy Partnership Sustainability Indicators for Bioenergy*, in November 2011. The report presents 24 voluntary sustainability indicators for bioenergy intended to guide analysis undertaken of bioenergy at the domestic level with a view to informing decision making and facilitating the sustainable development of bioenergy. The report responds directly to the mandates GBEP received from G8 Leaders in the last few years and facilitates the implementation of Agenda 21 and the Johannesburg Plan of Implementation.

The report can be downloaded at: <http://www.globalbioenergy.org/programmeofwork/sustainability/gbep-report-on-sustainability-indicators-for-bioenergy/en/>

RWE npower's 750-MW Biomass Power Plant Commissioned

RWE npower's coal plant in Tilbury, England, was commissioned in December 2011 as a dedicated biomass power plant with an output of about 750 MW. RWE npower believes the development will be the largest biomass plant in the world. The plant will use wood pellets, primarily from RWE's 750,000-tonne per year wood pellet plant in Waycross, Georgia, USA. Under UK legislation, older coal-fired power plants are given the choice of investing in costly improvements, or may agree to close down after being allowed 20,000 final hours. The Essex plant will not make the improvements, but will finish its hours using solely biomass. At the end of those 20,000 hours, around mid-2013, RWE will decide whether to continue to operate the plant as a dedicated biomass plant. The plant is expected to use around 2.3 million tonnes of wood pellets between now and this decision point in 2013.

Kedco Planning to Construct Five Biomass Plants Across the UK

The Irish renewable energy developer Kedco is planning to build five projects in the UK that will use wood and waste to generate electricity. The facilities will utilise gasification and anaerobic digestion to produce power and heat. The company plans to build facilities in the south of England, the midlands, northern England and Derbyshire. The five facilities will have a capacity of 15 MW and will cost 59 million pounds (A\$89 million). In addition, Kedco is planning a 12MW plant in Enfield that will cost 46 million pounds.

Poultry-Litter-to-Energy Partners Propose New Maryland Plant

A partnership between US agriculture giant Perdue AgriBusiness and animal waste utility developer Fibrowatt LLC could lead to a 10 MW biomass power plant in Salisbury, Maryland. The two companies have submitted a proposal in response to the Maryland Clean Bay Power Request for Proposals. The proposed combined-heat-and-power (CHP) biomass boiler operation in Salisbury will create almost 32,000 kg of steam for an adjacent Perdue Agribusiness complex, using a combination of poultry litter, layer hen manure, wood chips and other locally sourced biomass. Fibrowatt built the USA's first poultry litter facility in Benson, Minnesota.

Terrabon Wins US\$9.6 Million Waste-to-Jet Fuel Deal

Houston based bioenergy company, Terrabon, has secured a US\$9.6 million, 18-month contract from Logos Technologies to produce 6,000 litres of renewable jet fuel for the Defense Advanced Research Projects Agency (DARPA). Terrabon's production solution converts low-cost, non-food biomass into chemicals such as acetic acid, ketones and alcohols that can be processed into renewable fuels. In August 2010, Waste Management Inc. partnered with Terrabon and Valero to commercialize a technology to create low-carbon liquid transportation fuel from organic waste.

Source: Waste Business Journal. For full article see <http://www.wastebusinessjournal.com/news/wbj20110726J.htm>

Report Compares Pyrolysis Techniques

The Energy Research Centre of the Netherlands recently published a thesis on pyrolysis research written by ERC researcher Paul de Wild. According to the author, only biomass can be used to replace the petroleum used to produce chemicals. The thesis, entitled 'Biomass Pyrolysis for Chemicals,' addresses pyrolysis techniques that use hard wood, soft wood and straw as feedstocks. According to de Wild's research, aquathermolysis, a hot pressurised water treatment, coupled with pyrolysis seems to be one promising technology option. It is noted in the paper the technology combination integrates fractionation of biomass with production of chemicals. The research also addresses staged degasification, a pyrolysis-based conversion method.

The report states that a pyrolysis based lignin biorefinery approach, called LIBRA, has been developed to transform lignin into phenolic bio-oil and bio char using state of the art bubbling fluidized bed reactor technology. The bio-oil can potentially be used for value-added products such as a substitute for petrochemical phenol in various applications. The bio char can be used as a fuel, as a soil-improver or as a precursor for activated carbon. A full copy of the thesis can be found on the ERC website:

http://www.ecn.nl/fileadmin/ecn/corp/Nieuws/2011/Thesis_pyrolyse_compleet_Paul_de_Wild.pdf

Natural Gas from Renewable Feedstocks

An analysis by Kachan & Co. in conjunction with three North American gas utilities looked at leading bio natural gas (BNG) companies. This small cadre of emerging vendors promise large quantities of drop-in quality pipeline-injectable bio natural gas. BNG is a biologically-created compound chemically similar to commercial fossil-based natural gas. It is poised to make an impact on the natural gas marketplace and as a new entrant in the world of next generation advanced biofuels. As the installed base of intermittent renewables increases, BNG could find itself playing an intermittency smoothing role, with "green" dispatchable resources like NGCC/IGCC turbines powered by BNG forestalling the need for other renewable storage.


If BNG produced by vendors profiled in this report and elsewhere can reach scalability and indeed leverage the global natural gas infrastructure, BNG could become one of the most valuable renewable fuels for utility-scale electric power generation, transportable via existing natural gas pipeline infrastructure, and compressible in LNG/CNG forms for transportation fuels. Learn more about the report at <http://www.kachan.com/research/bng-bio-natural-gas-report>

Research Highlights Eco-problems of High Energy Algae

The American Chemical Society has published a report by researchers from the New University of Virginia in the US entitled 'Environmental Impacts of Algae-Derived Biodiesel and Bioelectricity for Transportation' in Environmental Science and Technology. The gist of the report is that whilst algae may be a good future source of energy, the environmental issues it causes could mean it will never be used on a large scale. The work found algae based fuels are 'no silver bullet' in the search for low carbon transport. See: <http://pubs.acs.org/doi/abs/10.1021/es200760n>

President Obama Announces Initiative to Spur Biofuels Industry

President Obama announced that DOE, the U.S. Department of Agriculture (USDA), and the U.S. Navy will invest up to \$510 million to produce advanced drop-in aviation and marine biofuels that are completely interchangeable and compatible with conventional fuels. Over the next three years, in partnership with the private sector, the group will seek renewable sources to power military and commercial transportation. The biofuels initiative is being steered by the White House Biofuels Interagency Work Group and the White House Rural Council. The joint plan calls for DOE, USDA, and the Navy to invest a total of up to \$510 million, with private industry providing at least a one-to-one match.

See the [White House press release](#) and the [departmental agreement](#) 

Biomass Power Plant Construction Begins at Dutch Port

A 50 MW woody biomass power plant is being built at the Northern Netherlands port of Delfzijl and is set to come online in 2013. The plant will convert 300,000 tonnes of recycled wood waste to produce electricity for Eneco, a Dutch energy supplier. The facility will use a circulating fluidized bed boiler to burn biomass feedstock brought in by rail, truck and even by sea. Most of the biomass will be locally sourced, although some will be shipped in from abroad. In addition, water taken from the adjacent North Sea will cool the steam turbine. Joining Eneco on the €155 million (A\$193 million) project are several European-based EPC (engineering, procurement and construction) contractors and technology providers, including Areva Renewables GmbH of Germany, Ballast Nedam Infra of the Netherlands and Metso Power of Finland.


Approval Granted for Dalkia's Biomass Power Plant in England

The UK Government has approved a 53 MW biomass power plant at a former airfield in Northern England's Yorkshire to be developed by Dalkia BioEnergy plc. Construction must begin within five years. The plant will require about 360,000 tonnes of wood waste per year, diverted from landfills and delivered to the plant via the Aire and Calder Navigation Canal. The plant is Dalkia's latest venture in the U.K. biomass power industry. One of its most recent notable projects is a 50 MW cogeneration plant in Fature, France, that was commissioned in March 2011 and is the largest in that country.

DOE, Agriculture Department Fund Bioenergy Crop Research

DOE and the U.S. Department of Agriculture announced in August that they have awarded 10 grants totaling \$12.2 million to spur research into growing biofuel and bioenergy crops. The 10 projects are located in California, Colorado, Illinois, Florida, Kansas, Missouri, Oklahoma, South Carolina, and Virginia. The investments are part of a broader administration effort to develop domestic renewable energy and advanced biofuels.

