Central European Biomass Conference CEBC2023 18th to 20th of January 2023, Graz

Programme

7th Central European Biomass Conference CEBC2023



An event by:



Landwirtschaftskammer Steiermark



Exclusive partners of the conference:

Bundesministerium Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie







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In cooperation with:

Bioenergy – Solutions for the energy and climate crisis

The Austrian Biomass Association, the Styrian Chamber of Agriculture and BEST – Bioenergy and Sustainable Technologies GmbH are hosting the 7th Central European Biomass Conference CEBC2023 in cooperation with Messe Congress Graz from 18th to 20th of January, 2023. The world is facing a radical change. Since the last conference three years ago, a pandemic broke out, Russia has started a war of aggression against Ukraine, and the consequences of climate change are being felt all over Europe.

The time to act is now!

We are in a very challenging situation, but we will have to deal with it. With bioenergy, we have created an innovative instrument for the future over the past few decades. Together with the other renewable energies wind, water, sun and corresponding energy saving measures, bioenergy contributes to getting out of the fossil energy dependency. The prerequisite for the regrowing biomass is the sustainable management of our forests, fields and meadows. With active forest management, Austria is one of the pioneers here. We take less wood from the forest than grows back. Apart from that, the most (climate) efficient use of resources must always be the basis of our actions.

Leading event of the bioenergy sector

Connecting more than 1,400 participants from all around the world, the triannually held conference belongs to the largest bioenergy industry

events worldwide. The simultaneously held "Häuslbauer-trade fair", with its emphasis on the provision of energy in the building sector, reaching out to approximately 40,000 visitors, offers an excellent addition to the conference. Special highlights are the **Winter meeting** in cooperation with Ökosoziales Forum, the **First European Pellet Forum**, numerous workshops of the **IEA bioenergy** and the presentation of the **Highlights of Bioenergy Research**.

Additional topics include the following areas:

- Sustainability at regional and national level and political framework
- climate-smart forestry and timber management
- Technologies for biorefineries
- Negative Emissions through biochar and Bio-CCS
- Bioeconomy: Heat, Power and Fuels
- Fuel characterization and quality assurance and many more.

Numerous excursions to bioenergy destinations and the presentation of the leading companies in the sector link the theoretical approach of the conference to practical applications. The traditional conference dinner, held in the **Old University of Graz** and the daily open **Bioenergy-"Heurigen"** serve as excellent networking opportunities.

We are looking forward to welcoming you at the 7th Central European Biomass Conference CEBC2023!

Univ.-Prof. DI Dr. Hermann Hofbauer, TU Wien, Chairman of the Scientific Committee

ÖkR Franz Titschenbacher President of the Austrian Biomass Association & LK STMK

Fran Toldenleashe



ohchnip Nuber

Mag. Norbert Totschnig, MSc Federal Minister Ministry for Agriculture, Forestry, Regions & Water Management



Networking-Opportunities

All conference participants and their companions are cordially invited to participate in one of the many matchmaking-sessions of the conference:

Get-together: Wednesday, 18th of January, 2023, 18:00

At the end of the first conference day, we will invite you to a traditional Austrian get-together with goulash & beer.

Conference Dinner: Thursday, 19th of January, 2023, 19:30

The conference dinner takes place in the auditorium of the **Old University** (Hofgasse 14, 8010 Graz) and represents the highlight of the social programme of the conference. Please take the limited number of seats into account. Therefore, we ask you for a prompt registration.

Bioenergy-"Heurigen": open daily 10:00 - 19:00

A "Heuriger" is a traditional Austrian tavern selling wine, beer and cold snacks, and thus, a treasure of Austrian culture. We would like to invite you to our continously open **Bioenergy–"Heurigen**". A little snack inbetween guarantees a boost of energy for the widespread conference programme and moreover, serves as an excellent meeting place for networking opportunities.



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"Häuslbauer"– trade fair from 19th to 22nd of January, 2023

The "Häuslbauer"-trade fair $(19^{th}-22^{nd} \text{ of January}, 2023 \text{ in Graz, Styria})$ is the leading trade fair in the field of house construction and energy. One core theme of the event is the presentation of bioenergy technologies.

Biomass producers, suppliers and distributors, manufacturers of biomass combustion technologies (e.g. wood-pellet, wood-chip and log-wood boilers, wood-pellet and log-wood stoves), and manufacturers of biomass CHP technologies will be represented as exhibitors in large numbers at the trade fair. Moreover, R&D organizations as well as technical and financial consultancy firms enrichen the trade fair's programme. The trade fair is designed for house owners with intentions of installing a new heating system as well as key decision-makers from politics, economy and industry.

INFO: The ticket of the 7th Central European Biomass Conference CEBC2023 enables you to visit all areas of the "Häuslbauer"-trade fair for free!



Review of 2020

Scientific

1.400

Presentations

Participants

40.000

eventio

Visitors at the simultaneously held

"Häuslbauer"-trade fair

6

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rsions

Workshops

the bioenergy sector

Visitor's profile



Technical Operators 34 % Scientists 30 % Project management 25 % Other 11 %

Participants from over 56 countries

Germany 34 % Italy 16 % The Netherlands 13 % 11 % Sweden **Great Britain** 8 % France 6 % Spain DOVA 4 % Serbia 3 % Belgien 3 % USA 1 % China 1 %

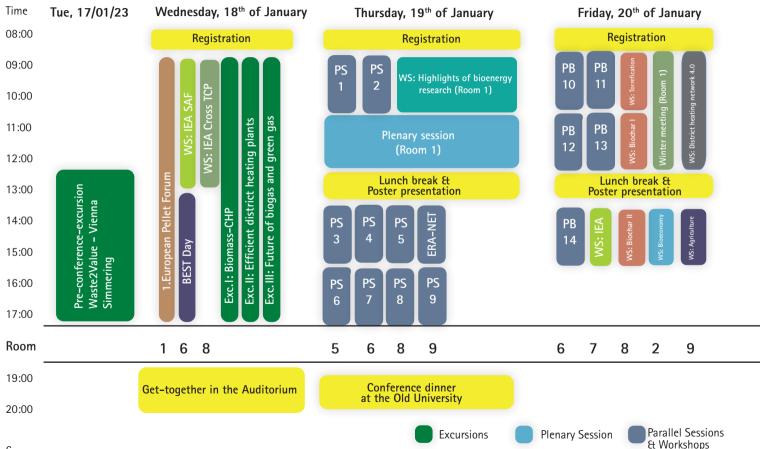
Participants-Feedback 2020

96 % highly recommend the conference 87 % very satisfied participants

5

Programme of the 7th Central European Biomass Conference CEBC2023





Programme Overview

Tuesday, 17th of January, 2023

13:00-17:30 Pre-conference-excursion -Waste2Value - Wien Simmering, p. 14

Wednesday, 18th of January, 2023

from 08:00 on: Registration

08:30-18:30 Excursions I-III, p. 14 & 15

09:00-17:00 1st European Pellet Forum, Room 1, p. 17

09:00-12:30 IEA AMF TCP Task 63. SAF Sustainable Aviation Fuels, Room 6, p. 19

09:00-12:30 WS: IEA Cross TCP: Flexible cross-sectoral energy supply, Room 8, p.21

12:30-13:30 Lunch break

13:30-17:00 BEST Day: Sustainable biorefineries and Digitalization, Room 6, p.23

from 18:00 on: Get-together

Thursday, 19th of January, 2023

from 08:00 on: Registration

09:00-12:30 Highlights of Bioenergy Research, Room 1, p.27

09:00 - 10:30 PS 1: Sustainability of biomass to energy solutions, Room 5, p. 26

Language marked in the detailed programme:

