

### 5<sup>th</sup> Central European Biomass Conference



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### Bioenergy as a basis for a successful World Climate Treaty

The World Climate Treaty – a tremendous opportunity for the biomass industry. Bioenergy in central Europe is a recipe for success for households, businesses, the environment, the timber industry, agriculture and forestry and municipalities – a recipe that may be stepped up and rolled out around the world. The regional use of biomass helps to cut CO<sub>2</sub> emissions, the reduction of purchasing power and dependence on fossil fuels; it also creates additional jobs. The Central European Biomass Conference intends to bring all protagonists together from all the sectors where bioenergy is employed regionally and to generate new impetus for the energy transition on the basis of previous experiences and current technological developments.

### Many winners

17 % of the energy used in Austria and 57 % of renewable energies are created with biomass. Households and businesses have in recent years been able to almost halve their energy bills through the use of firewood, woodchips and pellets while the timber industry has been able to significantly reduce its carbon footprint and energy costs by utilizing bark and lye and extend its product range through the introduction of pellets, briquettes and renewable electricity. The forestry sector has – thanks to revenues generated from types of wood with previously weaker demand – been able to intensify its forest-management and –protection measures.

### The bioenergy sector's leading event

With more than 1,100 participants from all over the world, the threeyearly Central European Biomass Conference is one of the world's leading industrial meetings and the top event for the bioenergy sector in central Europe.



Josef Plank
Chairman of the
Organising Committee,
President ABA



Andrä Rupprechter Federal Minister for Agriculture, Forestry, Environment and Water Management

The 'Home Building' trade fair, which will be taking place at the same time and which is expecting around 40,000 visitors to attend, traditionally focuses on energy provision in the building sector and is a great event to complement the conference.

Planned highlights of the 5<sup>th</sup> Central European Biomass Conference include events organized by the International Energy Agency and the World Bioenergy Association. The 5<sup>th</sup> Central European Biomass Conference is staying abreast of these developments by focusing its efforts for 2017 particularly on the following aspects:

- Sustainability at regional and national scale and sustainability considerations for different value chains
- Biomass-combustion-based grids and hybrid systems and lowest-emission biomass combustion systems
- Advanced technologies for the realization of a biobased economy
- Policies, markets and consumer attitudes
- Heat and electricity from biomass
- Fuel characterization and quality assurance

The gap between theory and practice is to be bridged by an extensive programme of excursions and an industrial forum. Separate industry days will be dedicated to the fields of biogas and pellets. Sufficient scope for networking will be created by an extensive accompanying programme with social meetings and a matchmaking event.

We are looking forward to welcoming you to the 5<sup>th</sup> Central European Biomass Conference.



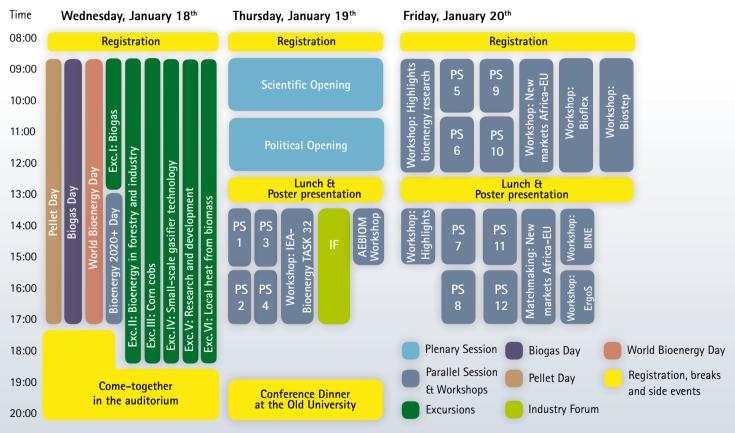
Hermann Hofbauer TU Wien, Chairman of the Scientific Committee



Ingmar Höbarth Managing Director of the Climate and Energy Fund

### Programme of the 5th Central European Biomass Conference 2017





### **Scientific Committee**

The presentations of the parallel sessions and poster presentations have been collected within a Call for Papers and evaluated by the scientifc committee of the Central European Biomass Conference.

- Univ.-Prof. Dipl.-Ing. Dr. Hermann Hofbauer, Technical University of Vienna, Austria (Chairman)
- Prof. Marco Baratieri, University of Bozen-Bolzano, Italy
- Ao. Univ.-Prof. Dipl.-Ing. Dr. Werner Fuchs, Vienna University of Natural Resources and Applied Life Sciences, IFA Tulln, Austria
- Prof. Dr.-Ing. Matthias Garderer, Straubing Center of Science, Germany
- Dr. Panagiotis Grammelis, Centre for Research and Technology, Greece
- Stefano Grigolato, University of Padova, Italy
- Univ.-Prof. Dipl.-Ing. Dr. Andreas Gronauer, Vienna University of Natural Resources and Applied Life Sciences, Austria
- Dipl.-Ing. Ingmar Höbarth, Climate and Energy Fund, Austria
- Dipl.-Ing. Dr. Gerfried Jungmeier, Joanneum Research, Austria
- Prof. Dr.-Ing. Martin Kaltschmitt, Technical University of Hamburg-Harburg, Germany
- Dipl.-Ing. Dr. Heinz Kopetz, Honorary President Austrian Biomass Association
- Dr. Jaap Koppejan, IEA Task 32, Procede Biomass BV, Netherlands
- Dr. Lukas Kranzl, Technical University of Vienna, Austria
- Prof. Mag. Herbert Lechner, Austrian Energy Agency, Austria
- Dipl.-Ing. Dr. Peter Mayer, Austrian Research and Training Centre for Forests, Austria
- Prof. Dr. Milan Martinov, University of Novi Sad, Serbia

- Prof. Dr. Wolter Prins, Ghent University, Belgium
- Hofrat Dipl.-Ing. Dr. Josef Rathbauer, BLT Wieselburg, Austria
- Prof. Dr. Hubert Röder, Straubing Center of Science, Germany
- Dipl.-Ing. Dr. Christoph Schmidl, Bioenergy2020+ GmbH, Austria
- Dipl.-Ing. Dr. Johannes Schmidt, Vienna University of Natural Resources and Applied Life Sciences, Austria
- Dr. Jürgen Schneider, Environment Agency Austria, Austria
- Univ.-Prof. Dr. Tobias Stern, University of Graz, Austria
- 🔳 Dipl.-Ing. Dr. Martin Weigl, Holzforschung Austria, Austria
- Dr. sc. nat. ETH Arthur Wellinger, Triple E&M, Switzerland
- Hofrat Dipl.-Ing. Manfred Wörgetter, Bioenergy 2020+ GmbH, Austria



### What awaits you at the 5th Central European Biomass Conference ...





"The Central European Biomass Conference is the most important event for bioenergy in Central Europe."

**DI Dr. Heinz Kopetz,** Honorary President Austrian Biomass Association



"The CEBC has become a meeting point of all parties involved in the use of biomass as energy source in the region. The exchange of knowledge and experiences, as well as international cooperation can boost the progress in the field."

Prof. Dr. Milan Martinov, Faculty of Technical Sciences. University of Novi Sad



"The focused discussion of biomass relevant aspects on the CEBC gives all participants a great opportunity to exchange and share knowledge with other experts."

Hofrat DI Dr. Josef Rathbauer, HBLFA Francisco Josephinum, BLT Wieselburg



"Exchange of knowledge, presentation of latest scientific findings as well as open discussion are essential to obtain the ambitious but necessary achievements for bioenergy. In this context the CEBC will provide a perfect communication platform." Ao. Univ.-Prof. DI Dr. Werner Fuchs, University of Nat. Res. and Life Sciences, IFA Tulln

"The 5<sup>th</sup> Central European Biomass Conference will

once again strengthen the whole biomass sector.

both on a national and an international level."



"The CEBC provides the opportunity to comprehensively discuss the subject of biomass and to find solutions for the future."

**DI Dr. Peter Mayer,** Director of the Austrian Research and Training Centre for Forests (BFW)



DI Dr. Martin Weigl, Holzforschung Austria



"The CEBC is an unique event for industry and research, where tradition and innovation come together to support advancements in knowledge and economy."

**Prof. Marco Baratieri,** Faculty of Science and Technology, University of Bozen-Bolzano



"The Central European Biomass Conference is an important opportunity for an exchange between researchers and stakeholders from industry and administration in the biomass sector."

