

Invitation

NORDICBIOENERGY2011

**Sustainable Bioenergy Business
International Nordic Bioenergy Conference
From 5th to 9th of September 2011**



**Jyväskylä Paviljonki
Fair and Congress Center
Jyväskylä, Finland**

WELCOME TO NORDIC BIOENERGY 2011 Conference



Juha Poikola



Pekka-Juhani Kuitto

The Nordic bioenergy conference takes place every second year. Last time conference took place in Stockholm Sweden. Now it will be held in Central Finland in the heart of Nordic Bioenergy, in city Jyväskylä and surroundings. Nordic Bioenergy 2011 is the top place to meet world's leading Bioenergy professionals, to see what are the newest innovations and best practices and to make real business.

The strong policy for increasing renewables and especially bioenergy continues in the European Union. The Commission presents a renewable energy roadmap for the year 2020, proposing a mandatory target of 20% renewable energy in gross inland energy consumption, and a mandatory target of 10% transportation biofuels. The Renewable Directive has set targets for member states. Member states have made the national action plans to achieve their targets.

The Nordic Bioenergy Conference connected with large International Bioenergy and Wood Exhibition and Trade Fair is the best place for You to get modern and up-dated information about bioenergy solutions, technology and logistic systems in concrete and in practice. Several Technical Tours into the bioenergy and biofuel production sites and facilities are extra bonuses for You. The Conference is arranged by FINBIO – The Bioenergy Association of Finland in fixed co-operation with SVEBIO (Sweden), NOBIO (Norway) and DANBIO (Denmark) and with hundreds of our member organisations.

The progress of bioenergy technologies, systems and solutions have been enormous during the last years. Concrete experiences and expertise in biofuels and the use of biofuel procurement systems, know-how, logistics and technologies are available in the markets. New innovations exist. Best practices are in normal use in Nordic countries from biomass harvesting operations to production plants for heat, power and biofuels. Also new challenges and old bureaucratic barriers still exist.

Today citizens, nations and companies are more and more aware and precise in how they want to use and develop their energy systems and environment sustainability. Bioenergy and biofuels are global answers, global potentials and global visions for sustainable energy production and use, not only in dreams but in actuality. Warmly welcome to NORDIC BIOENERGY 2011 and Finland!

Chairman of the Conference and FINBIO Juha Poikola
Director of Pohjolan Voima Ltd

Executive Director of FINBIO Pekka-Juhani Kuitto

Nordic Conference Committee

- Mr. Pekka-Juhani Kuitto, Executive Director, FINBIO, Finland
- Mrs. Kristine van het Erve Grunnet, Bioenergy Manager, Danish Energy Industries Federation, Denmark
- Mr. Cato Kjølstad, Executive Director, Norwegian Bioenergy Association, Norway
- Mr. Gustav Melin, Manager Director, Swedish Bioenergy Association, Sweden
- Mr. Juha Poikola, Communication Director, PVO Oy, Chairman of the Conference and FINBIO, Finland

National Committee

- Mr. Juha Poikola, Communication Director, PVO Oy, Chairman of the Conference and FINBIO
- Prof. Dan Asplund, Professor, Danova Oy
- Mrs. Eija Alakangas, Senior Research Scientist, VTT
- Mrs. Marica Kilponen, Manager, John Deere Forestry
- Mr. Pekka-Juhani Kuitto, Executive Director, FINBIO
- Mrs. Mia Savolainen, Communication Manager, FINBIO
- Mr. Stefan Sundman, Director, Energy and Infrastructure, Finnish Forest Industries
- Dr. Arto Timperi, Vice President, NorrHydro Oy
- Mr. Reijo Vatanen, Communication Director, Vapo Oy
- Mr. Seppo Viheraari, Trade Commissioner, Embassy of Canada

Secretary General's Greetings

Member of Finnish Parliament Mr. Mauri Pekkarinen will open the International Nordic Bioenergy 2011 Conference. He has been the Minister of Economic Affairs from 1st of January 2008 to May 2011. Mr. Pekkarinen is the Master of Social Sciences and he is a member of the Centre Party and has been a Member of Finnish Parliament since 1979. He has been also the Minister of Interior (1991-1995, 2007-2008) and the Minister of Trade and Industry (2003-2007).



The Nordic Bioenergy Conference will focus on the factors affecting the future of the bioenergy especially in Nordic Countries Finland, Denmark, Norway and Sweden. At the moment one key importance is to enlarge Nordic and European bioenergy markets and to mobilize more effectively the energy use of biomass. Consequently, it is utmost important to learn more about successful examples and win-win models how to operate in the energy markets and overrun barriers still exist in national and international bioenergy markets.

The first Conference day 6th of September is centred on presenting and discussing bioenergy strategies and biomass resources up 2020. After the opening speech of Parliament member Mauri Pekkarinen there will be an evaluation of the Renewable Action Plans 2020 in EU. Also the bioenergy market situation and targets in the Nordic countries is presented. Several country and regional comments are presented from the point of bioenergy view. There will also be the presentations on sustainable use of bioenergy following with a roundtable discussion. In the afternoon there will two parallel sessions. One is devoted to biogas and thermal gasification and the other to small scale combustion and a new subject in bioenergy area, torrefaction. The second Conference day 7th of September is divided into three parallel sessions. One is devoted to production of fuels from different sources e.g. forest residues, stumps and small woods. Different new harvesting methods, logistics and technologies are presented e.g. chipping, bundling systems and integrated energy and industrial wood harvesting. One session handles topics of biofuels for traffic. The session involves new biodiesel and bioethanol concepts. The large combustion session involves boiler and CHP technologies. Combined Heat and Power Production (CHP) using biomass is almost in everybody's interest in whole Europe. The session also includes presentations over possibilities for coal power plant conversion to biomass fuels.

During Technical tours modern technologies for bioenergy production, biomass harvesting and handling, transport and logistics will be presented. The Pre-Tour on 5th September will show modern CHP-plant technology, pellet production and modern forest fuel handling. During the Technical tours on 8th September there are several cases and practical visit sites showing CHP plants, forest fuel harvesting methods and R&D activities. The Post-Tour on 9th September is specialized in transport biofuels, the production and use of biogas in traffic and biogas plant connecting into the natural gas transmission network.

I wish You warmly welcome to the Nordic Bioenergy Conference in the beginning of September!

Professor Dan Asplund
Secretary General of Conference

Welcome to Finland

- The Bioenergy Country

Finland

- Finland is one of the world leaders in the utilisation of wood based bioenergy and the development of biomass combustion technologies and efficient fuel supply chains. The expertise extends from the forest to heating and power plants, from root to soot.
- Finland is a top bioenergy country among the Western Countries. Almost 30 % of total primary energy consumption and 20 % of electricity is met by bioenergy (including peat).
- Finland is the world leader in the development of biomass combustion technology and the manufacture of fluidised bed boilers that are suitable for burning different kinds of biomass (wood fuels, peat, REFs etc.). The advantages offered by fluidised bed technology include high efficiency and low emissions.
- In Finland, you can see in concrete the modern bioenergy power and heating plants and technologies from farm size up to the world's biggest construction. Practical know-how and experiences, energy technologies, logistics, various fuel procurement systems, international training possibilities, combustion and harvesting systems and R&D results are presented.
- And Central Finland is the Centre of Bioenergy!

Finland is one of the world's leading countries in utilising renewable energy sources. About 26 % of Finland's consumption of primary energy is produced by bioenergy. With this share bioenergy is the biggest resource of energy in Finland. The share of bioelectricity, which is 20 % today, is the highest in the European Union.

Energy technology has become a significant field of exports in the recent decades. This progress is closely related to the development of Finland's energy supply system and energy intensive industries. This development has been boosted by the needs of the domestic market, the challenge being rigorous climate and an abundant supply of biomass. Technology development target is to have well structured technology program in the Bioenergy field. Many universities, institutes, schools and private companies provide education and training in forestry and energy technology, from the practical knowledge courses to the level of highest scientific research.

Our energy industry is of great significance in Finland's industrial structure, being closely intertwined with our traditional branches, forest and metal industries but also the electronics industry. These ties have produced, for example, expertise in different technological areas. Finland is a leading country in the development of biomass combustion technologies combined heat and power production and efficient fuel supply systems. The expertise extends from forests, peatlands, urban and industrial waste to heating and power plants. Bioenergy in wood industry is of importance both producing forest fuels, pellets and in producing heat and power. Finland is also the world leader in the manufacture of fluidised bed boilers that are suitable for burning all kinds of biomass. In Finland you can see in practice modern plants and technologies from a farm size up to the world's biggest biomass power plant, 220 MW electricity.