09:00 - 10:30 PS 2: Biochemical Biorefineries, Room 6, p. 26

10:30-11:00 Coffee break & Poster Presentation

11:00 - 12:30 Plenary Session -Scientific & Political Opening, Room 1, p. 31

12:30–13:30 Lunch break & Poster Presentation

13:30 - 15:00 PS 3: Bioenergy - an essential part of the transition of our energy system. Potentials and needs, Room 5, p. 32

13:30 - 15:00 PS 4: BtL Biorefining Processes, Room 6, p. 32

13:30 - 15:00 PS 5: Bioenergy in Practice, Room 8, p. 33

13:30 - 16:00 ERA-NET-Session Room 9, p. 35

15:00–15:30 Coffee break & Poster Presentation

15:30–17:00 PS 6: Clean and efficient combustion and fixed bed gasification, Room 5, p. 36

15:30–17:00 PS 7: Politics and Markets, Room 6, p. 36 15:30-17:00 PS 8: Green gas biorefining processes, Room 8, p. 37

15:30-17:00 PS 9: Biomass-based negative emission technologies, Room 9, p. 37

19:30 Conference Dinner

Friday, 20th of January, 2023

from 08:00 on: Registration

09:00 - 13:00 Winter meeting of the Ökosoziales Forum, Room 1, S. 41

09:00 - 10:30 WS Torrefication, Room 8, S. 43

09:00-12:30 WS: District heating network 4.0, Room 9, p. 47

09:00-10:30 PS 10: COST ACTION - Special session of WIRE - CA20127 - Waste biorefinery technologies for accelerating sustainable energy processes, Room 6, p.42

09:00 - 10:30 PS 11: Digital methods and tools, Room 7, p. 42

10:30–11:00 Coffee break & Poster Presentation 11:00-15:00 WS: Biochar, Room 8, p. 45

11:00 - 12:30 PS 12: Biomass fuel and ash characterization, Room 6, p. 46

11:00 - 12:30 PS 13: Flexible bioenergy and biomass-based hybrid energy systems, Room 7, p. 46

12:30–13:30 Lunch & Poster Presentation

13:30-15:00 WS: Digital technologies in forestry and agriculture, Room 9, S. 49

13:30-15:00 WS Biochar Part II: Production, upgrading and use of green carbon and biomass ashes, Room 8, S. 50

13:30-15:00 WS: Bioeconomy: Potentials and limits of "green" growth in the Austrian forest-based bioeconomy, Room 2, S. 50

13:30-15:00 WS: IEA TCP Special: Digitalization in district heating supply, Room 7, S. 51

16:00 Conference Closing



Language German

What awaits you at the 7th Central European Biomass Conference CEBC2023





"The CEBC is one of the most important conferences in the bioenergy industry worldwide. In addition to established processes, such as thermo-chemical recycling, plenty of new technologies have been developed in recent years and are about to be launched - the CEBC offers a comprehensive overview on all of them."

Univ.-Prof. DI Dr. Hermann Hofbauer, TU Wien, AUT



"The current situation clearly demonstrates the urgent need of a phasing out of fossil fuels. The CEBC gives an up-to-date insight into the diverse technical solutions that are available along the entire bioenergy value chain and offers the opportunity for discussions with top experts from all over the world."

DI Dr. Christian Rakos, proPellets & WBA, AUT



"Flexible bioenergy is the key to a climate-neutral energy supply. The CEBC 2023 offers an interesting forum for the diverse concepts of flexible bioenergy use in the different energy sectors."

Prof. Dr. Ing. Daniela Thrän, DBFZ, GER



"Nowadays it is fundamental to consider the valorization of biomass as a priority. The CEBC represents a unique hub, where industries and research institutes build solutions and can discuss fundamental principles.

Ass. Prof. Stefano Grigolato, University of Padua, ITA



"The time window that we still have left to effectively counteract climate change is closing rapidly. Bioenergy can help us reduce greenhouse gas emissions while, simultaneously, generating income."

DI Dina Bacovsky, BEST, AUT



"Sustainable forest management is an essential contribution to climate protection and the energy transition. With the adaptation of the forests, biogenic carbon stores are protected, environmental services and regional added value are preserved and, at the same time, renewable raw materials are made available. The CEBC puts a spotlight on these developments."

Prof. Dr. Hubert Röder, HSWT/TUM Campus Straubing, GER



"The combination of bioenergy use with CO2 capture or biochar production can achieve negative CO2 emissions, which are necessary in order to achieve the climate targets. At the CEBC, the latest work on such key technologies will be discussed and in exchange, innovations will be developed."



Univ.-Prof. DI Dr. Tobias Pröll, BOKU, AUT

"Biomass is an essential part of the energy transition to 100% renewable energies. The CEBC2023 is an excellent opportunity to exchange views with representatives of science and industry."

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



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Messe Congress Graz: Floor Map



The rooms for the 7th Central European Biomass Conference CEBC2023 are located on the 1st floor of the Messe Congress Graz. You can reach the registration and the conference rooms with an escalator.



Pre-conference-excursion

Waste2Value – Wien Simmering with transfer to Graz

13:00 Meeting point: 11. Haidequerstraße 6, 1110 Vienna

■ For a limited number of attendees (typically for those travelling via Vienna) BEST – Bioenergy and Sustainable Technologies GmbH offers a tour of its **Syngas Platform Vienna**. The core element of the platform is a 1 MW second generation Dual Fluidized Bed Steam Gasifier. This plant is specifically designed to also handle challenging feedstock, such as low quality biomass, sewage sludge or sorted fractions of MSW.

The tour will also include a visit of BEST's downstream synthesis plants (eg. the barrel per day Fischer-Tropsch plant), which are directly connected to the gasifier.

The tour will start on the 17th of January, 2023 at 13:00 at 11. Haidequerstraße 6, 1110 Wien–Simmering (entrance to the industrial waste incineration plant of Wien Energie). The site is about 15 minutes from Vienna Airport and 30 minutes from the city centre. Attendees will be transferred to Graz (Messe) after the tour.

17:30 Arrival Graz

Cost EUR 100,-

Registration: https://best-research.eu/content/preconferenceexcursion Further requiries: office-wien@best-research.eu

Excursions

Tuesday

lanuary

Excursion I Biomass-CHP

09:00 Departure Messe Congress Graz

10:30 - 12:00 FKF Forst- und Gutsverwaltung

- 200 kWel Syncraft®-Wood gas CHP-plant Heat for shrimp farming
- Biochar as barbecue charcoal

12:00 Departure

12:15 - 13:15 Lunch

- 13:30 15:00 Cycle Energy
- Steam-CHP 4,3 MWel 12 MWth
- Pelleting
- Generation of process steam for industry

15:00 - 16:30 Münzer Bioindustry GmbH Biodiesel from steam heat from Cycle Energy

18:00 Arrival Messe Congress Graz





Wednesday

lanuary



Excursions

Excursion II **Efficient district heating plants**

09:00 Departure Messe Congress Graz

10:00 - 12:00 Nahwärme Strass

3 MW Biomass boiler plus absorption heat pump from Steps Ahead

12:00 Departure

12:45 - 13:45 Lunch

14:00 - 16:00 Stadtwerke Gleisdorf - Nahwärme

- 800 kW with heat pump from waste water at sewage treatment plant
- utilization of digester gas

16:15 - 17:45 Nahwärme St. Ruprecht a.d. Raab

- 1.800 kW Biomass boiler
- 1.590 m² thermic solar plant and 138.000 Liter buffer tank
- 18:30 Arrival Messe Congress Graz





Excursion III Future of Biogas and Green Gas

10:00 Departure Messe Congress Graz

10:30 - 11:30 Energie Graz

Solar storage project Helios Graz

12:15 - 13:30 Lunch

14:00 - 15:15 Biogas Uidl Future-proof biogas plants - where are we heading?