**DI Dr. Johannes Schmidt,** University of Natural Resources and Life Sciences

### Programme overview



Wednesday lanuary

08:00-09:00 am Registration

08:00 am-12:30 pm Excursion I, p. 8

08:00 am-06:30 pm Excursions II-V. p.8-9

09:00 am-05:00 pm 2nd Central European Pellet Day, Room 1, p. 11

09:00 am-05:00 pm Biogas Day, Room **11**, p. 13

09:00 am-05:00 pm World Bioenergy Day, Galerie, p.15

01:30-05:00 pm Bioenergy 2020+ Day, Room 12, p.17

from 05:00 pm Come-together

Thursday January

08:00-09:00 am Registration

09:00 am-12:30 pm Plenary session. Room 1, p. 19

12:30-01:30 pm Lunch and Poster presentation

01:30-03:00 pm PB 1, Room 11, p.20, Biogas

01:30-03:00 pm PB 3, Room 1, p.21, Fuel pretreatment and upgrading

03:30-05:00 pm PB 2, Room 11, p.20, Bioeconomy - system considerations

03:30-05:00 pm **PB 4. Room 1.** p.21. New resources, potentials and supply chain risk management

01:30-05:00 pm Industry Forum, Galerie, p. 25

01:30 - 05:00 pm AEBIOM Workshop, Room 10, p.26

01:30 - 05:00 pm Workshop: IEA Bioenergy Task 32 - practical test methods for small-scale furnaces. Room 12, p. 23

08:00 pm Conference dinner

January

08:00-09:00 am Registration

09:00-10:30 am **PB 5, Room 1,** p. 27, Lowest emission biomass combustion systems

09:00-10:30 am PB 9, Galerie, p. 31, Fuel characterization and quality assurance

11:00 am-12:30 pm PB 6, Room 1, p. 27. Biomass combustion based grids and hybrid systems

11:00 am-12:30 pm PB 10, Galerie, p. 31, Sustainability at regional and national scale

12:30-01:30 pm Lunch and Poster presentation

01:30-03:00 pm PB 7, Room 1, p.29, Heat and electricity from biomass

01:30-03:00 pm **PB 11, Galerie,** p. 32, Sustainability considerations for different value chains

03:30-05:00 pm PB 8. Room 1. p. 29. Technologies for a biobased economy 03:30-05:00 pm PB 12. Galerie, p. 32. Policies, markets and consumer attitudes

09:00 am-03:00 pm Highlights of bioenergy research 2017, Room 12, p.33

09:00 am-12:30 pm Workshop: New Markets - Africa meets EU, Room 10, p. 34

01:30-05:00 pm **B2B-Matchmaking**: New Markets Africa meets EU. Room **1a.** p. 34

09:00 am-12:30 pm Workshop: Bioflex, Room 11a, p.35

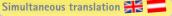
01:30-03:00 pm Workshop: BINE, Room 11a, p. 35

09:00 am-12:30 pm Workshop: Biostep, Room 11b. p. 37

03:30-05:00 pm Workshop: ErgoS. Saal **11a,** p. 37







### **Excursions**

### Excursion I Biogas

08:00 am Departure Graz

09:15 Biogas plant Hauptmann 500 kWel

- Electricity and heat production
- Drving of pumpkin seeds and corn
- Slurry utilization

12:30 pm Arrival Graz



### **Excursion II**

Bioenergy in forestry and industry

08:00 am Departure Graz

09:00 am Forestry Mayr Melnhof

CHP, pellets, saw, harvesting technology & recirculation of forest residues

01:00 pm Lunch

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01:30 pm Biomass courtyard Leoben, Hinterberg

Wood energy contracting Brücklwirt 300 kW

Biomass courtyard Leoben, Niklasdorf

Biomass - logistics and processing

04:30 pm Norske Skog

Paper machine and heat recovery

06:30 pm Arrival Messe Graz

### Excursion III Corn cobs

08:00 am Departure Graz

09:30 am Franz Tschiggerl, Halbenrain

- Harvesting technology
- Thermal and material use of corn cobs
- Legal basics

11:00 am South-east Styrian Pellet cooperative eGen

Pelletisation of agricultural biomass

12:15 pm Lunch

02:00 pm Corn cobs combustion with a scroll burner

Thermal use of corn cob grit

03:15 pm Corn cobs combustion with a grate burner

Thermal use of corn cob pellets

04:30 pm Corn cobs combustion with a caterpillar burner

Thermal use of field falling corn cob

06:30 pm Arrival Graz









Wednesday

January

### **Excursions**

### Excursion IV Small gasifier, woodgas-CHP-plant

08:00 am Departure Graz

09:30 am Bioenergie Grabner KG

Fröling fixed bed gasifier CHP50 with 4x50 kWel und 400 kWth

12:00 pm Lunch

01:30 pm Green Power GmbH

Woodgas-CHP-plant 180 kWel and 320 kWth from URBAS GmbH

04:00 pm HERZ Energietechnik GmbH

Production of heating boilers

06:30 pm Arrival Graz





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### **Excursion V**

Research and development

08:00 am Departure Graz

09:00 am Condensation plant in biomass heating plant Leibnitz

3,6 MW heating plant with flue gas purification (SCHMID energy solutions GmbH) and heat recovery (SAVE energy AG)

11:15 am POSCH GmbH

Innovations in the field of wood splitters & disk saws

01:15 pm Lunch

03:15 pm Bioenergy 2020+ GmbH

■ Institute for heat technology, TU Graz & LEC GmbH 06:00 pm Arrival Graz

**Organizational issues:** The meeting point is at 07:45 am at the conference registration. Departure for the excursions starts from the parking lot Messe Graz. **Language:** German speaking guide with English speaking support

### **Excursions**

### **Excursion VI**

Local heat from biomass combined with wood fired power plants

08:00 am Departure Graz

### 10:00 am Local heating plant in Murau, Stolzalpe

- 6 MW boiler output and supply of brewery Murau inter alia with hot water 120°
- Upgrade heating plant with 500 kWel wood fired power plant, project presentation



12:00 pm Lunch Brauhaus Murau

### 01:00 pm Hot water transmission station brewery Murau



### 02:30 pm Bio district heating plant Stadl an der Mur

- 1,2 MW Biomass boiler Polytechnik
- 324 kWel CHP wood fired power plant from SynCraft for summer heat supply



06:30 pm Arrival Graz





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## 2<sup>nd</sup> Central European Pellet Day, Room 1, 09:00 am – 05:00 pm Pellet production & consumption in Central and Eastern Europe – preliminary result and future developments

Language English

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"The production and use of pellets show a very positive development especially in Central and Eastern Europe. The 2<sup>nd</sup> Central European Pellet day offers a comprehensive overview of the developments in this area and on international pellet markets and provides an opportunity to get in touch with experts such as business partners."

Chairman: Christian Rakos, CEO of proPellets Austria

### 09:00 am Opening

- Hermann Schultes, President Chamber of Agriculture, Austria
- Eric Vial, President European Pellets Council, Belgium

09:20 am **The European Pellet Market – Facts and Figures** Gilles Gauthier, *European Biomass Association (AEBIOM), Belgium* 

09:40 am EN Plus Certification – Experiences in Eastern Europe Martin Englisch, BEA Institut für Bioenergie GmbH, Austria

10:00 am **BioUp: Europes largest pelletizing lab** Martin Weigl, *Holzforschung Austria*, *Austria* 

10:30 am Coffee Break

11:00 am **Current market developments for pellet stoves** Marco Palazzetti, *Palazzetti Lelio S.p.A, Italy* 

11:20 am Future prospects for pellet and boiler markets Christian Rakos, proPellets Austria, Austria

11:40 am The development of pellet use in large scale power and CHP plants in Europe

Arnold Dale, Ekman & Co, Sweden

12:00 pm **Pellet burners – for industrial process** Björn Forsberg, *World Thermal Service AB, Sweden* 

12:30 pm Lunch break

01:30 pm Development of pellet production and consumption

Serbia and Bosnia

Branko Glavonjic, University Belgrade, Serbia

Croatia

Ante Pašalić, BEA Institut für Bioenergie GmbH, Austria

Ukraine

Georgiy Geletukha, SEC Biomass, Ukraine

Baltics

Didzis Palejs, European Biomass Association, Belgium

Canada

Gordon Murray, Wood Pellet Association of Canada, Canada

03:10 pm Coffee break

03:30 pm Development of pellet production and consumption

Italy

Annalisa Paniz, Associazione italiana energie agroforestali, Italy

Germany

Martin Bentele, Deutscher Energieholz- und Pellet-Verband e.V., Germany

Slovenia

Gernot Stadlober, Stadlober GmbH Brennstoffhandel, Austria

USA

Ben Moxham, Enviva, United States of America

05:00 pm: Come-Together





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### Biogas Day, Room 11, 09:00 am - 05:00 pm The role of biogas within a decade



"The combination of theory and practise is a great opportunity to watch modern techniques in the field and to follow the latest developments in the sector of biogas."

