

WELCOME from the BANZ Executive Officer -

**- New Zealand Bioenergy Opportunities – wealth there for our taking**



Welcome to the latest *Bioenergy News*.

The BANZ led initiative to develop a New Zealand Bioenergy Strategy has been extremely well received and supported by the sector and government agencies. It has become clear that the creation of economic wealth via bioenergy could be based on a wide range of investment opportunities. Some of these investment opportunities are already underway through the use of wood fuel; bioethanol/ biodiesel from canola and used cooking oil; and biogas from municipal landfills etc; and will consolidate over the next decade to be part of our mainstream energy supply mix. More significantly however is the opportunity beyond that to replace up to around 30% of our transport fuels from locally sourced bioenergy.

To move beyond the business-as-usual opportunities to obtain the value from exporting bioenergy resources, and of replacing imported transport fuels from locally produced fuel will require a 'can-do' attitude and sound supporting Government policies.

The current Government support for local biodiesel production shows how a policy can give confidence to fuel producers, and thus to trucking fleet users to use biodiesel and see how well their vehicles operate. Similarly the spectacular growth in the sale of bioethanol blended petrol by Gull shows that the New Zealand public are receptive to using liquid biofuels.

The export of wood pellets by Natures Flame also shows that we can export our quality bioenergy resources.

These initiatives are only the start of what can be a significant revenue opportunity for land and forest owners as the growers of quality feedstock for biochemical and bioenergy activities.

This has been recognised internationally as in the last month Canada, Europe, USA and Australia have each produced nationally driven bioenergy strategies to capture the economic wealth from their indigenous resources. New Zealand can be a part of this fast expanding market.

*Brian Cox, Executive Officer BANZ*

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## Welcome to new BANZ Members

Welcome to the following recent 'new' members of BANZ:

Full Corporate	Brightwater Engineering – Contact -Warren Arthur <a href="http://www.brightwater-group.com">www.brightwater-group.com</a>
FULL Associate	Waiariki Institute of Technology – Contact – Jonathon Hagger <a href="http://www.waiariki.ac.nz/">http://www.waiariki.ac.nz/</a>
ORDINARY Associate	Catalyst R&D - Contact – Justin Ford-Robertson <a href="http://www.catalystnz.co.nz/">http://www.catalystnz.co.nz/</a>
ORDINARY Associate	Consulate & Trade Office of Canada – Contact – Kate Starkey
ORDINARY Associate	Fuel Technology – Contact Andrew Campbell
Individual	Conduit Limited - Contact - Bruce Thompson
Individual	Steve Goldthorpe

## News from the BANZ Board

The BANZ Board meeting since the last Bioenergy News was Monday 8<sup>th</sup> February 2010 at the BANZ AGM. The next Board Meeting is scheduled for 14<sup>th</sup> April 2010. BANZ Board Members are listed here: <http://www.bioenergy.org.nz/aboutus.asp>. The minutes from each of these meetings are on the BANZ web-site – Member's Only area as they are approved. They are available using this link: <http://www.bioenergy.org.nz/members/login.asp>

**BANZ 2009 AGM – The 2009 AGM was held on 8<sup>th</sup> February.**

Rob Mallinson gave his Chairman's Report which outlined the challenge for New Zealanders to secure the bioenergy opportunities as other countries are now doing. A copy of his report is available [here](#).

## A National Bioenergy Strategy

Based on the Scion Bioenergy Options project a simplified 'Picture' or 'Vision' of the opportunities for bioenergy over the next three decades was drawn up in advance of the 9th February Wellington workshop to develop a National Bioenergy Strategy. A draft Strategy is now in final preparation and will soon be available for further consultation and discussion with the sector and Government Officials. Access to the background document and the draft Strategy [here](#).

### **The Vision**

The Strategy presents a Vision for Bioenergy in New Zealand which is

*“one of a nationally significant bioenergy business sector, built on New Zealand's capability and expertise in growing and processing wood-crops and converting organic by-products to energy, which by 2040 supplies more than 25% of the country's energy needs, including 30% of the country's transport fuels.”*

The Vision will be *“based on the progressive development of a range of bioenergy products including biogas, wood-energy, biodiesel and bio-oil, produced from existing organic residues and new forests and energy crops. The majority of the growth in energy production will be based on the existing strengths of the forestry and wood processing sector, utilizing extensive planting of forests and farm-based energy crops, and the use of these fuels for heat and electricity generation and the production of liquid fuels and other biomaterials.*

*The planting of wood-plantations and fuel-crops, including on marginal lands, will add value for landowners and wood processors while diversifying their revenue streams and mitigating economic risks. This value will be enhanced by the establishment of much broader and deeper markets for biomass products and a range of other environmental and employment benefits.”*

The potential role for all elements within bioenergy is significant and in the light of this ‘big picture’ plan the BANZ Interest Groups are focussing on the redevelopment of their bio-topic specific shorter term goals and activities which will work towards the delivery of that big picture.

## **Delivering the Strategy**

It is proposed that the Strategy could be delivered in three distinct phases:

<b>Phase</b>	<b>Timeline</b>
<b>Establishment Phase</b>	2010 - 2015
<b>Development Phase</b>	2015 – 2020
<b>Expansion Phase</b>	(2020 – 2040 and beyond)

The primary focus is on the **Establishment Phase** (2010 to 2015) in which growth will be based on existing resources, processes and markets while consolidating expertise, creating a basis for broader acceptance and utilisation of mature technology and products, and increasing understanding of the market drivers for wood-based energy, wood fibre, and other products.

In this phase the supply-chain infrastructure will be developed and the technical and economic platform for the Development Phase will be confirmed as well as decisions made around crops, processes and future fuel production: based on expanded and commercially focussed research into fuel crop growing, processing technologies, and trial plantings. There will be some imported fuels and the establishment of applied technology transfer programmes and the focusing of New Zealand research on being fast followers and adaptors of overseas research initiatives.

Work will start on the development of suitable standards and controls to ensure that new crops can be shown to be sustainable and are not a treat to New Zealand’s bio-security.

The **Development Phase** (2015 – 2020) will see construction of demonstration plants for transport fuel production and plantings of energy forests and fuel crops in selected regions, based on the platform built in the Establishment Phase. Heat use growth will continue to maximise available opportunities. Growth in fuelwood demand, and the export of wood chip and pellets will build on the infrastructure of the wood processing sector and provide economies of scale for expansion of planting, and harvesting technology developments allowing economical harvesting of wood currently left in the cutover. This will see significant growth in value to landowners with energy crops a co-product with other land uses.

This phase sees the commencement of an investment programme estimated to be in excess of six billion dollars, requiring a mix of supporting Governmental and other measures for lignocellulose to transport fuel initiatives, and construction of production plants.

In the **Expansion Phase** (2020 – 2040 and beyond) investment in bio-refineries for the production of transport fuel and other associated bio-materials will be supported by expansion of fuel crops and energy forests and on-going research and development.