- 15:30 17:30 Renewable Gas Field
- Production of green hydrogen and green gas from biogas and excess PV power 18:00 Arrival Messe Congress Graz





Organisation: The meeting point for Excursion I and II is at 08:30, for Excursion III at 09:30 at the conference registration. Departure starts after a successful registration (meeting point 1st floor, Messe Congress Graz).

Language: German-speaking guides with English-speaking support



We are engineers with 30 years of experience, providing national and international clients with renewable energy solutions in the following areas: biomass district heating • electricity generation from wood and biogas • photovoltaics • solar thermal power • waste heat recovery • energy storage • building technology



1st European Pellet Forum, Room 1, 09:00 – 17:00 Use of Pellets in the Heating Market – Current Developments & Prospects





"The European pellet markets are currently characterized by rapid growth and enormous volatility. The European Pellet Forum offers an ideal opportunity to get an idea of the current developments in these turbulent times and to exchange ideas with industry representatives from all over Europe."

Chair: Christian Rakos, CEO proPellets Austria, AUT

09:00 - 10:00 - International Market Development

Big picture – Recent developments in international pellet markets Gilles Gauthier, *Hawkins Wright Ltd., GBR*

Pellet market situation in Southeastern Europe Branko Glavonjic, University of Belgrade, SRB

Coping with tight pellet markets – the Austrian experience Christian Rakos, *proPellets Austria*, *AUT*

10:00 - 11:00 Panel debate with European Pellet Associations: Current developments and future perspectives

Pablo Rodero, Avebiom, SPA Eric Vial, Propellet France, FRA Martin Bentele, Deutscher Energieholz- und Pellet-Verband e.V., GER Matteo Favero, AIEL, ITA Adam Sarnaszek, Biocontrol, POL

11:00 - 11:30 - Coffee Break

11:30 - 12:15 - Policy situation and communication

Status of RED III negotiations and other important policy files in Brussels, Irene di Padua, *Bioenergy Europe*, *BEL*

Managing communication challenges of the pellet sector, Yana Kravtsova, *Enviva*, *USA*

12:15 - 12:45 Speed dating of participants to facilitate networking

12:45 - 14:00 Lunch break

14:00 - 15:30 Market Situation from Industry

Market development of pellet mills, Lars Bloch, Andritz, DNK

Pellet boiler market outlook, Stefan Ortner, ÖkoFEN, AUT

Pellet stove outlook, Marco Palazzetti, Palazzetti, ITA

Perspectives of a pellet producer, Helmut Schellinger, Schellinger KG, GER

The pellet trading landscape, Michael Christensen, CM Biomass, DNK

Converting the energy supply of industries to pellets, Staffan Lundegårdh, *BK Tech, SWE*

15:30 - 16:00 Coffee Break

16:00 - 17:00 Underpinning the case for wood pellets - Voices of Science

Biomass and climate mitigation Michael Obersteiner, University of Oxford, AUT

Ecobalance / CO₂ balance of different Forest use scenarios Hubert Röder, Fachhochschule Weihenstephan-Triesdorf, GER

17:00 NETWORKING & FLYING DINNER

Detailed information can be found at: www.pellet-forum.eu

Simultaneous translation







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WS: IEA AMF TCP Task 63: Sustainable Aviation Fuels Language English National strategies and challenges for the market uptake of Sustainable Aviation Fuels, Room 6, 09:00 – 12:30



"Internationally coordinated policies are essential in bringing Sustainable Aviation Fuels to market."

Chair: Dina Bacovsky, BEST, AUT



"SAF hold great potential for reducing emissions from aviation."

Co-Chair: Doris Matschegg, BEST, AUT

09:00 Opening

The IEA AMF TCP Task 63 is organizing an international workshop on sustainable aviation fuels. The workshop includes status quo, challenges for market introduction and national strategies to overcome those challenges.

Sustainable aviation fuels have the potential to reduce greenhouse gas emissions from the aviation sector. However, this potential remains largely untapped as such fuels currently represent only 0.05% of total jet fuel consumption. The aim of Task 63 is to lay the foundation for collaborative RD&D work on sustainable aviation fuels within AMF TCP. Thus, the Task is focusing on identifying stakeholders and experts, assessing the national situation of the participants, and facilitating information exchange on the main challenges in launching sustainable aviation fuels. https://iea-amf.org/content/events/web_seminars/workshop_task63_cebc 09:00 **Opening** Dina Bacovsky, *BEST*

National Strengths and Strategies – Europe Doris Matschegg, *BEST*

National Strengths and Strategies – Brazil Juliana Rangel & Paula Barbosa, EPE

National Strengths and Strategies – USA Michael Wang, ANL

10:30 Coffee Break

Block: Market introduction of Sustainable Aviation Fuels - Best practice Examples and Challenges

Caphenia's PBtL – "Power & Biogas to Liquid" Process – an unique technology route to syn gas Kay Kratky, *Caphenia*

Market introduction of Sustainable Aviation Fuels (tbc.) Barbara Achleitner, DHL Air Austria

Panel Discussion Holger Friehmann, FH Joanneum Anna Pachinger / Walter Reimann (tbc.), Austrian Airlines Kay Kratky, *Caphenia* Barbara Achleitner, *DHL Air Austria*

12:30 End





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WS: IEA-Cross-TCP: Towards a flexible, cross-sectoral energy supply With a special focus on the flexibility provision via the heating sector Room 8, 09:00 – 12:30





"A sustainable energy and resource system requires intelligent, cross-sectoral interaction of different sustainable technologies. To achieve this, the flexibility of controllable technologies must be significantly improved so that they can compensate for the volatility of noncontrollable technologies."

Chair: Markus Gölles, BEST, AUT

A sustainable energy supply can only be achieved by a flexible, crosssectoral energy system utilizing the specific advantages of the various renewable technologies. In this workshop possible roles of different technologies will be discussed based on a previous discussion of the users' needs among the different sectors. A special focus will be given on the flexibility provision via the heating sector. By bringing together different users, representing municipal and industrial energy supply, and technological experts from different IEA Technology Collaboration Programmes (TCP) the workshop will encourage a holistic discussion.

09:00 **Opening** Markus Gölles, *BEST, AUT*

Block A - Future needs of users and the specific role of biomass

Wien Energie's vision of a sustainable energy and resource supply of Vienna Teresa Schubert, Wien Energie, AUT

Digitalization of energy management systems- optimization of internal energy use as an industrial company Maria Lechner, INNIO Jenbacher, AUT Flexible Bioenergy and System Integration Elina Mäki, VTT Technical Research Centre of Finland, FIN

Use Case: Syngas platform Vienna for utilization of biogenic residues Matthias Kuba, BEST,AUT

10:30 Coffee Break

11:00 Block B - Flexibility provision via the heating sector

Transformation of District Heating and Cooling Systems towards high share of renewables Ingo Leusbrock, AEE INTEC & IEA DHC Annex TS5, AUT

Opportunities offered by long-term heat storages and large-scale solar thermal systems Viktor Unterberger, *BEST & IEA SHC Task 68, AUT*

Possibilities through digitalization on the example of District Heating and Cooling Dietrich Schmidt, Fraunhofer IEE & IEA DHC Annex TS4, DEU

12:00 Interactive discussion of audience and presenters

12:30 Lunch break



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BEST-Day: Sustainable biorefineries and digitalization, Room 6, 13:30 - 17:00



"BEST has continuously developed from mostly technology related research towards a strong focus on full process chains and system integration. Today, digital methods and tools are our valuable companions for supporting industrial implementation of sustainable biorefineries and renewable energy technologies."

Chair: Walter Haslinger, BEST, AUT

The BEST day provides highlights of industry relevant research activities of BEST and focusses on sustainable biorefineries and digitalization as enabler for successful technology development and technology implementation.