Norbert Hummel, Vice-Chairman of ARGE Compost & Biogas Austria

Chairman: Franz Kirchmeyr, ARGE Kompost & Biogas, Österreich

### 09:00 am Opening

Norbert Hummel, Vice-Chairman of ARGE Kompost & Biogas, Austria
 Jan Stambasky. President European Biogas Association. Belgium

09:30 am **Expected technical development of biogas technique** Frank Scholwin. *Biogas & Energie, Deutschland* 

09:50 am GHG mitigation digesting agricultural by-products and biowaste

Franz Kirchmeyr, ARGE Kompost & Biogas, Austria Stefanie Scheidl, European Biogas Association, Belgium

10:10 am Discussion

10:20 am Coffee break

10:50 am **Biogas done right** Lorenzo Maggioni, *Consorzio Italiano Biogas e Gassificazione, Italy* 

11:10 am Digesting corn stover and catch crops – what can we expect?

Josef Höckner, BioG GmbH, Austria

Language German

### crops

Manfred Szerencsits, Öko Cluster, Österreich

 $11\!:\!50$  am Fertilization and other effects of digestate: soil properties, weed seeds, pathogens  $\underline{\ }$ 

Erwin Pfundtner, AGES, Österreich

12:10 pm Discussion

12:30 pm Lunch break

 $\tt 02:10~pm$  BIOSURF: A concept for enabling European biomethane trade

Attila Kovacs, European Biogas Association, Belgium

02:30 pm Development of an international biomethane registry Andreas Wolf, AGCS, Austria

02:50 pm Biomethane trade – from production and trading perspective Stefan Malaschofsky, *Biogas Margarethen am Moos, Austria* 

03:10 pm Biomethane's role within Energy master plan of the state of Salzburg

Gerhard Löffler, Land Salzburg, Austria

 $03{:}30~\mbox{pm}$  Biowaste management in Ljubljana, transformation to biomethane and its use for transport

Snaga Javno podjetje d. o. o., Slowenien

03:50 pm Discussion

04:10 pm Closing remarks & Come-together











Mednesda

lanuary

11:30 am Measures achieving high yields seconds



### World Bioenergy Day, Galerie, 09:00 am - 05:00 pm

### Language English

### Biomass and bioenergy markets



"In this session, speakers from all continents will emphasize the importance of bioenergy in the global energy and climate scenario. "

Remigijus Lapinskas, President World Bioenergy Association

Chairman: Douglas Bradley, World Bioenergy Association, Sweden

### 09:00 am Opening

- Josef Plank, President Austrian Biomass Conference
- Mark Bailey, Ambassador Canadian Embassy
- Roswitha Schipfer, ICS, Austria

### Fossil fuel exit strategy and CO2 taxation

Heinz Kopetz, Honorary President Austrian Biomass Association

### Paris and Bioenergy - does it fit?

Remigijus Lapinskas, President World Bioenergy Association, Sweden

10:30 am Coffee break

### 11:00 am Biomass as Export fuel

### Canada

Gordon Murray, Wood Pellet Association of Canada, Canada

### Baltics

Didzis Palejs, Latvian biomass association, Latvia

### USA

Ben Moxham, Enviva, United States of America

### Southeast Asia

Saku Rantanen, Tasma Bioenergy, Singapore

### South America

Geraldine Kutas, Brazilian Sugarcane Ind. Assoc., Brasilia

#### Russia

Sergei Sorokin, Alpha" LLC, Russia

12:30 pm Lunch



### 01:30 pm Business, Research and Effects

### Advantage Austria - springboard for bioenergy technology, country reports:

- Denmark: Wolfgang Stelte, Danish Technological Institute
- Greece: Gerd Dückelmann-Dublany, Austrian Trade Commissioner
- Japan: Luigi Finocchiaro, Expert Advantage Austria Tokio

### Bioenergy as a key for success

Manfred Wörgetter, National Representative in IEA Bioenergy, Austria

### Bioenergy in Austria - a good story to tell

Christoph Pfemeter, CEO Austrian Biomass Association, Austria

03:00 pm Coffee break

### 03:30 pm Biomass investments

### Australia

Andrew Lang, World Bioenergy Association, Sweden

### Turkey

Tanay Sidki Uyar, Bioenergy Association of Turkey, Turkey

### China

Kelvin Hong, Great Resources, China

### Ukraine

Georgiy Geletukha, Bioenergy Association of Ukraine, Ukraine

### Sweden

Gustav Melin, Swedish Bioenergy Association, Sweden

### Japan

Aikawa Takanobu, Renewable Energy Institute, Japan

05:15 pm Come-together







### The specialists for renewable energy systems: HERZ & BINDER



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- Heat pumps 5 80 kW
- Best comfort and high efficiency
- CO<sub>2</sub> free, clean energy from biomass
- Low emissions
- Austrian quality products
- Awarded for environmentalfriendly products





### BIOENERGY 2020+ Day Room 12, 01:30 - 05:00 pm



"The Austrian biomass competence centre BIOE-NERGY 2020+ presents results of recent research projects. The focus is on the activities of the ongoing COMET research programme."

Chairman: Walter Haslinger, Bioenergy 2020+ GmbH, Austria

01:30 pm Opening

Pellets off-gassing – evaluation, safety issues and prevention Waltraud Emhofer, Senior Researcher, Biomass combustion systems

**High and low temperature corrosion in biomass fired heating plants** Stefan Retschitzegger, *Unit head, Biomass combustion systems* 

Synthetic biofuels by biomass steam gasification – status of development

Reinhard Rauch, Area Manager, Biomass gasification systems

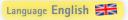
Evaluation of dual fluidized bed gasification systems by means of cold flow modelling and CPFD simulation

Stephan Kraft, Junior Researcher, Biomass gasification systems

Production of biochemicals from  $\mbox{CO}_2$  by Clostridia spp. via gas fermentation

Lydia Rachbauer, Researcher, Bioconversion and biogas systems





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The algae biorefinery – status and research applications
Bernhard Drosq, Area Manager, Bioconversion and biogas systems

03:00 - 03:30 pm Coffee break

Pre-treatment of post-consumer and demolition wood for recycling and energetic utilisation

Christa Dißauer, Researcher, Sustainable supply and value chains

Pyrolysis of the fine fraction of municipal solid waste (MSW) and of sewage sludge

Martina Meirhofer, Researcher, Sustainable supply and value chains

Model based control of biomass combustion systems Christopher Zemann, Researcher, Automation and control

Model predictive control of heat grids
Daniel Muschick, Senior Researcher, Automation and control

Modelling of inorganic aerosol formation in biomass combustion systems

Thomas Gruber, Senior Researcher, Modelling and simulation

Soot formation modelling in biomass combustion systems Ali Shiehnejad-Hesar, Senior Researcher, Modelling and simulation

05:00 pm End and Come-together





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# PLENARY SESSION Bioenergy after Paris Room 1, 09:00 am - 12:30 pm Chairman: Ingmar Höbarth, Klima- und Energiefonds, Austria

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"Due to the world climate treaty the withdrawal from nuclear energy is sealed. The energetic biomass use will gain in importance worldwide - with unimagined possibilites for our domestic economy."