### **What is NZ's Potential?**

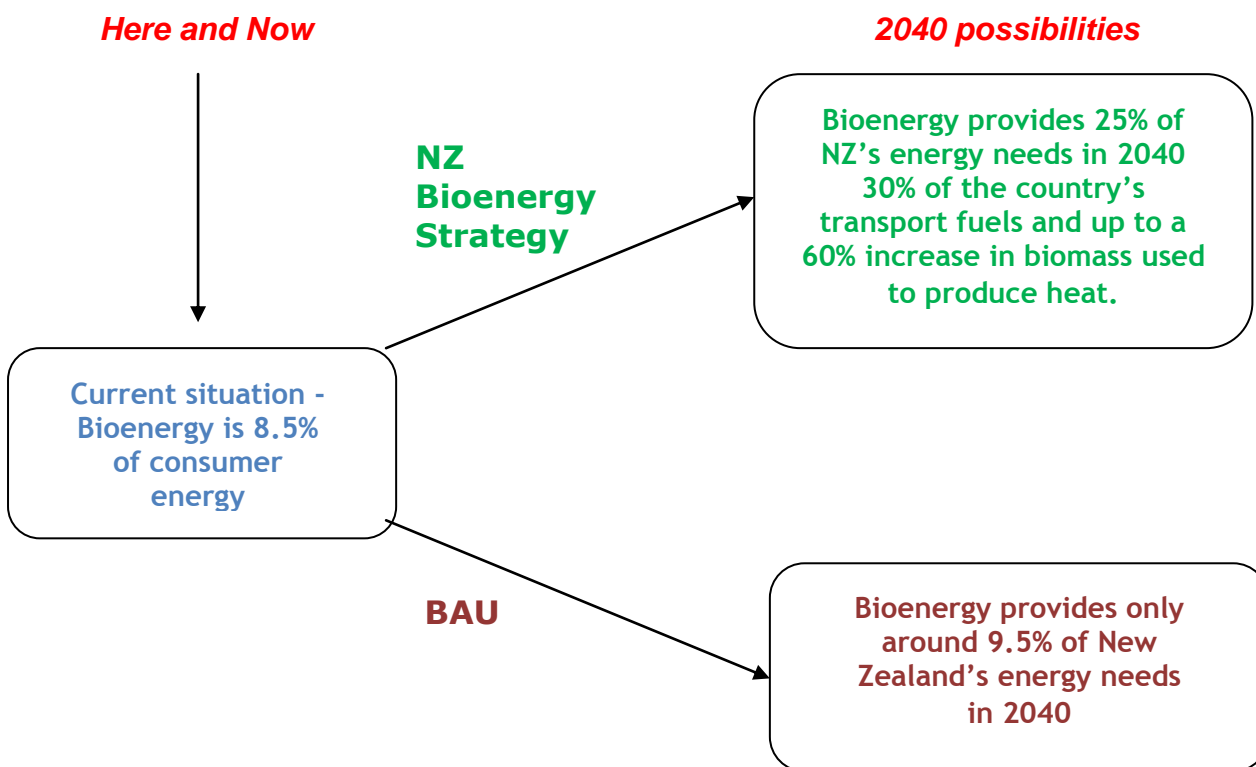
Currently within New Zealand, 8.5% of Consumer Energy is derived from biomass sources, with the majority of this used in the production of heat for industry or homes. The proposed Strategy could see, by 2040, bioenergy supplying more than 25% of New Zealand's projected energy needs, including 30% of the country's transport fuels and up to a 60% increase in biomass used to produce heat (excluding that provided by black liquor).

Continued incremental growth based on current policies and resources, and the limited opportunities for heat supply, would see bioenergy provide only around 9.5% of New Zealand's energy needs in 2040; this figure includes very little transport fuel.

It is only by adopting this Strategy that the full potential of bioenergy can be realised.

Bioenergy sector expansion also provides opportunities for cross border collaboration particularly where fuel can be exported to meet other country climate change obligations.

### **The choice to be made**



### **Bioenergy Strategy Next Steps and Timeline**

At this stage it is important to note the Strategy is an Industry Strategy only. Our recommendation to Government will be that it be adopted as a National Strategy.

Next steps are as follows....

19 <sup>th</sup> February	Strategy Draft Complete and released for Consultation with those who attended the workshop (and other interested parties)
Late Feb to Early March	Draft considered by BANZ Board and discussed informally with government officials
Date to be confirmed	BANZ Presentation to Ministers yet to be confirmed
24 <sup>th</sup> March	Strategy Finalised
Date to be confirmed	BANZ seeks Government Adoption of the Strategy

## Recognising the Potential of Bioenergy

The following reports further highlight the potential that bioenergy presents as a leading energy resource strengthening the case in New Zealand for a National Bioenergy Strategy. These reports illustrate the actions of other countries at promoting biomass and the value of its contribution to the total energy mix. Six key reports are listed as follows:

- European Commission steps up biomass use – Nearly € 80 million for biorefinery research (March 2010)
- Global Potential for Bioenergy Sufficient to meet Global Energy Demand – WBA Paper, December 2009.
- Transforming Canada’s Forest Products Industry - *Summary of findings from the Future Bio-pathways Project*, February 2010.
- Biomass energy production in Australia - Status, costs and opportunities for major technologies, February 2004.
- The UK Renewable Energy Strategy 2009 - *Using more sustainable bioenergy*
- Two key IEA Bioenergy Reports (December 2009) as follows:
  - Main Report: 'Bioenergy - a sustainable and reliable energy source. A review of status and prospects', and Executive Summary: 'Bioenergy - a sustainable and reliable energy source. A review of status and prospects.'
  - Better Use of Biomass for Energy. Joint IEA RETD and IEA Bioenergy position paper

### European Commission steps up biomass use – Nearly € 80 million for biorefinery research (March 2010)

A major research initiative of the European Commission about the sustainable use of biomass has started today. Researchers and industry are going to develop new ways to convert biological feedstock into energy and valuable material using biorefinery technology. The Commission will fund the programme with € 52 million for 4 years. 81 partners from universities, research institutes and industry in 20 countries will invest an additional € 28 million.

Multidisciplinary research is needed to achieve the full potential of biomass, so the Commission is bringing together the most advanced developers in Europe of biorefineries. On the energy side they are developing new methods to convert biomass into so called second generation biofuels in which feedstock doesn't compete with food production and which will produce heat and electricity. The other approach is to crack the components of biomass in order to produce chemicals and materials.

Three large collaborative projects will address the entire value chain from the production of biomass, logistics, intermediary processing steps and its conversion into end-products with the feasibility of the techniques shown at pilot scale. One coordination action project will provide immediate support to and coordination of ongoing biorefinery research projects with potential high impact, as well as providing a framework for collaborations and information exchange, a common vision and a roadmap for 2020.