13:30 Session 1: Biorefineries

Learnings from biomass combustion towards future bioenergy applications

Manuel Schwabl, Fixed Bed Conversion Systems

Green Carbon perspectives for regional sourcing and decarbonization Elisabeth Wopienka, Fixed Bed Conversion Systems

Bioconversion processes for renewable energy and/or biological carbon capture and utilisation Bernhard Drosg, Bioconversion Systems

Second generation biomass gasification: The Syngas Platform Vienna - current status and outlook Matthias Kuba, Fluidized Bed Conversion Systems



Bundesministerium Bundesministerium Arbeit und Wirtschaft Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie





Language English

Utilization of syngas for the production of fuel and chemicals - recent developments and outlook Gerald Weber. Fluidized Bed Conversion Systems

Wednesday lanuary

15:00 Coffee break

11:00 Session 2: Digital methods, tools and sustainability

Evaluation of different numerical models for the prediction of NOx emissions of small-scale biomass boilers Michael Essl. Modelling & Simulation

Digitalization as the basis for the efficient and flexible operation of renewable energy technologies Markus Gölles, Automation & Control

Smart Control for Coupled District Heating Networks Valentin Kaisermayer, Automation & Control

Das Land

Wirtschaft, Tourismus, Regione Wissenschaft und Forschung

Integrated energy solutions for a decentral energy future - challenges and solutions Michael Zellinger, Smart- & Microgrids

Wood-Value-Tool: Techno-economic assessment of the forest-based sector in Austria Marilene Fuhrmann, Sustainable Supply & Value Chains

17:00 End

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Parallel Session 1 Sustainability of biomass for energy solutions Room 5, 09:00 – 10:30

Chair: Gerfried Jungmeier, FH Joanneum, AUT

09:00 Opening

Greenhouse gas balances of selected forest und wood utilization scenarios Stefan Füchsl, *TUM Campus Straubing, GER*

Climate change mitigation and forest management Ernst-Detlef Schulze, *Max-Planck-Institut, GER*

Integrated Assessment Framework for Low iLUC Risk Certification Beike Sumfleth, DBFZ, GER

Environmental and social impacts of biofuel production using waste wood integrated in a large-scale steel mill Maria Hingsamer, *Joanneum Research*, AUT

Practical experiences from the implementation of the RED II Amparo Arellano, *SURE Sustainable Resources, GER*

10:30 Coffee Break



Parallel Session 2 Biochemical Biorefineries Room 6, 09:00 – 10:30

Thursday **19.** January

Chair: Marco Klemm, DBFZ, GER

09:00 Opening

Syngas fermentation for the production of fuels and chemicals from organic residues Werner Fuchs, *BOKU*, *AUT*

Utilization of the biopolymer chitosan as coagulation agent for the treatment of digestate (FFG project BioFlock) Wolfgang Gabauer, *BOKU*, *AUT*

Biowaste as resource for combined generation of materials and energy: Concept and operation of a pilot-scale biorefinery with steam explosion treatment and two-staged anaerobic digestion as core elements Gregor Sailer, Uni Hohenheim, GER

Efficient methanol synthesis of reformed biogas Carl Fritsch, FiW RWTH Aachen, GER

Innovative solutions for resource- and cost-efficient production of biomethane in agriculture Elina Mäki, *VTT Technisches Forschungszentrum Finnland*, *FIN*

10:30 Coffee Break

X

Language English

Language English

Workshop: Highlights of Bioenergy Research 2023, Room 1, 09:00 - 12:30

National and international results from the IEA Bioenergy Tasks



"From the beginning of the IEA Austria was involved in renewable energy research programs. Currently Austria participates in 23 technology cooperation programs (TCPs). International collaboration in the field of bioenergy research remains key in order to develop the sector and to approach climate goals." Henriette Spyra, Head of Directorate General III – Innovation BMK. AUT

09:00 Opening

The series of events "Highlights of Bioenergy Research" was launched by the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) with the aim of creating a platform for all experts and stakeholders in this area.

Within the framework of the IEA research cooperation, Austria is intensively involved in various tasks of the Technology Collaboration Program (TCP) Bioenergy. The aim is, among other things, to contribute to the decarbonization of heat and power supply, for example by substituting fossil fuels in industry and the development of integrated biorefineries.

Current developments and results from the tasks are presented in "Highlights of Bioenergy Research". You can expect exciting lectures on bio-based value chains for a circular bioeconomy, integrated biorefineries for the decarbonization of industry, sustainable biomass CHP plants and much more. Transnational research and development projects for the sustainable use of bioenergy from the ERA-NET Bioenergy represent another important focus.

The continuously updated programme can be found at: <u>https://nachhaltigwirtschaften.at/en/events/2023/20230119-highlights-bioenergy.php</u>



Sabine Mitter, Dept. Energy and Environmental Technologies, BMK

Host: Hannes Bauer, BMK, AUT

09:00 **Opening** Sabine Mitter, *BMK*, *AUT*

Highlights of IEA Bioenergy Dina Bacovsky, BEST, AUT

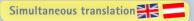
Updates from the IEA Task 40: Usage of bio-based value chains Fabian Schipfer, *TU Wien, AUT*

Updates from the IEA Task 32: Biomass Combustion Christoph Schmidl/Morten Tony Hansen, *BEST, AUT*

Updates from the IEA IETS Annex 11: Industrial Biorefineries Christoph Brunner, *AEE, AUT*

11:00 Plenary session

Part 2 of Highlights of Bioenergy Research 2023 takes place on Thursday afternoon in the ERA-NET-Session.



Bundesministerium
 Klimaschutz, Umwelt,
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 Innovation und Technologie

Thursday **19.** January

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Side-Event: Award of biomass heating plants and heating networks by BMK and klimaaktiv QM Heizwerke, Room 2, 10:30 – 11:00

10:30 Opening

In the context of the 7th Central European Biomass Conference CEBC2023, Federal Minister Leonore Gewessler (BMK) and klimaaktiv QM Heizwerke award Austrian biomass heating plants and local heating projects. The showcase projects meet the highest technical as well as economic efficiency criteria and are awarded for the use of renewable energy sources, their coherent overall concepts and the special commitment of the plant operators.

klimaaktiv QM Heizwerke is an Austrian-wide quality management programme for biomass heating plants and local heating networks. Participation is mandatory for all plants in Austria with a total installed thermal capacity of 400 kW or a network length of 1000 meters or more. The aim of the management system is to increase the technical quality and efficiency of the plants through accompanying quality control during planning, construction and operation.

Since 2014, AEE – Institute for Sustainable Technologies (AEE INTEC) has been managing the klimaaktiv QM Heizwerke program on behalf of the BMK. In addition to the support and further training of quality officers, planners and operators, central components are the further development of the QM system, quality assurance as well as the transfer of know-how and the networking of all stakeholders.

Bundesministerium Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie







Thursday

January





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Plenary Session

Solutions for the energy and climate crisis, Room 1, 11:00 – 12:30

Host: Andreas Jäger, Klimajäger & ORF-Journalist

11:00 Scientific & Political Opening

Opening Statements:

- Franz Titschenbacher, President ÖBMV & LK STMK
- Günter Liebel, General Secretary, Federal Ministry of Agriculture, Forestry, Regions and Water Management
- Hermann Hofbauer, TU Wien & Chair of the Scientific Committee

Opening remarks by Martin Graf, Executive Director, Energie Steiermark

The energy and climate strategy of the Federal Government, Leonore Gewessler, Federal Minister for Climate Action, Environment, Mobility, Innovation and Technology

Movie premiere: The natural carbon cycle



"Austria is a global leader in bioenergy technology and research with its research programs. The Highlights of Bioenergy Research present a comprehensive overview of the latest developments and potential contributions to achieving energy and climate goals."