Josef Plank, President Austrian Biomass Association



### 09:00 am Scientific Opening

- Siegfried Nagl, Mayor of Graz, Austria
- Franz Titschenbacher, President Styrian Chamber of Agric., Austria
- Representative of the foreign trade office Austria\*

Bioenergy technology for future markets – worldwide highlights Hermann Hofbauer, *Technical University Vienna, Austria* 

Biomass for heat in buildings and industry – perspectives up to 2030 Lukas Kranzl, Energy Economics Group, Austria

Active forest management and its role for climate change mitigation Tomas Lundmark, Swedish University of Agricultural Sciences, Sweden

10:30 am Coffee break

### 11:00 am Political Opening

- Josef Plank, President Austrian Biomass Association
- Remigijus Lapinskas, President World Bioenergy Association, Sweden

### Austria on the way to 100% renewable energy

Andrä Rupprechter, Federal Minister for Agriculture, Forestry, Environment and Water Management, Austria

EU Bioenergy 2030: Challenges and possibilites

Didzis Palejs, President European Biomass Assoc. (AEBIOM), Belgium

Myths vs. Facts in the Public Debate on Energy Transition Georg Günsberg, *Political consultant, Austria* 

12:30 - 02:00 pm Lunch and Poster presentation





### Parallel Session 1

Biogas Room 11, 01:30 - 03:00 pm

Chairman: Arthur Wellinger, Triple E&M, Switzerland

01:30 pm Opening

Intertillages for biogas plants: Increasing acceptance and effective protection of the environment

Manfred Szerencsits, Ökocluster, Austria

Wood ash from district heating plants for the upgrading of biogas from anaerobic digestion

Silvia Silvestri, Fondazione Edmund Mach, Italy

Scenario based balancing of nutrients from digestates and farm fertilizers

Markus Heberlein, Fraunhofer Umsicht, Germany

GHG mitigation effects due to the utilization of manure in biogas plants

Katja Oehmichen, Deutsches Biomasseforschungszentrum GmbH, Germany

The valence of flexible eco-electricity-production-units

Bernhard Stürmer, University College for Agrarian and Environmental Pedagogy, Austria

03:00 pm Coffee break

### Language **English**

### Parallel Session 2

Bioeconomy – system considerations Room 11, 03:30 – 5:00 pm

Chairman: Hubert Röder, Hochschule Weihenstephan Triesdorf, Germany

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03:30 pm Opening

Fostering a Circular Forest Bioeconomy
Barbara Hedeler, Wood K plus GmbH, Austria

Strategic Actions for the Biorefinery Development in the Pulp and Paper Industry: Insights from a Delphi Study

Natasha Gabriella, *University of Graz, Institute of Systems Sciences, Austria* 

Survey of international RTD activities on biobased industries Martin Beermann, *Joanneum Research Forschungsgesellschaft mbH*, *Austria* 

LCB production based on corn stover – Preliminary feasibility study for Serbia

Milan Martinov, University of Novi Sad, Faculty of technical sciences, Serbia

The Biorefinery Innovation System: Lessons to be learned & questions to be asked

Tobias Stern, Karl-Franzens-Universität Graz, Austria

05:00 pm End

### Parallel Session 3

Fuel pretreatment and upgrading Room 1, 01:30 - 03:00 pm

Chairman: Stefano Grigolato, University of Padova, Italy

01:30 pm Opening

Monitoring of fuel wood drying efficiency through meteorological data based models

Gernot Erber, University of Natural Resources and Applied Sciences, Austria

Container trials to examine the effects of fuel screening on the storage behavior of wood chips

Theresa Mendel, Technologie- und Förderzentrum, Germany

Field trials to examine the storage behavior of wood chips from forests under practical conditions

Nicolas Hofmann, Bavarian State Institute of Forestry, Germany

Improvement of wood chip quality by screening and drying Daniel Kuptz, Technologie- und Förderzentrum, Germany

Update on the status of torrefaction as biomass upgrading technology

Michael Wild, Wild&Partner KG, Austria

03:00 pm Coffee break

### Parallel Session 4

New resources, potentials and supply chain risk management Room 1, 03:30 – 05:00 pm



Chairman: Johannes Schmidt, University of Natural Resources and Applied Sciences, Austria

03:30 pm Opening

Weed competition and control in willow crops Isabella Donelly, *Teagasc CELUP, Ireland* 

**Mobilization and supply of agricultural residues in Styria** Alfred Kindler, *Styrian Chamber of Agriculture, Austria* 

Perspectives for establishing SRCs in Northern Greece loannis Eleftheriadis, Center for Renewable Energy Sources, Greece

Developing and evaluating strategies to overcome biomass supply risks Peter Rauch, *University of Natural Resources and Applied Sciences, Institute of Production and Logistics, Austria* 

**Modelling of the bioenergy potentials of urban sewage plants** Kerstin Schopf, *Montanuniversität Leoben, Austria* 

05:00 pm **End** 







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### Workshop: IEA Bioenergy TASK 32

Room 12, 01:30 - 05:00 pm

### Practical test methods for small-scale furnaces



"Technological progress requires suitable test methods to become visible. At the same time test methods are important tools to stimulate and guide technological progress. The workshop provides an overview of new evaluation methods for domestic biomass combustion systems. One focus of the event will be on the real-life oriented "beReal" test methods for firewood and pellet stoves."

Chairman: Christoph Schmidl, Bioenergy 2020+ GmbH

### 01:30 pm Welcome & Introduction

- Jaap Koppejan, Procede Biomass BV, Netherlands
- Hans Hartmann, TFZ Straubing, Germany
- Christoph Schmidl, Bioenergy 2020+ GmbH, Austria

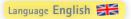
### Session 1: The "beReal" project

- 01:40 pm The firewood method Marius Wöhler, *University of Applied Forest Sciences* Rottenburg, Germany
- 02:00 pm The pellet method Hans Hartmann, TFZ Straubing, Germany
- 02:20 pm Scientific highlights
  Gabriel Reichert, Bioenergy 2020+ GmbH, Austria
- 02:40 pm Labelling concept Christoph Schmidl, Bioenergy 2020+ GmbH, Austria

3:00 pm Coffee break

### **Session 2: Current method developments**

03:40 pm Current developments of US testing protocols Lisa Rector, NESCAUM, United States of America



Thursday 19 January

- 04:00 pm The EN-PME method
  Michael Sattler, Ökozentrum Langenbruck, Switzenaru
- 04:20 pm Load cycle test for biomass boilers
  Elisa Carlon, *Bioenergy 2020+ GmbH, Austria*Markus Schwarz, *Bioenergy 2020+ GmbH, Austria*
- 04:40 pm Emissions from small-scale pellet boilers Lukas Sulzbacher, Josephinum Research, Austria

05:00 pm End















### **Bioenergy Opportunities in Africa** Workshop & B2B Matchmaking

 Unique opportunity to get informed on how to launch bioenergy business ventures in Africa.

Participate in the B2B matchmaking session to network and discuss business opportunities.



### **Access** to Finance

A range of financing options will be showcased, and opportunities for support towards accessing finance presented.



### B<sub>2</sub>B Matchmaking

This is an opportunity for African and European entrepreneurs to come together for networking and ioint business development.



### Market Information

This workshop will provide participants with invaluable insights into Africa's fast-evolving bioenergy markets.

Date: 20th Jan. 2017 Time: 9am-5pm (CET) Where: CEBC, Graz (AT)

### **REGISTER:** www.cebc.at/en

or scan the QR code:



In collaboration with



A project funded by the European Union



### **AEBIOM Workshop: EU winter package**

Room 10, 01:30 - 5:00 pm



"The European Biomass Association (AEBIOM) will organize a workshop on the occasion of the publication of the EU package "Clean Energy for all Europeans", which contains a wealth of new approaches to bioenergy policy in the European Union. In addition to the information on the current draft legislative proposals, special attention will be devoted to the exchange of standpoints and discussion. "

Jean-Marc Jossart, AEBIOM

Impact of the EU winter package on the bioenergy sector
Jean-Marc Jossart, AEBIOM Secretary General

### The EU's new sustainability policy: new rules for solid biomass

- Summary of the European Commission legislative proposal
- NGO attacks: Need for action for corporate communications?

Fanny-Pomme Langue, AEBIOM Policy Director

The Heating sector: Towards electrification?

Nathalie Hemeleers, AEBIOM Policy Advisor

### The "clean energy for all package" covers the topics:

Renewables & Bioenergy

Sustainability

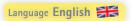
Energy efficiency

Funding

Electricity markets

Governance

**Commission papers:** www.ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition











VLK - Vyborg Forestry Development Corporation is the largest pellet producer in Russia.

The design capacity of the plant is 1.000.000t of pellets per annum.

We are located in the North-West region of Russia, close to Saint-Petersburg and right on the bank of the Finnish Gulf.

VKL supplies high quality pellets to serve growth of wood pellet market.

www.vlk.ru







### **Industry Forum**

### **Bioenergy**, Galerie, 01:30 - 05:00 pm

Chairman: Walter Haslinger, Bioenergy 2020+ GmbH, Austria

In the Industry Forum national and international companies active in the fields of bioenergy will present their core competencies, activities and relevances in a short presentation. In the subsequent discussion forum the participants have the chance to meet members of the presented companies and can initiate possible future projects and cooperations on an individual basis. The Industry Forum is open to all conference participants.