- Designing the Next Generation Bio-Refinery: The EuroBioRef Project
- BIOCORE builds lignocellulosic biorefinery
- Star-COLIBRI to coordinate biorefinery sector
- SUPRA-BIO for sustainable products from economic processing of biomass

**Further details [here](#)**

### **Global Potential for Bioenergy Sufficient to meet Global Energy Demand, December**

**2009**— A position paper by World Bioenergy Association (WBA) based on a report by the Department of Energy and Technology at the Swedish University of Agricultural Sciences (SLU) shows that the global potential to produce biomass for energy in a sustainable way is sufficient to meet global energy demand.

The estimated potential for bioenergy production is 1 135 – 1 548 EJ (ExaJoule) in 2050, based on different scientific studies. The global energy consumption is 490 EJ today, and could reach well over 1 000 EJ in 2050, according to IEA projections. The President of World Bioenergy Association says that there is a lack of awareness of the enormous potential of bioenergy worldwide both among politicians, media and the public.

According to the report, the largest potential for bioenergy comes from biomass production on surplus agricultural lands and degraded lands. The current use of biomass for energy is only 50 EJ, around 10 percent of global energy consumption. Bioenergy crops are grown on 25 million hectares, which is only 0.19 percent of the world's total land area and 0.5 percent of the total agricultural land.

**Further details [here](#) and [here](#).**

### **Transforming Canada's Forest Products Industry - Summary of findings from the Future Bio-pathways Project, February 2010**

– Given the abundance of Canada's forest resource, the number of new technologies on the cusp of commercialization and Canada's global leadership in sustainable forestry, Canada has the potential to become a bio-energy, and bio-product powerhouse.

Gathering the facts to confirm this potential was one of the main reasons FPAC undertook the *Future Bio-pathways Project*. The association purposely set out to examine the various new bio-technologies being developed to determine which ones are feasible and hold the greatest promise for the forest products industry.

The Association wanted to determine how to best support the forest products industry by identifying the right transformational strategies. Investigators with FPAC and its lead partner, FPInnovations, examined 16 traditional and 11 emerging bio-industries to assess how wood fibre could create bio-energy, bio-chemicals and other bio-products. By offering a balanced perspective that verifies facts vs. hype and by building bridges to connect traditional forestry companies with emerging bio-firms, FPAC's goal is to enable Canada's forest products industry to profit from the bio-economy in order to sustain and create jobs, increase revenues and create a healthier environment that benefits Canadians and the global community.

The Future Bio-pathways Project is one of the first and most exhaustive studies in the world to examine a wide range of options for renewal of the Canadian forest products industry. The project involved more than 65 top Canadian experts in fields as diverse as bio-technology, investment banking and carbon pricing. **More details [here](#) and [here](#).**

### **The UK Renewable Energy Strategy - Using more sustainable bioenergy:-**

***The Strategy presents the following specifically on bioenergy:***

*“We will ramp up the supply and use of biomass for heat, power and transport while ensuring sustainability and protecting the environment. We will do this through:*

- *Increasing supply through bringing more woods back into management; incentivising energy crops and researching new ones; and making better use of biomass waste.*
- *Ensuring sustainability through better accounting for the sustainability of biomass and biofuels; developing robust sustainability criteria with the EU and internationally (including pressing for criteria relating to indirect sustainability impacts); and researching new opportunities for sustainable production.*
- *Enabling the use of bioenergy by ensuring improved fuel quality standards, protecting air quality, overcoming barriers to using biogas and developing the capability of road and other transport to use higher levels of biofuels.*
- *Identifying new applications and sectors for bioenergy through enabling the injection of renewable gas into the gas grid and looking at other transport sectors where biofuels could be used such as rail, aviation and shipping.”*

**Full Renewable Energy Strategy details [here](#).**

### **Two key IEA Bioenergy Reports as follows:**

**Main Report: 'Bioenergy - a sustainable and reliable energy source. A review of status and prospects.'** and **Executive Summary: 'Bioenergy - a sustainable and reliable energy source. A review of status and prospects.'** **December 2009.** The purpose of the report was to produce an authoritative review of the entire bioenergy sector aimed at policy and investment decision makers. The brief to the contractors was to provide a global perspective of the potential for bioenergy, the main opportunities for deployment in the short and medium term and the principal issues and challenges facing the development of the sector.

**More details [here](#) and [here](#).**

### **Better Use of Biomass for Energy. Joint IEA RETD and IEA Bioenergy position paper , December 2009**

The project identified opportunities for bioenergy to achieve better greenhouse gas reduction, and for climate policies to achieve better bioenergy development.

- ‘Good’ biomass for energy could diversify energy supply at reasonable cost, improve trade balances, and provide rural income and employment. Bioenergy could help reduce greenhouse gas (GHG) emissions from fossil fuels.

- Biomass for energy could be 'Bad' if no safeguards are placed against GHG emissions and biodiversity loss from land use change, food insecurity, overuse of water, and mismanagement of soils.
- 'Better' biomass for energy is needed to increase sustainable energy in all countries, taking into account costs and efficiency.

These issues are addressed in the position paper which was produced by the Implementing Agreements on 'Renewable Energy Technology Deployment (RETD)' and 'Bioenergy', which form part of a programme of international energy technology collaboration undertaken under the auspices of the International Energy Agency.

Details on the findings, recommendations and brief case studies are given in a background document prepared for IEA RETD and IEA Bioenergy by a research team consisting of CE Delft, Oeko-Institut, AidEnvironment and CIEP. This will be available early in 2010.

**More details [here](#).**

## BANZ Events Focus – April and May 2010

- **Liquid Biofuels Workshop - 22<sup>nd</sup> April 2010, Wellington Convention Centre, Wellington**
- **Wood Fuels Otago Tour – 6-7<sup>th</sup> May 2010 – Otago University, Dunedin**
- **Biogas Workshop – 13<sup>th</sup> May 2010, Rydges Hotel, Christchurch**

### BANZ Liquid Biofuels Workshop - 'Liquid Biofuels in New Zealand – Emerging opportunities, sustainable development and increasing availability'

This event will showcase the progress that is being made on converting New Zealand's indigenous resources into liquid biofuels. Provide an update on a range of technologies and discuss the sustainability criteria currently being developed. The workshop is being run in association with the **EECA Electric Vehicle and Biofuels Conference** on the preceding day with a discount for joint attendance. More details at [EECA Biofuels & Electric Vehicles Conference 2010](#).

We have three International speakers for this event:



**Barney Foran**  
Charles Sturt University,  
Australia  
Specialist Topic - Bio-methanol



**Michael Borowitzka**  
Perth – Murdoch University,  
Australia  
Specialist Topic - Algae



**Colin Stucly**  
Renewable Oil  
Corporation, Australia  
Specialist Topic - Pyrolysis

**(Note Registration Deadline is strictly 5.00pm Friday 16<sup>th</sup> April)**  
See [Forthcoming Events](#) for Programme and Registration Form

## **BANZ Wood Fuel Tour - Heating with Wood Chip - A showcase study tour of modern wood chip boiler installations and their supply chains**

The focus for this event is on the increasing supply and use by schools, hospitals, other commercial buildings and manufacturing operations of wood chip and wood pellet boilers. Those using wood outside the industry along with those supplying the woody biomass and the boilers will be involved in showing you that wood fuel is now a main stream heating source.