The use of bioenergy grows rapidly everywhere, and is a global business. Bioenergy has many positive effects also when battling against the climate change. Also Finland has set challenging targets for to increase further the use of biomass. The Renewable target for 2020 on a 38, % share. This means an increase by 8,5 % unit from today. The main source will still be bioenergy. There will be increase in electricity and heat production but also for traffic purposes. The target is challenge but will be reached by effective implementation tools. Today the new Energy and Climate Strategy to reached the 2020 target is in the hands of the Parliament members.

In Finland, the role of additional financial incentives has been confirmed to be crucial for the development, demonstration and deployment of new technologies. The implementation of high-efficiency, sophisticated technology has been shown to be the best guarantee for increasing the use of bioenergy.

Warmly Welcome to Finland!

Mr. Mauri Pekkarinen
Member of Parliament



Greetings from the Mayor of Jyväskylä



Jyväskylä is one of Finland's five most important centres of growth. From beginning of 2009 three municipalities merged to a city with 130 000 inhabitants. In recent years the population of our area has grown at record speed compared to the country as a whole. Jyväskylä is in fact the second most popular place in Finland to move to. Finns have also ranked Jyväskylä as offering the country's best environment in which to live and bring up children.

The Jyväskylä region is widely known for strong networked cooperation which involves ten municipalities and numerous organisations, enterprises and other bodies. Through broad-ranging collaboration we are intent on reinforcing the region's success. The goal is also to produce more and more services across municipal boundaries.

The key characteristic of this youthful and vital region is international top-quality education and expertise. A second characteristic is multi-actor operating environments in research and development activity. In practice this means that within the same operating environment enterprises, research establishments as well as training and development organisations are all to be found.

Traditionally the Jyväskylä region has relied on the forest and metal industries and more recently on information and communication technology. The focuses of attention in the region's primary branches are the production and use of bioenergy, forest industry processes and the international forest industry, as well as areas of emphasis in environmental technology such as biogas technology.

The heart of bioenergy is Central Finland, where bioenergy accounts for 50 % of consumption. In Central Finland it is possible to see more biofuel production systems and different scale power and heating plants in a day than in a week elsewhere. Wood fuel is used in combined heat and power plants and district heating plants in municipalities and in the paper and wood industries. The province has set an ambitious target to reach independence in fuels used in power and heat production until 2015. The target can be met by increasing annual production of bioenergy in the region by four terawatt hours. It means also that Central Finland will reach almost maximal level in bioenergy utilization, and hence represents a kind of ideal of a bioenergy market. The Regional Council of Central Finland has launched a bioenergy cluster programme called Dynamic Bioenergy to work for the target. The programme is managed by the JAMK University of Applied Sciences. The city-owned development company Jyväskylä Innovation participates in the national energy technology cluster with our special regional focus on bioenergy. The region is home to various bioenergy education and R&D institutes such as the University of Jyväskylä, JAMK University of Applied Sciences with its Bioenergy Development Centre, VTT with its big bioenergy group, the BENET Bioenergy Network, and FINBIO – the Bioenergy Association of Finland. Large biofuel production companies and forest industry players such as Vapo, Biowatti, Metso, UPM Kymmene and M-Real as well as energy companies and bioenergy marketing companies of different sizes also conduct national and international business from bases in Central Finland. Furthermore, the local energy company owned by the city of Jyväskylä is currently constructing the world's biggest municipal biofuel power plant. The fuel capacity of the new wood, agrobiomass and peat based power plant will be 500 MW and the electricity output 150 MW.

Welcome to Jyväskylä, home of the world famous architect Alvar Aalto, world champions in various sporting disciplines, and the world's best organised WRC rally, Neste Oil Rally Finland. We sincerely hope you find this human-sized city and the unspoilt lake and forest scenery that surrounds it to your liking.

Mr. Markku Andersson
Mayor





International Nordic BIOENERGY 2011

The Conference will focus on the factors affecting the future of the bioenergy and biobased modern technologies and business solutions, including logistic systems, management, total procurement chains, the effects of the energy markets, the influence of green marketing and other trends affecting forestry, agriculture, industry and climate.

The conference 2003 with large scope attended with over 600 participants. The Bioenergy in Wood industry 2005 conference attended with over 300 participants, Bioenergy 2007 conference there was over 500 participants and Bioenergy 2009 there was over 400 participants all over the world.

- Conference with Special Sessions over the Bioenergy Technologies and Markets
- Technical Tours and Visits to Practical Bioenergy Sites and Facilities
- Poster Exhibition and Business to Business Meetings
- Large International Bioenergy and Wood 2011 Exhibition and Trade Fair
- Social and Culture Programs
- Language: English

THE MAIN PROGRAM

- 5th September Pre-Tour from Capital Helsinki to city of Jyväskylä, Get together evening, Registration begins
- 6th – 7th September Conference Sessions and Poster Views.
Bioenergy and Wood 2011 Exhibition will open
- 8th September Technical Tours and Bioenergy and Wood 2011 Exhibition
- 9th September Bioenergy and Wood 2011 Exhibition and Post-Tour to Helsinki



Conference Programme September 6th

8:30 Coffee

Opening Session

9:00 Welcome

Chairman of FINBIO Juha Poikola, Pohjolan Voima Oy, Finland

Opening

Member of Parliament Mauri Pekkarinen, Finland

Bioenergy Strategies in Nordic Countries

Managing Director Gustav Melin, Svebio, Sweden

Future Bioenergy Markets in Europe

Secretary General Jean-Marc Jossart, AEBIOM, Belgium

Impacts of the German Renewable Energy Sources Act (EEG) on the Development of the Electricity Production from Solid Biofuels

MSc Dipl.-Ing. (FH) Janet Witt and M.Eng. Dipl.-Ing. (FH) Eric Billig, German Biomass Research Centre (DBFZ) & Dr.-Ing. Daniela Thraen, German Biomass Research Centre (DBFZ) and Helmholtz Centre for Environmental Research (UFZ), Germany

RASLRES – Developing Sustainable Renewable Bioenergy Solutions for Rural Areas

Regional Development Manager Ian Brannigan, Western Development Commission, Ireland

Solutions to Biomass Trade and Market Barriers

Senior research scientist Eija Alakangas, VTT Technical Research Centre of Finland, Finland & J. van Dam, J. Hinge, M., Junginger, J. Keränen, O. Olsson, C. Porsö, A. Martikainen, J. Rathbauer, L- Sulzbacher, P. Vesterinen & J. Vinterbäck

11:45 Lunch and Poste Session

Sustainable Use of Bioenergy

13:10 AEBIOM View of Sustainable Use of Bioenergy

Information Secretary Kjell Andersson, Svebio, Sweden

Sustainable Use of Bioenergy in a European Policy Context

Luc Pelkmans, VITO, Belgium

Sustainable Biomass

Michael Schytz, DONG Energy, Denmark

Climate Impacts of Forest Bioenergy

Jari Liski, Finnish Environment Institute, Finland

Sustainable Use of Forest Fuels

Professor Antti Asikainen, Finnish Forest Research Institute, Finland

14:50 Coffee

15:20 Sustainable Use of Biomass Round Table Discussion

Certification Criteria for Sustainable Biomass for Energy Necessary to Create a Global Market

Executive Director Karin Haara, World Bioenergy Association, Sweden

Algae for water purification, CO₂ capture and production of biofuels

Morten Berntsen, Teknologisk Institutt as/BioAlgaeSorb project, Norway

Practical Requirements for Companies Willing to Demonstrate the Sustainability of their Feedstock and Biofuels

Certification Manager Matti Hukari, Bureau Veritas Finland, Finland

18:00 End of the Day

Conference Programme September 6th



11:45 Lunch and Poster session

Biogas

13:10 Estonian Experiences of SMEs Introducing Biogas Technologies

CEO Ahto Oja, OÜ Mõnus Minek, Estonia

Small Sustainable Treatment Anaerobic Plant with Biogas for Energy

M.Sc. Svetlana Nikolaev Nikolaeva and Dr. Enrique Pablo Sanchez Hernandez, Universidad Nacional de Costa Rica, Costa Rica

New Technology for Anaerobic Digestion, Using Granules

Professor Rune Bakke, Telemark University College, Norway

Cambi Thermal Hydrolysis - a Highly Efficient Biogas Process

Senior Technologist Odd Egil Solheim, Cambi AS, Norway

14:50 Coffee

Gasification

15:20 Synergies of wood-based biogas and natural gas grid

Sari Siitonen, Gasum Oy, Finland

Fluidised-Bed Gasification of Biomass for the Production SNG or Hydrogen – Comparison of Gasification Process Alternatives

Esa Kurkela, VTT Technical Research Centre of Finland, Finland

A Danish Strategy for Gasification

Morten Tony Hansen, FORCE Technology, Denmark

Substituting Fossil Fuels for Biomass by Gasification

Product Engineer Ville Hankalin, Senior Product Engineer Vesa Helanti and Product Manager Juhani Isaksson, Metso Power Ltd., Finland

Development of Gasification Technology and It's Modelling Tools in FW

Sami Kokki, Katja Häkkinen and Juha Palonen, Foster Wheeler Energia Oy & Matti Koski, Lappeenranta University of Technology, Finland

Modeling of Gasification Characteristics of Rice Husk Using CFD Approach

Payodhar Padhi, Debashis Panda, France Kumar Behera, Sibaprasad Sarangi and C.V.Krishna, Konark Institute of Science & Technology, Bhubaneswar, India

The Set Up and Experimental Operation of a Micro Throated Downdraft Gasifier Designed for the Testing of Biomass Fuels

Mark Anderson, Centre for Sustainable Technologies, School of the Built Environment, University of Ulster, Northern Ireland

Opening New Perspectives for Xylowatt's NOTAR® Gasification System

Bacq Alexandre and Bourgois Frédéric, Xylowatt s.a., Belgium

18:00 End of the Day

Changes in programme are possible.

