Four year old Napier grass plantation at BTOLA Pty Ltd, Queensland, Australia.

Bioenergy Progresses in Australia

Guest Editorial by Dr Stephen Schuck, ExCo Member for Australia

Bioenergy currently provides approximately 4% of Australia's total primary energy supplies and surprisingly accounts for some 78% of Australia's renewable energy – largely due to the use of some 6 million tonnes of firewood for domestic and commercial heating applications per year. Bioelectricity provides 0.9% of the nation's electricity. Excluding the contribution of biomass co-firing with fossil fuels, mainly coal, dedicated bioelectricity capacity accounts for 773 MW of installed capacity. The big contributors to stationary bioenergy are landfill and biogas and bagasse from Australia's substantial sugar industry. Landfill gas is a mature technology with some individual projects exceeding 10 MW. In recent years two 30MW bagasse-fired cogeneration power plants have been commissioned at the Condong and Broadwater sugar mills in northern New South Wales, and a similar sized plant is currently under construction at the Racecourse Sugar Mill at Mackay, Queensland.

A key policy driver for renewable energy, including bioenergy, is the Large-scale Renewable Energy Target mandated by the Federal Government. This requires liable parties, essentially electricity retailers and large industrial users, to source 41,000 GWh per year of compliant renewable energy by 2020, and maintained at that level till 2030. A greenhouse gas emission trading scheme is also set to begin in Australia, commencing with a 'price on carbon' of A$23/tonne, commencing from July 2012. The price will escalate over three years, and then transition into an emission trading scheme.

In support of the Government's 'Clean Energy Future', various supporting programmes are about to commence. These include the formation of the Australian Renewable Energy Agency (ARENA) which will oversee existing Australian Centre for Renewable Energy (ACRE) programmes; the A$14 million Second Generation Biofuels R&D Programme (Gen 2); and the Australian Biofuels Research Institute (ABRI) which has been allocated A$20 million in funding (A$5 million for a foundation grant to James Cook University for an algae project). In addition the Clean Energy Finance Corporation (CEFC), with a budget of A$10 billion, will invest in commercialisation of renewable energy, enabling technologies, energy efficiency and low emission technologies. Half the CEFC funds will be allocated for a renewable energy stream and the other half for general clean energy. The Australian Government has also announced that domestically produced ethanol, biodiesel and renewable diesel will be effectively exempt from excise until at least 2021. In addition, the Industry portfolio will be allocated A$1.2 billion for a Clean Technology-Investment Programme.

While the progress of bioenergy in Australia has not been as spectacular as wind or roof-top solar photovoltaic systems steady progress is being made. A bioenergy roadmap for stationary energy funded by the Federal Government indicates bioelectricity production rising to over 10,000 GWh in 2020, then to over 72,000 GWh per year by 2050. This equates to 10% per annum compound growth over close to 40 years.

Bioenergy Australia, an alliance of some 82 organisations from government and industry is the principal forum for fostering bioenergy in Australia and is the vehicle for Australia's participation in IEA Bioenergy. See www.bioenergyaustralia.org for further information, or contact Steve Schuck at sschuck@bigpond.net.au

Gympie Timber Company, Queensland, Australia

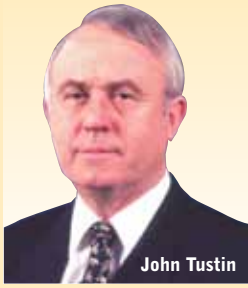
Contents

IEA Bioenergy News

IEA Bioenergy

Volume 23 • Number 2 December 2011

From the Secretariat


John Tustin

ExCo68,Twin Waters,Australia

The 68th meeting of the Executive Committee was held in Twin Waters, Queensland, Australia, on 22-24 November with Birger Kerckow as Chairman and John Tustin as Secretary. The meeting, held in conjunction with the annual Bioenergy Australia Conference, was hosted by Bioenergy Australia. The Chairman expressed the appreciation of the ExCo to Steve Schuck, Bioenergy Australia, and Conference Action for the excellent meeting and study tour arrangements. Some of the outcomes of the meeting are detailed below.

Changes in the Executive Committee

A new Member is: Dr Elizabeth McDonnell, UK and a new Alternate Members is: Dr Koichi Nishikawa, Japan.

Election of Chairman and Vice Chairman

Birger Kerckow of Germany was re-elected Chairman and Paul Grabowski of the USA was re-elected Vice Chairman for 2012.

ExCo68 Workshop

A very successful workshop on 'Environmental Sustainability of Biomass' was held on Day 1 of the Bioenergy Australia 2011 Conference and was well attended by ExCo Members, Task Leaders, and conference participants. The workshop presentations are listed below:

- Expanding Bioenergy: Global Potentials and Regional Challenges – Göran Berndes, Chalmers University of Technology, Sweden
- Governing Bioenergy: An International Perspective on Attempts to Define and Promote Sustainable Bioenergy Development – Jonathan Reeves, FAO/GBEP, Italy.
- Prospects for Developing Sustainable Bioenergy Markets and Trade – André Faaij, Copernicus Institute - Utrecht University, The Netherlands
- Sustainable Bioenergy in Australia: An Overview – Deborah O'Connell, CSIRO, Australia
- Biofuel Sustainability Certification – the RSB Standard – Victoria Junquera, Round table on Sustainable Biofuels, Switzerland
- Sustainable Investment in Forestry for Timber and Biomass – Nick O'Brien, New Forests Asset Management, Australia.
- Quantifying Climate Change Impacts of Biomass and Bioenergy Systems – Annette Cowie, National Centre for Rural GHG Research, University of New England, Australia.
- Bioenergy in Water-Scarce Countries – Daniel Neary, USDA Forest Service, USA.
- Maintaining Soil Fertility in Biomass for Bioenergy Production Systems – John Raison, CSIRO Ecosystem Sciences, Australia.