01:30 pm Introduction Chairman

Herz Energietechnik GmbH, Wolfgang Karlovits

Komptech GmbH, Andreas Kunter

SynCraft Engineering GmbH, Marcel Huber

Hargassner GmbH, Anton Hofer

Urbas Maschinenfabrik GmbH. Peter Urbas

AEBIOM. Glen Wilson

Polytechnik Luft- und Feuerungstechnik GmbH, Bernhard Brenner

**CEBCON Technologies GmbH, Valery Detzel** 

Valmet GmbH. Markus Bolhar

Bioenergy 2020+ GmbH, Dina Bacovsky

AGRANA Stärke GmbH, Horst Hartl

There are still some free places availabe! Send your request to bauderer@biomasseverband.at.

LEC GmbH. Andreas Wimmer

Fröling Heizkessel- und Behälterbau GmbH, Wolfgang Aichinger

ATech electronics d.o.o.. Davor Jakulin

Schmid energy solutions, Wolfgang Horn

Following:

Discussion forum: Get-together (incl. Coffee & Cake)

This discussion forum will offer the opportunity for participants to contact representatives of the presented companies and to discuss possible future projects and cooperations. For individual discussions in relaxed atmosphere each company will have its own stand next to the hall where the company presentations take place, equipped with chairs and tables, where coffee and refreshments will be served. These information stands will be available on 19th January.

05:00 pm End





















# **HARGASSNER**

HEATING TECHNOLOGY FOR BIOMASS







### **PELLET**

### **BOILERS**

- Space saving (only 0.45 m²)
- Reasonably priced & energy-efficient
- Latest design & innovative

### **WOOD LOG**

### **BOILERS**

- Automatic boiler cleaning system
- Automatic ignition optionally
- Lambda-Touch-Tronic

### **WOOD CHIP**

### **BOILERS**

- Energy-saving & cost-effective
- Unique double rotary grate
- High-efficient fuel extraction system



### Parallel Session 5

Lowest emission biomass combustion systems Room 1, 09:00 – 10:30 am

Chairman: Christoph Schmidl, Bioenergy 2020+ GmbH, Austria

09:00 am Opening

Innovative technological solutions for a biomass boiler with near-zero particulate emissions

Augusto Bianchini, *University of Bologna, Department of Industrial Engineering, Italy* 

**Low emission retrofit producer gas burner for wood pellets** Josef Wüest, *Fachhochschule Nordwestschweiz, Switzerland* 

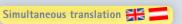
Honeycomb catalysts integrated in firewood stoves – potentials and limitations

Gabriel Reichert, Bioenergy 2020+ GmbH, Austria

Design of domestic log wood and gasification boilers using CFD tools Nikolaos Nikolopoulos, *Chemical Process and Energy Resources Institute, Greece* 

Benzo(a)pyrene emission in the flue gas from modern biomass boilers Franziska Klauser, *Bioenergy 2020+ GmbH, Austria* 

10:30 am Coffee break



### Parallel Session 6

Biomass combustion based grids and hybrid systems

Room 1, 11:00 am - 12:30 pm



Chairman: Panagiotis Grammelis, Centre for Research and Technology, Greece

11:00 am Opening

Development of an optimized controller for pellets/solarthermal central heating systems

Daniel Büchner, Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Germany

BIG Solar with biomass: solarthermal and biomass based district heating systems for Styrian cities

Moritz Schubert, S.O.L.I.D. Gesellschaft für Solarinstallation und Design mbH, Austria

Optimizing the interaction of firewood boiler, heat storage and solarthermal facility using mathematical models

Jonas Schulz, Bioenergy 2020+ GmbH, Austria

**Small, modular and renewable based heating grids for SE Europe** Dominik Rutz, *WIP Renewable Energies, Germany* 

Improving the performance of heating grids – using Swedish know-how

Roger Stahel, IS SaveEnergy AG, Switzerland

12:30-01:30 pm Lunch and Poster presentation











- Pipes, Valves & Fittings
- Public works & Environmental engineering
- Perfect service & Top logistics

### Parallel Session 7

### Heat and electricity from biomass Room 1, 01:30 - 03:00 pm

Chairman: Matthias Gaderer, Technical University Munich, Germany

01:30pm Opening

Measuring the performance of biomass small-scale gasification plants by implementing mass and energy balances
Marco Baratieri, Free University of Bolzano, Italy

Biomass gasification in the stepped co-current fixed bed: experiences from field installations in Austria

Markus Huemer, Management Center Innsbruck, Austria

Power & biomass to gas – connecting Germany's biomass potentials with power and gas transmission systems

Marcel Beirow, University of Stuttgart, Germany

Decreasing water vapour condensation in producer gas: experimental investigation

Roberto Mussi, Yanmar Research Europe, Italy

Torrefaction of woody residues at the small scale: first results of a fully automatic pilot plant operation

Jean-Bernard Michel, University of Applied Sciences of Western Switzerland, Switzerland

03:00 pm Coffee break



### **Parallel Session 8**

Technologies for a biobased economy, Room 1, 03:30 - 05:15 pm



Chairman: Hermann Hofbauer, Technical University Vienna, Austria

03:30 pm Opening

bioCRACK: an unique process to produce 2nd generation biofuels Edgar Ahn, BDI – BioEnergy International AG, Austria

Simultaneous production of valuable fuels and platform chemicals from biogenic residues by hydrothermal carbonization

Jakob Köchermann, Deutsches Biomasseforschungszentrum GmbH, Germany

Hydrogen from biomass - state-of-the-art and outlook Hermann Hofbauer, *Technical University Vienna, Austria* 

State-of-the-art dual fluidized bed gasification of biomass in industrial scale

Matthias Kuba, Bioenergy 2020+ GmbH, Austria

HCNG or hythane production from biomass steam gasification Michael Kraussler, *Bioenergy 2020+ GmbH, Austria* 

Efficient use of biomass residues for combined production of transport fuels and heat  $\,$ 

Esa Kurkela, VTT Technical Research Centre of Finland, Finland

05:15 pm **End** 



# The biggest renewable energy source in the world: Mother Nature

Nature never runs out of energy. Flora and fauna renew themselves every day, creating bio mass as they do, which is wonderful for us to use to generate fuel, electricity and heat. Renewable raw materials, our sun, wind, water and energy efficiency, are the backbone of a sustainable and conscientious use of our resources. Talk to us about renewable energy – the most natural thing in the world.

### RENEWABLE ENERGY

ING. LEO RIEBENBAUER



### **Parallel Session 9**

### Fuel characterization and quality assurance Galerie, 09:00 – 10:30 am

Chairman: Josef Rathbauer, Biomasse-Lehr- und Forschungszentrum Francisco Josephinum, Austria

09:00 am Opening

Characterisation methods for solid biomass fuels regarding their thermal utilisation in fixed-bed reactors

Peter Sommersacher, Bioenergy 2020+ GmbH, Austria

Quality control of wood chip production by validated simplified methods

Volker Zelinski, University of Applied Sciences and Arts, Germany

Stability of fast pyrolysis bio-oils: comparison of assessment methods

Mehmet Pala, Ghent University, Faculty of Bioscience Engineering, Department of Biosystems Engineering, Belgium

Evaluation of chemical wood chip quality using novel fuel indexes for solid biofuels

Daniel Kuptz, Technologie- und Förderzentrum, Germany

Experimental evaluation of the traceability of a pellet bulk flow using radio frequency identification technology

Peter Sundberg, SP Technical Research Institute of Sweden, Sweden

10:30 am Coffee break



### Parallel Session 10

Sustainability at regional and national scale

Galerie, 11:00 am - 12:30 pm



Chairman: Gerfried Jungmeier, Joanneum Research Forschungsgesellschaft mbH, Österreich

11:00 am Opening

Evaluation of the effects of incentive programmes for biomass district heading grids

Harald Schrammel, AEE INTEC, Austria

Controlling the declared geographic origin of wood/timber Micha Horacek, *Biomasse-Lehr- und Forschungszentrum Francisco Josephinum (BLT), Österreich* 

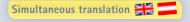
The national economic relevance of biomass CHP plants in Austria Lorenz Strimitzer, Österreichische Energieagentur, Österreich Hans-Christian Kirchmeier, IG-Holzkraft, Österreich