Conference Programme September 6th



Biomass Solid Fuels

13:50 Agropellets – Challenging Fuel for the Future

Markku Kallio, Heikki Oravainen and Eija Alakangas VTT Technical Research Centre of Finland & Harri Honkavaara, Biobotnia Oy & Kimmo Kantalainen, Ariterm Oy & Aarno Alaluusua, Jalasjärven Lämpö Oy, Finland

Development of Making Bio-coke Technology on Alternative Coal Coke

Tamio Ida, Kinki University, Japan

Pilot Scale Lignin Plant

Kirsten Maki, FP Innovations-Forest Operations, Canada

Torrefaction, Status of the First Production Plants

M.L. Beekes, KEMA, Holland

14:50 Coffee

15:20 Optimization of Multiple Hearth Furnace for Biomass Torrefaction

Charlotte Marty and Thierry Chataing, CEA Grenoble / LITEN/DTBH/LTB, France & Didier Leboutte, Cockerill Maintenance and Engineering, Belgium & Jean-Michel Commandré, CIRAD – UPR 42 Biomass Energy, France

Stable Operating Conditions in Bioenergy Plants Through Utilization of Torrefied Biomass

Research Scientist/Ph.D. Roger Khalil and Senior Research Scientist/Dr.ing. Øyvind Skreiberg, SINTEF Energy Research AS, Norway

Torrefied Biomass Materials - Extensive Compilation/Comparison and PCA Analysis

Anders Nordin, Martin Nordwaeger, Ingemar Olofsson, Katarina Håkansson, Linda Pommer, Susanne Wiklund-Lindström, Eleonora Boren and Robert Lindgren, Umeå University, Sweden

Small scale combustion

New and Efficient Vertical and Horizontal Wood Pellet Conveyor Systems for 15-1000 kW Heating Plants

Rolf Birketvedt, Matene a.s, Norway

Low Emission and High Efficiency Pellet and Wood Chip Burner for Fireplaces

Entrepreneur Pauli Pieti, Tulipiippu Ay, Finland & Managing Director Markku Rinne, Zellwatt Ltd, Germany

Achieving Low Emissions and Stable Heat Release from Wood Stoves and Fireplaces Firing at Low Load

Research Scientist/M.Sc Edvard Karlsvik and Senior Research Scientist/Dr.ing. Øyvind Skreiberg, SINTEF Energy Research AS, Norway

Arterm's Increased Export Is Based on Quality Systems

Managing director Petteri Korpioja and Quality Manager Pasi Paananen, Arterm Oy, Finland

ENplus Pellet Certification

General Manager European Pellet Council Peter Rechberger, AEBIOM, Belgium

18:00 End of the Day

Conference Programme September 7th

Transport Biofuels

8:30 Paraffinic Renewable Diesel Fuel for Reduced Local Pollution – the Optibio Demo Project

Dr. Nils-Olof Nylund, VTT Technical Research Centre of Finland, Finland

UPM Is Redefining Biofuels

Manager, Biofuels Pekka Jokela, UPM Kymmene Oyj, Finland

Microwave-Pyrolyses for Converting Different Kinds of Biomass to Fuel-Oils

Kjell-Ivar Kasin, Scandinavian Biofuels AS, Norway

Biofuels in Aviation – an Overview

Research Scientist Judit Sandquist, Research Scientist Berta Matas Güell and Senior Research Scientist/Dr.ing Lars Sørum, SINTEF Energy Research AS, Norway

9:50 Coffee

10:20 E2025 - Brazil's Aspirations for a Massive Worldwide Substitution of Gasoline by 2025

Felix Kaup, Potsdam Institute for Climate Impact Research (PIK) Research Domain III - Sustainable Solutions & Thiago D. de Castro Menezes and Prof. em. Dr. Manfred Nitsch, Free University Berlin, Institute for Latin American Studies, Germany

Weyland – Chemical Conversion of Lignocellulose Wastes to Fermentable Sugars

Andrew Dustan, Weyland, Norway

StI Waste-to-Et hanol Concept

Managing Director Mika Aho, StI Biofuels Oy, Finland

Biofuel for Transport in Sweden

Ph.D. Lena Dahlman, Svebio, Sweden

12:00 Lunch and Poster Session

13:30 GasHighWay – Promoting the Uptake of Gaseous Vehicle Fuels, Biogas and Natural Gas, in Europe

Dr. Annimari Lehtomäki and M.Sc. Eeli Mykkänen, Jyväskylä Innovation Ltd., Finland

Business Models for a Sustainable Biogas Production and Transportation Solution

Anastasia Tsvetkova, Åbo Akademi University and PBI – Research Institute for Project-Based Industry & Magnus Gustafsson, PBI – Research Institute for Project-Based Industry, Finland

Biogas as a Vehicle Fuel in Commuter Buses

Tuula Kajolinna, VTT Technical Research Centre of Finland, Finland

14:50 Coffee

15:20 Closing Session

16:20 End of the Day

Conference Programme September 7th

Fuel Production and Logistics

8:30 Forest fuel Trends in Sweden

Professor Rolf Björheden, Forestry Research Institute of Sweden, Sweden

Using Location and Task Management to Enhance Biomass Supply Chain

Kari Peltonen, Markku Virtanen and Mika Karjalainen, Fifth Element Oy, Finland

Once - Missing Link to Complete Your Energy Chain Management

Development Manager, Operations Heikki Hämäläinen, Protacon Ltd, Finland

Real-Time Monitoring of Feedstock Supply Chains

CEO Seppo Huurinainen, MHG Systems Ltd., Finland

9:50 Coffee

10:20 Profitability of Harvesting Energy-Wood or Pulpwood in Early Thinnings

Fulvio Di Fulvio, Dan Bergström and Tomas Nordfjell, Department of Forest Resource Management, Swedish University of Agricultural Sciences, Sweden

Experience of Integrated Fuel and Round Wood Production

Managing Director Timo Tolppa, Metsäkonepalvelu Oy & Vice President Simo Jaakkola, The Trade Association of Finnish Forestry and Earth Moving Contractors, Finland

Fixteri Baling Technology

CEO Minna Lappalainen, Fixteri Oy, Finland

European Experience of Giant Mobile Chippers

CEO Tommi Lahti and Pekka Paavola, LHM Chippers Ltd, Finland

New and Traditional Technologies in Pine Stump Lifting

Jyrki Raitila and Ari Erkkilä, VTT Technical Research Centre of Finland, Finland

12:00 Lunch and Poster Session

13:30 Energywood Entrepreneurship

Chairman Asko Piirainen, OK-yhtiöt Oy, Finland

Comminution at Roadside, Terminal, or Energy Plant? What Is the Best System for Forest Chip Production?