For more detail please visit: www.ieabioenergy.com/DocSet.aspx?id=7278

Progress with Current Initiatives

There has been very good progress with the ExCo strategic initiatives. The strategic paper 'Using a LCA Approach to Estimate the Net Greenhouse Gas Emissions of Bioenergy' and the background technical report 'Bioenergy, Land Use Change and Climate Change Mitigation' have both been published. The summary and conclusions from two ExCo workshops have also been formally published – ExCo65 'Developing Sustainable Trade in Bioenergy' and ExCo66 'Thermal Pre-treatment of Biomass for Large-scale Applications'. In addition a summary report 'Algae as a Feedstock for Biofuels – An Assessment of the Current Status and Potential for Algal Biofuels Production' was prepared by Task 39 and the AMF Implementing Agreement. This publication draws on previously commissioned independent reports on the same subject prepared by the two Implementing Agreements. For more details please see page 6 of this newsletter.

The joint initiative with Advanced Motor Fuels and Hybrid and Electric Vehicles on 'Fuel and Technology Alternatives for Buses' is nearly completed. The final report will be available early in 2012. The Task 32-led project 'Health and Safety Aspects of Solid Biomass Storage, Transportation and Feeding' has begun and is on target to report by the end of September 2012.


Four year old Pongamia pinnata at BioEnergy Plantations Australia Ltd.

New Strategic Project

A new project 'Monitoring Sustainability Certification of Bioenergy' was approved with a budget of US$86,000. It will address the issues associated with the global proliferation of certification systems and is a joint effort between Tasks 38, 40 and 43.

At present numerous biomass and biofuel sustainability certification systems are being developed or implemented by a variety of private and public organisations. These systems are not only championed by different types of organisations; but also have applicability to different feedstock production sectors (e.g. forestry, agriculture, etc.), different bioenergy products (e.g. forest residues, ethanol, biodiesel, electricity), and whole or segments of supply chains.

The project has the following objectives: 1) monitor the implementation process of sustainability certification of bioenergy; 2) evaluate how stakeholders are affected by certification initiatives; 3) quantify the impact on worldwide bioenergy trade; and 4) make recommendations on how the different certification schemes could be streamlined and coordinated to remove barriers which may depress markets and reduce sustainable trade. A final report is planned for October 2012.

Secretary Succession

The Secretary, John Tustin, announced that he would retire from the position on 31 March 2013. This would enable a new appointee to take up the position from 1 January 2013 with a three month transition period. The ExCo decided that a call for applications would be made early in 2012.

ExCo69 Workshop

The workshop for ExCo69 will be an internal planning workshop focused on the Tasks for the new triennium 2013-2015.

IEA Bioenergy Conference in Vienna

An end of triennium IEA Bioenergy Conference will be held in Vienna during the week 12-16 November 2012, back-to-back with ExCo70 and hosted by the Austrian Federal Ministry of Transport, Innovation and Technology. The goal is to raise the profile of the Agreement by targeting senior people and showcasing the expertise and activities within the various Tasks.

ExCo68 Study Tour

Seedling production of Pongamia pinnata at BioEnergy Plantations Australia Ltd.

In conjunction with ExCo68, 26 ExCo Members participated in the Bioenergy Australia Conference study tour. The first stop was at BioEnergy Plantations Australia Pty Ltd to see the biomass potential of *Pongamia pinnata* plantations.This native tree legume is being developed as a source of bio-oil for the production of biodiesel and aviation fuel. It can be grown on marginal lands and produces both stock food and fuel.

The second stop was at Suncoast Gold Macadamias (Aust) Ltd to see their 1.5MW_e power plant fuelled by waste macadamia nut shells. Macadamia nuts arrive at the processing plant encased in their hard outer shell, the grower having partially dried the nuts to around 10% moisture content. They then spend 6-8 days in drying silos where the moisture content is further reduced before the kernels are separated from the shell. The plant generates 9.5 GWh annually, enough to power 1,200 households. Suncoast consumes 20% of the electricity generated and the remaining is exported to the grid. The plant saves 9,500 t of GHG emissions annually.

Following lunch at the Gympie Conference Centre, the group visited the Nestle Australia Ltd coffee processing plant to see their recently commissioned 16 MW fluidised bed boiler.Nestlé needed a solution to address reliability and capacity issues, and was also interested in maximising the financial and environmental benefits of solid fuel use. The solution was to install a fluidised bed boiler with a steam capacity of 24 tonnes per hour, and with a modern electrostatic precipitator fitted in the exhaust stream to remove particulates from the flue gas. The boiler features an innovative fuel system able to cope with a wet, variable biomass fuel stream and a fluidised bed combustion system tailored for high moisture and finely ground organic materials. The system uses all of the factory's spent coffee grounds supplemented with low-cost sawdust sourced from the wastes of regional sawmills. The project is expected to save 4,000 tonnes per annum of greenhouse gas emissions. Thermal efficiency of the boiler is now at 75% and particulate emissions are lower than 10 parts per million. In addition to reduced emission levels, the project has resulted in cleaner operations, and 5,400 tonnes less waste to landfill a year.

Four year old Pennisetum Purpureum(Napier grass) plantation at BTOLA Pty Ltd.

The next stop was at BTOLA Pty Ltd to view *Pennisetum purpureum* (also known as Napier grass, Elephant grass, or Bana grass) being developed as a biomass feedstock for conversion into conventional transport fuels.While not a native to Australia this cane-type perennial grass is widely distributed throughout Queensland usually to create windbreaks for conventional crops. It has the following advantages: highly drought tolerant; high yielding (yields of 75 ton/hectare substantiated in initial trials); does not need replanting after harvest; palatable to livestock (can be cut and baled for forage food); is not invasive; can be planted using conventional sugar cane planting equipment; and can be harvested using conventional cutting, conditioning and baling equipment. The trial plots exhibited impressive productivity.

The final stop was at Gympie Timber Company, a long standing sawmill operation based on hardwood (*Eucalyptus* spp.) logs sourced locally. The main species sawn is Spotted Gum (60%) with the remainder a mix of various other hardwoods. The company is constantly searching for innovative technologies to incorporate into their existing operations. The newest addition is a 270 kW Organic Rankine Cycle power system from Pratt and Whitney. The system was installed to utilise any residual heat available after kiln drying and to also fully utilise the existing onsite oven and fuel handling.