Overall, the projects are designed to improve special crops to be grown for biofuels, including selected trees and grasses, by increasing their yield, quality, and ability to adapt to extreme environments. The research will be conducted on poplar trees and three grasses — Switchgrass, Miscanthus and Brachypodium — among other plants. Because these crops will be optimized to tolerate conditions such as drought and poor soils, they can be grown on marginal lands unsuitable for food crops, thereby avoiding competition with food production.

See the [DOE press release](#) and the [project descriptions](#) 

Researchers Pinpoint the Exact, Single Gene that Controls Ethanol Production Capacity in a Microorganism

DOE reported that a team of researchers at its BioEnergy Science Center (BESC) have pinpointed the exact, single gene that controls ethanol production capacity in a microorganism. This discovery could be the missing link in developing biomass crops that produce higher concentrations of ethanol at lower costs. BESC is led by DOE's Oak Ridge National Laboratory and is one of three DOE Bioenergy Research Centers.

See the [DOE press release](#).

DOE Offers a Conditional \$133.9 Million Loan Guarantee for Biofuel Plant

The US Department of Energy (DOE) has announced the offer of a conditional commitment for a US\$133.9 million loan guarantee to Abengoa Bioenergy Biomass of Kansas to develop a commercial-scale cellulosic ethanol plant in Kansas. Project sponsor Abengoa Bioenergy US Holding, Inc., estimates the project will create approximately 300 construction jobs and 65 permanent jobs. The project will be located in Hugoton, Kansas.

The project is expected to convert around 300,000 tons of corn stover (stalks and leaves) into approximately 87 million litres of ethanol per year using an innovative enzymatic hydrolysis process. The project maximises the use of agricultural crop residues

that would otherwise not be utilised, and it uses feedstock that does not compete with feed grains. Annually, the project is expected to displace more than 59 million litres of gasoline, which will avoid more than 139,000 tonnes of carbon dioxide emissions. The facility will be self-sufficient, using unconverted biomass to generate 20 MW of electricity to power the cellulosic ethanol plant. DOE's Loan Programs Office has issued loans or loan guarantees, or offered conditional commitments for loan guarantees totaling nearly \$40 billion to support 42 clean energy projects across the United States. See the DOE [news release](#) and [Loan Programs Office](#).

Biofuels Research Facility Opens at DOE's Lawrence Berkeley National Laboratory

The Advanced Biofuels Process Demonstration Unit was commissioned in August at a DOE Lawrence Berkeley National Laboratory (LBNL) site in Emeryville, California. Built and operated with funds from the American Recovery and Reinvestment Act and the DOE, the facility will enable researchers and engineers to test promising new processes for biofuels production that will support the domestic biofuels industry and improve the nation's energy security. The 15,000 square-foot facility, backed by US\$17.7 million in Recovery Act funds, will improve collaboration on bioenergy research and development efforts. DOE's Office of Science Bioenergy Research Centers, DOE-supported researchers, academic institutions, non-profit research organisations, and companies will be able to use the facility to test and develop emerging biofuels technologies at a larger scale than was possible before. See the [DOE press release](#), the [LBNL press release](#), and the [DOE Biomass Program website](#).

UK Ministers Urged to Back Biomass with Subsidy Certainty

The UK government has been urged to give support to the UK's emerging biomass industry, ahead of an upcoming review of renewable energy subsidies. The newly-launched Back Biomass campaign is supported by the Renewable Energy Association (REA), British Sugar, Drax, E.ON, Future Biogas and other companies. The campaign is designed to raise the profile of biomass as a "proven, practical, secure source of low-carbon energy." The UK Government's Renewables Roadmap said biomass could deliver 6 GW of capacity by 2020, and named it as one of eight technologies that could make the biggest contribution to the UK's 2020 renewable energy targets. See:

<http://www.powerengineeringint.com/articles/2011/08/uk-ministers-urged-to-back-biomass-with-subsidy-certainty.html>

USDA and DOE Fund Research Projects to Accelerate Bioenergy Crop Production

The U.S. Departments of Energy and Agriculture have awarded 10 grants totaling US\$12.2 million to spur research into improving the efficiency and cost-effectiveness of growing biofuel and bioenergy crops. The investments are part of a broader effort by the Obama administration to develop domestic renewable energy and advanced biofuels, providing a more secure future for America's energy needs and creating new opportunities for the American farming industry.

Full story: http://apps1.eere.energy.gov/news/progress_alerts.cfm/pa_id=594

\$12 Million for Drop-In Biofuels

The U.S. Department of Energy has announced up to US\$12 million to fund three small-scale projects in Illinois, Wisconsin, and North Carolina that aim to commercialize novel conversion technologies to develop drop-in biofuels and bio-based chemicals. Drop-in biofuels are fuels that can serve as direct replacements or supplements to existing gasoline, diesel, and jet fuels, without any changes to existing fuel distribution networks or engines. The projects, funded through DOE's Office of Energy Efficiency and Renewable Energy, seek to accelerate R&D that will lead the way toward affordable, clean alternatives to fossil fuels and diversification of the US energy portfolio.

Full story: http://apps1.eere.energy.gov/news/progress_alerts.cfm/pa_id=606

Elsevier Launches Biofuel Research and Discovery Tool

Elsevier has announced the launch of Elsevier Biofuel, an online search and discovery tool that provides biofuel managers as well as research and development professionals instant access to scientific, industrial, and commercial information to solve their continued innovation requirements.

Source: [Elsevier Biofuel](#)

Department of Energy Releases New 'Billion-Ton' Study Highlighting Opportunities for Growth in Bioenergy

The U.S. Department of Energy has released a report detailing U.S. biomass feedstock potential nationwide. The report examines the nation's capacity to produce a billion dry tons of biomass resources annually for energy uses without impacting other vital U.S. farm and forest products, such as food, feed, and fiber crops. The study provides industry, policymakers, and the agricultural community with county-level data and includes analyses of current U.S. feedstock capacity and the potential for growth in crops and agricultural products for clean energy applications. The biomass resources identified in the report could be used to produce renewable biofuels, biopower, or bioproducts. For example, with continued developments in biorefinery capacity and technology, the feedstock resources identified could produce about 322 billion litres of biofuels – enough to replace approximately 30% of the USA's current petroleum consumption. This data will be used by both the public and private sector to grow the bioenergy industry and developing alternative fuels for America's transportation sector.

The report supports the conclusion of the original 2005 Billion-Ton Study with added in-depth production and costs analyses and sustainability studies. The new report also conducts in-depth analyses of land-use changes and competition among food, feed, and energy crops. The report's findings demonstrate that increases in biomass-derived energy sources can be produced in a sustainable manner through the use of widely-accepted conservation practices, such as no-till farming and crop rotation. In fact,

in some cases increased production may contribute to environmental improvements. For example, removing tree portions that are unfit for market in the forest industry can reduce forest fire risk, and planting energy crops on marginal lands can reduce soil erosion. The baseline scenario in the newly released report shows that biomass resources could be increased from a current 473 million dry tons annually to nearly 1.1 billion dry tons by 2030, under a conservative set of assumptions about future increases in crop yield.

To view the report and explore its data, which was analysed at a local level – county-by-county – visit the [Bioenergy Knowledge Discovery Framework](#). For further information, see [2011 U.S. Billion-Ton Update: Biomass Supply for a Bioenergy and Bioproducts Industry](#)

B&W Awarded US\$205 Million in Renewable Energy Power Plant EPC and O&M Contracts

Babcock & Wilcox Construction Co., Inc. (BWCC) has been awarded a contract worth more than US\$186 million to engineer, procure and construct (EPC) a biomass power plant for Berlin Station, LLC in Berlin, New Hampshire. A subsidiary of Delta Power Services, LLC, has been awarded a separate six-year contract worth more than \$19 million to provide operations and maintenance services (O&M) for the plant.