This 2 day show case tour is designed to provide anyone who is considering installing a new boiler with an in-depth appreciation of the operation of modern wood chip boilers and their ease of use. Six different types of European wood chip boilers will be visited, covering the entire range that are available in New Zealand. Some pellet boilers will also be visited. The wood chip boilers are providing space heating, domestic hot water and process heat to schools, a university, a hostel and a winery. The tour will start in Dunedin for the first day and end in Queenstown on the second day.

The tour will be supplemented by technical sessions on Wood Fuel Classification Guidelines, the benefits of reduced air emission from use of wood fuel, and guidelines on obtaining council consents.

The tour will also be of interest to council staff processing applications for resource consent to see how well these plant operate and the very low level of emissions to air that is achievable.

**(Note Registration Deadline is strictly 5.00pm Monday 3<sup>rd</sup> May)**  
See [Forthcoming Events](#) for Programme and Registration Form

## **BANZ Biogas Workshop – ‘Biogas from Municipal Organic Waste’**

Internationally many European countries have successfully ushered in a modern age of green energy production from biogas as they strive to meet targets for greenhouse gas reduction and increase energy generation from renewables. This is resulting in significant growth in the production of biogas.

New Zealand has a similar opportunity for the use of biogas derived from the large energy potential available from organic waste. Some Council's throughout New Zealand are already using their organic wastes to produce biogas to contribute to local energy supply. While other Council's have opportunities which can be expected to be cost effective projects.

This workshop will showcase innovative technologies and New Zealand based biogas experts. It is an opportunity to meet with people working with organic waste and biogas, and to learn from their experiences. The event will help communities to evaluate their local feedstocks for biogas and consider how they can be used for the production of heat and power. Workshop delegates will be able to share information and learn about operating experiences from recent developments including co-digestion of municipal and industrial biosolids, thermophilic digestion, biogas treatment, power generation, heat utilisation, as well as gas collection from landfills.

The workshop is aimed at territorial council staff, companies, contractors and consultants working with community generated waste.

**(Note Registration Deadline is strictly 5.00pm Monday 10<sup>th</sup> May)**  
See [Forthcoming Events](#) for Programme and Registration Form

## BANZ Interest Groups – Update

The four BANZ Interest Groups are now well established with Committees meeting every couple of months. Issues discussed at recent meetings include as follows:

### • Biogas Interest Group (BIG)

1. Biogas Workshop planning
2. Biogas as Transport Fuel – planning for Nov workshop
3. NZ Bioenergy Strategy
4. Excise tax on CNG
5. Biogas Injection into Distribution Networks

### • Liquid Biofuels Interest Group (LBIG)

1. Sustainability Reporting
2. NZ Bioenergy Strategy
3. Accreditation
4. New EECA initiative to develop further the idea of biodiesel clusters
5. 22<sup>nd</sup> April workshop – planning and update on Australian speakers
6. Relationship development with NZTE
7. LBIG Vision and Goal Revision
8. Funding applications
9. BANZ Marketing/Promotion of Biofuels

### • Wood Pellets Interest Group (WPIG)

1. Wood Pellet Boiler Operator Training
2. Wood Pellet Heater Installer Course
3. EO Meeting with NAQWG
4. Review of WPIG 'Vision'
5. Development of a 'brand' for NZ Wood Pellets
6. Relationship development with NZTE
7. Proposal to levy pellet sales to raise promotional funds

### • Wood Fuel Interest Group (WFIG)

1. Development of Tender Guidelines
2. Development of Conversion Guidelines
3. Wood Fuels Otago Tour planning
4. Wood Fuel Testing Standards
5. Wood Fuel Classification Guidelines – promotion of.
6. Woody Biomass and Direct Heat Profiles

Further details on each of the Interest Groups can be found on the BANZ web-page and in the Member's Only Area. If you are interested in being a member of a specific Interest Group please contact [Connie.crookshanks@bioenergy.org.nz](mailto:Connie.crookshanks@bioenergy.org.nz) Also contact Connie if you need a reminder of your username and password for the Member's Only Area.

Membership of these Groups involves a fee for the 2010 period. See Membership details on page 16.

### **Interest Group Committees and next Meetings:**

<b>Biogas</b>	<b>Liquid Biofuels</b>	<b>Wood Pellets</b>	<b>Wood Fuel</b>
Next meeting – 7 <sup>th</sup> April	Next Meeting – 31 <sup>st</sup> March	Next Meeting – 30 <sup>th</sup> March	Next Meeting – 6 <sup>th</sup> April
<b>Committee</b>	<b>Committee</b>	<b>Committee</b>	<b>Committee</b>
Guenter Wabnitz (Convener)	Andre Hamman (Convener)	Brian Cox (acting Convener)	Rob Mallinson (Convener)
Bob Weston Jurgen Thiele Stephan Heubeck Tony Rhodes Rocky Renquist Humphrey Archer Andrew Thorp Attilio Pigneri Caroline Crosby Loren Poole	Andrew Simcock Attilio Pigneri Richard Gapes Gary Brockett Jurgen Thiele Simon Coughlan Tissa Fernando Peter Motion Sean Simpson Karl Mischewski Dave Bodger Roger Williams Andrew Campbell Toby Littin	Paul Coughlan George Escourt Peter Kernohan Bruce Clow Eduard Ebbinge Peter Butler Bevan Frost Ian Charity Andrew Wilson Trevor Hale Kirk Archibald Murray Cowan Ferg Lister	Allan Escourt Bruce Clow Duncan Mackenzie Eduard Ebbinge Richard Gapes Grant Smith Lyndon Haugh Kirk Archibald John McArthur Michael Jack Murray Cowan Peter Welr Peter Hall Philip Gedye Rens Bosman

# BANZ Training Courses

## EECA Wood Seminars

This seminar for consulting and process engineers, and facilities managers will provide an overview of the technical considerations for using wood energy for industrial and commercial heat requirements. Wood energy is gaining popularity for industrial and commercial heat requirements as businesses look for alternatives to traditional fossil fuels - either based on price or environmental benefits, such as improved air quality. This practical seminar will include case studies of businesses using wood energy and cover:

- 1) Wood as an energy source
- 2) Understanding wood fired boiler technology
- 3) Determining the feasibility of the project
- 4) Wood energy supply

### Locations and Dates

- Auckland - 22/03/2010, 9am -3pm
- Dunedin - 25/03/2010, 9am - 3pm
- Christchurch - 26/03/2010, 9am - 3pm

This seminar is sponsored by the Energy Efficiency and Conservation Authority – there is no charge for delegates. Registration - email Ting Lui ([ting.liu@eeca.govt.nz](mailto:ting.liu@eeca.govt.nz))

## Pellet Boiler Operator Training and Certification– Schools Course

***Do you have a wood pellet fuelled boiler? Are you thinking about converting to heating by use of wood pellets fuel? The BANZ wood pellet boiler operator course is essential training for staff who are responsible for ensuring safe and efficient boiler operation.***

BANZ recognizes that school health and safety plans often require a demonstration of competence for operators of school equipment. BANZ has therefore established a **scheme for certification and registration** of trained wood pellet boiler operators that schools can utilize. Those boiler operators who attend the BANZ training courses will be issued with a laminated certificate that can be affixed to the boiler room wall which certifies that they have attended the training course. The certificate is personal to the trained operators so schools are encouraged to get replacement operators trained when necessary.