Task Focus

Task 36: Integrating Energy Recovery into Solid Waste Management

The past 20 years has seen many developments in the treatment and disposal of municipal solid waste (MSW) in Europe and other parts of the world. These have been driven by a desire to cut the environmental impact from waste management and to reduce, reuse and recycle as much of the waste stream as possible. In Europe these changes have been driven by the Landfill Directive, which directs diversion of biodegradable waste from landfill; and the Waste Framework Directive, which defines a waste hierarchy that takes life cycle impacts into account.

Elsewhere changes are driven by policies to minimise waste to landfill, improve recycling or simply by lack of landfill void space (as is happening in parts of North America). On the other hand countries such as Japan, where landfill void space has always been in short supply, have opted for using waste treatment methodologies to minimise waste disposal; and China is currently in the process of rapidly increasing its energy from waste treatment plants.

Alongside this, there is a strong interest in what happens to residual wastes after all of the recyclable waste is taken from the waste stream; and how commercial and industrial waste fit into the picture. In many countries there is an interest in mechanical and biological treatment (MBT) of this residual waste. In MBT the organic waste stream is removed and treated by biological treatment, such as composting and anaerobic digestion, but this still leaves residues that have to be treated or disposed of.

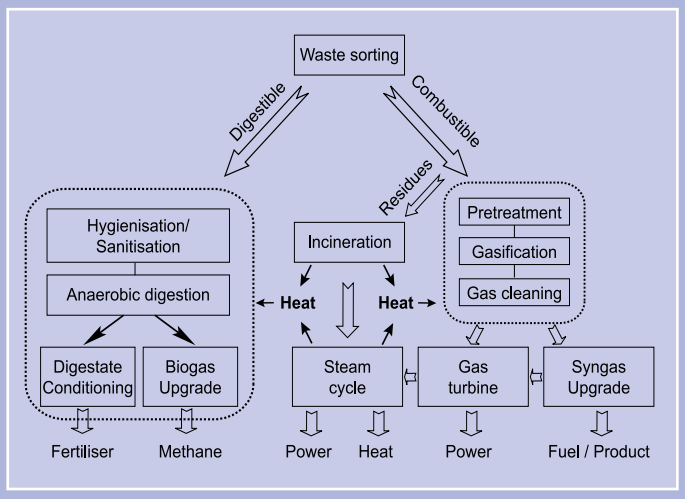
All of this means that the potential for exploiting MSW as an energy resource is at a crossroad. Although much material is taken out and recycled from the waste stream, the residual waste still requires treatment. The role that energy recovery has in the treatment of this residual stream has been under examination by Task 36, which focuses on integration of energy recovery into modern solid waste management.

A key focus of the Task is to put its joint expertise into the development of information for decision makers. A report is now available on the Task website. It includes a description of MSW management; examination of the quantity and characteristics of residual waste; the environmental impacts of the treatment of residual waste; and a review of technologies for energy recovery. Policy decisions and technical issues continue to impact on the recovery of energy from waste. Over the current triennium the Task is examining key issues aiming to provide further information to decision makers. A summary of this work is given below.

Policy impacts. Policy development is an important influence on solid waste management. For example, policies to support renewable heat and power may include energy recovery from wastes, providing certain criteria are met. Frequently these include targets for efficient energy recovery; or incentives for advanced conversion technologies, which show promise for being more energy efficient or environmentally friendly. The Task is currently reviewing support for renewable heat and its effect on energy recovery from residual waste.

Another trend is the inclusion of the recovery of energy from biogenic content of waste in renewable statistics. Across much of Europe it is agreed that the biogenic content of residual waste is in the region of 30-50%, which means that there is some 66-110Mt biomass present in waste (using Eurostat's statistics on MSW). Energy recovered from this waste is included in renewable energy statistics. In developing countries, on the other hand,the biomass content of waste is typically a higher proportion (although the overall production of waste is lower). This means that the renewable proportion of waste in these countries could make an important contribution to their overall energy consumption. This biogenic content is important in Europe, because it may be included in incentives for renewable power. The consequence is an interest on the part of regulators in proof of the biogenic content of waste. There are proposed methodologies for calculation of the renewable content of waste, but these techniques are expensive and time consuming. The Task is reviewing these techniques in order to produce a guide on their status and issues with their use.

Integration of processes for optimising resource recovery. Increasingly countries are interested in obtaining maximum resource recovery from waste streams. This includes development of technologies to optimise chemical, material and energy recovery from waste in one facility; the production of solid recovered fuels from the residual fraction of waste after recycling; and the development of small scale facilities. The Task is examining possible scenarios for the integration of waste management treatment processes for the optimisation of resource recovery, including generation of power/heat or fuels and the possibility of switching operation according to demand. The aim is to examine how we can optimise resource recovery of waste by implementing a refinery concept into solid waste management using state-of-the-art facilities or promising future scenarios. Three scenarios are being examined, including the example of a future scenario in the following Figure. The Task is also undertaking LCA of these scenarios.



Effective management of energy recovery process residues. Waste to energy plants decrease the volume of residues from waste treatment, but they still produce residues, from bottom ash and from fly ash from air pollution control equipment. The Task is examining the regulatory framework and the current status of management of residues from waste energy recovery, including their generation, quality, utilisation, and final disposal. This work also covers residues from SRF Combustion, from the co-treatment of biomass and SRF, from waste pyrolysis and from biological processes for comparison.

Solid Recovered Fuels workshop. As well as working on these topics, the Task is also aware of important trends in the development of fuels from waste. This includes the production of refuse derived fuels, as a residue of MBT processes and the development of fuels to a customer specification, also known as 'solid recovered fuels'. To understand the latest developments in these fuels, Task 36 cooperated with Task 32 to hold a joint seminar on solid recovered fuels in Ireland in October. The presentations from this seminar are available from the Task 36 website. The seminar was a great success, attracting over 100 delegates. Presentations were given by the European Recovered Fuels Organisation, the European project RECOMBIO and the CEN 343 committee, which is defining SRF standards. In addition there were also presentations from companies producing or using solid recovered fuels in cement kilns, co-firing and gasification; and on the production and utilisation options for solid recovered fuels for the North London Waste Authority.