BWCC will lead a team that will convert the former Fraser Paper Mill to a 75 MW biomass energy power plant that will be fueled by wood chips and logging waste. BWCC's scope of work is to engineer, procure and construct the plant and all associated balance of plant support systems, including the turbine/generator and fuel handling equipment. BWCC and its affiliated companies will design and supply material to convert the plant's existing black liquor recovery boiler to a bubbling fluidized bed (BFB) boiler, design and supply the plant's selective catalytic reduction system for nitrogen oxides control, a baghouse for the control of particulates emissions, a continuous emissions monitoring system (CEMS) and other plant equipment, and will design and supply ash handling equipment.

Engineering for the project will begin immediately, and start-up is scheduled to begin in the second half of 2013.

New Report on Bioplastics

The annual output of the world's plastics industry is about 225 million tonnes per year, yet in 2011, bioplastics provided less than 1% of world plastics, according to a new whitepaper. Reasons cited in the report for bioplastics being held back included that they are generally two or three times more expensive than the major conventional plastics such as polyethylene or PET. However, it pointed out that this disadvantage will tend to diminish as bioplastics manufacturing plants become larger and benefit from economies of scale.

The report adds that when biological feedstock are particularly cheap, as in Brazil, large biopolyethylene plants may already be close to being cost competitive with oil-based alternatives. It says that for the 1 million tonnes of bioplastics to be produced annually, around 300,000 hectares of land would be required to grow crops, or 0.02% of the world's total naturally irrigated area available for cultivation. According to the report, even if half the world's plastics were made from crops grown on food land, the industry would only require 3% of the world's cultivated acreage. For more information and to download a copy of the report, go to: http://biomebioplastics.com/uploads/files/white_paper_doc.pdf

World Energy Demand to Rise 53 percent by 2035

World energy consumption is set to climb by 53 per cent between 2008 and 2035, with renewables outpacing but failing to overtake fossil feedstocks, according to the findings of a report from the US Energy Information Administration (EIA).

The [International Energy Outlook 2011](#) (IEO2011) released on 19 September forecasts that renewable energy will be the fastest growing source of primary energy over the next 25 years but will fail to overhaul fossil fuels such as coal and natural gas. Fossil fuels are expected to account for 78 percent of world energy use in 2035.

Source: Power Engineering International - for full article see <http://www.powerengineeringint.com/articles/print/volume-19/issue-9/regulators/world-news/international.html>

Three Publications on Sustainable Biomass from The Netherlands

The first report describes the main sustainability requirements imposed by the regulatory framework for biofuels, biomass for energy purposes and illegal wood in the European Union (EU) and the United States of America (US). Its main conclusion is that EU and US biofuel legislative frameworks are incomparable looking at the overall structure, definitions used, sustainability requirements, reporting methodology and reporting requirements.

See <http://www.agentschapnl.nl/nieuws/sustainability-requirements-eu-and-us-biomass-regulatory-frameworks>

The second report contains a selection model and tools for biomass certification schemes. The report guides the reader through the three questions that enable them to make a decision. Furthermore, the report provides detailed information on 18 certification schemes, with extensive information of five generic schemes that are expected to be most relevant, namely: Forest Stewardship Council (FSC), International Sustainability and Carbon Certification (ISCC), Netherlands Technical Agreement 8080 (NTA8080), REDcert certification system (REDcert) and Roundtable on Sustainable Biofuels (RSB).

See <http://www.agentschapnl.nl/nieuws/guidance-selection-certification-schemes>

The third report is a benchmark study between the NTA 8080 scheme and other certification systems. If organizations already

have a (certified) system in place, less effort is needed to meet the NTA 8080 requirements. The information in this report can be used by auditors to set up an audit plan using a risk-based approach; those aspects that are also covered by other (certified) systems will probably have a lower risk.

See <http://www.agentschapnl.nl/content/report-benchmark-study-nta-8080-vs-other-systems>

Loan Guarantees Finalized for Bio-Refinery, Geothermal, and Wind Projects

The US Department of Energy has finalised three loan guarantees totaling US\$625 million in support of a biorefinery in Iowa, a geothermal power project in Nevada, and New Hampshire's largest wind farm. POET's Project LIBERTY, supported by a US\$105 million guarantee, will be built in Emmetsburg, Iowa. It is expected to produce up to 95 million litres of ethanol per year. POET estimates the project will fund approximately 200 construction jobs and 40 permanent jobs. It is also expected to generate about US\$14 million in new revenue to area farmers who will provide the corn crop residue. The project's innovative process uses enzymes to convert cellulose from corncobs, corn leaves, and corn husks into ethanol. See the [DOE press release](#).

Gevo Receives Grant for Bio-Jet Fuel

Gevo has received a US\$5 million grant by the United States Department of Agriculture to develop bio-jet fuel from woody biomass and forest product residues. The grant is part of the US\$40 million that has been given to the Northwest Advanced Renewables Alliance, a consortium led by Washington State University. Gevo plans to use woody biomass cellulosic feedstock to create petroleum substitutes such as isobutanol which can be used for aviation fuel.

Three US Coal Plants Convert to Biomass

Enviva LP has signed a contract with Dominion Virginia Power, one of the U.S.'s largest energy producers, to supply biomass to two power facilities in southeast Virginia. Plans to convert three 63 MW coal burning peaking plants to 50MW base load plants using biomass were announced by Dominion. Enviva will supply two of these plants, located in Southampton and Hopewell, Virginia. Biomass fuel provided by Enviva is a renewable alternative to fossil fuels. Dominion's application to convert the power stations is pending before the Virginia State Corporation Commission.

Enviva's flagship wood pellet plant in Ahoskie, North Carolina, has recently commenced operations, producing up to 400,000 tonnes of wood pellets per year. In August, the company also announced plans to develop a second wood pellet facility in nearby Northampton County and a strategic partnership with Biomass Energy to operate its wood chip and pellet manufacturing facility. The company's total annual production capacity was scheduled to reach 750,000 tonnes by the end of 2011.

Source: http://www.electricenergyonline.com/?page=show_news&id=161252

£6m Plant to Produce Green Electricity

A £6million project is being developed for a Northumberland industrial estate in the UK, which could see a renewable energy plant fed by a relocated sawmill's wood waste. The scheme will use woodchips from sustainable sources to fuel a Combined Heat and Power (CHP) power plant. The power plant will have the capacity to produce around one megawatt of electricity – enough to power between 1,500 and 1,800 homes.

Northumberland Estates, which has over 4,000 hectares of forestry, would relocate its sawmill, bringing the two operations together. After looking at different options the project has settled on a pyrolysis technology.

Source: [Northumberland Gazette](#)

Pratt & Whitney Build Waste Heat Recovery Plant at Pellet Mill in Canada

Pratt & Whitney Power Systems' Turboden subsidiary will install a 2MW biomass Organic Rankine Cycle power plant at a 140,000 tonne per annum pellet plant at Vanderhoof, British Columbia, Canada. The plant will use thermal oil, heated by the mill's processing wastes.

The installation will be the first ORC in a forest products facility in North America. Turboden is well-known in the European forest industry, with over 250 plants in operation. The plant is similar in concept to Australia's first installation at Gympie Timber Co., Queensland, which was part of the Bioenergy Australia 2011 conference tour .

Viaspace signs MOU with Seema for New Biomass Crop Cultivation in Thailand

Viaspace Green Energy has signed a memorandum of understanding with Seema Energy in Thailand to grow 'giant king grass' to power Seema's proposed 90MW biomass plant. Viaspace believes the grass has the highest energy yield per hectare of potential energy crops.

The joint venture will see a test plot cultivated at first and then a further two hectare testing facility will be used to analyse giant king grass grown under the Thai climate. The plant is expected to come into commercial operation in 2014 and Viaspace will grow up to 930,000 tonnes of giant king grass a year, which has 35% moisture, to produce the 90MW of energy. The project is expected to create 2,000 jobs for local farmers.

By 2022, the Thai government plans to be producing 3,700MW from biomass and is in particular promoting biomass power generation from dedicated energy crops.

