

Evaluating Biomass Energy Systems

Kelvin Hotel, Invercargill, June 8th 9:30-3:00pm

Following the Wood Energy Symposium on June 7th, the Bioenergy Association is hosting a short course "WE4 Evaluating biomass energy systems".

The course is aimed at providing detailed guidance to industry professionals that are directly evaluating and carrying out wood fuelled industrial and commercial heating system projects. This is a technical course but it would also be suitable for staff that are considering wood energy plants for their business.

The course will draw on the expertise of industry players and utilised key resources such as the consultant specifier paper, BANZ technical guides and other key resources such as The Handbook of Biomass Combustion and Co-firing and The Carbon Trust. The course aims to engage participants via discussion and providing practical advice that concentrates on the key components of evaluating biomass energy systems. The course will utilise case studies to deliver the course and relate this back to technical papers. The following course is proposed:

Case study 1- A small to medium scale woodchip boiler plant that is replacing an existing boiler. This project will be based on a seasoned fuel solution and follow the process for assessing the feasibility of the project to switch to woodchip.

Case study 2- A large industrial new build project will be the case study project. The project will be based on a wet (green) fuel biomass or woodchip fuel. The emphasis for this type of project is very different to an existing plant as the fuel becomes a very important consideration for the project as it influences all other aspects of the design. In larger scale projects, fuel pricing is also important alongside delivery and receiving, fuel contracts and validating moisture content for invoicing.

The key content is outlined below¹:

Case study 1- Retrofitted boiler + seasoned fuel option	Case study 2- Industrial boiler + green fuel options
1. Pre-feasibility assessment	1. Fuel Assessment
Project pre-feasibility assessment	What type of fuel is available?
Terms of reference and scope definition	Is it suitable for the proposed boiler?
Proposal developed for client	Fuel properties
Economic assessment	How much is available?
Ash considerations	Security of supply
Operating and operating costs	Long term supply resource
Day to day operations and expectations	Cost of fuel options
Business case- Simple ROI	Quantifying volumes of fuel required
Consideration for a heat meter	Fines and impact on design

¹ This content may change

2. Fuel assessment	2. Detailed feasibility
What type of fuel is available?	Life cycle costing
Is it suitable for the proposed boiler?	Maintenance costs
Fuel properties	Operating costs
How much is available?	Ash disposal considerations and costs
Security of supply	Ash impact on boiler equipment
Long term supply resource	Energy demand assessment
Cost of fuel options	Utilising a heat/steam meter
Quantifying volumes of fuel required	Peak and base load boiler options
Minimum fuel storage volumes	Carbon emissions and tax
3. Detailed feasibility	Fuel delivery, handling and storage
Life cycle costing	Day to day operations and expectations
Maintenance costs	Boiler solution and combustion
Operating costs	Project costing
Ash disposal considerations and costs	Feedwater considerations
Carbon emissions and taxes	What stage do Council get involved?
Heat demand assessment	Air quality requirements
Utilising a heat meter	3. Fuel supply contracts
Peak and base load boiler options	Fuel invoicing options
Accumulators	Quality control
Fuel delivery, handling and storage	Tendering
Boiler solution	Price methodology and escalation
Bioenergy Association- Membership and accreditation	
Examples of successful projects	
Wood Energy South overview	

The course will be a collaboration of presenters that focus on specialty areas of the course. Presenters for the course are Lloyd McGinty (Wood Energy South), Eduard Ebbinge (Spark Energy) and Peter Kernohan (Peter Kernohan Solutions).

If you have any questions regarding this course please get in contact with Lloyd McGinty via email (lloyd@venturesouthland.co.nz) or phone (021) 202-2172.