The presenters defined solid recovered fuels as 'a solid fuel prepared from non-hazardous waste to be utilised for energy recovery in incineration or co-incineration plants, and meeting the classification and the specification requirements laid down in EN15359'. In total it is estimated that there is a potential for the production of 70 million t in the EU, coming from municipal, industrial, demolition and construction sources, and including plastics, paper, cardboard, textiles, wood and the high calorific fraction from MBT. These fuels can be used in energy intensive industries, such as the cement, paper, metal and chemical industries. CEN 343 has developed a set of technical specifications for these fuels. It has developed a series of five classes of fuels based on net calorific value, chlorine and mercury content.The presentation from the CEN chairman discussed the status of these technical specifications and European (EN) standards, including a standard for the biogenic content (EN 15440).

This article was prepared by Dr Pat Howes, Task Leader. For more information, please visit: http://www.ieabioenergytask36.org

Task participants at the meeting in Trondheim in 2010.

Notice Board

Task 29 Targets Fuel Poverty in the UK

Fuel poverty affects more than 6 million people across the UK and with increasing insecurity of conventional fuel supply, coupled with ever increasing costs; these numbers can only get worse if no remedial action is taken. The consequences of such a large number of struggling households has a dramatic effect on the overall economy and in particular impacts on those least able to help themselves – the fuel poor.

TV Energy organised and hosted an international'Fuel Poverty' conference on behalf of Task 29 in Aylesbury, UK on 14 June. The event targeted an audience of around 70 and included a mixture of delegates from housing associations,local councils, installers and utility businesses. Presentations were given by members of the Task; Canada, Croatia, Germany, Norway and UK as well as local partners of TV Energy. The presentations focussed on the actions in different countries on fuel poverty issues. A series of case studies explained what is currently being done in the UK to harness the potential of local, renewable energy resources (with an emphasis on bioenergy) to mitigate some of these impacts within communities. For more information please visit www.task29.net

Task 33 Thermal Gasification of Biomass

A three day Task meeting was held in Piteå, Sweden on 18-20 October. The first day was a closed meeting where the National Team Leaders discussed future meetings, prolongation plans for the 2013-2015 triennium, and gave updates on the status of biomass gasification developments in the participating countries. Also discussed were the status of the gasification facility database that is now available on the Task website (www.ieatask33.org), and country reports for the triennium. The second day was devoted to a workshop on 'Biomass Gasification Opportunities in the Forest Industry' and was attended by 31 people. The workshop included an overview of the recent IPCC SRREN report (biomass specific); an overview of Swedish, Finnish, and USA biomass gasification activities; development of the Chemrec black liquor gasification process and DME synthesis; biomass gasification-based cogeneration; and forest products industry gasification developments (Metso, Andritz Carbona and NSE). The attendees also participated in discussions on black liquor gasification and biomass gasification. On the third day tours were undertaken to the Chemrec DME synthesis system, ETC pilot gasifiers, the SmurfitKappa Piteå paper mill, the MEVA Innovation cyclonic gasifier gasification CHP plant, and the Sun Pine tall oil fatty acid production plant.

Task 34 Bio-oil Round Robin Testing

The results of the bio-oil viscosity and aging round robin from the 15 participating laboratories were reviewed at the recent Task meeting. It was apparent that dynamic viscosity measurements were less consistent compared to kinematic viscosity. The issue could be either the method itself and its application to bio-oil or, more probably, the experience level of the users of the method. The aging method gave consistent results within a given laboratory but was much more variable when results from different laboratories were compared. Conjecture on the potential reasons included variations in the heating oven and sample/container size. More information will be requested from the participants to better determine how to improve the specification of the method.

Task 37: Energy from Biogas

The Task has just published a Technical Brochure on 'Biogas from Crop Digestion'. This publication provides an extension to a 2009 report on energy crops for biogas and includes a wide range of crops suitable for anaerobic digestion, the methane potentials of the crops,and treatments for using the crops and practical examples of biogas production in existing plants. The report also considers the energy balance, the methane yield per hectare of land and overviews process economics. Please visit www.iea-biogas.net for more information.

Task 39: Commercialising Liquid Biofuels from Biomass

Task 39, hosted by their Brazilian colleagues, participated in the first Brazilian Bioenergy Science and Technology Conference (BBEST2011) held at the Campos do Jordão Convention Center, São Paulo, from 14-18 August. As well as organising two sessions within the conference, Task 39 participants gave keynote presentations and chaired sessions. The conference was followed by a most interesting field trip to research centres and commercial ethanol plants. The Task group then travelled to Rio de Janeiro, where they were hosted by Petrobras. The business meeting included presentations from all of the Task country representatives as well as many of the top researchers and companies from Brazil in the biofuels area. More details are available in the Task 39 newsletter (www.Task39.com)

Task 39 was also actively involved in the recent International Symposium on Alcohol Fuels (ISAF) held in conjunction with the 2nd Lignocellulosics-to-Ethanol symposium,in Verona, Italy. Colleague, David Chiaramonti, country representative from Italy, was one of the key organisers of the meeting. The Task organised a session of 14 speakers from around the world, including participants from industry, government and academia. One of the many highlights of the meeting was a visit to the Chemtex Italia facilities after the joint conference.

Task 43: Biomass Feedstocks for Energy Markets

The UNEP/OEKO/Task 43 report and summary report 'Spotlight: bioenergy and water' was released at a press conference during the World Water Week in Stockholm on 25 August. The report will also be distributed to delegates at the Bonn2011 Conference in November. This is a high level conference organised by the German Federal Government as a specific German contribution to the UN Conference on Sustainable Development 'Rio2012' and is a valuable opportunity for dissemination of the Task's work. In parallel with the report a Special Issue: 'Bioenergy and Water' was produced for the journal Biofuels, Bioproducts and Biorefining.

Task 43 has also published three reports in a series 'Promising resources and systems for producing bioenergy feedstocks'. Two more reports are anticipated to be published this year. These reports can be downloaded at www.ieabioenergytask43.org

Task 38, 40 and 43 Joint International Workshop in Brazil

Tasks 38, 40, 43, and the Brazilian Bioethanol Science and Technology Laboratory (CTBE), jointly organised an international workshop on 'Quantifying and managing land use effects of bioenergy' from 19-21 September in Campinas, Brazil. This workshop brought together state-of-the-art research concerned with assessing land use effects of bioenergy, mitigating negative impacts, and promoting beneficial outcomes. More than 90 scientists and policy makers from Brazil, Europe, Canada and USA came together to discuss recent methodological developments, outcomes of case studies and subsequent policy implications. In addition, participants visited either a sugar and bioethanol plant including harvest of sugarcane; or a eucalypt plantation where all the operations from site preparation and planting to harvest were shown. A summary article from the workshop with an overview of the main findings and discussions will be submitted to the journal 'Biofuels, Bioproducts and Biorefining'.