Source: http://www.bioenergy-news.com/index.php?/Industry-News?item_id=4245

Air China Flies First Biofuel Powered Plane

Air China has undertaken a one hour demonstration flight of a Boeing 747 aircraft using biofuel derived from jatropha grown in China. The biofuel was a drop-in fuel replacement for regular jet fuel, mixed 50:50 with petroleum derived jet fuel. The airline partnered with Boeing, Honeywell, Civil Aviation Administration of China, PetroChina and technology Pratt & Whitney to enable the trial. The flight was undertaken as part of the Energy Cooperation Program's Sustainable Biofuel Program, which is being led by Boeing and other airline industry companies. The program is evaluating the potential to use aviation biofuels throughout China and is the first such program to be undertaken in Asia, according to Pratt & Whitney.

32 MW Dutch Waste to Energy Facility Opened

SITA's ReEnergy waste to energy plant in Roosendaal, Netherlands has started operations. According to the company, the 291,000 tonne capacity, 32 MW ReEnergy plant is one of the most modern waste to energy facilities in Europe and incorporates state-of-the-art process technology, with water cooled grate firing and one-phase flue gas scrubbing. The ReEnergy facility is expected to generate 275,000 MWh of electricity annually, supplying 70,000 households with power. The facility will also supply heat to greenhouses nearby, which the company claims will save approximately 3.5 million cubic metres of natural gas. A consortium, including Dutch construction company, Royal BAM Group and waste to energy technology manufacturer, Hitachi Zosen Inova, was responsible for the turn-key erection of the facility, which required an investment of 200 million Euro. See the full article at: http://www.waste-management-world.com/index/display/article-display/7134335891/articles/waste-management-world/waste-to-energy/2011/11/32_MW_Dutch_Waste_to_Energy_Facility_Opened_.html

ReEnergy Holdings Acquires Biomass Facilities

ReEnergy Holdings has purchased five US biomass production facilities located in Maine and New York from Quebec company Boralex for about US\$93 million. In Maine the purchases include a 40MW facility in Ashland, a 36MW facility in Fort Fairfield and a 40MW site in Livermore Falls. In New York the facilities include a 50MW plant in Stratton and a 20MW site in Chateaugay. Along with the facilities, ReEnergy has acquired 260 employees and as a result the company's energy portfolio will increase to 240MW in total. The company currently operates a 22MW facility in Lyons Falls, New York; and a 31MW facility in Sterling, Connecticut. Source: Bioenergy Insight - http://bioenergy-news.com/index.php?/Industry-News?item_id=4242

Gasoline from Biowaste Gasification Facility in Louisiana

Colorado based Sundrop Fuels has agreed to purchase a site near Alexandria, Louisiana, for the construction and operation of its first production facility. The plant will use sustainably produced forest waste combined with hydrogen from natural gas to produce up to 190 million litres per year of ready to use 'green gasoline'. A gasification process will be used to convert cellulosic feedstock into synthesis gas, which will then be converted into 'green gasoline'. The plant is expected to employ about 150 people and will cost approximately \$450 to \$500 million to build.

Forthcoming Events

Listed in date order:

First Philippine Bioenergy Conference

12 - 13 January 2012

Manila, Philippines

<http://philippinebioenergy.com>

Pacific West Biomass Conference & Trade Show

16 - 18 January 2012

San Francisco, California

<http://pacificwest.biomassconference.com/ema/DisplayPage.aspx?pageId=About>

9th International Conference on Biofuels

23 - 24 January 2012

Berlin, Germany

http://event.bioenergie.de/index.php?option=com_content&view=article&id=51&Itemid=25

Third UK Biogas Training Course

30 January - 3 February 2012

Dolphin Hotel, St Ives, Huntingdon

<http://www.biogas-training.co.uk/>

Pacific2012 International Maritime Exposition

31 January - 3 February 2012

Sydney Convention and Exhibition Centre, Australia

<http://www.pacific2012.com.au>

9th Annual Biodiesel Conference & Expo

5 - 8 February 2012

Orlando, Florida

<http://www.biodieselconference.org/2012/default.aspx?AspxAutoDetectCookieSupport=1>

2nd annual Municipal Solid Waste to Biofuels Summit

7 - 8 February 2012

Chicago, Illinois

<http://www.renewable-waste.com/biofuels/>

BiogasWorld Trade Fair

21-25 February 2012

Berlin Germany

<http://www.biogas-conference.com/biogasworld2012>

CEC Capacity Building Workshop: Broadcasting Bioenergy

23 February 2012

Sydney
<http://www.cleanenergycouncil.org.au/mediaevents/event-s-calendar.html>

17th Annual National Ethanol Conference: Accelerating Industry Innovation

22 - 24 February 2012
Orlando, Florida

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

3rd Biomass Trade and Power

23 - 24 February 2012
Brussels

<http://www.cmtevents.com/eventschedule.aspx?ev=120208&>

World Sustainable Energy Days

29 February - 2 March 2012
Wels, Austria

<http://www.wsed.at/en/world-sustainable-energy-days/>

IEA Bioenergy Task 39 meeting

27 February - 1 March, 2012
Copenhagen, Denmark

<http://www.Task39.org>

European Pellet Conference 2012

29 February - 1 March 2012
Wels/Austria

<http://www.wsed.at>

EcoForum Conference & Exhibition

7 - 9 March 2012
Sydney

<http://www.ecoforum.net.au/2012>

Bio-based Chemicals 2012

13 - 14 March 2012
Rotterdam, The Netherlands

<http://www.worldbiofuelsmarkets.com/biochem>

World Biofuels Markets

13 - 15 March 2012
Rotterdam, The Netherlands

<http://www.worldbiofuelsmarkets.com>

Bioenergy Processes & Technologies

13 March 2012
In conjunction with World Biofuels Markets
Rotterdam, Netherlands

<http://www.greenpowerconferences.com/EF/?sSubSystem=Prospectus&sEventCode=TBT1203NL&sSessionID=4f4b0d4c9bf23d98e36ba23b326c09d4-7363740>

Bioenergy Economics & Markets

15 March 2012
In conjunction with World Biofuels Markets
Rotterdam, Netherlands

<http://www.greenpowerconferences.com/EF/?sSubSystem=Prospectus&sEventCode=TBE1203NL&sSessionID=a2bbf12f02d03172bd062be56281288d-7363800>

4th Annual Northeast Biomass Heating Expo 2012

22 - 23 March 2012
Saratoga Springs, New York

<http://nebiomassheat.com/>

BioEnergy World Africa 2012

27 - 28 March 2012
Johannesburg, South Africa

www.terrapinn.com/bioenergy

Torrefaction of Biomass Workshop

27-28 March 2012
Faculty of Engineering, University of Leeds, UK
Email: L.I.Darvell@leeds.ac.uk

Future Gas Conference

27 - 29 March 2012
Melbourne

<http://wwfuturegas.com.au>

European Biomass to Power Conference

11 - 12 April 2012
London, UK

http://v11.vuturvex.com/exchange-sites/Whitmore%20Group/59/_crosslink/register.asp?intSitePagelD=5118

International Biomass Conference & Expo

16 - 19 April 2012
Denver, Colorado

<http://www.biomassconference.com/ema/DisplayPage.aspx?pagelD=Home>

7th Congress "Biomass: fuel & power-2012"

18 - 19 April 2012
Moscow

Contact: alex_ablaev@biofuels.ru

Argus European Biomass Trading Conference

19 - 20 April 2012
London

<http://www.argusmedia.com/Events/Argus-European-Biomass-Trading-2012>

18TH ICCI International Energy & Environment Exhibition and Conference

25 - 27 April 2012
Istanbul, Turkey

<http://www.icci.com.tr>

European Algae Biomass Conference

25 - 26 April 2012
London, UK

http://v11.vuturvex.com/exchange-sites/Whitmore%20Group/59/_crosslink/register.asp?intSitePagelD=5164

2nd World Congress of Bioenergy-2012 (WCBE-2012)

25 - 28 April 2012
Xi'an, China

<http://www.bitlifesciences.com/wcbe2012>

The World Congress on Industrial Biotechnology and Bioprocessing

29 April - 2 May 2012
Orlando, Florida

<http://www.bio.org/events/conferences/world-congress-industrial-biotechnology-bioprocessing/2800-0>

34th Symposium on Biotechnology for Fuels & Chemicals

30 April - 3 May 2012
New Orleans, Louisiana

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Waste 2012

1 - 3 May 2012

Opal Cove Resort, Coffs Harbour

www.impactenviro.com.au/waste2012

4th Annual Carbon Capture & Storage Summit

9 - 10 May 2012

Dusseldorf, Germany

<http://v11.vuturvex.com/exchange-sites/Whitmore%20Group/59/conferences/eu-ecc4.asp>