Sustainable forest management in Canada
Dave Patterson, Forestry Innovation Investment Ltd., Canada

Options for Industry and Agriculture to Improve the Sustainability of Fatty Acid Methyl Esters

Gerfried Jungmeier, Joanneum Research Forschungsgesellschaft mbH, Austria

12:30 - 01:30 pm Lunch and Poster presentation



### Parallel Session 11

Sustainability considerations for different value chains

Galerie, 01:30 - 03:00 nm

Galerie, 01:30 - 03:00 pm

Chairman: Manfred Wörgetter, Bioenergy 2020+ GmbH, Austria

01:30 pm Opening

The role of grass digestion in the circular bio-economy

Vita Tilvikiene, Lithuanian Research Centre for Agriculture and Forestry, Kedainiai, Lithuania

BioEconomy with algae – life cycle sustainability assessment of an algae-based biorefinery

Maria Hingsamer, Joanneum Research Forschungsgesellschaft mbH, Austria

The benefits of regional bioenergy value chains from an ecological perspective

Silvia Scherhaufer, University of Natural Resources and Applied Sciences, Austria

Driving on biomass: biofuels vs. hydrogen vs. electricity Reinhard Haas, Technical University Vienna, Austria

National and business economic assessment of typical value chains for providing heat from wood in Bavaria

Andrè Tiemann, Hochschule Weihenstephan Triesdorf, Germany

03:00 pm Coffee break



### Parallel Session 12

Policies, markets and consumer attitudes
Galerie, 03:30 - 05:00 pm



Chairman: Lukas Kranzl, Technical University Vienna, Austria

03:30 pm Opening

New Markets- a Quantum Leap Forward in BioTrade Douglas Bradley, World Bioenergy Association, Sweden

Why do we heat the way we heat?

Josef Walch, University of Applied Sciences Wiener Neustadt, Austria

**Bioenergy policies and status of bioenergy implementation**Dina Bacovsky, *BIOENERGY 2020+ GmbH, Austria* 

Bioenergy heat and power markets in the IEA's Medium Term Renewable Energy Market Report 2016

Pharoah Le Feuvre, International Energy Agency (IEA), Paris, France

Concepts and instruments for a rational bioenergy policy – a new institutional economics approach

Alexandra Purkus, Helmholtz-Zentrum für Umweltforschung GmbH, Leipzig, Germany

05:00 pm End

# Highlights of Bioenergy Research 2017: National and international results achieved by IEA Bioenergy Tasks and ERA-NET Bioenery, Room 12, 09:00 am - 03:00 pm

Moderator: Karin Granzer-Sudra, ÖGUT, Österreich

09:00 am Welcome and Introduction IEA Bioenergy TCP

Theodor Zillner, Austrian Federal Ministry for Transport, Innovation and Technologies, Austria

Luc Pelkmans, Technical Coordinator IEA Bioenergy, Belgium

Session 1: Highlights from the IEA Bioenergy TCP

09:30 am Gasification of Biomass and Waste – recent activities and results from IEA Bioenergy Task 33

Kevin J. Whitty, University of Utah, United States of America

09:45 Status of Biomass Gasification – Database developed by Austria for IEA Bioenergy Task 33

Reinhard Rauch, TU Vienna, Austria

10:00 am Energy from Biogas – international and national activities "Bioenergy Task 37"

Bernhard Drosg, University of Natural Resources and Life Sciences, Austria

10:30 am Coffee break

11:00 am Report on the State of Technology of Algae Bioenergy – IEA Bioenergy Task 39

Dina Bacovsky, Bioenergy 2020+ GmbH, Austria

11:15 am The European Wood Pellet Market for small-scale heating – data availability, price developments and drivers for trade Fabian Schipfer, TU Wien, Energy Economics Group (EEG), Austria

11:35 am Global wood pellet industry – market and trade study – IEA Bioenergy Task 40 results

Kay Schaubach, DBFZ, Germany

11:50 am Biorefining – recent activities and results from IEA Bioenergy Task 42"

Michael Mandl, Tbw research GmbH, Austria

12:05 pm Highlights from Bioenergy Task 32: Combustion and Cofiring"

Jaap Koppejan, Procede Biomass BV, Netherlands

12:30 pm Lunch

01:30 Austrian contributions to Task 32: Combustion and Cofiring" Christoph Schmidl, *Bioenergy 2020+ GmbH, Austria* 

01:45 pm Task 41 - special project: The role of Bioenergy RES hybrids in a low-emission energy system

Ilkka Hannula, VTT - Technical Research Centre of Finland Ltd, Finland

Session 2: ERA-NET Bioenergy – overview and current projects
02:00 pm ERA-NET Bioenergy – support of transnational bioenergy
R&D

Carina Lemke, Agency for Renewable Resources (FNR), ERA-NET Bioenergy Secretariat, Germany

02:15 pm MetHarmo - European harmonisation of methods to quantify methane emissions from biogas plants

Marlies Hrad, University of Natural Resources and Life Sciences, Austria

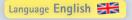
02:30 pm GrateAdvance - Advanced adjustable grate solutions for future fuel flexible biomass combustion technologies

Sabine Feldmeier, Bioenergy 2020+ GmbH, Austria

02:45 pm REFAWOOD - Resource-efficient fuel additives for reducing ash related operational problems in waste wood combustion
Peter Sommersacher, Bioenergy 2020+ GmbH, Austria

03:00 pm **End** 





Friday

lanuary

# New Markets: Africa meets EU Workshop & B2B matchmaking

09:00 am - 05:00 pm Workshop: Room 10

B2B matchmaking: Room 1a

9:00 am Opening

Christoph Pfemeter, Austrian Biomass Associatio, Austria

Austrian Expertise, African Opportunities

Andreas Karner, ADA

**European Private-Sector Interest** 

Jean-Marc Jossart, European Biomass Association (AEBIOM)

Africa-EU Renewable Energy Cooperation Programme (RECP) Services Alexander Huppertz, RECP

Focus on Nigeria

Godwin Eni Aigbokhan, National Competitiveness Council of Nigeria

Focus on Senegal

Aziz Fall, National Renewable Energy Agency (ANER), Senegal

10:30 am Coffee Break

11:00 am Focus on Rwanda

Dr. Ivan Twagirashema, Energy Private Developers (EPD), Rwanda

Focus on Uganda

Nolbert Muhumuza, Awamu Biomass Energy, Uganda

11:45 am Focus on Africa Panel Discussion

Moderator: Remigijus Lapinskas, *President World Bioenergy Association* Aziz Fall, *ANER, Senegal* 

Godwin Eni Aigbokhan, NCCN, Nigeria Dr. Ivan Twagirashema, EPD, Rwanda

Nolbert Muhumuza, Awamu Biomass Energy, Uganda Alexander Huppertz, RECP Language English

Friday
20
January

12:30 pm Lunch Break & Last minute check-in

02:00 pm B2B Matchmaking Introduction

02:20 pm Slots 1 - 3 B2B Meetings

03:30 pm Coffee Break

03:45 pm Slots 4 - 6 B2B Meetings

Registration for B2B talks: www.cebc2017.talkb2b.net

Take this unique opportunity to ...