Location	School	Date	Places	Details
Bay of Plenty	Rotorua Girls High School 251 Old Taupo Road, Rotorua	Wednesday 26 <sup>th</sup> May 1.00 – 4.00pm	15	1 MW boiler converted from coal to wood pellets almost 4 years ago

Further Details here - BANZ Training Course – 01/2010 - [The BANZ Wood Pellet Boiler Operator Training Course and Certification](#)

## Wood Pellet Heater Installer Training Course

The Pellet Heater Installer Course is under development by Waiariki Polytechnic and the Bioenergy Association of New Zealand (BANZ) and is part of a Diploma in Sustainable Energy. This 25-hour course is likely to contain 17 distance learning hours reinforced by 8 hours of practical work.

The course will give a general overview of:

- wood pellet heaters by reference to demonstration equipment, the various models, manufacturers and suppliers including the key heater design differences.
- the wood pellet market in New Zealand and Air Quality Issues driving growth.

**The course is available in Semester 2, 2010 (June 2010 approx).** Please register your interest in this course [here](#). We will send you details when the course details are finalised and we are able to take bookings. The course should be of particular interest to pellet fire installers, Local Council Consent staff, heating companies, pellet heater retail staff.

## New Zealand News Briefs

### Wood Pellets

#### **Biomass success in Schools – over 21MW now heating NZ Schools across the country**

The number of boilers now running on biomass (and wood pellets in particular) in New Zealand schools continues to rise. Cost and current condition will always be a factor in anyone's choice of fuel and boiler technology. Many schools for example have funded replacement of their existing boilers and shifted from coal to pellets in the process. Others have been able to convert existing boilers from coal to run on pellets. BANZ has information on 46 boilers which are now running on biomass. Details on 35 of these boilers shows their total capacity is 21,507 kW (note – details on 11 boilers are not available). Most boilers have been converted to run on pellets. Several projects have been part funded by EECA through its 'Renewables in Schools' Programme.

Further details here – BANZ Information Sheet 5 (Feb 2010) - [School Boilers – Biomass](#).

#### **Guidelines for the Conversion of Solid Fuel Boilers from Coal to Wood Pellet Firing**

This Technical Guide is intended to provide guidance on the conversion of existing coal fired boilers to wood pellet operation. The number of boilers running on wood pellets in New Zealand (particularly in schools) continues to rise, as does the number of organisations offering installation and conversion services. It is essential that the lessons from early conversions are used to help inform this growing industry. This Guide aims to provide information at a level appropriate to both designers and operators and is a mix of both technical and more general information. This Guide is not a design manual.

The Guide has been facilitated by BANZ but is the outcome of a collaboration of industry experts. The Guide is EECA Approved. As with all BANZ Technical Guides the Document is a 'living document' and as comments and suggestions are received and incorporated into the document, it is reissued. The current version is Version 1.

Further details here - BANZ Technical Guide 02 (March 2010) - [Guidelines for the Conversion of Solid Fuel Boilers from Coal to Wood Pellet Firing](#)

## Solid Energy opens Wood Pellets Plant in Taupo and Exports to Italy



*New Zealand's largest wood pellet fuel plant was opened today by the Prime Minister, the Hon John Key. Built by Solid Energy business, Nature's Flame, the \$34 million Taupo plant will initially produce up to 40,000 tonnes a year of the clean-burning, low-carbon fuel with a substantial proportion of its output exported.*

The plant, in Taupo's Aratiatia industrial park, processes large volumes of pine wood residues from central North Island sawmillers and wood-product manufacturers. These are screened, ground, dried and compressed into wood pellets for bulk delivery in New Zealand and overseas.

**Overseas demand for home heating and industrial use** - Figures for the first three months of 2009 suggest that Europe's wood pellet imports are now worth about €200 million a year (NZ\$400m). In Japan, utility companies are also investigating the incorporation of wood pellets in the fuel mix for their thermal electricity generating stations and Nature's Flame is working with prospective customers there. Andy Matheson, Solid Energy General Manager Renewable Energy, says the pellets' clean-burning properties and low ash content are attracting demand from both the higher-value home-heating market in Europe and from industry in Europe and Asia. "We are shipping into Italy for the domestic market. Other home-heating energy, electricity and oil, is very expensive and consequently Italy now has more than a million pellet fires in homes. So the market is already very well established, with demand for up to 2 million tonnes of top-grade fuel a year."

**New Zealand market growth continues** - In New Zealand, the popularity of wood pellets continues to grow. Specialist home heating retailers and building supply chains now stock a variety of wood pellet fires and central-heating boilers. Nature's Flame is having particular success in the education sector, with more than 40 schools having converted to pellet fuel. Some other Government facilities, such as the Department of Corrections' Rangipo facility, have also recently begun using wood pellets for heating. Radford Yarn Technologies, an innovative Christchurch manufacturer of high-quality carpet yarns, last year won the Energy Efficiency and Conservation Authority's supreme award for its conversion from electricity to wood pellets for its primary energy.

Read the full press release [here](#).

## Wood Fuel

### EECA Wood Energy Grants Scheme

Grants are available from EECA for organisations that are undertaking projects that will increase the use of woody biomass as an energy source in New Zealand. EECA is aiming to fund projects that will increase the use of wood as an energy source by 0.1PJ (100,000GJ) a year, so is particularly interested in receiving applications for large scale projects. Full details on GETS – [www.gets.govt.nz](http://www.gets.govt.nz)

**Applications due – 21 May 2010 4.00pm**

Email: Chris McArthur [chris.mcarthur@eeca.govt.nz](mailto:chris.mcarthur@eeca.govt.nz)

or

Amber Uren Email: [amber.uren@eeca.govt.nz](mailto:amber.uren@eeca.govt.nz)

## Clean Heat Saving Money

The Little Sisters of the Poor Home and Hospital in Dunedin has decided to switch to wood chip as their source of space and water heating. In the past they have been using coal, but when the old emissions consent expired they made the switch to LPG, whilst the possibility of installing a wood chip boiler was appraised in more detail.

After a thorough investigation and tender process, Living Energy Ltd were selected as the turn-key contractor, supplying and installing a 300kW reciprocating grate binder wood chip boiler, as well as seasoned wood chips through a partnership with Ernslaw Bioenergy, and boiler maintenance services. Glenn Hill, MD of Aircomm who managed the selection process on behalf of the Hospital said *“This project will deliver good savings for our client, with a good technical solution.”*

Stephen Macey, Property Services Manager at the Hospital, commented *“We are looking forward to using a good clean source of energy for our heating, and saving a lot of money!”* Rob Mallinson, MD of Living Energy commented, *“The Binder boilers are rugged and well-suited to the year-round duties at Hospitals, so we are very pleased to be supplying the Little Sisters with this solution.”* This will be Living Energy’s ninth wood chip boiler installed in the last 18 months.