Senior Researcher Kalle Kärhä and Antti Hautala, Metsäteho Oy & Arto Mutikainen, TTS research, Finland

Forestfuel Terminals and New Transport Concepts in Sweden

Johanna Enström, the Forestry Research Institute of Sweden, Sweden

Innovative Technologies For Long-distance Biomass Transports

Florian Pöllabauer, Innofreight Spedition GmbH, Austria

Development of the InnoCont Biomass

Jani Viitasaari, Transidea Oy, Finland

14:50 Coffee

15:20 Closing Session

16:20 End of the Day

Conference Programme September 7th

Combustion

- 8:30 Fluidized Bed Opportunities to Fire Challenging CO₂ Neutral Fuels**
Product Manager BFB Boilers Asko Rantee and Project Manager CFB Technology Ari Kokko, Metso Power, Finland
- Biomass Firing Power Plants**
Director, Conceptual Engineering Timo Jäntti, Foster Wheeler Energia Oy, Finland
- Service for Characterisation of Fuel Combustion Behaviour in Fluidized Bed Firing Conditions**
Technology manager Jouni Hämäläinen, VTT Technical Research Centre of Finland, Finland
- Replacing Coal with Biomass Fuels in Combined Heat and Power Plants in Finland**
Research Scientist Janne Kärki, Martti Flyktman, Markus Hurskainen, Vice President Satu Helynen and Vice President Kai Sipilä, VTT Technical Research Centre of Finland, Finland

9:50 Coffee

- 10:20 Technology for Large-Scale Straw-Fired Boilers**
Manager - Proposals Nicholas Kristensen, Burmeister & Wain Energy A/S, Denmark
- Evaluating Olive Tree Prunings as a Secondary Fuel in Fluidized Bed Combustion-Emissions and Ash Effects**
D. Vamvuka, S. Sfakiotakis, G. Alevizos and M. Galetakis, Department of Mineral Resources Engineering, Technical University of Crete, Greece
- Cost-Effective Small-Scale CHP Solutions for the Norwegian Market**
Senior Research Scientist/Dr.ing. Øyvind Skreiberg, SINTEF Energy Research, Norway
- BioGrate Fired Boiler Plants for Effective Multi-Fuel Applications**
R&D manager, Biopower Juha Huotari and Tarmo Hatunen, MW Power Ltd., Finland
- Local Energy Solutions for Local Need Using local Biomass**
Director Matti Lilja, Renewa Oy, Finland

12:00 Lunch and Poster Session

Development Strategies

- 13.30 Joint Action Plan as a Strategic Tool to Support Research Related to Sustainable Use of Biomass Resources - Case Central Finland**
Project Manager Kirsi Knuutila, Dr Anneli Ylimartimo and Dr Heikki Malinen, JAMK University of Applied Sciences & Dr Margareta Wihersaari and Noora Nuutinen, University of Jyväskylä & Senior research scientist Eija Alakangas, VTT Technical Research Centre of Finland, Finland
- Trends in Technological Development of Bioenergy**
Vice President Satu Helynen, VTT Technical Research Centre of Finland, Finland
- Biomass for Heating and Cooling – Strategic Research Agenda**
Chairman RHC-Platform Kari Mutka, Biodiili Ltd., Finland and Secretariat RHC-Platform Peter Rechberger, AEBIOM, Bryssel
- Bioenergy Development in Baltic Sea Area**
Timo Määttä, Motiva Oy, Finland
- Potential Applications of Nanotechnology in Bioenergy**
Professor Jukka Kontinen and Jason Kramb, University of Jyväskylä, Finland

14:50 Coffee

15:20 Closing Session

16:20 End of the Day

Poster Presentations

1. EU National Renewable Energy Plans (nREAP) and Bioenergy Policies in Different Countries

- 1.1 Implementation of Local, Regional and National Renewable Energy Planning Methodology
Professor Namejs Zeltins, Professor Viktors Zebergs, Ing. Larisa Grackova and M.oec. Inga Puikevica-Puivevska, Institute of Physical Energetics, Latvia
- 1.2 Public Acceptance of Biomass Cogeneration Heat (and Power) Plants (BCH(P)P'S) in Bavaria
M.Sc. Willie Stiehler, Dr. Thomas Decker and Prof. Dr. Klaus Menrad, Wissenschaftszentrum Straubing (Straubing Centre of Science), Hochschule Weihenstephan-Triesdorf (University of Applied Sciences), Germany
- 1.3 D2B - From Renewable Energy Targets to Business Opportunities
Sini Eronen and Paula Hakola, Hermia Oy & Professor Dan Asplund, Benet Ltd., Finland

2. Biomass Demand, Supply and Employment

- 2.1 Above- and Below-Ground Biomass in Different-Aged Silver Birch (*Betula pendula* Roth.) Stands
Mats Varik, Jürgen Aosaar and Veiko Uri, Estonian University of Life Sciences, Estonia
- 2.2 Above-Ground Biomass Production and Wood Density of Young Grey Alder (*Alnus incana*) Stand on Agricultural Land.
Jürgen Aosaar, Mats Varik and Veiko Uri, Estonian University of Life Sciences, Estonia
- 2.3 Agri for Energy II – Bioenergy Business for Rural Areas
Jyrki Raitila, Markku Kallio and Antti Heikkinen, VTT Technical Research Centre of Finland & Juha Luostarinen, Metener Oy & Antti Sarvela, Savon Siemen Oy & Veli-Pekka Kauppinen, Forestry Centre of Central Finland & Juha Viirimäki, South Ostrobothnian Forestry Centre, Finland
- 2.4 Analysis of Biomass Potentials Outside Forest in Lower Saxony by Means of Remote Sensing Based on Inventory Design
Anna-Maria Engel, Tim Exner, Lutz Fehrmann and Jens Wegener, Georg-August University Göttingen, Germany
- 2.5 Assessing wood fuel potential based on forest management plans
Ari Nikkola, Jyrki Raitila and Veli-Pekka Kauppinen, Forestry Centre of Central Finland, Finland
- 2.6 Barriers to Increasing Wood Fuel Supply from Privately Owned Forests in Europe
Martti Kuusinen, Forestry Development Centre Tapio & Matti Virkkunen and Jyrki Raitila, VTT Technical Research Centre of Finland, Finland
- 2.7 BIOMASA, Leader on Slovak Pellet Market
RNDr. Ladislav Zidek, BIOMASA, Association of Legal Entities, Slovakia
- 2.8 Biomass from Dense Downy Birch Stands on Cut-Away Peatlands
Jyrki Hytönen, Lasse Aro and Jorma Issakainen, Finnish Forest Research Institute, Finland
- 2.9 Evaluation of Potential Significant Ameliorating Effect of Mycorrhiza and Slow-released Organic Fertilizer on Growth dynamics of *Salix alba* L. Plantation in Three Consecutive Vegetation Periods
Martin Kouba and Dymák Radek, Agrostav Jevicko, Czech Republic & Miroslav Kravka, Medel University, Czech Republic
- 2.10 Forest Biomass Resources and Technological Prospects for the Production of Second-generation Biofuels in Finland by 2020
Jussi Heinimö and Tapio Ranta, Lappeenranta University of Technology & Heikki Malinen JAMK University of Applied Sciences, Finland & Andre Faaij, Utrecht University, Netherlands

- 2.11 Natural Fiber Composites from Polyethylene Waste and Leaves
Kamila Safasińska and Joanna Ryszkowska, Warsaw University of Technology, Poland
- 2.12 New Business Potential in Sustainable Use of Biomass Resources in Central Finland
Lauri Penttinen, Benet Ltd, Finland
- 2.13 Novel Ways to Approach Round-The-Year Rural Employment
Ph.D. Laura Vertainen, Lic.Sc. Tero Vesisenaho, Ms. Minna Leppämäki and Ms. Niina Salmenautio, JAMK University of Applied Sciences, Finland
- 2.14 Optimizing Bioenergy Production in Eastern Finland under Different Energy Scenarios
Karthikeyan Natarajan, University of Eastern Finland, Finland & Sylvain Leduc, International Institute for Applied System Analysis (IIASA), Austria & Paavo Pelkonen and Erkki Tomppo, The Finnish Forest Research Institute, Finland
- 2.15 Regional Heat and Power Production from Biogas in the Most Potential Heat Production Areas
B.Sc., Tuomas Huopana, M.Sc., Harri Niska and Prof., Mikko Kolehmainen, University of Eastern Finland, Finland
- 2.16 The Peat Biomass Increment on Different Mire Types and Bottoms in Finland
Dr. Harry Uosukainen, Turveruukki Oy, Finland
- 2.17 The Supply and Demand of Forest Fuel in Regional Level
Antti Karhunen, Mika Laihanen and Tapio Ranta, Lappeenranta University of Technology, Finland
- 2.18 The Sustainable Planning of Biomass Energy Chain: The Approach Developed In Tuscany (Italy) For Estimating Potential Supply of Forest Resources and Programming of the "Sustainable" Demand of Forest Biomass
Claudio Fagarazzi, Leonardo Nibbi, Alessandro Tirinnanzi, Sandro Sacchelli and Christian Ciampi, CREAR - Research Centre on Renewable and Alternative Energies - University of Florence, Italy
- 2.19 Regional Mobilizing of Sustainable Waste to Energy Production
Ari Jääskeläinen, Savonia University of Applied Sciences, Finland
- 2.20 Estimation of Economic Capacity of the Woody Fuel Plant for Heat Recovering in Ashoro Area in Japan
Kazuei Ishii, Hokkaido University, Japan
- 2.21 Energy Conversion Parks for the Efficient Use of Locally Available Biomass Streams
Luc Pelkmans, VITO, Belgium
- 2.22 Energy and Environment Partnership with Central America (EEP) "Renewable Energies for Future Generations"
Maria Eugenia Salaverria, Energy and Environment Partnership with Central America, El Salvador
- 2.23 Cross Border Bioenergy - A Spring-board for your exports