Leonore Gewessler, Bundesministerin, BMK

Keynote: New ways for climate protection: negative emissions with bioenergy, Tobias Pröll, BOKU

Panel discussion: Bioenergy - Solutions for the energy and climate crisis

- Leonore Gewessler, Federal Minister for Climate Action, Environment, Mobility, Innovation and Technology
- **Günter Liebel,** General Secretary, Federal Ministry of Agriculture, Forestry, Regions and Water Management
- Franz Titschenbacher, President ÖBMV & LK STMK
- Simone Schmiedtbauer, EU-Delegate
- Tobias Pröll, BOKU
- Franz Maier, President Umweltdachverband
- Bernd Vogl, CEO Klima- und Energiefonds
- 12:30 13:30 Lunch break & Poster presentation





Simultaneous translation







Parallel Session 3

Bioenergy – an essential part of the transition of our energy system – Potentials and needs Room 5, 13:30 – 15:00

Chair: Herbert Lechner, AEA Austrian Energy Agency, AUT

13:30 Opening

The possible role of biofuels in a climate neutral transportation sector in Austria Gerfried Jungmeier, Joanneum Research, AUT

The role of biofuels in the transition toward sustainable transport system Amela Ajanovic, *TU Wien*, *AUT*

On the economics and potentials of biomass-based green gases in Austria Reinhard Haas, TU Wien, AUT

The strategic role of bioenergy Dina Bacovsky, *BEST*, *AUT*

Facilitating Biomethane production via cross-border ownership transfer of certificates Julian Auderieth, AGCS Gas Clearing and Settlement AG, AUT

15:00 Coffee Break & Poster Presentation

Parallel Session 4 BtL Biorefining Processes Saal 6, 13:30 – 15:00



Chair: Tobias Pröll, BOKU, AUT

13:30 Opening

Language English

Residual forest biomass for combined production of food and biofuel Shaojun Xiong, *Schwedische Universität für Agrarwissenschaften, SWE*

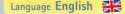
Demonstration of the coupling of the novel aqueous phase reforming process with the Fischer- Tropsch process at lab scale Stefan Arlt, *BEST, AUT*

TO-SYN-FUELS: Sustainable fuels made from biomass residues – demonstration on long-term operating plant Stefan Eder, *Fraunhofer UMSICHT, GER*

Sustainable aviation and marine fuel from hydrothermal liquefaction of sugarcane bagasse and straw: techno-economic and environmental assessments Raquel de Souza, Universität Campinas, BRA

Solar-aided hydrothermal liquefaction of agricultural waste Charikleia Poravou, CERTH, GRC

15:00 Coffee Break & Poster Presentation



Parallel Session 5

Bioenergy in Practice Saal 8, 13:30 – 15:00

Chair: Klaus Engelmann, LK STMK, AUT

13:30 Opening

"QM Heizwerke" supports the sustainable heat transition – Best practice, examples and benchmarking Sabrina Metz, *AEE Intec, AUT*

Active flue gas condensation with absorption heat pumps – operating experience, new technological concepts and savings potential Harald Schrammel, *Steps Ahead*, *AUT*

The cycle of nature in the biochar-heating plant Tobias Ilg, Energiewerke Ilg GmbH, AUT

Climate impact of biomass small combustion plants calculated using real measurement data from the TFZ Robert Mack, *TFZ Bayern, GER*

MURREAL – Murtaler Real Laboratory – On the way to 100% renewable energy to 2040 Josef Bärnthaler, *Energieagentur Obersteiermark*, AUT

15:00 Coffee Break & Poster Presentation



Matchmaking at the popular "Bioenergy–Heurigen" Room 14, Wednesday, 18th to Friday, 20th of January 10:00 – 17:00



Throughout the 7th Central European Biomass Conference CEBC2023, visitors have the opportunity to discover common business opportunities and build synergies, while enjoying a glass of wine or beer next to a traditional taste of Austrian cuisine. In a welcoming environment you can meet business partners and investors from all over the world. The unique matchmaking event can be used before or after interesting scientific lectures and workshops and thus, serves as an ideal snack in-between. Take this opportunity and benefit from the international range of the conference. Prost!





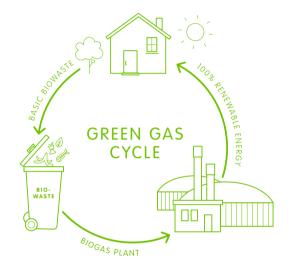


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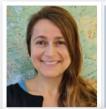
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ERA-NET Bioenergy – Transnational bioenergy research within the framework of the bioeconomy: Strengthening the energetic and material use of biogenic residues and waste, Room 9, 13:30 – 15:00





"Biomass is also a limited resource. The session will focus on several transnational research projects aiming at improving the valorisation of biogenic wastes and residues for energy and bioproducts."

Chair: Carina Lemke, FNR, GER



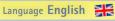
"The most important Austrian renewable energy sector is bioenergy, amounting 53% of total renewable energy consumption. International exchange and joint research activities in this field enable industrial circular economy and energy independency."

Co-Chair: Hannes Bauer, BMK, AUT



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Part II of Highlights of Bioenergy Research takes place in this ERA-NET-Session

13:30 Opening

ERA-NET Bioenergy: Pulling bioenergy research together Carina Lemke, FNR Fachagentur Nachwachsende Rohstoffe, GER

BioHEAT – Development of a process chain based on opportunity fuels for heat production in industrial processes Matthias Kuba, *BEST*, *AUT*

VARESI – Valorisation of industrial residues for a sustainable industry Wolfgang Gabauer, *BOKU*, *AUT*

Up-Whey - Upstream processing of lactose whey for bulk chemicals and energy production Michael Mandl, *tbw research*, *AUT*

PUMA – Profitable 2G-bioethanol plants – Parallel Use of Fractionated Lignin in Multiple Applications Juha Aloha, *Bisy* – *Biology for Synthesis, AUT*

15:00 End

Parallel Session 6 Clean and efficient combustion and fixed bed gasification Boom 5, 15:30 – 17:00

Chair: Manuel Schwabl, BEST, AUT

15:30 Opening

Operating license for stoves – emission reduction by training the operator of a stove Claudia Schön, *TFZ Straubing*, *GER*

Gasification of waste wood assortments in a floating fixed bed reactor Michael Kresta, DBFZ, GER

Efficiency increase of biomass combustion systems by a modular COlambda optimization: method and results from long-term verification Christopher Zemann, *TU Graz, AUT*

Cost efficiency of local biomass heating plants: The case of Austria Bernhard Mahlberg, *IWI Industriewissenschaftliches Institut, AUT*

Small scale agri-gasification: gasifier plus engine prototype optimization Valerio Magalotti, Yanmar R&D Europe S.r.I., ITA

17:00 End

Parallel Session 7 Politics and Markets Room 6, 15:30 – 17:00



Chair: Hubert Röder, HSWT/TUM Campus Straubing, GER

15:30 Opening

Bioenergy: Lessons learned – historical review, status quo, outlook Manfred Wörgetter, *Senior Consultant, AUT*

Market uptake support for intermediate bioenergy carriers – MUSIC project results Rainer Janssen, WIP Renewable Energies, GER

Thermal upgrading by Torrefaction/Carbonization, a supply and demand side sector update Michael Wild, International Biomass Torrefaction Council (IBTC), BEL

Production capacity and outlook for advanced biofuels worldwide Andrea Sonnleitner, *BEST*, *AUT*

Bioenergy in the Green Deal Jean-Marc Jossart, *Bioenergy Europe, BEL*

17:00 End

Parallel Session 8 Green gas biorefining processes Room 8, 15:30 – 17:00



Chair: Hermann Hofbauer, TU Wien, AUT

15:30 Opening

Utilization of biomass for high-purity hydrogen production with chemical looping Bernd Stoppacher, *TU Graz, AUT*