## Woody Biomass and Direct Heat Profiles

Following on from the success of the Liquid Biofuel Sector Profiles BANZ is now collating profiles for the Woody Biomass and Direct Heat Sector. Sector participants fall into one or more of the following categories:

- Fuel Producer (hogger, wood processor)
- Fuel Wholesaler
- Fuel Retailer
- Wood Fuel consultant, researcher, training provider
- Wood Fuel equipment supplier (eg plant construction and design, burners, heaters, hoggers, fuel handling equipment)
- Wood Energy Consultant Services

Further details are available from the BANZ web-site [here](#). Profiles received so far include:

- RCR Energy
- Energy For Industry
- City Firewood
- Ernslaw Bioenergy
- Ernslaw Bioenergy Equipment Ltd.

## Wood Chips for the Gisborne Pool

Gisborne's Olympic Pool complex is about to become more environmentally friendly with a \$530,000 fully-automated wood-boiler that will shave thousands of dollars off the pool’s running costs each year.

The new boiler is funded with a \$150,000 grant and a \$319,000 interest-free loan from EECA, along with \$61,000 in loan funding from Gisborne District Council. Olympic Pool manager Hendrik Geyer says the entire investment will be paid back within six and a half years in fuel savings.

At present it is costing \$150,000 a year to heat the pool with the existing gas-fired boiler, which is 30 years old. The new boiler is expected to use \$110,000-worth of woodchips a year, saving ratepayers \$40,000 a year. The woodchips are manufactured here, using locally- grown timber offcuts that might otherwise go to waste. **More details [here](#).**

# Liquid Biofuels

## Biodiesel Flows in Queenstown – an NZ First

**New Zealand's first biodiesel refuelling facility will be launched in Queenstown next week. The Queenstown Lakes Biodiesel Consortium is the first of its kind in New Zealand and provides access to a supply of B20 blended biodiesel for commercial vehicles.**

The consortium has been set up by the Otago Polytechnic's Centre for Sustainable Practice. The polytechnic's sustainable tourism adviser, Sharon Schindler, said the long-term aim was to introduce the commercial use of biodiesel in Otago and Southland. "The aim of the consortium is to run a pilot for New Zealand-made biodiesel . . . to help increase the uptake of biodiesel through enabling more fuel self-sufficiency, long-term supply and price security," she said. The centre would bring together potential biodiesel users to create a "sizeable hub" and broker a commercial supply contract. It needed to get sufficient volumes to enable supply at a price close to mineral diesel, she said.

Together, interested parties are responsible for around an annual demand of 1.5 million litres of diesel from Queenstown refuelling stations alone. Most potential users, however, first wanted to pilot the use of biodiesel before any full switch of their fleets to biodiesel fuels. On average, emissions of carbon dioxide (CO<sub>2</sub>) from biodiesel are 80% lower than from mineral diesel. The consortium has secured a supply of B20 blended biodiesel (20% biodiesel, 80% mineral diesel) to run the pilot with commercial business vehicles this year to test summer and winter blends and to check the commercial viability. Domestically grown rapeseed oil and used cooking oil form the basis of the biodiesel.

Each consortium member has a swipe card for each registered vehicle to access the refuelling facility, located at Cemetery Rd in Queenstown. The joining fee is \$50 per vehicle. The partners in the consortium aim to deliver a competitive price for fuel, which is set each week by Allied Petroleum. The biodiesel price is subsidised by the Government at 42.5c a litre and the consortium levies 3c a litre to cover running costs. The scheme will be launched at Lakeview Holiday Park, Cemetery Rd at 10.30am on Monday.

## "LiqBio" - the dedicated BANZ Liquid Biofuels publication issued quarterly

BANZ prepares and issues a dedicated newsletter "LiqBio" for the liquid biofuels sector. Copies of the latest issue of LiqBio are available [here](#) on the BANZ Liquid Biofuel web-site [www.liquidbiofuels.org.nz](http://www.liquidbiofuels.org.nz)

# Biogas

## Biogas Feedstock Production Using Novel Crop Rotations with a Closed-Loop Nitrogen Supply

**Rocky Renquist and Stephan Heubeck, Committee Members of the BANZ Biogas Interest Group, have been working on this new line of research that may prove key to expanding the biogas industry beyond the capacity of waste stream feedstocks.**

The value of the project to its MAF funders is in the potential of the novel energy crop production system to reduce greenhouse gas emissions in two ways. The first is to displace fossil fuel use in rural transport and on farms with locally produced biogas. The second is to reduce GHG emissions from the

manufacture of nitrogen (N) fertiliser by virtue of the cropping system's 'closed loop N supply' feature. It also creates rural business opportunities.

The core technical feature of the novel cropping concept is the necessary linkage to the use of anaerobic digestion (AD) to extract biogas from the biomass while recycling nutrients to the following crops. AD technology is well proven, including conservation of most nutrients if digestate is properly applied back to crop land. Using some N-fixing legume crops will ensure that all N needs of crops are met and a surplus is possible.

The research project began in July 2009 and will run for 3 years. Research objectives are to:

- 1) define marginal land types in order to match the best biomass crops to each type and map the potential for non-woody biomass production in New Zealand;
- 2) screen novel species for use on drought susceptible marginal land; and 3) field test components of a 'virtual' closed-loop N supply cropping system.

The methodologies will include desktop analysis to target the most promising energy crops for use in field trials, modelling of field results and further analysis to apply findings to wider areas of New Zealand.

The outcomes will be presentation to rural stakeholders of maps showing the extent of biofuel production potential using the Closed-loop N energy cropping system for relevant types of marginal lands. If this 'proof of concept' is successful and opportunities for the rural arable/pastoral sectors are taken up, the outcome will be a route for biogas industry expansion beyond the scale possible using urban waste streams and manure effluent. It will also gain the support of farm sectors as AD champions, since the target use for the new technology is to produce biogas on farms for use in rural New Zealand. This would create a large enough biogas industry to enable further expansion of transport use during the next 10-20 years, while other biofuel technologies are still undergoing R&D.

*Note – This project is funded by the MAF programme on Sustainable Land Management for Climate Change (via FRST). Note - A more detailed paper on this research accompanies this newsletter can be found on the [BANZ biogas web-pages here](#).*

## **Centralised BioGas feasibility study at Christchurch Prison**

Waste Solutions advise that the first milestone of this project has been reached with the results of the waste audit completed. At this stage the waste contributors are a combination of farm and industrial producers within a 20 kilometre radius of the Yaldhurst prison site. Two of the original contributors have not had their results factored in as their waste stream contains saw dust and would need further treatment. Of the remainder, initial calculations would suggest that the volumes and energy values of the analysed waste stream would support 750 KW to 1 MW of electricity generation from Bio Gas. In lay terms that represents about 300 houses or one prisons worth. This is a significant outcome. Although there is a huge amount of work still to do, we appear to have crossed the scale threshold that would support a small community, or in this case a very large institution.