3. Sustainable Criteria of Bioenergy

- 3.1 Biograce – Harmonising Biofuel Sustainability Calculations
Dina Bacovsky and Nikolaus Ludwiczek BIOENERGY 2020+ & John Neeft, NL Agency, the Netherlands
- 3.2 Effect of Hydromanipulation to Greenhouse Gas Fluxes on Bioenergy Crop Cultivated On a Cutaway Peatland
Niina P. Hyvönen, Narasinha J. Shurpali, Saara E. Lind, Antti Pitkämäki, and Pertti J. Martikainen, University of Eastern Finland, Finland & David Behringer, University of Eastern Finland and Bielefeld University, Germany
- 3.3 Integrated Energy Crop Cultivation Concepts As a Bond for a More Nature Orientated Agriculture
PD Dr. Marianne Karpenstein-Machan, Interdisciplinary Center of Sustainable Development University Göttingen, Germany
- 3.4 Recycling of Ashes From Co-Combustion of Peat and Wood - Case Study of a Modern CFB-Boiler
Kirsi Korpijärvi, VTT Technical Research Centre of Finland, & Tero Saarno and Risto Ryymin, Jyväskylä Energy LTD, Finland
- 3.5 Renewable Energy and Ethics
Ingrid Kaltenecker and Gudrun Lettmayer, JOANNEUM RESEARCH Forschungsgesellschaft mbH, Austria

- 3.6 Sustainability of Forest Biorefineries in Scandinavia and North America
Susanna Horn and Annukka Näyhä, Jyväskylä University School of Business and Economics, Finland
- 3.7 The “Sustainable Forest Energy” Project
Laurila, J., Lauhanen, R. and Viirimäki, J., Seinäjoki University of Applied Sciences, Finland
- 3.8 Bioenergy from Horse Manure
Hanne Soininen and Sami Luste, Mikkeli University of Applied Sciences, Finland

4. Fuel Production Technology and Economy

- 4.1 Development of Efficient Harvesting Techniques for Young Bioenergy-Thinnings
Dan Bergström, Tomas Nordfjell and Urban Bergsten, Swedish University Of Agricultural Sciences, Sweden
- 4.2 Development of New Sod Peat Production Technology in Finland
Ari Erkkilä and Arvo Leinonen, VTT Technical Research Centre of Finland & Juha Niemiaho, Sampotech Oy, Finland
- 4.3 Enhancing the Controllability of Forest Biomass Supply Chain
Hannu Lähdevaara, JAMK University of Applied Sciences, Finland
- 4.4 Evaluating the Effects of Local Raw Material Availability and Road Network Properties on the Greenhouse Gas Emissions of Biomass Supply Chain by Combining GIS and LCA Methods
Jäppinen, E. and Korpinen, O.-J., Lappeenranta University Of Technology, Finland
- 4.5 Improving the Economy of Small-sized Energy Wood Harvesting from Thinning Stands in Finland
Kalle Kärhä and Aaron Petty, Metsäteho Oy & Arto Mutikainen, TTS Research, Finland
- 4.6 Logistics and Production Technology of Biomasses from Forest, Agriculture and Peatlands. Business Models, Procurement and Transport Systems, Quality and Cost Handling, Energy Efficiency and Economy of Bioenergy Production Chains Management and Operational Tools.
Prafulla S. Shirke & Pranav P. Shirke, Indian Institute of Management, India
- 4.7 Production Systems of Forest Biomass in Finland
Kalle Kärhä, Metsäteho Oy, Finland
- 4.8 The Supply of Reed Canary Grass for Power Plants in Central Finland
Teuvo Paappanen, Tuulikki Lindh, Risto Impola, Timo Järvinen and Ismo Tiihonen, VTT Technical Research Centre Of Finland & Timo Lötjönen, MTT Agrifood Research Finland & Samuli Rinne, YTY- Konsultointi, Finland
- 4.9 Wood Energy Production Methods on Cut-Away Peatlands: Cost-Effective Establishment
Olli Reinikainen, Vapo Oy, Finland
- 4.10 Interchangeable Container Logistics for Forest Chips
Ranta, T., Karttunen, K. and Föhr, J., Lappeenranta University of Technology, Finland

5. CHP and Power Production

- 5.1 Airia BioHAT Power Plant
Reijo Alander, Airia Oy, Finland
- 5.2 New Cogeneration Technology for Small Industrial Application
Lisý Martin, Skála Zdeněk and Baláš Marek, Brno University of Technology, Czech Republic
- 5.3 Analysis of Wood Firing in Stoves by the Oxygen Consumption Method and the Carbon Dioxide Generation Method
T. Paloposki, Aalto University and J. Saastamoinen, K. Klobut and P. Tuomaala, VTT Technical Research Centre of Finland, Finland
- 5.4 EkoCHP – Distributed Power and Heat Production from Local Biomass
Marko Karhunen and Lasse Koskelainen, Ekogen Oy, Finland

6. Individual House Heating Solutions

- 6.1 Pyro- Man, Two Stage Combustion, Very Low Emission & High Efficiency Pellet and Wood Chip Burner. Direct Replacement of Oil Burners Is Possible With Pyro – Man Without A Boiler Change, Due To Low Ash Combustion Inside The Boiler.
Kimmo Ahola, Pyro-Man Oy, Finland & Markku Rinne, Zellwatt Ltd, Germany

7. District heating

- 7.1 Bioenergy Card as a Successful Tool for Decision Making
Liisa Vesterinen and Kirsi Knuutila, JAMK University of Applied Sciences, Finland

8. Solid conversion

- 8.1 Effect of Temperature and Compression Pressure on the Mechanical Strength of Softwood and Hardwood Pellets
Mikko Havimo, Antti Rissanen and Marketta Sipi, University of Helsinki, Finland
- 8.2 Torrefaction of Wood under Gaseous Atmospheres Representative of Industrial Conditions.
Melkior T., Barthomeuf C., Grateau M., CEA Grenoble and Bardet M., CEA Grenoble, France

9. Chemical Conversion Technologies

- 9.1 Modeling of Gasification Characteristics of Rice Husk Using CFD Approach
Payodhar Padhi, Debashis Panda, France Kumar Behera, Sibaprasad Sarangi and C.V.Krishna, Konark Institute of Science & Technology, India
- 9.2 The Set Up and Experimental Operation of a Micro Throated Downdraft Gasifier Designed for the Testing of Biomass Fuels.
Mark Anderson, University of Ulster, Northern Ireland
- 9.3 Char Reactivity of Biomass Fuels for Gasifier Modeling
Antero Moilanen, VTT Technical Research Centre of Finland, Finland

10. Biogas

- 10.1 Estonian Applicable Biogas Potential and Economically Feasible Feed-In-Tariff, Obstacles and Opportunities for Biogas Production via Gashighway
Ahto Oja, University of Tartu, OÜ Mõnus Minek, Estonia
- 10.2 Small Sustainable Treatment Anaerobic Plant with Biogas for Energy.
M.Sc. Svetlana Nikolaev Nikolaeva, and Dr. Enrique Pablo Sanchez Hernandez, Universidad Nacional de Costa Rica, Costa Rica,
- 10.3 Utilization of Carbohydrates, Protein and Lignin
Maritta Kymäläinen, HAMK University of Applied Sciences and Annukka Pakarinen, University of Helsinki, Finland
- 10.4 Anaerobic Co-Digestion of Chicken Manure with Cattle Slurry and Vegetable Wastes from a Food Industry
Sami Luste and Hanne Soininen, Mikkeli University of Applied Sciences, Finland

11. Biofuels for Transport

- 11.1 Potential Use of Apple Processing By-Products for Manufacturing Bio-Fuel and Organic Acids: Optimization of Enzymatic and Dilute Sulphuric Acid Hydrolysis
Indu Parmar and H.P. Vasantha Rupasinghe, Nova Scotia Agricultural College, Canada

12. IT, Communication and Education

- 12.1 It-Tools for Supporting Open Value Forming and Pricing of Biomass at the Renewable Energy Sector
Jaana Kuula, Neittaanmäki Pekka, Tuovinen Tero and Pölönen Ilkka, University of Jyväskylä, Finland
- 12.2 Towards Better Utilization of Multi-tree Cutting in Early Thinnings by Education Video
Kalle Kärhä, Arto Kariniemi, Susanna Suortti, Asko Poikela and Timo Melkas, Metsäteho Oy, Finland

Technical Tours

September 5th and 8th

Pre-Tour September 5th

From City of Helsinki at 11.30 am via Helsinki Airport to Conference city Jyväskylä at 19 pm, travel 320 km. Price 100 €.