- present your innovative ideas and projects
- search for brand new technologies, R&D projects and expertise
- meet numerous prospective cooperation partners at one location in one day
- promote your organisation and expertise worldwide







# Workshop: BioFlex

flexible operations-management concepts for combined biomass heat and power plants Room 11a, 09:00 am - 12:30 pm

Chairman: Christoph Rosenberger, Austrian Biomass Association

09:00 am Opening

Christoph Rosenberger, Austrian Biomass Association

Ralf Ohnmacht, VOIGT+WIPP Industrial Research, Austria

09:05 am Possible future methods for the marketing of electricity generated by combined biomass heat and power plants
Babette Hebenstreit, FH Vorarlberg (University of Applied Sciences), Austria

09:30 am **Technical challenges to greater flexibility** Alfred Hammerschmid, *BIOS Bioenergiesysteme, Austria* 

09:45 am **Practical experiences** Hermann Unsinn, *TIWAG*, *Austria* 

10:00 am Legal opportunities for combined biomass heat and power plants

Martin Seidl, ÖMAG, Austria

10:15 am Optimization potentials for combined biomass heat and power plants

Bernhard Kronberger, VOIGT+WIPP Industrial Research, Austria

10:30 am Discussion

11:00 am Coffee & Get-together



# Workshop: Bi-directional integration of buildings with heat generators into heating networks Room 11a, 01:30 pm - 03:00 pm



Chairman: Christoph Rosenberger, Austrian Biomass Association

01:30 pm Opening

- Christoph Rosenberger, Austrian Biomass Association
- Daniel Reiterer, AEE NÖ-Wien, Austria

01:45 pm Potentials and limitations of use for the bi-directional integration of decentralized heat generators within regional heating networks, using the example of the implementation of district heating in Großschönau

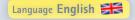
Andreas Leitner, University of Natural Resources and Life Sciences Vienna, Austria

02:15 pm Technical control concepts for the development of bi-directional heating networks – from overall thermal management to the hydraulic control of decentralized heat generators

Klaus Lichtenegger, *Bioenergy2020+ GmbH, Austria* Daniel Muschick, *Bioenergy2020+ GmbH, Austria* 

02:45 pm Development and discussion of possible future scenarios

03:00 pm Coffee & Get-together



# Canadian forest products come in a beautiful colour: SUSTAINABLE green.

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Canada's forests are sustainably managed. We regenerate harvested areas and pride ourselves on our commitment to legal logging through enforcement of stringent regulations, and welcome outside scrutiny of our practices. Our dedication lies in the promise that today's quality forest products won't come at the expense of tomorrow's forests.



# Workshop: A bioeconomy strategy for

Austria: The role of civil society Room 11b, 09:00 am - 12:30 pm

09:00 am **Introduction and Welcome** Holger Gerdes, *Ecologic Institut, Germany* Zoritza Kiresiewa, *Ecologic Institut, Germany* 

09:10 am Presentation of the BioSTEP project & workshop goals Holger Gerdes, *Ecologic Institut, Germany* Zoritza Kiresiewa, *Ecologic Institut, Germany* 

09:30 am **Bioeconomy strategies in Austria: Status Quo** Elfriede Fuhrmann, *Bundesministerium für Land und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW),* Österreich

09:45 am Insights: 'Dialogue fora 2016' for the bioeconomy RTI strategy

Erika Ğanglberger, Österreichische Gesellschaft für Umwelt und Technik (ÖGUT)

10:00 am The role of civil society organizations in the bioeconomy: Stakeholder statements

Alexander Bachler, Österreichischer Forstverein, Austria Barbara Hammerl, StadtLABOR Graz, Austria Berthold Schleich, ARGE Abfallvermeidung Ressourcenschonung und nachhaltige Entwicklung, Austria

Rosemarie Stangl, *Institut für Ingenieurbiologie und Landschaftsbau, Universität für Bodenkultur Wien, Austria*Bernhard Zlanabitnig, *Umweltdachverband, Austria* 

10:30 am Coffee break

10:50 am Discussion

BIOSTEP

Language German

12:20 pm **Zusammenfassung der Workshop-Ergebnisse** Holger Gerdes, *Ecologic Institut, Deutschland* Zoritza Kiresiewa, *Ecologic Institut, Deutschland*  Workshop: Energy recovery through open sorption (ErgoS): An innovative technology for gas condensation in biomass combustion systems

Friday
20
January

Room 11a, 03:30 pm - 05:00 pm

Chairman: Ernst Höftberger, Bioenergy 2020+ GmbH, Austria

03:30 pm **ErgoS – the project** Ernst Höftberger, *Bioenergy 2020+ GmbH, Austria* 

03:45 pm Open sorption – principles and process design Babette Hebenstreit, *Bioenergy 2020+ GmbH, Austria* 

04:00 pm Building a pilot plant for heat recovery from biomass-combustion flue gases with an open sorption process
Klaus Paar, Güssing Energy Technologies, Austria

 $\ensuremath{\text{04:15}}\xspace$  pm 3D–CFD–simulation of the experimental absorber for open sorption

Stefan Kleindel, Institute of Thermal Engineering at the Graz University of Technology, Austria

Christoph Hochenauer, Institute of Thermal Engineering at the Graz University of Technology, Austria

 $04{:}30~\mbox{pm}$  Experimental evaluation of open sorption for heat recovery at an experimental scale

Rosemarie Schnetziger, Bioenergy 2020+ GmbH, Austria

04:45 pm Discussion







# **AustroPUR district heating systems Minimal heat loss, maximum flexibility**



**Austroflex Rohr-Isoliersysteme GmbH,** Finkensteiner Strasse 7, A-9585 Gödersdorf-Villach **T** +43 4257 3345-0 **F** +43 4257 3345-15 **E** office@austroflex.com **W** www.austroflex.com

# Supporting programme

All conference participants and their companions are cordially welcome to participate in the evening and cultural programme:

Conference dinner: Thursday, 19th January 2017, 08:00 pm

The conference dinner takes place in the auditorium of the Old University of Graz, Hofgasse 14, A-8010 Graz, and is the highlight of the social programme. Please take into account the limited number of seats. Therefore we ask you to register in time.

Come-together: Wednesday, 18th January 2017, 05:00 pm

We cordially invite you to a common finale with goulash & beer.



City tour Graz: Saturday, 21st January 2017, 10:00 am

Graz is the second largest city of Austria and offers an abundance of sights and a historic old town, which is a must-see as well. For the registration please see the last page in the programme.

# Häuslbauer" trade fair from 19<sup>th</sup> to 22<sup>nd</sup> January 2017



The "Häuslbauer" trade fair for home builders from 19<sup>th</sup> to 22<sup>nd</sup> January 2017 in Graz is the leading industrial trade show in the field of house construction and energy. One main emphasis of the trade fair is to present bioenergy equipment.

Exhibitors include biomass producers, biomass suppliers and distributors, manufacturers of biomass combustion technologies (e.g. wood-pellet, wood-chip and log-wood boilers, wood-pellet and log-wood stoves), manufacturers of biomass CHP technologies, R&D organisations as well as technical and financial consultancy. Visitors include house owners intending to install a new heating system as well as key decision-makers from governments, economy and industry.

INFO: Your ticket of the 5<sup>th</sup> Central European Biomass Conference is also valid for all areas of the "Häuslbauer" trade fair!

# Your supplier for grate bars and wear parts in cast iron

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- » All quantities variety of alloy



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You don't have a drawing?

We generate drawings free of charge.

You have problems with the durability of your grate bars?

Solutions to your individual problems – for all systems?

We customize wear parts since more than 30 years.

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# Poster presentation

Selected conference contributions and projects will be presented within the scope of a poster presentation. The following topics will be presented:

- Bioeconomy
- Biogas
- Fuel characterization
- Biomass heat and combustion technology
- Biomass potential and markets
- Logistics and storage
- Electricity from solid biomass
- Energy crops and residues
- Fuel and substrate preparation
- Pellets
- Sustainability
- New technology markets

The exposition takes place in the foyer of the conference rooms and is accessible during the two days of lectures ( $19^{th}$  and  $20^{th}$  January 2017).

Furthermore there will be individual poster sessions during the conference breaks during which the authors of the posters will be available for further information and questions.



12:30-01:30 pm 03:00-03:30 pm



12:30-01:30 pm 03:00-03:30 pm







# AGRANA Stärke Werk Pischelsdorf – DIE PERFEKTE BIORAFFINERIE.

AGRANA produziert – neben Bioethanol als umweltfreundliche Beimischung zu Benzin – gentechnikfreie Futter- und Düngemittel, Weizenprotein und -stärke, Kleie und biogenes CO2, das u. a. in der Getränkeindustrie eingesetzt wird.

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# Registration

#### **Online**

Register easily and quickly for the 5<sup>th</sup> Central European Biomass Conference on the web. Please find the online registration form at: www.cebc.at/en/registration

### Registration form

You can also simply fill in the attached registration form and send it by post to the Austrian Biomass Association, Franz Josefs-Kai 13, A-1010 Vienna, Austria, or by fax to: +43 (0)1-533 07 97-90.

### **Closing date**

Monday, 9th January 2017

#### Bank details

Please transfer your conference contribution to our account by 11<sup>th</sup> January 2017 (it is absolutely necessary that you state your name + invoice number):

Raiffeisenlandesbank Niederösterreich und Wien (please specify charge distribution)
IBAN: AT43 3200 0061 0047 0153

BIC: RLNWATWWXXX

In case of local payment at the pay desk, <u>a surcharge of 20% will be added</u>. Please note that your registration is valid only if the registration fee is paid in full!