The other interesting development is that as word has got around of this study, more waste producers have identified themselves and their products with an interest in contributing to the raw waste stream, further underwriting the scale of the operation.

**Biogas – proposed new field of work at ISO - Standards New Zealand is seeking feedback on a new field of technical activity on biogas. The Standardization Administration of China has proposed this new field of work to the International Organization for Standardization (ISO).**

Biogas is a combustible mixture of gases produced by microorganisms when manure and other biological wastes are allowed to ferment in the absence of air.

It is proposed that new Standards be developed to broaden and facilitate the commercial and private use of biogas as a source of fuel. The Standards would address a broad range of issues related to biogas, including manufacturing, testing, inspection, and quality management.

For more information, or to submit comments including support for or opposition to the proposal, please email [karen.batt@standards.co.nz](mailto:karen.batt@standards.co.nz). Comments received will be used to form a New Zealand position on this proposal. Please provide your comments by **Friday, 16 April 2010**.

#### NZ Bioenergy Company newsletters we know of:

- Greenlane Biogas – <http://www.greenlanebiogas.com/news.htm>
- Farm Forestry New Zealand Newsletter - <http://www.nzffa.org.nz/>
- Spark Energy – <http://www.sparkenergy.co.nz/Equipment/Home.html>
- Entec – <http://www.entec.co.nz/news.html>
- NZFOA - <http://www.nzfoa.org.nz/index.php?/News>



## INTERNATIONAL NEWS

### Irish Government Incentivises Farmers to grow Willow and Miscanthus (Feb 2010)

A new Bioenergy Scheme in Ireland will grant aid the planting of willow and miscanthus crops over the period 2010 to 2012. The Scheme was initially launched on a pilot basis in 2007 and supported the planting of 2,500 hectares by the end of 2009. The new Scheme is part of the Government's revised Rural Development Programme, which is due to be formally approved by the EU Commission in the near future. €1 million is being made available to support the planting of a further 1,000 hectares in 2010. The Scheme is now open for applications and interested farmers can apply for establishment grants of up to €1,300 per hectare to cover 50% of the costs of establishing these crops.

The initiative notes drivers such as the convergence of the increased cost of oil, the volatility of oil supply and the need to reduce carbon dioxide emissions, to focus renewed attention on renewable energy materials. Also cited are important and challenging EU targets exist relating to the development and penetration of renewable energy and biofuels. A Government White Paper on Energy "Delivering a Sustainable Energy Future for Ireland" sets out the framework for energy policy to 2020 under three main pillars, (1) security of supply, (2) sustainability and (3) competitiveness. One of the main policy goals in the White Paper is to accelerate the growth of Ireland's renewable energy resources including bioenergy (biofuel and biomass).

**NOTE - Useful resources developed as part of the programme include Best Practice Manuals for SRC Willow and Miscanthus. *More details* [here](#)**

### Canadian Government commits \$ 80 million to strengthen biofuel industry

The Canadian government will invest up to \$79.75 million over seven years to finance the expansion of [GreenField Ethanol](#) Inc.'s Varennes ethanol facility, which could help boost ethanol production in Quebec. Currently, the facility produces 120 million liters of [ethanol](#) per year, a large chunk of the company's total annual production of 450 million liters. The investment has the potential to increase that rate to 145 million litres annually.

More details [here](#).

**The Canadian forest industry is to get \$100 million for new green energy technologies. This is on top of initiatives like accelerating write-offs in green energy investments and extending the workshare program, changes that will encourage more capital investment and help keep jobs in the hard-hit sawmilling sector.**

The Canadian Government gave the industry \$1 billion last year to develop green technologies with black liquor, an alternative fuel that's a byproduct of the pulpmaking process. The \$100 million in this year's budget is over four years to promote the development, commercialization and implementation of new clean energy technologies.

The Forest Products Association of Canada said that the investment will help keep jobs in Canada and encourage more investment in green energy.

More details [here](#).

### Steady Growth in German Biogas for Electricity Generation

The farming magazine "Top Agrar" reports that during 2009 the German state of Bavaria obtained 3.6% of its electricity needs from biogas. Figures provided by the Bavarian agriculture minister Helmut Brunner indicate that biogas electricity generation has increased from 2,200 GWh in 2007 to 3,400 GWh in 2009. [Note - This represents about 8.5% of New Zealand's 2009 electricity demand of ~ 40,000 GWh]. Growth in the Bavarian biogas sector has been steady, with ~ 300 new plants commissioned between 2007 and 2009. This brings the total number of biogas plants in Bavaria to 1,700 with a combined capacity of 425 MW. Minister Brunner sees great future potential for biogas upgrading technology, which will allow for more biogas to be injected into the natural gas network or used as vehicle fuel. With the biogas obtained from 1 ha of pasture able to propel a modern vehicle for 67,000 km, there are clear indications that biogas vehicle fuel is one of the most efficient and effective bio-transport fuels that could be much more widely used.

## BANZ Events Programme for 2010

Event Focus	Date and Location
<b>Bioenergy for Engineers (EECA and IPENZ joint seminars) Using wood energy for industrial and commercial heat requirements - targeting Consulting Engineers x 3</b>	22 March, 9am - 3pm <a href="#">Auckland book here</a>
	25 March, 9am - 3pm <a href="#">Dunedin book here</a>
	26 March, 9am - 3pm <a href="#">Christchurch book here</a>
<b>Liquid Biofuels (back to back event with EECA Biofuels and electric vehicles conference on the preceding day)</b>	Thursday 22 <sup>nd</sup> April 2010, Wellington – BANZ Event Wednesday 21 <sup>st</sup> April 2010, Wellington – EECA Event
<b>Wood Fuels (2 day event)</b>	Wed/Thur 6-7 May 2010, (Dunedin and Otago)
<b>Biogas from Municipal solid and liquid waste (with EMANZ)</b>	Wednesday 13 <sup>th</sup> May 2010, Christchurch
<b>Biogas as a transport Fuel</b>	November 2010 (provisional)

Details of these events are available on the BANZ web-page. The Executive Officer will also send direct e-mails to advise of the details for each event. Please share with colleagues that may be interested.

## Viva la revolution - Growth Opportunities in the Clean Energy Economy

*The clean-energy revolution is not in the future, it has already begun - The University of Auckland Business School Entrepreneurship Club invites BANZ members to a Short Sharp Event with **Tony Seba**. Just as the PC, internet and mobile phone revolutions transformed computing while creating a new information-based economy, the clean energy leaders will turn the architecture of energy upside down, creating a new clean energy economy. This creates an untold wealth for the entrepreneurs, companies, investors, and countries who will win the race. With the energy industry predicted to make US\$382 trillion over the next four decades.*

**Date:** Monday, 22 March 2010  
**Time:** 5:30pm - 7:30pm (Presentation begins at 6pm) Includes drinks and canapés  
**Venue:** The University of Auckland Business School, Owen G Glenn Building, 12 Grafton Road, Auckland Central – follow the signage from the entrance from level 1 entrance.