Bioenergy plant in Kerava

The Kerava bioenergy plant, a joint venture between Pohjolan Voima and Keravan Energia, was completed and entered commercial use in November 2009. The construction of the plant began in January 2008. The plant reached rooftop height in March 2009 and was synchronised to the national grid for the first time in October 2009.

The Kerava bioenergy plant, fuelled by branches, toppings, stumps, wood from thinning and peat, introduced Pohjolan Voima's bioenergy programme to the Helsinki region for the first time. The plant's capacity is 21 MW for electricity, 48 MW for district heat and 10 MW for process heat.

Pohjolan Voima's Kerava power plant produces electricity and district heat for the City of Kerava and process heat for local industry. The total costs of the power plant investment amounted to approximately 70 million.

Hakevuori energywood terminal

Hakevuori is a company for production, handling and delivery of energywood since 2007. The company has its own 4 hectare big terminal. The energywood production is done with 6 chippers and 2 lorries.

Pellet production at Vierumäki

The pellet production was started at Vierumäki in winter 2007, in a brand new plant. Being anxious to meet the growing demand for bio energy we now process by-products from Versowood's mills to high quality fuel pellets that are perfect for heating as well large industrial plants as minor buildings. The annual output volume of our pellet plant totals about 60000 tons.

MHG system demonstration in Forest

Management of forest fuel chains by MHG Bio energy ERP. How to use ultramodern Internet, mobile, GIS, and satellite information technologies linked into the easy-to-use service developed by MHG Systems Ltd, in management of forest fuel supply chains. The superior features of the service include transparency throughout the delivery chain, managing the moisture content of biomaterials, reporting CO₂ emissions, the amount of energy, i.e. megawatt hours, costs and profits of procurement of biomaterials in supply chains, and invoicing of various user-groups.

Tour 1 September 8th

New Technologies for Large Scale Production of Forest Fuels for CHP

From 8 am to 17 pm. travel 150 km. Price 130 €.

Tour is mainly organized by Finnish forest industry company Metsäliitto Group. Metsäliitto produces high-quality products from renewable Nordic wood in a sustainable way, and it uses a lot of different kind of biomass as a fuel. The Group has five business areas: Wood Supply, Wood Products, Pulp, Board and Paper and Tissue and Cooking Papers. Metsäliitto has production in 12 countries and the main market area is Europe. Total sales is 5.4 billion euros and it employs about 13 000 people.

Finnish forest machine manufacturers have developed new methods for large scale forest energy procurement; Logging residues, stump- and small tree harvesting etc. This Forest Tour will concentrate on the latest developments concerning all these forest energy sources. We will visit two large scale CHP plants and following fuel production methods are presented at the forest sites:

Large-scale CHP plants

The brand new Keljonlahti City-CHP plant own by Jyväskylä Energy Oy produces district heat 200 MWth for the city and electricity 130 MWe (max. 210). Annually plant uses about 2 TWh different kind of wood fuels and peat, mainly local fuels.

Modern biomass fuelled Äänevoima industry CHP plant in city Äänekoski generates process steam and electricity for the paper and board mill and district heat for local municipal use. Electrical output is 38 MW, process steam 115 MW and district heat 20 MW. Fired fuels (1000 GWh/a) are combination of bark, sludge, forest residues, wood residues and peat.

Final felling site

Pulp- and sawlog harvesting, forest residue bundling and transportation, stump lifting and transportation and large-scale chipping at the roadside.



Technical Tours

September 8th

Thinning site

Mechanized multi tree handling with felling heads, energy wood harvesting and transportation to the roadside.

Tour 2 September 8th

Small Scale Bioenergy in Central Finland

From 8 am to 16 pm. The tour will stop at the Tikkakoski airport 15.30pm. Price 130 €.

Ariterm at Saarijärvi

Ariterm is one of Scandinavian's leading manufacturers of bio-fuel heating systems. Development and manufacture are in Sweden and Finland, two countries with experience of cold and what to do about it. This guarantees that the equipment satisfies the Nordic climate. Ariterm has a century of tradition but bubbles with creativeness and the will to be in the lead in environmental, effective and functionally-safe heating techniques.

The high-quality commercial bio heating solutions for pellets, chips and peat developed and produced by Ariterm are available from 40-3000 kW. The production is certified in accordance with ISO 9001 and 14001 and quality assured in accordance with the highest category of the EU Pressure vessel directive (PED).

Keuruun Lämpövoima CHP Plant at Keuruu

Biofuels and peat combustion CHP power plant – 5 Mwe / 15 MWth. 2 – 4 MW flue gas condensing and heat recovery plant. The supplier of fluidized bed boiler plant is MW Power.

Fluidised bed boiler plant and its measuring capabilities at Saarijärvi

The plant is owned by Saarijärven Kaukolämpö Oy. The boiler is supplied by Renewa Oy and it is a Bubbling Fluidised Bed type hot water boiler with thermal output of 4 MW. Electrostatic precipitator (ESP) is supplied by Alstom Oy and the flue gas scrubber by Condens Oy. The plant is designed to use different sorts of biomass and peat as main fuels.

The research environment consists of additional fuel silo and its weighing systems, a frequency converter operated belt conveyor system, which can be equipped with different on-line measuring devices e.g. for impurities, the furnace temperature and gas profile measuring couplings and online-monitoring methods for measuring data in VTT's office.

Bioenergy Development Centre (BDC) at Saarijärvi

The Bioenergy Development Centre offers educational, development and testing services to various actors in the field of bioenergy. JAMK University of Applied Sciences has invested in a top modern boiler testing laboratory in Saarijärvi campus. Accredited bioboiler testing services up to 0,5 MW will be carried out in cooperation with VTT Expert Services Oy. Testing and adjustment of small scale heating systems (burning technology and emission control) can be conducted up to 1,0 MW (long term tests are possible) according to standard EN 303-5. In the near future also short-term measurements of bioheat containers up to 3,0 MW will be possible. Analyses carried out in BDC include different kind of flue gas analyses and biofuel analyses.



Tour 3 September 8th

R&D&D: New biomass production and combustion technologies, research and demonstrations, R&D for Renewables

From 8.30 am to 16 pm, travel 20 km. Price 130 €

Bioenergy development in Central Finland, BENET - Bioenergy Network

In this tour we will meet the real bioenergy developers and promoters. Central Finland region is the highest developed bioenergy market area in Finland. It has long traditions of industrial and municipal use of biofuels in electricity and heat production. Today, the utilization rate is 70% of the energy production (traffic excl.). Central Finland is in the top of Finland with 50 % of biomass in the energy balance. Market breakthrough of wood chips was made over ten years ago by intensive development work and co-operation between market actors and authorities. Today the target is to convert nearly all fossil oil by renewables until 2015. In Central Finland there are plenty of world-wide-known bioenergy players. The co-operation is organized through the BENET - Bioenergy Network.

Dynamic Bioenergy Cluster in Central Finland Region

Central Finland is one of Europe's strongest knowledge centers in the field of bioenergy, where the utilization of bioenergy is at a unique level. Central Finland have at least half a century of experience in the development and production of modern bioenergy, while a vast amount of practical know-how in bioenergy has accumulated locally. Central Finland is exceptionally favourable location for developing and performing bioenergy-based business. There are ten biomass-fueled combined heat and power (CHP) plants, from farm scale up to 500 megawatts thermal capacity. Their total output is 1540 MW. Almost every town centre is heated by district heat generated from biomass and there's thousands of individual bioheating units in buildings.

Central Finland is one of the most advanced bioenergy markets in the world, where almost the entire production of heat and electricity is based on local biomass; a proportion of transportation fuels has been replaced with biofuels. The target for 2015 is increasing production of bioenergy by 4 TWh and its share of all energy consumption has risen to 75%. JYKES is managing the Dynamic Bioenergy Cluster in Central Finland Region programme with this targets.

JAMK University of Applied Sciences

JAMK, with its multiple fields of study, is among the best in Finland.

It is one of the country's most popular universities of applied sciences. Its prospects are very favourable. Focal areas are visible in JAMKs activities as multidisciplinary and networked entities that are integrated with education as well as research, development and innovation activities. One focus area is bioenergy.

JAMK aim is to use educational and R&D&I methods to promote bioenergy-based business as well as to increase



the use of bioenergy and growth entrepreneurship in this field.

JAMKs targets in bioenergy are to

- increase growth entrepreneurship (equipment manufacturing, heating business, fuel production), equipment manufacturing (e.g.boilers), product
- development and export activities,
- develop logistics related to bio raw materials, and
- develop fuel production methods.

In terms of content, our activities focus on granular biofuels, mainly the utilisation of wood chips and agrobiomass, and the production of heat and electrical energy.

Cooperation with VTT and the University of Jyväskylä forms the core of JAMKs cooperation network. Efficient networking is made possible by the Regional Council of Central Finland*s cluster work.