2nd regional Clean Power Asia Conference & Exhibition

15 - 17 May 2012
Bali, Indonesia

http://2012.cleanpower-asia.com/Default/Home_9079.aspx

World Bioenergy

29 - 31 May 2012
Jonkoping, Sweden

<http://www.elmia.se/en/worldbioenergy/>

Corn Utilization and Technology Conference (CUTC)

4 – 6 June 2012

Indianapolis, Indiana

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

8th International Conference ORBIT2012

"Global assessment for organic resources and waste management"

12 - 15 June 2012

Rennes, France

<http://www.orbit2012.fr/>

European Biodiesel 2012

13 – 14 June 2012

Krakow, Poland

<http://www.ctpp.cz/cze/article/783-pozvnka-konference-aci-s-european-biodiesel-summit-13-14-6-2012-krakov>

International Bioenergy Conference and Exhibition

13 - 15 June 2012

Prince George, BC, Canada

<http://library.constantcontact.com/download/get/file/1104220831308-23/IBCE+2012+-+Call+for+Papers.pdf>

Bio International Convention

18 - 21 June 2012

Boston Convention & Exhibition Center, MA

<http://convention.bio.org/2012.aspx>

20th European Biomass Conference and Exhibition

18 - 22 June 2012

Milan, Italy

<http://www.conference-biomass.com/Conference-Subjects-and-Call-f.1000.0.html>

AEBIOM European Bioenergy

25 – 27 June 2012

Brussels, Belgium.

<http://www.aebiom.org/conference2012/>

8th Asia Pacific Conference on Algal Biotechnology & 1st International Conference on Coastal Biotechnology

9 - 12 July 2012

Adelaide, South Australia

<http://www.sapmea.asn.au/apcab2012>

Enviro 2012 Conference and Exhibition

24 - 26 July 2012

Adelaide, SA

<https://secure.wmaa.asn.au/ei/getdemo.ei?id=459&s= 2D80YAQUE>

2012 International Energy Conversion Engineering Conference

30 July - 1 August 2012

Atlanta, GA, USA

<http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=2491>

EcoGen 2012

17 - 19 September 2012

Sydney Convention and Exhibition Centre

www.ecogenevent.com

26th Gastech Conference

8 – 11 October 2012

London

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

2012 TAPPI International Bioenergy & Bioproducts Conference

17 – 19 October 2012

Savannah, Georgia, USA

<http://www.tappi.org/content/events/12ibbc/call.pdf>

The AIE 2012 National Conference

12 - 13 November 2012

Power House Museum, Sydney

Contact Russell Wade: russell.wade@industry.nsw.gov.au

Venice 2012 - Fourth International Symposium on Energy from Biomass and Waste

12 - 15 November 2012

Venice

<http://venicesymposium.it/call-for-abstracts>

4th Conference on grain processing and "green" chemicals "Graintek-2012"

14 - 15 November 2012

Moscow

Contact: alex_ablaev@biofuels.ru

Residues

- **WA plant to convert landfill waste to energy:** New Energy Corporation plans to build a \$200 million facility to convert waste to energy in Rockingham, WA. If approved, the plant would handle more than 130,000 tonnes of residential and industrial waste per year, and would be running by 2014. See the full story at <http://www.abc.net.au/news/2011-10-28/waste-to-energy-plant-rockingham/3607362>.
- **Poppy seed oil biodiesel:** A new biodiesel plant in Tasmania's northern midlands at Cressy is producing biodiesel from poppy seeds. The fuel is produced from pressed poppy seeds, left over after the opiate crop is harvested. The plant is expected to produce up to three million litres a year. <http://www.abc.net.au/news/2012-01-08/20110801---poppy-power/3762816?section=tas>
- **Woodchips no longer a renewable energy fuel:** The comments on the ABC article "Woodchips no longer a renewable energy fuel" at <http://www.abc.net.au/unleashed/2790222.html#comments> make for interesting reading.
- **New Ethanol Plant to be built in Michigan:** Cellulosic ethanol technology developer Mascoma Corp. has reached an agreement with Valero Energy Corp. to finance the construction and start-up of a commercial-scale cellulosic ethanol facility, to be built in Michigan, USA. The hardwood-to-ethanol plant will initially be built to produce 76 million litres per year, but could be potentially expanded to produce 151 Ml/a. Construction of the facility is expected to begin by June and should be complete by the end of 2013, according to Mascoma.
- **Insolvency:** German second generation biofuels company Choren Industries GmbH has declared insolvency
Source: <http://af.reuters.com/article/energyOilNews/idAFLDE7670QA20110708>
More information:
<http://www.nfcc.co.uk/news/choren-begins-insolvency-proceedings>
<http://www.consumerenergyreport.com/2011/07/08/what-happened-at-choren/>
<http://theenergycollective.com/robertrapier/60963/what-happened-choren>

- **No link between ethanol production and food prices:** Retail food prices are influenced by many factors that do not include farming, according to a study by Informa Economics, which further shows that increased ethanol production does not lead to higher food prices, writes former Secretary of Agriculture John Block. He also points to the findings of a recent survey by the Department of Agriculture's Economic Research Service, which says that 88.4 cents from every dollar Americans spend on food goes to nonfarm products such as energy, transportation, packaging and labor.
Source: [Fort Worth Star-Telegram \(Texas\)](#)
- **Report on waste to energy in California:** The California Council on Science and Technology has released a new report titled, "Waste-to-Energy in California: Technology, Issues, and Context." For a copy of the report go to: <http://www.ccst.us/publications/2011/2011wte.php>
- **Contract awarded for algae biofuels facility in Sri Lanka:** Algae.Tec, a company dedicated to the production of renewable oils from algae, has been awarded a contract to build its algae biofuels production facility in Sri Lanka. The plant is being constructed for cement and building company Holcim Lanka, and is Algae.Tec's first plant to be built in Asia.
- **SDSU lands US\$1 million federal grant for "bio-oil," biochar project:** South Dakota State University has received a US Department of Agriculture US\$1 million grant for a project that uses pyrolysis to convert biomass into 'bio-oil,' which can be used to produce drop-in fuel substitutes, biochemicals and biochar. Aside from looking at ways to boost bio-oil output, the scientists will also test different types of energy crops for biochar production.
- **Mission NewEnergy:** Mission NewEnergy has commenced selling biodiesel into the Malaysian biodiesel mandate. The Malaysian B5 Palm Oil Biodiesel blending mandate was launched in June. It obligates all oil majors in Malaysia, namely Petronas, Shell, Esso, Chevron and Boustead Petroleum Marketing to have reached a 5 percent biodiesel blend by 1 November 2011 for the central region of Malaysia. During this ramp up period Mission will supply about 2,500 tonnes of biodiesel.
- **Fulcrum Bioenergy raises US\$100 million:** US company Fulcrum Bioenergy has raised \$100 million (USD) in a venture capital financing round. The company uses municipal solid waste (MSW) to produce renewable fuel and currently makes about 2.6 billion litres a year from 13 million tonnes of rubbish taken from landfills in the US. The Fulcrum technology uses a thermochemical gasification system that converts the MSW into a syngas.
- **Algae for carbon dioxide bioremediation:** Navid Moheimani's (2005) PhD thesis from Murdoch University, entitled 'The culture of coccolithophorid algae for carbon dioxide bioremediation' is at: <http://researchrepository.murdoch.edu.au/206/> The whole thesis 6MB is at: <http://researchrepository.murdoch.edu.au/206/2/02Whole.pdf>
- **US\$12.2M to 10 bioenergy-crop research projects:** The US Department of Agriculture and the Department of Energy are handing out grants worth US\$12.2 million to 10 research projects on bioenergy-crop production. The 10 projects are in California, Colorado, Illinois, Florida, Kansas, Missouri, Oklahoma, South Carolina and Virginia.
Source: [DomesticFuel.com](#)
- **Researchers get US\$1.35M in funds to develop grass with more biomass:** A team of researchers at Colorado State University has been chosen to receive US\$1.35 million in federal funds to study ways of boosting the per-acre biomass output of grasses such as sorghum and switchgrass. The proposal aims to ensure producers won't need a bigger land mass for bioenergy crops. Source: [American City Business Journals/Denver](#)
- **Two new Drax biomass stations in Yorkshire and North Lincolnshire:** Formal consent has been given to [Drax](#) to build two new 288 MW biomass plants. The *Ouse Renewable Energy Plant* in Selby, North Yorkshire, will be by owned Drax Biomass (Selby) and built on land at the existing 4,000 MW Drax power station. The *Heron Renewable Energy Plant* will be built by Drax Biomass (Immingham) at South Killingholme in North Lincolnshire. During construction, both biomass developments will employ an average of 600 people on site and have total workforces of around 150 when operational.
- **EIA: U.S. is on track to become world's biggest ethanol exporter:** The U.S. is likely to have overtaken Brazil as the world's biggest exporter of ethanol in the second half of 2011, according to the Energy Information Administration. U.S. ethanol shipments in the first five months of 2011 were more than double the amount in the same period in 2010. Brazil's supply shortages and decision to repeal its 20% import tariff on ethanol through 2011, along with lower European tariffs on ethanol-blended gasoline, are boosting U.S. ethanol exports.
Source: [Reuters](#), [The Des Moines Register \(Iowa\)/Green Fields blog](#)
- **\$207.5M carbon capture, storage project in Ill. breaks ground:** Construction on a US\$207.5 million project to capture and store carbon emissions from an ethanol plant in Decatur, Ill., has started and should be finished in 2013, according to the Department of Energy. The project aims to collect about 1 million tons of carbon dioxide annually from the plant and pipe it 7,000 feet below ground. Source: [St. Louis Post-Dispatch/The Associated Press](#)
- **Report: Global biofuel output reached record level in 2010:** Biofuel production worldwide reached a record 105 billion litres in 2010, up from 90 billion litres in 2009, according to a report from the Climate and Energy Program of the Worldwatch Institute. Elevated oil costs, improving economies and new biofuel requirements in countries including the U.S., Canada and China helped push up biofuel production, the report showed. The U.S. produced the equivalent of 57% of the world's total ethanol output in 2010, while Brazil accounted for 33%, the report added. Source: [DomesticFuel.com](#)
- **Biopower - Global Market Size, Feedstock Analysis, Regulations and Investment Analysis to 2020,** a report from Global Data is on sale for \$3,500 (single user license). It covers the key countries: US, Canada, India, Australia, Japan, Belgium, Italy, Germany, UK. The report contains 193 pages and 109 data tables and 102 figures. Inquiries: Laura Ward, email: lward@globaldata.com
- **Amsterdam Airport Schiphol and KLM take another step on the way to sustainable mobility:** Approximately 40 ground transport vehicles at Amsterdam's Schiphol Airport and KLM fleet are powered by 100% Biodiesel. Both parties are investing efforts in introducing more sustainable transport vehicles at the airport, where a number of electrically-powered