Places are strictly limited to 100 places. Please RSVP to Darsel Keane at [d.keane@auckland.ac.nz](mailto:d.keane@auckland.ac.nz) at the Centre for Entrepreneurial Learning by **Wednesday, 17 March**

**Tony Seba** - Tony is an entrepreneur, educator, author, speaker, executive, business architect, and consultant. He is a lecturer in entrepreneurship at Stanford University where he teaches clean energy, high tech strategy and finance. Drawing from his recently published book *Solar Trillions - 7 Market and Investment Opportunities in the Emerging Clean-Energy Economy*, Tony Seba will reveal multi-trillion dollar market opportunities from island-scale power to water; from solar air conditioning to the smart grid; from energy storage to industrial power.

Tony will be using two examples of world-class clean technology practices in New Zealand - Richard Gill, CEO, Digital Water and Margaret Cooney, Commercial and Regulatory Manager, Powershop. Digital Water uses advanced digital technology that helps mitigate the growing global water crisis by measuring, managing and controlling domestic water consumption. Powershop is an innovative online electricity retailer that gives customers choice and control over their energy usage. It is uniquely placed to provide smart retailing to support smart transmission grid developments. Margaret established Powershop three years ago. She is responsible for regulatory affairs, commercial arrangements and business development initiatives.

To read more about Tony's background including his experience of being the first external person to speak to Google go to [www.tonyseba.com](http://www.tonyseba.com)

## Featured Publications



### Investing in Algae - Global Algae Market Opportunities and Strategies

Algae 2020 is a fact-filled guide designed for investors, producers, researchers, consultants and entrepreneurs. *Algae 2020* provides a comprehensive roadmap for the commercialization of advanced biofuels, biomass and biodiesel markets.

The Algae 2020 study offers detailed insight for algae production systems, producers, addressable markets and product development strategies based on site visits and collaborations with established and emerging companies, public-private partnerships,

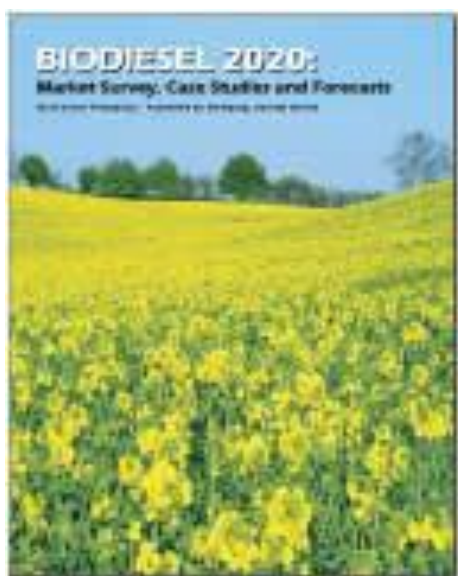
research labs, and universities and technology commercialization to the year 2020.

See attached link - <http://www.emerging-markets.com/>

### Note the investment going into algae programmes around the world

- [5 Key Strategies to Algae Biofuels Success](#)
- [A New Paradigm in Algal Biofuels](#)
- [Drop-In Fuels: The Next Generation](#)
- [Algae Aviation Takes Off](#)
- [Algae Investment Trends](#)

## Investing in Biodiesel - Market Survey, Feedstock Trends and Forecasts



*Biodiesel 2020, second edition* tracks the U.S. and global markets for biodiesel growth, details major feedstock trends, and provides analysis of biodiesel consumption and production trends. Europe, China, India and Brazil are also covered as case studies. Proprietary forecasts developed for this study are also used to produce 2020 "Scenarios" for the U.S., Europe, China, India and Brazil.

The widely acclaimed *Biodiesel 2020* study has been featured in the *Financial Times*, *Wall Street Journal*, *Business 2.0*, *Biodiesel* magazine, *Reuters TV*, *Fox News Energy Week*, *Biofuels International*, *Renewable Energy Access*, *The Futurist*, and on Finland's TV network 'N' news

*Biodiesel 2020, 2nd edition* provides an update on the first study; further explores feedstock trends and provides detailed analysis of the current transition from 1st generation biodiesel markets to 2nd generation markets for biodiesel, renewable diesel and biomass to liquids for biodiesel projects.

## Featured Bioenergy Web-sites

**Biofuels** - <http://www.future-science.com/toc/bfs/1/1> **NEW**

<http://www.ecoseed.org/> **NEW**

<http://www.greentechmedia.com>

<http://www.biodieselinvesting.com/site-map/>

**Global Bioenergy Partnership (GBEP)** brings together public, private and civil society stakeholders in a joint commitment to promote bioenergy for sustainable development. The Partnership focuses its activities in three strategic areas: Sustainable Development - Climate Change - Food and Energy Security <http://www.globalbioenergy.org/>

**BIOMASS MAGAZINE – A World of Biomass at your fingertips**  
<http://www.biomassmagazine.com/index.jsp>

**FRIDAY OFFCUTS** - the weekly electronic newsletter that goes out to New Zealand and Australian forestry, wood products and paper companies.

<http://www.fridayoffcuts.com/index.cfm>

**ETHANOL PRODUCER MAGAZINE – The World of Ethanol at your fingertips**

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

**BIODIESEL MAGAZINE – The World of Biodiesel at your fingertips**

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

**BIOFUEL CITIES UPDATE - information on developments in the field and from the Biofuel Cities European Partnership, the multi-stakeholder forum for the application of biofuels.** <http://www.iclei-europe.org/index.php?id=7113>

**WOOD PELLETS IN NEW ZEALAND - the portal for accessing information on wood pellets production, supply and heater and boiler equipment** [www.woodpellets.org.nz](http://www.woodpellets.org.nz)

**BIOENERGY KNOWLEDGE CENTRE – The portal for accessing information on wood energy fuel and utilisation** [www.bkc.co.nz](http://www.bkc.co.nz)

**LIQUID BIOFUELS IN NEW ZEALAND – the portal for accessing information on liquid biofuels opportunities in New Zealand.** [www.liquidbiofuels.org.nz](http://www.liquidbiofuels.org.nz)

**BIOGAS IN NEW ZEALAND – the portal for accessing information on biogas opportunities and activities in New Zealand -** <http://www.biogas.org.nz/index.asp>



Energy Efficiency and  
Conservation Authority  
Te Tari Tiaki Pūngao



Energy

LanzaTech  
Spearheading Biofuel Production Technology



New Zealand  
TRADE & ENTERPRISE

The Bioenergy Association of New Zealand Inc. (BANZ) comprises companies, research organisations and individuals who have an interest in markets for converting biomass or biomass residues into energy. To receive this newsletter regularly contact the Executive Officer of BANZ for membership details by email: [info@bioenergy.org.nz](mailto:info@bioenergy.org.nz). Back issues of this E-zine are on the website, [www.bioenergy.org.nz](http://www.bioenergy.org.nz)