All presentations and most of the posters are available on all the Task websites (www.ieabioenergy-task38.org; www.bioenergytrade.org; www.ieabioenergytask43.org).

The workshop participants visiting the Cresciumal sugar and ethanol plant.

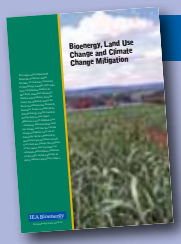
Publications

Using a LCA Approach to Estimate the Net GHG Emissions of Bioenergy

This strategic report was prepared by Mr Neil Bird, Joanneum Research, Austria; Professor Annette Cowie, The National Centre for Rural Greenhouse Gas Research, Australia; Dr Francesco Cherubini, Norwegian University of Science and Technology, Norway; and Dr Gerfried Jungmeier; Joanneum Research, Austria. The report addresses the key methodological aspects of life cycle assessment with respect to greenhouse gas balances of bioenergy systems. It includes results via case studies, for some important bioenergy supply chains in comparison to fossil energy systems. The purpose of the report was to produce an unbiased, authoritative statement aimed especially at practitioners, policy advisors, and policy makers. This publication can be downloaded at http://www.ieabioenergy.com/MediaItem.aspx?id=7099

Thermal Pre-treatment of Biomass for Large-scale Applications

The summary and conclusions publication from the workshop held in conjunction with ExCo66 in York, United Kingdom, on 12 October 2010 has been published and can be downloaded at http://www.ieabioenergy.com/LibItem.aspx?id=7190



Bioenergy, Land Use Change and Climate Change Mitigation

This report was prepared by Associate Professor Göran Berndes, of Chalmers University of Technology, Sweden; with input from contributing authors Dr Neil Bird, Joanneum Research, Austria and Professor Annette Cowie, The National Centre for Rural Greenhouse Gas Research, Australia. It was co-financed by IEA Bioenergy and the Swedish Energy Agency. The report addresses a much debated issue – bioenergy and associated land use change, and how the climate change mitigation from use of bioenergy can be influenced by greenhouse gas emissions arising from land use change. The purpose of the report was to produce an unbiased, authoritative statement on this topic aimed especially at policy advisors and policy makers. The publication can be downloaded at: http://www.ieabioenergy.com/LibItem.aspx?id=6770

Bioenergy, Land Use Change and Climate Change Mitigation - Background Technical Report

This report was prepared by the same authors as detailed above, viz. Berndes, Bird, and Cowie. It was also co-financed by IEA Bioenergy and the Swedish Energy Agency. The purpose of this background report was to supply a more detailed, fully referenced version for practitioners, and researchers, in support of the short version (IEA Bioenergy: ExCo:2010:03) which was aimed at policy advisors and policy makers. This publication can be downloaded at http://www.ieabioenergy.com/LibItem.aspx?id=6927

2010 IEA Bioenergy Annual Report

The 2010 Annual Report contains a special feature article 'Algal Biofuels Status and Prospects' prepared by Task 39. Also included is a report from the Executive Committee; a detailed progress report on each of the Tasks; and key information such as Task participation, Contracting Parties, budget tables and substantial contact information, plus lists of reports and papers produced by the Implementing Agreement. It is available on the IEA Bioenergy website at: http://www.ieabioenergy.com/LibItem.aspx?id=6780

Developing Sustainable Trade in Bioenergy

The 'summary and conclusions' publication from the workshop held in conjunction with ExCo65 in Nara City, Japan in May 2010 has been published and is available to download at: http://www.ieabioenergy.com/MediaItem.aspx?id=6880

Bioenergy - a Sustainable and Reliable Energy Source. A review of status and prospects

These publications are the Main Report and the Executive Summary, both prepared by the Energy Research Centre of The Netherlands, E4tech, Chalmers University of Technology and the Copernicus Institute of the University of Utrecht. They provide an overview of the potential for bioenergy and the challenges associated with its increased deployment. Opportunities and risks in relation to resources, technologies, practices, markets and policy are all discussed. The aim is to provide insights into the opportunities and required actions for the development of a sustainable bioenergy industry. Both publications can be downloaded at: //www.ieabioenergy.com/Library.aspx

Algae as a Feedstock for Biofuels - An Assessment of the Current Status and Potential for Algal Biofuels Production.

In 2010, IEA Bioenergy Task 39 and the IEA Advanced Motor Fuels Implementing Agreement both commissioned reports on the status and potential opportunities for Algal Biofuels. While there were substantial similarities in the findings of the two reports, each report provides unique perspectives on different aspects of the technology and the opportunities. This summary draws on both reports and can be downloaded from http://www.ieabioenergy.com/LibItem.aspx?id=6967

The Pellet Handbook: The Production and Thermal Utilization of Pellets

This handbook, produced by Task 32, is the first comprehensive guide in English which covers all aspects of pellets. The book is extensively illustrated and contains comprehensive practical information. It addresses all of the major stakeholders in the pellet market, ranging from raw material producers and suppliers, pellet producers and traders, manufacturers of pellet furnaces and pelletisation systems, installers, engineering companies, energy consultants, and end users. The handbook was written by experts within Task 32, and with significant input from Tasks 29, 31 and 40; and external experts. Financial support was received from IEA Bioenergy and the Austrian organisations Landesenergieverein Steiermark and BIOS Bioenergysysteme GmbH. It was edited by Ingwald Obernberger and Gerold Thek of BIOS Bioenergysysteme GmbH and can be ordered from Earthscan, see //www.earthscan.co.uk/?tabid=102497.

Algae - the Future for Bioenergy?