vehicles are also already in use. However, as electric power is not currently suitable for all vehicle types, the use of Biodiesel presents a sustainable alternative. The Biodiesel that Schiphol and KLM will be using for ground transportation consists of 100% spent cooking oil and contains no fossil fuels. The supplier, SkyNRG, also supplies sustainable kerosene for aircraft flown by KLM, Thomson Airways and Finnair. Source: [Schiphol](#)

- **INEOS Waste-to-Fuel Plant Gets US\$75 Million US Loan Guarantee:** INEOS New Plant Energy LLC (Vero Beach, FL) which plans to build an organic waste-to-biofuels plant in Vero Beach, Florida, said it received a US\$75 million loan guarantee from the US Department of Agriculture. Completion of the INEOS plant is expected in mid 2012. It will convert about 300 dry tons per day of citrus fruit, vegetable and yard waste in a gas fermentation process to produce ethanol and enough electricity to run the plant and 1,400 homes.
- **Biomass emits significantly less CO₂ than coal:** Key findings from a new life-cycle assessment study shows that biomass emits just 3 percent of the carbon dioxide that coal power does. The report from the Future Science Group entitled 'Life cycle impacts of forest management and wood utilisation on carbon mitigation: knowns and unknowns' (31 pages) is at: http://www.corrim.org/pubs/articles/2011/FSG_Review_Carbon_Synthesis.pdf
- **An excellent glossary of bioenergy terms** is at: http://www.usbiomassboard.gov/related_information/glossary.html#d
- **Greenearth Energy (ASX:GER)** has established a new subsidiary company to evaluate opportunities in the biomass market. Greenearth Biomass Energy Pty Ltd will look specifically into opportunities in the biomass and waste-to-energy gasification arena. Greenearth Biomass Energy will assess a unique biomass waste-to-energy gasification technology and market opportunity in Indonesia, the unique technology solution is universal in its application potential.
- **AltAir announces camelina biofuels project in California:** AltAir Fuels plans to build a [biojet plant in Bakersfield](#) that will begin producing fuel in 2012. As a result, farmers in the Central and San Joaquin valleys are being encouraged to grow 25,000 acres of camelina under the Biomass Crop Assistance Program.
- **Ethanol exports:** The U.S. Energy Information Administration has projected that the US would surpass Brazil as the world's largest exporter of ethanol, for the first half of 2011. The EIA said that shortages of ethanol and Brazil stemming from harvest conditions and global sugar prices has led to strong imports.
- **Biofuels barometer: 13.6 % increase in EU biofuel consumption in 2010:** The EurObserv'ER has published its annual Biofuels Barometer, which measures progress made by the industry in the past year. The report shows an increase of 1.7 million tonnes of biofuel used in EU transportation fuel from 2009 to 2010, with an estimated total 2010 consumption level of 13.9 million tonnes of oil equivalent. According to the study, future growth in Europe is expected to be driven primarily by countries that have not yet achieved their goals under the Renewable Energy Directive. Source: [EurObserv'ER](#)
- **Mission signs biodiesel supply deal with global oil major:** Mission NewEnergy has signed a contract to supply sustainability-certified biodiesel to a global oil major. The six-month contract will begin in January 2012 and is expected to generate revenue in excess of \$40m. Mission NewEnergy group CEO Nathan Mahalingam said the company's fully certified biodiesel under the International Sustainability & Carbon Certification System (ISCC) enhances the company's position in the European market. <http://biofuels.cleantechnology-business-review.com/news/mission-signs-biodiesel-supply-deal-with-global-oil-major-190811>
- **UK approves 299 MW Holyhead biomass plant:** The UK Department of Energy and Climate Change (DECC) has given consent to Anglesey Aluminium Metal Renewables to construct a 299 MW biomass fuelled power station at Penrhos Works, Holyhead, Anglesey which could employ up to 600 people during construction with around 100 full-time personnel when operational. The biomass is expected to be sourced from both imported and local sources, with imports coming in through the Port of Holyhead.
- **Anaerobic digestion plant to generate 2.8 MW of electricity:** A £12 million anaerobic digestion (AD) facility that will handle 45,000 tonnes of food waste produced by local businesses has been opened in Doncaster, England. The facility was developed by PDM in partnership with SARIA Bio-industries, which operates a network of ReFood plants across Europe. Around 2.8 MW of electricity and heat will be generated by the facility, while the 40,000 tonnes of nutrient-rich fertiliser produced by the plant will be used by farmers across South Yorkshire.
- **Primus Green Energy seeks to build a biomass-to-fuel plant in Pennsylvania, USA.:** Primus Green Energy is planning to develop a demonstration-scale biorefinery in Plainfield Township, Pa. The facility would use wood and *Miscanthus giganteus* to produce a drop-in gasoline substitute or other fuels and is expected to produce up to 12 million litres of the gasoline substitute from 40,000 tonnes of biomass annually. See: http://www.lehighvalleylive.com/slate-belt/index.ssf/2011/09/primus_green_energy_wants_to_p.html
- **Firm using "supercritical" water to release sugars from biomass:** Renmatix is opening a research-and-development facility in King of Prussia, Pa., to continue development of a technology that uses pressurised hot water to release fermentable sugars from cellulosic biomass. Putting water in the so-called 'supercritical phase' makes it act like an acid.
- **Startup seeks to develop high-yield bioenergy crops:** Agradis, a startup formed by Synthetic Genomics and investment firm Plenus, is reported to have generated US\$20 million in new funding. Agradis is planning to develop high-yield varieties of sweet sorghum and castor plants for biofuel production. The company is also seeking to develop microbes that would help supplement fertilisers and pesticides in corn and wheat production. Source: [MIT Technology Review online](#)
- **Biomass power plants planned for the Philippines:** Bioenergy company Clenergen is to begin building a 1MW biomass plant in Romblon in the Philippines to supply power to residences that are off the power grid. The development is part of an agreement Clenergen has with the country's National Power Corporation. Other power plants to be built are in Kalinga, supplying 1.5MW to the grid; and a third in Palawan, generating 3.5MW. The Romblon biomass plant could eventually supply 5MW to the grid, using bamboo as a feedstock.