Upgrading of producer gas from small scale biomass air gasification: hydrogen yield enhancement over a char bed reactor Francesco Patuzzi, *Free University of Bolzano, ITA*

First results of mass and energy balances of a 1 MW advanced dual fluidized bed steam gasification demonstration plant David Kadlez, *TU Wien*, *AUT*

Dual fluidized bed steam gasification of plastic rejects: Behavior of tar formation in a pilot plant with a counter-current column and flexible fuel input Miriam Huber, *BEST*, *AUT*

ReGas 4 Industry – Gases from renewable residual sources for industry Florian Benedikt, *TU Wien, AUT* Parallel Session 9 Biomass-based negative emission technologies Room 9, 15:30 – 17:00

Chair: Tobias Pröll, BOKU, AUT

15:30 Opening

Overview on the new Commission Proposal on the EU certification for carbon removals and next steps in the legislative process Manolis Karampinis Prizzi, *Bioenergy Europe*, *BEL*

Findings of the BECCS pilot plant at Stockholm Exergi Vertreter von Fabian Levihn, Stockholm Exergi, SWE

 \textbf{CO}_2 capture technologies for biomass and waste combustion CHP units Stefan Penthor, Wien Energie, AUT

Technical storage potential for biogenic CO2 in the geological structures of Austria Holger Ott, *MU Leoben*, *AUT*

17:00 End

* requested

Language English

Thursday

lanuary

17:00 End

Language English 🛛 💒

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PROGRAMM

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Block I: Zukunft der Waldwirtschaft - Welche Rolle spielt die Kreislaufwirtschaft?

- 09.00 Eröffnung und Begrüßung
- 09.10 Europäische Perspektive für die Branche Waldwirtschaft
- 09.25 Die Rolle der Leistungsfähigkeit der europäischen Wälder für eine resiliente EU
- 09.40 Kreislaufwirtschaftsstrategie Bedeutung für die Waldwirtschaft
- 09.55 Bioökonomie und Kreislaufwirtschaft aus Sicht der Waldund Holzpolitik

Block II: Kreisläufe in der Waldwirtschaft schließen

- 11.00 Materialkreislauf Ansprüche an den Rohstoff Holz
- 11.25 Kohlenstoffkreislauf Was Bioökonomie leisten kann
- 11.50 Energiekreislauf Raus aus der Abhängigkeit

12.15 Podiums- und Publikumsdiskussion: Österreichs Weg zu mehr Bioökonomie durch aktive Waldbewirtschaftung **Freitag, 20. Jänner Messe Graz** Messeplatz 1 8010 Graz

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Language German

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Room 1, 09:00 - 13:00

Parallel Session 10

Waste biorefinery technologies for accelerating sustainable energy processes – Special session of WIRE – CA20127, Room 6, 09:00 – 10:30

Chair: Katharina Fürsatz, BEST, AUT



Language English

09:00 Opening

Biomass as a sustainable and renewable raw material for a greener future Rui Galhano dos Santos, C5Lab, CERENA, IST-Ulisboa, POR

Valorization potential for energy of Arundo donax biomass cultivated in heavy metal contaminated soils Leandro Gomes, NOVA School of Science and Technology, POR

A semi-detailed kinetic model for biomass pyrolysis and gasification: status, challenges and perspectives Alessio Frassoldati, *Politecnico Milano*, *ITA*

Biomethane production from African fodder cane biomass cultivated in heavy metal contaminated soils Barbara Rachele Ciaramella, *Universität Catania*, *ITA*

Biorefinery technologies integration in a biomass unit for bioenergy production and zero-carbon emissions Charalambo Chasos, Frederick Universität Zypern, CYP

10:30 Coffee Break & Poster Presentation

Parallel Session 11 Digital Methods and Tools Room 7, 09:00 – 10:30



Chair: Markus Gölles, BEST, AUT

09:00 Opening

Development of multi-scale models of biomass based chemical looping processes Thomas Steiner, *BEST*, *AUT*

Application of flexible tools in energy intensive industries Nikolaos Margaritis, CPERI & CERTH, GRC

Optimizing the value of solid biomass-based (hybrid) systems in the context of the cellular approach Lukas Richter, *DBFZ, GER*

Design of a digital twin for a pilot plant for synthetic natural gas production Stefan Jankovic, *TU Wien, AUT*

Operational optimization and error detection in biomass boilers by model-based monitoring: methods and practice Christopher Zemann, BEST & *TU Graz, AUT*

10:30 Coffee Break & Poster Presentation

Workshop: Thermal upgrading of Biomass by Torrefaction and Carbonization Room 8, 09:00 – 10:30

Chair: Michael Wild, IBTC, BEL

In this workshop some of the successfully implemented torrefaction initiatives will be presented and the development from pure fuel product to metallurgical process input and higher value products from carbonized biomass will be discussed. The introductory presentations will be followed by a panel discussion, which also invites the audience to participate.

About the IBTC:

Torrefied biomass is one of the most advanced solid biofuels and the only viable source of renewable solid carbon, with the potential to become a standardised commodity and a tangible alternative to fossil fuels and fossil carbon on all levels at a global scale. The IBTC sees sustainably produced torrefied biomass efficiently replacing fossil coal in all industries and applications and sequestring atmospheric carbon permanent into the soil by this speeding up the global transition towards a carbon-neutral economy and the limitation of CO2 in the atmosphere.

biomasstorrefaction.org

09:00 Opening

Language English 🕌

Friday **20.** January

International Biomass Torrefection and Carbonisation Council (IBTC) – new developments Michael Wild, Wild&Partner, AUT

Green Coal – new carbonization technologies Lukas Schirnhofer, *Polytechnik, AUT*

Non-woody biomass: Pushing towards alternative feedstock for torrefaction Wolfgang Moser, Next Fuel, SWE

Natural Based Binders – Why binders are not a necessary evil, but rather a performance enhancer that also opens new doors Carsten Mergelmeyer, *C&D*, *GER*

10:00 Panel discussion

10:30 End





Exterior photo of the Green Carbon plant with the carbonized material filled in BIG BAGs filled carbonized material ©Polytechnik

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WS: District heating network 4.0 Room 9, 09:00 – 12:30







"ACR institutes are outsourced research departments for SMEs, which at the same time offer support for day-to-day problems."

Chair: Richard Zweiler, GET, AUT

ACR (Austrian Cooperative Research) as the largest R&D organization in Austria for applied science supports small- and medium enterprises in terms of an external R&D department.

The ACR-institutes AEE – Institute for Sustainable Technologies (AEE IN-TEC), Güssing Energy Technologies (GET), Institute for Industrial Research (IWI) and the Austrian Tiled Stove Association (KOV) have started a joint platform called "Nahwärmeverbund 4.0", wherein they developed a series of tools for optimization of district heating plants. The outcomes of the analysis of selected district heating systems as well as the R&D-portfolio will be presented to support district heating operators.