'The summary and conclusions' publication from the workshop held in conjunction with ExCo64 in Liege, Belgium in October 2009 has been published and is available to download at: //www.ieabioenergy.com/DocSet.aspx?id=6436

IEA Bioenergy Events

Executive Committee

ExCo69 will be held in Istanbul, Turkey from 8-10 May 2012.

ExCo70 will be held in Vienna, Austria from 12-16, November 2012, along with the end of triennium Conference.

ExCo71 will be held in South Africa around May 2013.

ExCo72 will be held in Korea around October 2013.

ExCo73 will be held in Denmark around May 2014.

Task Events

Task 29's schedule of upcoming meetings is:

- May 2012, Ontario, Canada. Task meeting, site visits and conference. Dates to be confirmed.
- October 2012, Germany. Task meeting, site visits and conference. Dates to be confirmed.

Task 32's schedule of upcoming meetings is:

- 27-28 March 2012, Copenhagen, Denmark. A co-firing conference with IEA CCC, Task 32 and VGB Powertech will be held and include an excursion to the Avedore power plant. More information can be found at *www.iea-coal.org*.
- 18-22 June 2012, Milan Italy. A Task meeting will be held at the next European Biomass Conference.
- 12-16 November 2012, Vienna, Austria. A joint workshop on recent developments in small-scale biomass combustion will be held as part of the IEA Bioenergy Conference.

Task 33's schedule of upcoming meetings is:

- 17-19 April 2012, Istanbul, Turkey. Task meeting and workshop on 'Status of biomass gasification'.
- 12-16 November 2012, Vienna, Austria. A joint workshop will be held in conjunction with the IEA Bioenergy Conference.

Task 34's schedule of upcoming meetings is:

- 12-16 April 2012, Ottawa, Canada. Task meeting and a technical visit to CanMet (NRCan). Dates and location to be confirmed.
- 12-16 November 2012, Vienna, Austria. Task meeting and final reports. This meeting will be held in conjunction with the IEA Bioenergy Conference.

Task 36's schedule of upcoming meetings is:

- 14 May 2012, Ottawa, Canada. Task meeting and site visits. Dates and locations to be confirmed.
- 12-16 November 2012, Vienna, Austria. Task meeting in conjunction with the IEA Bioenergy Conference.

Task 37's schedule of upcoming meetings is:

- September/October 2012, Brazil. Task meeting. Dates and location to be confirmed.

Task 38's schedule of upcoming meetings is:

- Early-mid 2012, USA. Business meeting and meeting on updating the standard methodology Dates and locations are to be confirmed.
- 12-16 November 2012, Vienna, Austria. A joint workshop will be held in conjunction with the IEA Bioenergy Conference.

Task 39's schedule of upcoming meetings is:

- 27-29 February 2012. Copenhagen, Denmark. Task business meeting in conjunction with a joint symposium between Tasks 39, 42 and the University of Copenhagen titled 'Advanced Biofuels in a Biorefinery Approach'.
- 30 April – 3 May 2012. New Orleans, USA. A Task 39 planning/buisness meeting in association with the '34th Biotechnology for Fuels and Chemicals' symposium.
- 12-16 November 2012, Vienna, Austria. A joint workshop will be held in conjunction with the IEA Bioenergy Conference.

Task 40's schedule of upcoming meetings is:

- January 2012, Berlin, Germany. Task meeting followed by a methane/biogas trade workshop.
- June 2012, Norway. A possible joint activity with Task 42. Dates and location to be confirmed.

Task 42's schedule of upcoming meetings is:

- 28 February – 2 March 2012. Copenhagen, Denmark. Task business meeting in conjunction with a joint symposium between Tasks 39, 42 and the University of Copenhagen titled 'Advanced Biofuels in a Biorefinery Approach'. The symposium will cover the latest developments in advanced biofuels and biorefinery technology, with a special focus on biology/biotechnology, infrastructure, integration of technologies and deployment/commercialisation.
- 12-16 November 2012, Vienna, Austria. A Task meeting and joint workshop will be held in conjunction with the IEA Bioenergy Conference.
- End of 2012, Wageningen, the Netherlands. 2nd European Training Course on Biorefining.

Task 43's schedule of upcoming meetings is:

- 20-21 February 2012, Charleston, USA. Task Business meeting and one day workshop 'Mobilizing sustainable biomass supply chains'. These will be held prior to the Symposium on the Assessment and Management of Environmental Issues Related to Eucalyptus Culture in the Southern United States on 22-24 February.
- 12-17 March 2012, Marseille, France. A Session 'Sustainable biofuels production', arranged during the 6th World Water Forum (WWF6) by the Task together with UNEP, RSB and additional partner organizations working in a so-called Targets and Solutions Group (TSG) serving the World Water Forum process in the area 'Harmonizing Energy and Water'.
- October-November. The Task plans to contribute to the 2012 annual conference organized as part of the COST Action FP0902 'Development and Harmonisation of New Operational Research and Assessment Procedures for Sustainable Forest Biomass Supply'. The conference will take place in Portugal. Dates and location to be confirmed.
- 12-16 November 2012, Vienna, Austria. A Task meeting will be held in conjunction with the IEA Bioenergy Conference.

OTHER EVENTS

1st Philippine BioEnergy Conference
12-13 January 2012, Manila, Philippines
Web: www.conferencealerts.com/seeconf.mv?q=ca18xamh

World Future Energy Summit
16-19 January 2012, Abu Dhabi
Web: www.worldfutureenergysummit.com

Fuels of the Future 2012
23-24 January 2012, Berlin, Germany
Web: www.fuels-of-the-future.com

Renewable Energy World Conference and Expo North America
14-16 February 2012, California, USA
Web: www.renewableenergyworld-events.com/index.html

Symposium on the Assessment and Management of Environmental Issues Related to *Eucalyptus* Culture in the Southern United States
22-24 February 2012, Charleston, USA
Email: tstubbs@src-ncasi.org
Web: www.eucalyptusenvironmental.com

3rd Biomass Trade & Power
23-24 February 2012, Brussels, Belgium
Email: hafizah@cmtsp.com.sg
Web: www.cmtevents.com/eventschedule.aspx?ev=120208&