- **\$66 million for biomass boiler at Polish power station:** The European Investment Bank (EIB) will lend PLN210 million (\$66m) for the construction and operation of a biomass boiler at Jaworzno III Power Plant in Poland. The biomass boiler will have a capacity of 50 MW_e and 45 MW_{th} and will replace one of the existing coal fired boilers.
- **US Department of Agriculture guarantees loan to Sapphire Energy:** A US\$54.5 million loan for San Diego-based Sapphire Energy has been guaranteed by the U.S. Government to help the alternative fuel company build an integrated algal biorefinery south of Deming. The cost of the refinery is projected at US\$135 million.
- **Recycler to supply new 30 MW wood waste facility:** UK recycling firm R. Plevin & Sons has secured an exclusive contract from utility company, E.ON to supply waste timber for a £120 million biomass fired renewable energy plant to be located at Blackburn Meadows near Sheffield. When operational, planned to be mid 2014, E.ON expects the facility which is use UK sourced recycled waste wood as fuel to generate up to 30MW. See http://www.waste-management-world.com/index/display/article-display/4454861974/articles/waste-management-world/waste-to-energy/2011/11/Recycler_to_Supply_New_30_MW_Wood_Waste_Facility_.html for full article.
- **Wood waste biomass facility breaks ground:** American Renewables' Gainesville Renewable Energy Center has broken ground in Florida, having raised nearly US\$500 million for this biomass project. The plans are to use tree harvesting wastes from forests within a 125 km radius surrounding the plant to produce 100MW of electricity under a 30-year contract. The facility is scheduled be commissioned in December 2013. The plant has created more than 200 jobs so far and it should create a further 700 in the long-term.
- **Mission increases jatropha oil supply by 4.7 million barrels completing the 2011 planting season:** Mission NewEnergy Limited (NASDAQ:MNEL, ASX:MBT), a global provider of environmentally sustainable biofuels, has announced that it has completed its 2011 Jatropha tree planting season, adding 40,264 new acres (16,267ha) and 14,331 new Jatropha contract farmers. The Company has reported strong progress.
- **A major new €14 million (\$17.4 million) algae initiative** - bringing together experts from across North West Europe to develop the potential of algae as a source of sustainable energy has been announced. A number of leading European organisations – including the NNFCC – are about to embark on a four and a half year project called Energetic Algae (EnAlgae), to address the current lack of information on macro- and microalgal productivity in North West Europe. EnAlgae is co-funded under the European Regional Development Fund by the North West Europe INTERREG IVB North West Europe program and the Welsh Government's Targeted Match Fund, together with a range of co-sponsors.
- **Report: Global biofuels capacity will reach 205 billion litres by 2015:** The world's biofuel-production capacity is set to rise to 54.1 billion gallons (205 billion litres) by 2015, from 169 billion litres today, according to Lux Research, which expects that ethanol capacity will reach 133 billion litres per year by 2015. The best market opportunities for ethanol are in Brazil, Australia, China, Sweden and Thailand, the group said. For full article see: [BiodieselMagazine.com](http://www.biodieselMagazine.com)
- **BTEC publishes educational materials on biomass for thermal applications:** The complete series of biomass-themed webinars, factsheets, podcast interviews, and comprehensive presentation are now available online. An array of educational materials funded in part by a grant from the U.S. Forest Service's Wood Education and Resource Center (WERC) has been made available by the Biomass Thermal Energy Council (BTEC). Over 12 months, BTEC produced a series of seven webinars, five fact sheets, ten podcasts, and a comprehensive slide show presentation on key issues impacting the biomass thermal industry. All materials are publically available free of charge on the BTEC website at: <http://www.biomassthermal.org/resource>.
- **Biochar and energy from trees:** There is a video from Greening Australia on biochar and bioenergy including a shot of their gasifier flare being lit. See: <http://www.iie.org/Programs/Alcoa-Foundation-Advancing-Sustainability-Research/Biochar-and-Energy-from-Trees>. See also: http://www.biochar-international.org/profiles/Greening_Australia
- **New Energy Corporation's** plans to build a \$200million facility in Rockingham, WA is profiled at <http://www.abc.net.au/news/2011-10-28/waste-to-energy-plant-rockingham/3607362>. The plant would handle more than 130,000 tonnes of residential and industrial waste per year.
- **LanzaTech buys former Range Fuels Inc. plant:** New Zealand-based technology developer LanzaTech has purchased the former Range Fuels Inc. cellulosic biofuels plant in Soperton, Georgia, USA., on 3 January, paying US\$5.1 million for the site during a foreclosure sale.
- **2.1 MW food waste facility for northern France:** Austria based BDI - BioEnergy International has been commissioned to build a \$5.6 million food waste to biogas facility in Northern France. Construction is expected to begin before the end of the 2012. The anaerobic digestion facility will produce almost 4.2 million cubic metres of biogas and will generate some 2.1 MW of electricity. About 65,000 tonnes of various wastes, including food and grease trap waste and blood will be processed into bioenergy at the facility. A new separation technology from BDI will used at this plant to process the raw materials, which include packaging, metals and glass.
- **New 37.5 MW biomass plant planned for Connecticut, USA:** Science Applications International (SAI) and the Carlyle Energy Mezzanine Opportunities are to fund the construction of a new US\$225 million Plainfield Renewable Energy (PRE) biomass project. The plant will produce 37.5MW electricity with the fuel to include wood waste from construction and demolition projects, recycled wood pallets and land clearing biomass. SAI will provide the engineering, procurement and construction for the project.

Opportunities Corner

The Bioenergy Australia manager is happy to assist and facilitate biomass and bioenergy projects and businesses by providing information and industry contacts to link project developers, resources and energy companies, source of finance and other opportunities. If you or your organisation is interested in such assistance, 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 enquiries to verify the information below.

- **Blueplasma Power** (www.blueplasmapower.com) has developed a technology to obtain 2KWh per kilogram of biomass via gasification instead of the usual 1kWh per 1kg return for conventional processing. The technology can use any kind of biomass or waste including tyres, used oil and various other sources of biomass. Can work at small scale from a warehouse. Seeks leasing or franchise partners in Australia. (Via Australian Trade Commissioner to Spain & Portugal)
Contact: maraya@blueplasmapower.com
- **V&B Bioenergias del Mundo** (www.vgbioworld.com): Colombian/French JV. Manufacture and distribute pellets from agro industrial waste such as coffee, rice, palm oil and urban waste. Looking for JV partners with minimum projection of 10,000 tonnes annual production. (Via Australian Trade Commissioner to Spain & Portugal)
Contact: www.fervela1@vgbioworld.com
- **SATIS Energias Renovables** has developed a large range of domestic and industrial multi-fuel boilers from 20KW to 7MW (water, steam, thermal oil and superheated water traditional biomass boilers). Currently have agreements in Korea and New Zealand. Seeks a local partner to manufacture in Australia. (Via Australian Trade Commissioner to Spain & Portugal)
Contact: Javier@satisrenovables.com
- **Improved performance from Bioenergy projects through robust risk management**
Risk management provides a process that allows for structured decision-making in a world of uncertain futures. Political, technical and economic uncertainty is a fact of life, especially for current Bioenergy projects.