Chair: Richard Zweiler, GET, AUT

09:00 Opening

Presentation of the local heating network 4.0 Klaus Paar, *GET, AUT*

Benchmarking of biomass heating plants Christian Ramerstorfer (AEE) & Bernhard Mahlberg (IWI), AUT

Current challenges from the operator's point of view

Anton Taschner, Bio Fernwärme Sieggraben eGen & Heizwerkeverband Burgenland, AUT

Subsidies for biomass local heating Christof Horvath, KPC, AUT

World Cafe on the questions of the current challenges for biomass heating plants, short-term solutions to the problems and required external support Gastgeber der Tische des World-Cafe: AEE, GET, IWI

Summary of workshop results and conclusion Richard Zweiler, GET, AUT

12:30 Lunch break & poster presentation

Language German

Parallel Session 12 Biomass fuel and ash characterization Room 6, 11:00 – 12:30

Chair: Daniel Kuptz, *TFZ Technologie- und Förderzentrum im Kompetenzzentrum für Nachwachsende Rohstoffe, DEU*

11:00 Opening

Characterisation of waste wood for the use in floating fixed bed gasification Anna Szepannek, MCI Management Center Innsbruck, AUT

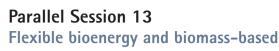
Do recovered wood streams always fulfill criteria for combustion? Martin Weigl-Kuska, *Holzforschung Austria, AUT*

Quality monitoring of practical wood chips samples Josef Rathbauer, *HBLFA Francisco Josephinum - BLT Wieselburg, AUT*

Accurate determination of the application critical parameter Cr(VI) in Biomass Ash Michael Ecker-Eckhofen, *BEST*, *AUT*

Towards a more accurate and fast determination of parameters impacting the calorific value of solid biofuels Anne Mette Frey, *DTI Dänisches Technologieinstitut*, *DNK*

12:30 Lunch Break & Poster Presentation



hybrid energy systems Room 7, 11:00 - 12:30

Chair: Beike Sumfleth, DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, DEU

11:00 Opening

Overview on flexible bioenergy options and implementation Daniela Thrän, UFZ Helmholtz-Zentrum für Umweltforschung, GER

Increasing the fuel flexibility of biomass firing systems through online sensors Jürgen Oischinger, Fraunhofer UMSICHT, GER

Increasing the flexibility of a fixed-bed biomass gasifier through model-based control strategies: method and practical verification Clemens Hollenstein, *TU Graz & BEST, AUT*

Solutions and elements for the flexibilization of biomass-based district heating grids Joachim Kelz, AEE – Institut für Nachhaltige Technologien, AUT

Predictive control of biomass and biogas-based CHPs at the intersection between the electricity grid and heating networks – Improving electricity market participation through optimization and demand side management

Daniel Muschick, BEST, AUT

Language English

Friday

lanuary

Workshop: Biochar, Room 8, 11:00 – 15:00 Biochar – a valuable additive for advanced materials



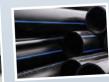
"Biochar is more than just a carbon sink – biochar composite materials make a significant contribution to achieving the climate goals, can improve product quality and at the same time be economically sensible."

Chair: Stefan Martini, BEST, AUT

Biochar convinces with its high level of diversity due to its origin and production process. The wide range of properties can even be expanded by appropriate post-processing steps. This flexibility can be used in so-called composite materials to achieve tailor-made material properties. In addition to the substitution of fossil carbon, which today is (still) indispensable in numerous industrial processes (carburizing of steel and cast materials, chemical industry, etc.), biogenic carbon can also open up new possibilities due to its diverse nature. In the workshop, possible applications of biochar as a material component will be presented on the example of current projects in the fields of plastic and concrete industry. The potential of biochar as a carbon-source in the material manufacturing industry, the necessary steps for its further development and undesirable developments, will be discussed with experts of the manufacturer and the user side.













11:00 Welcome and Workshop-Introduction Stefan Martini, *BEST, GER*

Experiences in biochar-polymer composite production Andrea Brunetin, *NADIR*, *ITA*

Dielectric properties of biochar, biochar-polymer composites and possible applications Oliver Pischler, *Graz University of Technology, IHS, AUT*

Discussion

Introduction Green Carbon Lab Elisabeth Wopienka, BEST, AUT

12:30 Mittagspause

Project presentation Alps4greenC – Implementation pathways for sustainable Green Carbon production Konstantin Moser, *BEST, AUT*

Green concrete – from climate killer to climate saver Julia Roth, *CarStorCon Technologies*, *GER*

Electrically Conductive Biocomposites Based on PHBV and Wood-Derived Carbon Fillers Christoph Unterweger, *Wood K plus, AUT*

Fuel cell membrane electrode assembly with green carbon support Minoj Gnanaseelan, FILK Freiberg Institute, GER

Part 2 see next page

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Workshop: Biochar Part II

Production, upgrading and use of green carbon and biomass ashes

Room 8, 13:30 - 15:00

Potential of bottom ashes from non-woody biomass combustion as sustainable supplementary cementitious materials Volker Lenz, DBFZ, GER

Influence of carbonization process and additives on the quality of biochar pellets Niklas Illich, BEA Institut für Bioenergie GmbH, AUT

Emission reduction, nutrient retention and carbon sequestration in the storage of liquid manure with bio-char from wood gasification Lucas Schuchter, MCI Management Center Innsbruck, AUT

Low-tech CO² negative emission district heating supply based on pyrolysis of low-value biomass and biochar soil storage Tobias Pröll, *BOKU*, *AUT*

15:00 Coffee Break & Poster Presentation

Workshop: Potentials and limits of "green" growth in the Austrian forest-based bioeconomy Room 2, 13:30 - 15:00



Chairs: Tobias Stern, University of Graz, AUT Claudia Mair-Bauernfeind, University of Graz, AUT Raphael Asada, University of Graz, AUT

The transformation of the economy towards a biobased economy is on the political agenda in the European region. In addition to reduced dependence on fossil resources and lower greenhouse gas emissions, the European Commission expects the creation of new business opportunities and impulses for the economy and employment rate in rural areas.

Six students of Environmental Systems Science (University of Graz, Graz University of Technology) have examined the potentials and limitations of Austria's forest-based bioeconomy for one semester. Three development paths mentioned in research and policy were analyzed in great detail - their findings will be discussed in the workshop. In particular, the workshop discusses the existing raw material, efficiency and innovation potentials of the Austrian forest-based sector until 2040 and, moreover, main factors limit the contribution of these potentials to "green" growth.



Workshop: Digital technologies in agriculture and forestry - current status and outlook

Room 9, 13:30 - 15:00

= HBLFA Francisco Josephinum Wieselburg





"Evervone is talking about digitalization. Which applications have arrived in practice? This workshop will attempt to provide an answer to that."

Chair: Josef Rathbauer. HBLFA Francisco Josephinum. BLT Wieselburg, AUT

Digitalization is omnipresent in all areas of our lives. Smartphones are used totally naturally for communication, research and many other applications. In agriculture and forestry, digital technologies are used in various areas. Meanwhile there exist sophisticated systems (farm management systems) which process data from the cultivation of agricultural land and animal husbandry to make it available for documentation, for economic assessment and as a basis for management.

Other applications are section-specific farming, estimation of biomass yields and the coordinated use of machines and equipment.

13:30 Opening Josef Rathbauer, HBLFA Francisco Josephinum, AUT

What can modern farm management and information systems offer? Reinhard Streimelweger, Knotenmanager Wieselburg - Haus der Digitalisierung, AUT

Field management and logistics: How to benefit from satellite data and digital tools Johann Prankl und Andreas Prankl. Farmdok GmbH

Digital tools für site-adapted fertilization Lukas Handl, Josephinum Research, AUT

Artificial Intelligence (AI) in Agriculture: Challenges, Benefits and Use Cases

Peter Riegler-Nurscher, Josephinum Researchr, AUT

15:00 End



Workshop: Digitalisation in District Heating Supply – with data to optimized systems and new business opportunities – Special Session organized by IEA DHC Annex TS4 Digitalisation of District Heating and Cooling Systems, Room 7, 13:30 – 15:00





"The main technology for modernizing our (central) heat supply and incorporating significant amounts of heat from renewable sources into our energy system is digitalization."

Chair: Dietrich Schmidt, Fraunhofer IEE, GER



"Increasing digitalization is allowing district heating systems to be operated more efficiently and flexibly."