Bio4Bio 'Advanced Biofuels in a Biorefinery Approach' Conference
28 February 2012 - 1 March 2012, Copenhagen, Denmark
Web: www.bio4bio.dk/BiorefineryConference2012.aspx

The World Sustainable Energy Day 2012
29 February 2012 - 1 March 2012, Wels, Austria
Email: office@esv.or.at
Web: www.wsed.at

World Biofuels Markets 2012
11-13 March 2012, Rotterdam, The Netherlands
Web: www.worldbiofuelsmarkets.com

6th Water World Forum
12-17 March 2012, Marseille, France
Web: www.worldwaterforum6.org/fileadmin/user_upload/pdf/second_announcement.pdf

Worlds Biofuels Markets Congress and Exhibition
13-15 March 2012, Rotterdam, the Netherlands
Email: claire.poole@greenpowerconferences.com
Web: www.worldbiofuelsmarkets.com

European Biomass to Power
11-12 April 2012, London, UK
Email: jkorfanty@acieu.net
Web: http://v11.vuturevx.com/exchange-sites/Whitmore%20Group/59/conferences/eu-ebp2.asp

European Algae Biomass
25-26 April 2012, London, UK
Email: mignacio@acieu.net
Web: http://www.cleantechinvestor.com/portal/apr10/8027-european-algae-biomass-2011-27-28-april-london-uk.html

34th Symposium on Biotechnology for Fuels and Chemicals
30 April 2012 - 3 May 2012, New Orleans, USA
Web: www.simhq.org/sbfc/

20th European Biomass Conference and Exhibition
18-22 June 2012, Milan, Italy
Web: www.conference-biomass.com

3rd AEBIOM European Bioenergy Conference 2012
25-27 June 2012, Brussels, Belgium
Email: olaru@aebiom.org
Web: www.aebiom.org

EUROSOIL 2012
2-6 July 2012, Bari, Italy
Web: www.eurosoil2012.eu

26th Gastech Conference
8-11 October 2012, London, UK
Email: info@gastech.co.uk.
Web: www.gastech.co.uk/conference/

IEA Bioenergy News

Objectives of IEA Bioenergy

IEA Bioenergy is an international collaborative agreement set up in 1978 by the International Energy Agency (IEA) to improve international cooperation and information exchange between national bioenergy RD&D programmes. IEA Bioenergy aims to achieve a substantial bioenergy contribution to future global energy demands by accelerating the production and use of environmentally sound, socially accepted and cost-competitive bioenergy on a sustainable basis, thus providing increased security of supply whilst reducing greenhouse gas emissions from energy use.

Key IEA Bioenergy Contacts

Postal Address: PO Box 6256, Whakarewarewa, Rotorua, NEW ZEALAND. **Website:** www.ieabioenergy.com

Secretary
John Tustin
Tel: +64 7 348 2563
Fax: +64 7 348 7503
Email: jrtustin@xtra.co.nz

Technical Coordinator
Arthur Wellinger
Tel: +41 52 365 4310
Fax: +41 52 365 4320
Email: arthur.wellinger@novaenergie.ch

Newsletter Editor
Danielle Rickard
Tel: +64 7 349 0375
Email: drickard@xtra.co.nz

Webmaster
Heather McKenzie
Tel: +64 4 902 1000
Email: webmaster@ieabioenergy.com

Executive Committee

AUSTRALIA
Dr Stephen Schuck
Stephen Schuck and Associates Pty Ltd
7 Grassmere Road, Killara, SYDNEY
New South Wales 2071
Tel: +61 2 9416 9246
Email: sschuck@bigpond.net.au

AUSTRIA
Dr Josef Spitzer
Wastlergasse 2
A-8010 GRAZ
Tel: +43 699 18148673
Email: josef.spitzer@live.at

BELGIUM
Dr Yves Schenkel
CRAW
Rue de Liroux, 9
GEMBLOUX, B-5030
Tel: +32 8 162 7148
Email: schenkel@cra.wallonie.be

BRAZIL
Mr Ricardo de Gusmão Dornelles
Ministry of Mines and Energy
Esplanada dos Ministérios, Bloco U, 9° Andar
70 065-900 - BRASILIA - DF
Tel: +55 61 3319 5509
Email: Rdornelles@mme.gov.br

CANADA
Mr Ed Hogan
Natural Resources Canada
580 Booth Street
OTTAWA, Ontario K1A 0E4
Tel: +1 613 996 6226
Email: ehogan@nrcan.gc.ca

CROATIA
Dr Branka Jelavic
Energy Institute 'Hrvoje Pozar'
Savska 163, P.B. 141
10001 ZAGREB
Tel: +385 1 632 6117
Email: bjelavic@eihp.hr

DENMARK
Mr Jan Bünger
Energy R&D and Joint Implementation
Danish Energy Authority
Amaliegade 44
DK-1256 COPENHAGEN K
Tel: +45 33 927 589
Email: jbu@ens.dk

FINLAND
Professor Kai Sipilä
VTT
PO Box 1000
ESPOO, FIN 02044 VTT
Tel: +358 20 722 5440
Email: kai.sipila@vtt.fi

FRANCE
Mr Jean-Christophe Pouet
ADEME
2, Square Lafayette BP 90406
49004 ANGERS Cedex 04
Tel: +33 02 41 20 43 28
Email: jean-christophe.pouet@ademe.fr

GERMANY
Mr Birger Kerckow
Fachagentur Nachwachsende
Rohstoffe e.V. (FNR)
Hofplatz 1
18276 GÜLZOW
Tel: +49 3843 6930 125
Email: B.Kerckow@fnr.de

IRELAND
Mr Pearse Buckley
Sustainable Energy Authority of Ireland
Wilton Park House, Wilton Place
DUBLIN 2
Tel: +353 1 808 2012
Email: pearse.buckley@seai.ie

ITALY
Mr Gerardo Montanino
Gestore dei Servizi Energetici
Viale Maresciallo Pilsudski 92
00197 ROME
Tel: +39 06 8011 4469
Email: gerardo.montanino@gse.it

JAPAN
Mr Fumiaki Ishida
NEDO
Muza Kawasaki Central Tower 18F
1310 Ohmiyacho, Saiwai-ku, Kawasaki
KANAGAWA 212-8554
Tel: +81 44 520 5271
Fax: +81 44 520 5275
Email: ishidafma@nedo.go.jp