To meet the sector's risk management needs, Sinclair Knight Merz (SKM) has developed leading edge systems for the management of project risk. Their systems include skilled risk management consultants experienced in the Bioenergy sector, risk management processes honed over decades of use across a broad range of industries and customised software tools used as risk registers and for quantitative schedule and cost performance risk assessments.

SKM is ready to serve prospective Bioenergy clients through the application of its risk management services to their projects during the full project lifecycle, from Rresearch activities through to EPCM projects in the field.

Please contact Hendrik Tait htait@globalskm.com for further information:

Website: www.skmconsulting.com

- **Seeking Opportunities:** Juan Pablo Teran is an Industrial Engineer from Argentina with an interest in biomass technology. He has finished a training course in ARTI India and CARE India in biogas. He would like to make contact with foundations or companies working with biogas or biomass production in Australia with a view to starting up email dialogue with Australian engineers to exchange knowledge in the field of renewable energies.
Juan Pablo Teran can be contacted by email juanp.teran@gmail.com or Indian mob: 918809440324.
- **Project Feasibility Analyses:** The Clean Energy Institute (<http://info.cleanenergyeducation.net/>) of GPEKS offers courses related to Project Feasibility Analysis including related to bioenergy. For instance see: <http://info.cleanenergyeducation.net/?q=node/38>.

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 2,500 odd addresses given in the previous 40 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.

ABC article on algae at Karratha

<http://www.abc.net.au/news/stories/2011/05/06/3210204.htm>

Algae perspective Exxon-Mobil

<http://www.exxonmobilperspectives.com/2011/04/21/algae-biofuels-update/>

Aquaflow Bionomic (NZ)

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

Article about charcoal

<http://www.scribd.com/doc/41380131/Studies-on-Barrel-Type-Carbonizer>

Article "Persistence of soil organic matter as an ecosystem property," October 6, 2011 issue of the journal *Nature*.

<http://www.nature.com/nature/journal/v478/n7367/full/nature10386.html>

Australia's Clean Energy Future web site

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

Australian article on bioenergy by Andrew Lang

<http://www.theaustralian.com.au/national-affairs/commentary/more-picking-winners-as-greens-block-bioenergy/story-e6frgd0x-1226094153315>

Australian Burner Manufacturers
<http://www.australianburners.com>

Back Biomass Campaign (UK)
<http://www.backbiomass.co.uk/>

BioDME project 2011
<http://www.biodme.eu>

Bioenergy Plantations (Jatropha)
<http://www.bioenergyplantations.com>

Biogas article Popular Science
<http://www.popsoci.com/technology/article/2011-06/kenyas-ingenious-biogas-system-might-be-model-america?page=1>

Biogas report from Denmark (36 pages)
<http://www.lemvigbiogas.com/BiogasPJJuk.pdf>

Biogas Wiki links
<http://biogas.wikispaces.com/Links>

BioGasMax (biogas program of the EU)
<http://www.biogasmax.eu/>

BioLiquids-CHP
<http://www.bioliquids-chp.eu/>

Biomap Project
<http://setis.ec.europa.eu/BIOMAP>

The Biomass Energy Foundation (new site)
<http://biomassenergyfndn.org/bef/>

BioPlant (pyrolysis of MSW for fuels and chat)
<http://www.bio-plant.biz/#about>

BIOREF-INTEG EU Project
<http://www.bioref-integ.eu/>

Bio-SNG
<http://www.bio-sng.com>

Brazilian bioenergy
<http://en.calameo.com/read/000200968cad83e668119>

Carbon Bio-Engineers Ltd (biofuels)
<http://www.carbonbio-engineersinc.com>

CEC Bioenergy page
<http://www.cleanenergycouncil.org.au/cec/technologies/bioenergy.html>

Clean Fuels USA
<http://www.cleandfuelsusa.com>

DME
<http://www.aboutdme.org>

Dutch Sustainable Bioenergy programs
<http://www.agentschapnl.nl/programmas-regelingen/sustainable-biomass>

Ecobag digestors
<http://www.thecogas.nl>

EnAlgae collaboration
<http://www.enalgae.eu/>

Garbage in, Energy out: Turning Trash into Biofuel article – Scientific American
<https://www.scientificamerican.com/article.cfm?id=biello-turning-trash-into-biofuel>

Global-Bio-Pact website
<http://www.globalbiopact.eu>

Glossary of bioenergy terms
http://www.usbiomassboard.gov/related_information/glossary.html#d

GoBiGas
http://www.goteborgenergi.se/English/Projects/GoBiGas_Gothenburg_Biomass_Gasification_Project

Green Oil Plantations
<http://www.greenoilplantations.com/>

Household Organics Management report (AECOM, Canada)
<http://www.wastewatermadeclear.ca/environment/documents/organics-report.pdf>

IGP (higher alcohol fuels)
<http://www.igp.co>

IIED briefing note: Biomass energy: Another driver of land acquisitions?
<http://pubs.iied.org/pdfs/17098IIED.pdf>

Meva Group Gasification
<http://www.mevainnovation.se/>

Netherlands Agency – sustainable biomass
<http://www.agentschapnl.nl/biomass>

New Energy Farms
<http://www.newenergyfarms.com>

New England Small Farm Institute
<http://www.smallfarm.org>

Oberon Fuels Inc. (biogas to DME)
<http://www.oberonfuels.com>

Opportunities for Carbon Forestry in Australia – CSIRO report
<http://www.csiro.au/resources/Opportunities-Carbon-Forestry.html>

Palm Oil market intelligence
<http://www.palmoilhq.com/>

Pellet burners (Sweden)
<http://www.greenenergy.se>

Pellet presentations from VBN seminar 26 Oct 2011
http://www.resourcesmart.vic.gov.au/for_businesses_5426.html

Polytechnic Biomass Energy
<http://www.polytechnik.com>

REEGLE –information gateway for renewable energy and energy efficiency
<http://www.reegle.info>

Royal Agricultural Society of England's (RASE) report barriers for small scale UK on-farm digesters
<http://www.rase.org.uk/what-we-do/core-purpose-agricultural-work/AD-Short-Report.pdf>

Royal Agricultural Society of England's (RASE) report on small scale UK on-farm digesters
<http://www.rase.org.uk/what-we-do/core-purpose-agricultural-work/AD-Full-Report.pdf>

Russian National Biofuels Association
<http://www.biofuels.ru>

ST1 ethanol from food waste
<http://www.st1.eu/index.php?id=2876>

Stirling Engine
<http://www.stirling.dk>

TM (trade mark) Check
<http://pericles.ipaustralia.gov.au/ols/tmcheck/>

UC Davis Biogas Project
<http://www.ruralcostarica.com/biogas-video-uc.html>

U.S. Billion-Ton Update: Biomass Supply for a Bioenergy and Bioproducts Industry study
<https://bioenergykdf.net/>

Waste pyrolysis plant video
http://www.youtube.com/watch?v=pufMbrz9DYE&feature=player_embedded

Water-energy-food organisation
<http://www.water-energy-food.org>

Wood Energy Group
<http://www.woodenergy.net.au>

Wood pellet boiler at the Waiouru Military Camp, NZ
<http://www.forestbusinessnetwork.com/8423/big-green-wood-pellet-burner/>

Yarrook Oils
<http://www.bebioenergy.com>

ZeaChem Inc.
<http://www.zeachem.com>

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Self-Managed Subscription

Subscribe (or unsubscribe) to the Bioenergy Australia newsletters and conference notices by posting your details at: <http://groups.google.com/group/bioenergyaustralia/subscribe>

Joining this list is purely to facilitate management of the distribution of Bioenergy Australia newsletters, notices regarding the annual conference, and endorsed Bioenergy Australia activities. 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 only 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 this is essentially now the only way newsletter notices are disseminated. If you have any queries, please contact Steve Schuck.

Back Issues

Newsletters back-issues can be downloaded from the Bioenergy Australia home page: <http://www.bioenergyaustralia.org>

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We are interested in your organisation's bioenergy related activities!

Please send all press releases, article leads and conference announcements to Steve Schuck.

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Comments, suggestions, articles and feedback are welcome.

The views expressed in this newsletter are not necessarily those of the member organisations.

Articles do not constitute endorsement of any products or services mentioned.

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The Bioenergy Australia Newsletter is a complimentary service provided to stimulate interest and involvement in biomass and bioenergy in Australia.