Jyväskylä Innovation Ltd

Jyväskylä Innovation Ltd is a development company that aims to make the Jyväskylä region an internationally thriving, technological growth centre for benefiting its diversified branches. We are supporting with our activities growth, development and competitiveness of technological enterprises in Jyväskylä Region and Central Finland. Our task is to develop innovation environment and technological clusters, and to carry out the Jyväskylä Region Centre of Expertise Programme. By offering a broad service package, strong networks and competitive expertise, we create for our clients, sector-based information and know-how, a framework for developing their businesses, and a purpose-built operating environment.

The objective of our work is to strengthen the competitiveness of companies and organisations dealing with energy technology, and to provide them with opportunities to create new business and jobs. The focus is on industries with significant growth possibilities in the international marketplace, including companies manufacturing machines and equipment for energy production, distribution or consumption, as well as those providing services for the energy sector.

Focus areas:

- Bioenergy and combustion technologies
- Business activities in biomass-based heating
- Biogas technology
- Energy solutions in the forest industry

Technical Tours

September 8th and 9th

Jyväskylä Power Ltd, Keljonlahti large-scale multi-fuel CHP plant in Jyväskylä

Jyväskylä Power Oy, the subsidiary company of Jyväskylä Energy Ltd. There are also other owners. The company is constructing one of the world's biggest biomass power plant in Keljonlahti. The main fuels will be peat and forest fuels as stumps and forest residue. The plant will also use reed canary grass. It utilises modern CHP technology with high energy efficiency 90 %. The boiler is a circulating fluid bed type delivered by: The power effect is 210 MW and the district heating effect is 200 MW.

University of Jyväskylä, Science campus

Special features of the faculty of Mathematics and Sciences include two new study and research programs: nanosciences and renewable energy program. Both have their own research environments, the former state of art nanolaboratories including clean room space, the latter the experimental laboratory at Vaajakoski a site for solar heat and micro-scale CHP research. Also presentation of the laboratory for anaerobic biogas production research at the department of biology and environmental sciences may be organized. Site visits may be organized according to the interest of the participants.

Vapo Group

Vapo Local Fuels meets the growing demand for local biofuels. It is the largest supplier of biofuels in the Baltic Sea area and the world's largest peat producer. Vapo Pellets is the leading pellet supplier in Europe. It is the market leader in the Nordic consumer market and a significant basic supplier to European power plants. Vapo Heat and Power offers its customers heat and power produced with local biofuels in Finland and in the Baltic Sea region. Vapo Environment provides its customers with solutions for environmental challenges with high-standard environmental peat, soil products and waste treatment services.

The sub-groups are Vapo Timber Oy, which ranks among the largest sawmill industry companies in Europe. Kekkilä Oyj offers its customers growing media for home, garden and landscape and supplies greenhouse cultivators with high-quality products.

The study tour will visit Vapo's head office in Jyväskylä. It gives an extraordinary possibility to meet some persons behind the company today and hear about Vapo's bioenergy business and also visions for the future.

VTT

VTT is one of the largest and best-known European research and development units in the field of bioenergy, especially in forest biomass-based expertise, and developing also distributed energy concepts. VTT's activities cover the whole bioenergy chain from harvesting and handling of biomass-based fuels to energy production

technologies and end-use. VTT with its expertise on bioenergy is in a key position in the development of new technology needed to achieve this goal in co-operation with industry and other stakeholders. Finnish bioenergy technology is well-known globally especially for recovery and utility boilers utilised in forest industry. Advanced combined heat and power production and residential heating are areas of extensive growth. The VTT bioenergy facilities close to Rauhalampi CHP plant give the visitor an outlook to the use of modern technology in developing the renewable energy systems.

FINBIO – The Bioenergy Association of Finland

FINBIO is the main association in bioenergy field in Finland and represents all bioenergy sector (wood-based fuels, recovered biofuels, peat, agrofuels, biogas and bioliquers). FINBIO effects on energy policy and promotes the commercial use of bioenergy. It has over 100 member organisations from energy and forest industry companies to manufacturers and R&D-houses.

Post-Conference Tour 9th September

From Conference City Jyväskylä at 8.00 am via Helsinki-Vantaa airport at 16.30 pm to Helsinki city central at 17.15. Travel 320 km. Price 100 €.

Kalmari biogas farm in Laukaa

Kalmari farm is one of the pioneer farms for producing biogas in Finland, and an exceptional example of a diverse use of biogas technology. The farm is self-sufficient in electricity, heat and vehicle fuel. Excess electricity is sold to grid, and biogas upgraded to vehicle fuel quality is sold to customers. Biogas plant was built and CHP production started in 1998, and biogas has been upgraded to vehicle fuel since 2002. Biogas production increased significantly in the beginning of 2009, as a new biogas reactor of 1000 m³ capacity was started up. The farm can currently produce bio-methane to cover the need of about 200 gas vehicles. In the biogas plant cow manure, industrial bio-waste and energy crops are digested. At the moment e.g. energy corn is cultivated at the farm. At the farm you will see the whole production chain from energy crops into high quality energy products, heat, electricity and vehicle fuel.

Kymen BioEnergia Oy biogas plant

Kymen BioEnergia Oy has built a biogas plant in Kouvola 2011. The plant uses sludges from sewage water purification and local biofraction of municipal wastes. The plant produce 15 GWh yearly. The gas can be used for heat and electricity production and upgraded to traffic fuel. The company has a co-operation agreement with the gas company Gasum for injection of the gas later this year in the natural gas pipeline.

Neste Oil NExBTL plant

Neste Oil Corporation production plants are located near to city of Porvoo. Total oil production capacity is 11 million tonnes per year and biodiesel capacity 170 000 t/a. This new plant started up in summer 2007. Synthetic NextBTL biodiesel is the world's first second-generation biodiesel to be launched commercially.

Business to Business -event September 7th

In connection to Bioenergy 2011 conference and Wood and Bioenergy 2011 exhibition we offer companies an additional channel of marketing your business and establishing new personal contacts through pre-scheduled meetings with companies and organisations from many different countries.

The pre-booked meetings last 25 minutes each and will take place in a purpose built meeting environment at the fair on September 7th and 8th. The business to business meetings are exclusively addressed to companies, research institutes, municipalities and financial institutes that are actively engaged within the field of bioenergy.

The objective of the business to business event is to actively stimulate and support the commercial dissemination of innovation and transactional technology transfer within the bioenergy companies and organisations by organising a qualified face-to-face forum.

The business to business event greatly assists and encourages participants to identify, approach and develop new business opportunities in existing and new market sectors with other international companies in a cost and time efficient way.

Why take part in Business to Business event?

- You can increase your cost and time efficiency as you are presented with another channel of establishing personal contacts through timetabled face-to-face meetings with a pre-determined agenda over some days

- You have the opportunity to, before the conference and fair starts, prebook meetings with companies/ organisations which you have chosen to meet yourself, or which have requested to meet you
- It offers participants an exceptional chance to profile themselves and meet with interesting international companies, technology providers, research institutes and those with in-licensing needs
- The latest insights and information from leading technology providers and service suppliers within the international bioenergy sectors

The Deadlines are

- Registration and submission of profiles: August 26th 2011
- Requesting and confirming meetings: August 31st 2011
- Receive schedules for individual meetings: September 2nd 2011

Registration

If you wish to attend the Business to Business -event, please fill up the registration form on our website

- www.nordicbioenergy.finbioenergy.fi or

More Information

- by fax to +358-207 639 609 or
- by e-mail to bioenergy@finbio.fi.



Conference and Travel Information

Conference Venue

The International Bioenergy Conference will take place in the Jyväskylä Paviljonki – International Congress and Trade Fair Centre. Jyväskylä Paviljonki is truly a most versatile congress and trade fair centre in the heart of Finland, in the centre of the city. Paviljonki stands close to the train and bus station, and is well connected to the highways. The airport is only 20 kilometres away.

The complete address is:
Jyväskylä Paviljonki, Messukatu 10,
FI-40100 Jyväskylä, Finland
www.jklpaviljonki.fi

Fees

Registration and payment before June 30

- For members of the FINBIO, Svebio, Nobio and Danbio 500 €
- For non-members 600 €

Registration and payment after June 30

- For members of the FINBIO, Svebio, Nobio and Danbio 600 €
- For non-members 700 €

Please note: after June 30, payments of lower fees will not be accepted.