Co-Chair: Markus Gölles, BEST, AUT

13:30 Opening

Integration of digital pocesses for optimised operation of and efficient inclusion of renewable heat sources into district heating Dietrich Schmidt, *Fraunhofer IEE, GER*

End-to-end optimization software for district energy systems Peter Ott, *Danfoss, AUT*

Remote readout as a chance for heating grid optimisation via intelligent use of data Hans Peter Gremel, *Kamstrup, AUT* Digitalization of transfer stations in heating networks with LoRaWAN and methods for automated operational monitoring and return temperature reduction

Dirk Pietruschka, HfT Stuttgart / University of Applied Science Stuttgart, GER

DistrictLab-H: a tool to support temperature reduction efforts in District Heating Systems Mathieu Vallee Gronauer, CEA, FRA

15:00 End





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Poster Presentations, Foyer

Selected conference contributions and projects will be presented within a poster presentation. The following topics will be presented in detail:

- Bioeconomy
- Biogas
- Fuel characterization
- Biomass heat and combustion technologies
- Biomass potentials and markets
- Logistics and Storage
- Electricity from solid biomass
- Energy crops and Residues
- Fuel and substrate preparation
- Pellets
- Sustainability
- New markets for technologies

The poster exhibition takes place in the foyer of the Messe Congress Graz and is accessible throughout the conference days $(19^{th} \text{ and } 20^{th} \text{ of January, } 2023).$

Furthermore, there will be guided poster sessions during the conference breaks, which enables the visitors of the conference to ask their questions to the scientists directly.

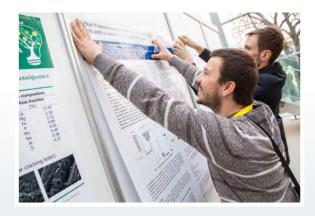


10:30-11:00 Uhr 12:30-13:30 Uhr 15:00-15:30 Uhr



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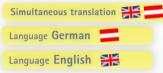
Conference Information



Date

18th to 20th of January, 2023

Conference languages



Registration

Wednesday, 18th of January, 2023, from 08:00 on Thursday, 19th of January, 2023, from 08:00 on Friday, 20th of January, 2023, from 08:00 on

Organization 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 Internet: www.biomasseverband.at



Room reservation

Graz Tourismus Tel: +43 (0) 316-8075-0 Fax: +43 (0) 316-8075-15 E-Mail: info@graztourismus.at Internet: www.graztourismus.at

Online-Booking:

https://www.graztourismus.at/kongress/de/kongresskalender/7.mitteleuropaeische-biomassekonferenz ccb 5958

Place

Messe Congress Graz, Messeplatz 1, 8010 Graz, Austria

Arrival https://mcg.at/locations/messe-graz/



Impressum: Austrian Biomass Association, Franz Josefs-Kai 13/4, A-1010 VIE; Programme contents are subject to change.



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Registration

Online

Register easily and online for the 7th Central European Biomass Conference CEBC2023. Please find the online registration at: www.cebc.at.

Registration form

You can also simply fill in the attached registration form and send it via post to the Österreichischen Biomasse-Verband, Franz Josefs-Kai 13, 1010 Vienna or via Fax to +43 (0) 1/533 0797-90.

Closing date of registration

Friday, 13th of January, 2023 at 12:00

Bank details

Please transfer your conference contribution until 13th of January, 2023 to our bank account (you need to state your name and the invoice number): Raiffeisenlandesbank Niederösterreich und Wien IBAN: AT43 3200 0061 0047 0153 BIC: RLNWATWW (please specify the charge distribution)

In case of payment at the conference pay desk on one of the conference days, a surcharge of 20% will be added. Please note that your registration is valid only, if the registration fee is fully paid!

Conference fees



1. Conference Day, 18th of January, 2023

1. European Pellet Forum:	.EUR 400,-
Early bird until 15 th of December, 2022	.EUR 300,-
BEST Day, IEA SAF WS, IEA Cross TCP WS	.EUR 200,-
2. Conference Day, 19 th of January, 2023	.EUR 300,-
3. Conference Day, 20 th of January, 2023	.EUR 200,-

Excursions

Excursion I–III: 18th of January, 2023, 08:30 - 18:30 . . . each EUR 60,-

Conference dinner

Conference dinner: 19th of January, 2023, 19:30 EUR 60,-

All-In-Package

All-In-Package (excl. European Pellet Forum) EUR 600,-Discounts*

Pupils	.per conference day EUR 10 ,-
Students (<25 years)	.per conference day EUR 50 ,-
Group discount from 10 persons on	10%

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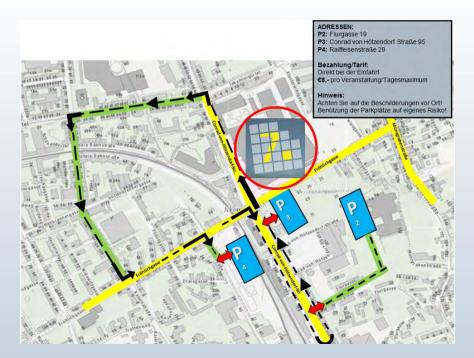
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Messe Congress Graz: Route Map

Arrival by train: Central Station Graz - Tram 1, 3, 6 or 7 to Hauptplatz - Tram 4 or 5 to Stadthalle or Jakominigürtel/Messe Arrival by car: see image below

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

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- maximizing advertising effects in print and online media of the CEBC2023
- reporting from the latest news about new market opportunities and trends in the field of bioenergy.

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Media Partnership

- Logo on the programme, in the conference proceedings and on the CEBC homepage
- Free display of your paper at the conference in the media office
- A0-poster presentation of your paper in the poster exhibition corner "Bioenergy Press"
- Reader tours to the CEBC2023
- Free admission to the conference and excursions for journalists
- Contact: DI Antonio Fuljetic-Kristan,

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Association-Partnership

- Organization of workshops (lecture rooms, incl. equipment and catering at cost price)
- Groups of more than 20 people: organization of lectures and field trips
- Logo on the programme, in the conference proceedings and on the CEBC homepage
- A0-poster presentation of your association in the poster exhibition corner "Bioenergy Associations"
- Association trips to the CEBC
- Contact: Dr. Christoph Rosenberger,
 - rosenberger@biomasseverband.at, Tel: +43 (0) 1-533 0797-25

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- Logo on the programme, in the conference proceedings and on the CEBC homepage
- Free admission (excl. meals) for groups of 10 students and more
- A0-poster presentation of your institution in the poster exhibition corner "Schools and Universities"
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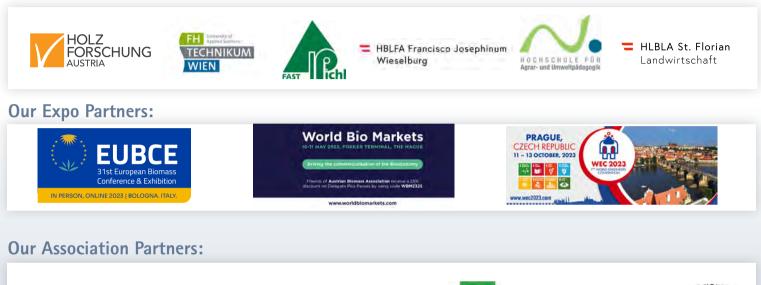


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2. Conference Day, 19 th of January, 2023	EUR 300,-	
□ 3. Conference Day, 20 th of January, 2023	EUR 200,-	
Excursions Excursion I-III: 18 th of January, 2023, 08:30-	18:30 each EUR 60,-	
Conference dinner Conference dinner: 19 th of January, 2023, 19	:30 EUR 60,-	
All-In-Package □ All-In-Package (excl. European Pellet Forum	n) EUR 600,-	
Students (< 25 years)	(per conference day) EUR 10,- (per conference day) EUR 50,- 10%	
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Registration

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