REPUBLIC OF KOREA
Mr Soosung Hwang
Ministry of Knowledge Economy
88 Gwanmoonro GWACHEON-SI
Gyeonggi-do
Tel: +82 2 2110 5401
Email: sshwang@mke.go.kr

NETHERLANDS
Ir Kees Kwant
NL Agency and Climate Change
PO Box 8242
3503 RE UTRECHT
Tel: +31 88 602 2458
Email: kees.kwant@agentschapnl.nl

NEW ZEALAND
Dr Elspeth MacRae
SCION
Private Bag 3020
ROTORUA
Tel: +64 7 343 5899
Email: elspeth.macrae@scionresearch.com

NORWAY
Dr Petter Nilsen
The Research Council of Norway
Division for Innovation
PO Box 2700, St Hanshaugen
OSLO, N-0131
Tel: +47 98 09 48 60
Email: pn@rcn.no

SOUTH AFRICA
Dr Thembakazi Mali
SANERI (Pty) Ltd
Senior Manager: Clean Energy Solutions
PO Box 786141, Sandton, 2146
JOHANNESBURG
Tel: +27 010 201 4782
Fax: +27 010 201 4932
Email: thembakazim@saneri.org.za

SWEDEN
Dr Åsa Karlsson
Swedish Energy Agency
P.O. Box 310
ESKILSTUNA, SE-631 04
Tel: +46 16 544 2342
Email: asa.karlsson@energimyndigheten.se

SWITZERLAND
Dr Sandra Hermle
Swiss Federal Office of Energy (SFOE)
Energy Research, Biomass and Combustion
BERN, CH-3003
Tel: +41 31 325 8922
Email: sandra.hermle@bfe.admin.ch

TURKEY
Mr Ufuk Kayahan
TUBITAK MAM Enerji Enstitüsü
P.K. 21
41470 Gebze, KOCAELI
Tel: +90 262 677 2732
Email: Ufuk.Kayahan@mam.gov.tr

UNITED KINGDOM
Dr Elizabeth McDonnell
Department of Energy and Climate Change
3 Whitehall Place
LONDON SW1A 2HH
Tel: +44 (0)300 068 6187
Email: elizabeth.mcdonnell@decc.gsi.gov.uk

UNITED STATES OF AMERICA
Mr Paul Grabowski
US Department of Energy
Energy Efficiency and Renewable Energy
Office of the Biomass Program, EE-2E
1000 Independence Ave., SW
WASHINGTON, DC 20585-0121
Tel: +1 202 586 0478
Email: paul.grabowski@ee.doe.gov

EUROPEAN COMMISSION
Dr Kyriakos Maniatis
DG Energy & Transport
European Commission
Rue de la Loi/Wetstraat 200
B-1049 BRUSSELS
Tel: +32 2 299 0293
Email: Kyriakos.Maniatis@ec.europa.eu

Tasks

Task 29: Socio-economic drivers in implementing bioenergy projects
Keith Richards
TV Energy Ltd
UNITED KINGDOM
Tel: +44 1635 817420
Email: keith.richards@tvenergy.org
Web: www.Task29.net

Task 32: Biomass combustion and co-firing
Jaap Koppejan
Procede Group BV
THE NETHERLANDS
Tel: +31 53 489 4355 / 4636
Email: sjaap.vanloo@procede.nl
Web: www.ieabcc.nl

Task 33: Thermal gasification of biomass
Richard Bain
NREL
USA
Tel: +1 303 384 7765
Email: richard.bain@nrel.gov
Web: www.gastechnology.org/iea

Task 34: Pyrolysis of biomass
Doug Elliott
Battelle PNNL
USA
Tel: +1 509 375 2248
Email: dougc.elliott@pnl.gov

Task 36: Integrating Energy Recovery into Solid Waste Management
Pat Howes
AEA Technology
UNITED KINGDOM
Tel: +44 870 190 6151
Email: Pat_Howes@uk.aeat.com
Web: www.ieabioenergytask36.org/

Task 37: Energy from biogas
David Baxter
European Commission – JRC Petten
THE NETHERLANDS
Tel: +31 22 456 5227
Email: david.baxter@jrc.nl
Web: www.iea-biogas.net

Task 38: Greenhouse Gas Balances of Biomass and Bioenergy Systems
Neil Bird
Joanneum Research
AUSTRIA
Tel: +43 316 876 1423
Email: neil.bird@joanneum.at
Web: www.ieabioenergy-task38.org

Task 39: Commercialising Liquid Biofuels from Biomass
Jack Saddler
University of British Columbia
CANADA
Tel: +1 604 822 9741
Email: saddler@ubc.ca
Web: www.task39.org

Task 40: Sustainable International Bioenergy Trade – Securing Supply and Demand
Peter-Paul Schouwenberg - Admin
Essent
The NETHERLANDS
Tel: +31 (0)6 1151352
Email: Peter-Paul.Schouwenberg@essent.nl

Andre Faaij - Technical
Copernicus Institute / Utrecht University
THE NETHERLANDS
Tel: +31 30 253 7643
Email: a.p.c.faaij@uu.nl
Web: www.bioenergytrade.org

Task 41(3): Joint project with AMF
Professor Kai Sipilä
VTT
FINLAND
Tel: +358 20 722 5440
Email: kai.sipila@vtt.fi

Task 42: Biorefineries: Co-production of Fuels, Chemicals, Power and Materials from Biomass
Rene van Ree
Wageningen University and
Research Centre
THE NETHERLANDS
Tel: +31 317 480 710
Email: rene.vanree@wur.nl
Web: www.iea-bioenergy.task42-biorefineries.com

Task 43: Biomass Feedstocks for Energy Markets
Göran Berndes
Chalmers University of Technology
SWEDEN
Tel: +46 31 722 3148
Email: goran.berndes@chalmers.se
Web: www.ieabioenergytask33.org

For full Task contact details please visit www.ieabioenergy.com

iea Energy Technology Network

This newsletter was produced by the Implementing Agreement on Bioenergy, which forms part of a programme of international energy technology collaboration undertaken under the auspices of the International Energy Agency.