- Conference Dinner 80 €

Technical Tours

on Monday, September 5th

- Pre-conference Tour 100 €

on Thursday, September 8th in Central Finland

- New Technologies for Large Scale Production of Forest Fuels for CHP 130 €
- Small Scale Bioenergy in Central Finland 130 €
- R&D&D: New biomass production and combustion technologies, research and demonstrations, R&D for Renewables 70 €

on Friday, September 9th

- Post-conference Tour 100 €

The full fees include

- Attendance at all Oral Sessions and Poster Presentations
- Invitation to all coffee breaks and lunches
- Admittance to the Bioenergy 2011 and Wood and Bioenergy 2011 Exhibitions
- Conference bag and proceedings
- Reception by the City of Jyväskylä
- Exhibitions opening night

Registration

If you wish to attend the Conference, please complete the Registration Form in this Brochure and send it by mail to FINBIO ry, Vapaudenkatu 12, FI-40100 Jyväskylä, Finland
by fax to +358-207 639 609 or
by e-mail to bioenergy@finbio.fi.

It is also possible to fill the registration form on the website, www.nordicbioenergy.finbioenergy.fi. Please, complete one form per participant.

Payment options

The payment for Registration must be made in euro. Your registration will be confirmed upon the receipt of the registration fee. Admittance to the Conference without full registration including the payment of the registration fee cannot be granted. The following options for advanced payment are available:

- By bank transfer

Bank: Kiuruveden Osuuspankki

Account holder: FINBIO – Suomen Bioenergiayhdistys ry

Account number: 478300-111943

SWIFT/BIC code: HELSFIHH

IBAN: FI3847830010011943

- By credit card

Visa/Mastercard/Eurocard/ accepted.

Registration Desk

All participants must register on arrival at the Conference. The Registration Desk will be open during the following hours:

Monday, September 5th, 2011 14:00 – 19:00

Tuesday, September 6th, 2011 8:00 – 18:00

Wednesday, September 7th, 2011 8:00 – 16.30

With the registration, you will be given detailed information about the conference, conference bag and an identification badge that should be worn at all times. If you lose your badge or find a badge, please report to the Registration Desk.

Cancellation

If you cancel your registration before July 31st, 2011, 50 % of your registration fee will be refunded. There will be no refunds for cancellations made after the July 31st, 2011.

Conference language

The conference language will be English.

Lunch and coffee breaks

Lunch and coffee will be served during the breaks as indicated in the Conference Programme.

Social Programme

Information Centre

During the conference, information and help may be obtained at the Registration Desk. The information board are situated near the desk. The Programme Board displays the Conference Programme for the entire week, with all last-minute changes.

Insurance

The organizer cannot be held responsible for injury to conference attendees or for damage to, or loss of their personal belongings, regardless of the cause. Attendees are advised to make their own insurance arrangements.

Visa

Participants requiring a visa entry in Finland are strongly advised to make their application in their home countries as early as possible before the intended date of arrival.

Travel Information

Travel to Jyväskylä and how to reach Jyväskylä Paviljonki – International Congress and Trade Fair Centre

By air:

Several flights daily from Helsinki (flight time 35 min).
www.finnair.fi

By rail:

Several trains daily from Helsinki (3 to 4 hrs).
www.vr.fi

By road:

Jyväskylä is situated in central Finland at the crossroads of four highways. Jyväskylä is just over three hours from Helsinki and only four hours from Oulu. All the highways come direct to the intersection of the Exhibition Centre (please follow Paviljonki signs).

The pedestrian bridge from the city centre leads directly to Paviljonki.

Reception by the City of Jyväskylä

On Monday evening, September 5th, there will be a reception hosted by the City of Jyväskylä for Bioenergy 2011 participants.

The reception will begin at 20:00. An invitation will be included in your conference bag.

Conference Dinner

The Conference Dinner will take place on Thursday evening, September 6th. Dinner will cost 80 €.

Exhibitions Opening Night

On Wednesday evening, September 7th Jyväskylä Fair Centre will arrange an Exhibitions opening night for participants for Bioenergy 2011 and exhibitors for Wood and Bioenergy 2011.

Opening ceremony at 18:00 – 19:00 and Customer get-together at 19:00 – 21:00. An invitation will be included in your conference bag.



Accommodation

The organizers have made preliminary reservations from a number of hotels. Special rates have been negotiated for the conference participants for reservations straight to hotels.

Finlandia Hotel Alba

www.hotellialba.fi

- situated 1 km from the Jyväskylä town center by the lake
- 126 rooms, 1 restaurant, 1 sauna, 2 conference premises
- 21 km to the airport
 - 1 km to the railway station
 - 1 km to the bus station
 - 1 km to the Jyväskylä Paviljonki

Price:

Single 88 € / room economy/ night
Single 95 € / room standard/ night
Single 110 € / room superior/ night
Single 155 € / room junior suite with sauna/ night
Double 118 € / room standard / night
Double 175 € / room junior suite with sauna/ night
Buffee breakfast included.

Prices are valid until 5.8.2011.

Reservation Hotel Alba, tel. +358- 14- 636 311, e-mail info@hotellialba.fi

Reservation code "finbio"

Hotel Scandic Jyväskylä

www.scandic-hotels.com

- situated in Jyväskylä town center
- 150 rooms, 2 restaurants, 1 sauna, 5 conference premises
- 20 km to the airport
 - 100 m to the railway station
 - 100 m to the bus station
 - 250 m to the Jyväskylä Paviljonki

Daily price and reservations at

<http://www.scandichotels.fi>

Reservation code: D000027394

Sokos Hotel Alexandra

www.sokoshotels.fi

- Situated in Jyväskylä town center
- 274 rooms, 3 restaurants, 2 saunas, 13 conference premises
- 20 km to the airport
 - 50 m to the railway station
 - 50 m to the bus station
 - 200 m to the Jyväskylä Paviljonki

Price:

Single 93 € / room economy/ night
Single 108 € / room standard/ night
Double 113 € / room economy / night
Double 128 w / room standard / night
Buffee breakfast included.



Prices are valid until 5.8.2011

Reservation Sokos Hotels Sales Service Centre tel. +358 20 1234 640, e-mail sales.jyvaskyla@sokoshotels.fi or fax 014-413 3255.

Reservation code "Finbio 2011"

Hotel Cumulus Jyväskylä

www.restel.fi

- situated in Jyväskylä town center
- 202 rooms, 2 restaurants, 2 saunas, 5 conference premises
- 20 km to the airport
 - 50 m to the railway station
 - 50 m to the bus station
 - 200 m to the Jyväskylä Paviljonki

Price:

Single 159 € / room standard/ night
Single 175 € / room superior/ night
Double 184 € / room standard / night
Double 200 € / room superior / night
Buffee breakfast included.

Prices are valid as long the hotel has rooms left. Reservation

Hotel Cumulus Tel: +358 14 653211, jyvaskyla.cumulus@restel.fi or fax: +358 14 653299

Reservation code "Nordic Bioenergy".

Hotel Rantasipi Laajavuori

www.restel.fi

- situated 4 km from the Jyväskylä town center close to nature
- 196 rooms, 2 restaurants, 5 saunas, 19 conference premises
- 18 km to the airport
 - 4 km to the railway station
 - 4 km to the bus station
 - 4 km to the Jyväskylä Paviljonki

Price:

Single 124 € / room standard/ night
Single 146 € / room superior/ night
Double 146 € / room standard / night
Double 171 € / room superior / night
Buffee breakfast included.

Prices are valid as long the hotel has rooms left. Reservation

Hotel Rantasipi Laajavuori Tel: +358 14 628 211, laajavuori.rantasipi@restel.fi or fax: +358 14 628 500

Reservation code "Nordic Bioenergy".

Registration Form

Last name: _____

First name: _____

Organisation: _____

Address: _____

Postal code: _____ City: _____

Country: _____

Phone: _____ Fax: _____

E-mail: _____

Registration and payment

	Before June 30	After June 30	Payment
● For members of FINBIO, Svebio, Nobio, Danbio	500 €	600 €	_____
● For non-members	600 €	700 €	_____
● Conference Dinner	80 €	80 €	_____
● Pre-conference Tour	100 €	100 €	_____
● Technical Tour 1	130 €	150 €	_____
● Technical Tour 2	130 €	150 €	_____
● Technical Tour 3	70 €	70 €	_____
● Post-conference Tour	100 €	100 €	_____
	TOTAL EURO		_____

All Prices including VAT 23 %.

I will participate to the Reseption 5th September

Payment

transferred to FINBIO, Bank: Kiuruveden Osuuspankki
Account number: 478300-111943, SWIFT/BIC code: HELSFIHH, IBAN: FI3847830010011943

by credit card Visa Mastercard Eurocard

Card holder: _____

Card number: _____

Expire date: _____

Card holder's signature

Return this form

- by fax +358-207 639 609
- by mail FINBIO, Vapaudenkatu 12, FI-40100 Jyväskylä, Finland
- by e-mail bioenergy@finbio.fi
- by internet www.nordicbioenergy.finbioenergy.fi

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Organised



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