## **Conference fees**



### **Conference programme**

Conference programme
1st Conference day
Pellet day, 18 <sup>th</sup> January 2017
Biogas Day, 18 <sup>th</sup> January 2017
Biogas Excursion 1 + Biogas Day (half-day), 18 <sup>th</sup> January 2017 . 90,-
World Bioenergy Day, 18 <sup>th</sup> January 2017
Bioenergy 2020+ Day, from 02:00 pm 18 <sup>th</sup> January 2017 50,-
<b>2</b> <sup>nd</sup> <b>Conference day,</b> 19 <sup>th</sup> January 2017
3 <sup>rd</sup> Conference day, 20 <sup>th</sup> January 2017
Highlights bioenergy research 2017, 20 <sup>th</sup> January 2017 free
Combination offer
■ 19 <sup>th</sup> and 20 <sup>th</sup> January 2017
■ 18 <sup>th</sup> to 20 <sup>th</sup> January 2017, Pellet Day
18 <sup>th</sup> to 20 <sup>th</sup> January 2017, Biogas Day
18 <sup>th</sup> to 20 <sup>th</sup> January 2017, World Bioenergy Day
■ 18 <sup>th</sup> to 20 <sup>th</sup> January 2017, Bioenergy 2020+ Day
Prices including conference proceedings, lunch, coffee breaks, excl.excursions and side events
Excursions
<b>Excursion I:</b> 18 <sup>th</sup> January 2017, 08:00 am–12:30 pm 30,-
<b>Excursion II–V:</b> 18 <sup>th</sup> January 2017, 08:00 am–06:30 pm each 60,-
Side events
Conference dinner: 19 <sup>th</sup> January 2017, 08:00 pm 50,-
<b>City tour Graz:</b> 21st January 2017, 10:00 am
Discounts
Students (fee per conference day) 30,-

## Conference information

#### Date

18th to 20th January 2017

### **Conference languages**

Simultaneous translation

Language German

Language English

#### Registration

Wednesday, 18th January 2017, 08:00-09:00 am and 12:00 pm-07:00 pm Thursday, 19th January 2017, 08:00-09:00 am

Friday, 20th January 2017, 08:00-09:00 am

#### **Organisation**

Austrian Biomass Association Franz Josefs-Kai 13 A-1010 Vienna, Austria Tel: +43 (0) 1-533 0797-0 Fax: +43 (0) 1-533 0797-90 E-mail: office@biomasseverband.at Website: www.biomasseverband.at

#### Hotel reservation

**Graz Tourist Office** Tel: +43 (0) 316-8075-0 Fax: +43 (0) 316-8075-15 E-mail: info@graztourismus.at Website: www.graztourismus.at Closing date: 21st December 2016 Online hotel reservation form:

https://www.graztourismus.at/kongress/en/5-mitteleuropaeische-biomassekonferenz kongressformular-6414

GRAZ

#### Location

Messe Congress Graz, Messeplatz 1, 8010 Graz, Austria

#### **Directions**

www.messe-graz.at/en/messe/kontakt 14/anfahrt 14?changeLang=en



Imprint: Austrian Biomass Association, Franz Josefs-Kai 13, A-1010 Vienna, Austria; Programme contents are subject to change



# Messe Congress Graz: Route map

Arrival by train: Central Station Graz - Tram 1, 3, 6 or 7 to main square - Tram 4 or 5 to Stadthalle or Jakominigürtel/Messe

Arrival by car: Underground parking entrance via Fröhlichgasse (daily flate rate: EUR 8,-)

Arrival by plane: International Airport Graz-Thalerhof (distance 10km)



# Messe Congress Graz: Floor plan

The rooms for the **5**<sup>th</sup> **Central European Biomass Conference** are located in the 1<sup>st</sup> floor of the Messe Congress Graz. After the registration at the main entrance you will reach the conference rooms through the escalator right next to the registration.



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# Our educational partners:













# Our expo partners:









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1st Conference day	
☐ Pellet day, 18 <sup>th</sup> January 2017	
☐ Biogas Day, 18 <sup>th</sup> January 2017	
☐ Biogas Excursion 1 + Biogas Day (half-day), 18 <sup>th</sup> Ja	nuary 2017 90,-
☐ World Bioenergy Day, 18 <sup>th</sup> January 2017	
☐ Bioenergy 2020+ Day, from 02:00 pm, 18 <sup>th</sup> January	2017
2 <sup>nd</sup> Conference day, 19 <sup>th</sup> January 2017	
3 <sup>rd</sup> Conference day, 20 <sup>th</sup> January 2017	
☐ Highlights bioenergy research 2017, 20 <sup>th</sup> January 2	017 free
Combination offer	
☐ 19 <sup>th</sup> and 20 <sup>th</sup> January 2017	
☐ 18 <sup>th</sup> to 20 <sup>th</sup> January 2017, Pellet Day	
☐ 18 <sup>th</sup> to 20 <sup>th</sup> January 2017, Biogas Day	
☐ 18 <sup>th</sup> to 20 <sup>th</sup> January 2017, World Bioenergy Day	
☐ 18 <sup>th</sup> to 20 <sup>th</sup> January 2017, Bioenergy 2020+ Day .	440,-
Prices including conference proceedings, lunch, coffee	e breaks, excl. excursions & side events
Excursions	
☐ Excursion I: 18 <sup>th</sup> January 2017, 08:00 am-12:30 p	m 30
☐ Excursion II–V: 18 <sup>th</sup> January 2017, 08:00 am–06:3	
Side events	o piii je oo,
	Γ0
Conference dinner: 19 <sup>th</sup> January 2017, 08:00 pm	
City tour Graz: 21st January 2017, 10:00 am	
Discounts	
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Group discount from 10	
All prices in euro and including 20 % VAT	
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Please transfer your payment to our account befor	e 11th January 2017. In case of payment directly at
the conference desk there will be a surcharge of 20%	<u>.</u> All prices are in euros, 20% VAT included.
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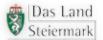






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# Optimisation of biomass-to-end-use chains through densification

Authors: Schipfer Fabian\*, Kranzl Lukas\*, Daniela Thrän<sup>†</sup>

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Themenbereich: Brennstoff- und Substrataufbereitung

#### Abstract:

The European Union plans to shift parts of its economy towards a biobased system commonly referred to as a Bioeconomy in order to reduce carbon emissions and dependencies on fossil fuel imports. Therefore biomass supply will have to scale up, probably also by means of developing and implementing novel densification processes. The objective of this paper is to describe and evaluate generic biomass-to-end-use chains based on densified biomass through pelletisation, torrefaction and pelletisation as well as higher temperature pyrolysis for liquid bioenergy carrier production. Impacts with regard to economic- and environmental criteria in contrast to comparative fossil based fuels and un-densified biomass feedstock are in the spot-light of this work. Therefore, we analyse the processing of wood chips and wheat straw as exemplary cellulosic biomass feedstocks to different bioenergy carrier types namely pellets, torrefied pellets and pyrolysis oil under various framework conditions. A set of transportation modes and distances is simulated to display the delivery of the bioenergy carriers to different types of end users for which the cumulated costs of the respective biomass-to-end-use chain is compared with reference fuels and raw biomass. Next to costs also required energy for bioenergy delivered is calculated for every step throughout the entire biomassto-end-use chains. We find that optimal plant sizes for simple pelletisation are at 40 kt year<sup>-1</sup> for wood chips while theoretical production of torrefied pellets and pyrolysis oil exhibit more favourable economies of scale. For these, more expensive densification technologies about 150 kt year<sup>-1</sup> and 390 kt year<sup>-1</sup> with wood chips as feedstock are calculated with the same frame conditions respectively. Production costs for torrefied pellets (8.8 GJ t<sup>-1</sup>) are comparable to production costs of traditional pellets (8.1 GJ t<sup>-1</sup>) when based on wood chips while pyrolysis of wood chips and torrefaction and pyrolysis of straw are considerable higher. Higher bioenergy carrier production costs at the densification plant gates have to be outweighed by gains through transporting and storing higher energy contents under unchanged expenses. Delivered bioenergy carrier costs at the end user, the consumers' conversion efficiencies and priced in conversion advantages for altered bioenergy carrier specifications through densification determine in the end the most cost effective bioenergy carrier type. Results are expected to vary for different end users of which FT-Diesel via gasification, residential heating and industrial process heat as well as electricity production in cofired coal plants are considered.