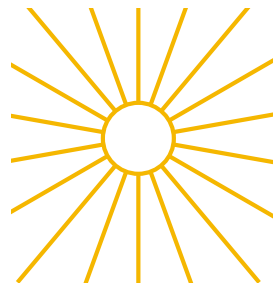


Highlights of the Conference



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European Commission, Joint Research Centre
Directorate for Energy, Mobility and Climate



EUBCE

31st European Biomass
Conference & Exhibition

IN PERSON,
ONLINE

Bologna
2023

5 – 8 June | Conference & Exhibition
9 June | Technical Tours



Is Carbon the enemy? What would the EU do without it?

- **renewable carbon is essential in the chemical industry that avoids or substitute the use of any additional fossil carbon**
- **biogenic carbon - a source of renewable carbon: sustainable agriculture & forest can provide the biogenic C and nutrients for bioeconomy**
- **sustainable biomass supplies can increase considerably - synergy is key!**
- **we have to take into account the trade-offs and synergies and integrating biomass conversion for multiple purposes to contribute to the overall sustainable bioeconomy**
- **carbon based initiatives – carbon sequestration/carbon farming are key for sustainable farming**



Biomass: Headwinds and Opportunities around the Globe

- **international perspective: policy and market drivers in different regions and for industry**
- **the sense of urgency: the window of opportunities is closing**
- **no scenario possible without bioenergy toward reaching Net Zero Emissions by 2050**
- **we need to massively expand sustainable feedstocks: will be there enough biomass?**
- **carbon offsetting – highly controversial, how to compensate to reach net zero emissions**



Topic 1 Sustainable Resources for Decarbonising the Economy

- **biomass resources from crops from abandoned, marginal, contaminated lands and organic waste for providing sustainable bioenergy and biofuels**
- **spatial analysis and models for biomass supply chain design and demonstration of multiple spatial tools and databases for mapping and analyses**
- **promising solutions for optimisation of crop yields and improving agronomic practices together with phytoremediation for crops on marginal and contaminated land**
- **methods and processes delivering multiple products from AD for soil amendment and carbon storage improving the knowledge on agro practices together with phytoremediation**
- **algae and aquatic biomass: production systems and applications; resilient algae consortia overcoming limitations experienced by single species approaches**



Topic 2 Sustainability, Impacts and Policies

- **social-economic aspects in circular economy along with economic and environmental sustainability impacts; indicators to assess circularity and monitor the circular economy**
- **trade-offs on delivering ecosystem services from biomass production; ecosystem services have to consider all benefits: both private goods and wider public goods / societal benefits**
- **environmental assessments and LCA of bioenergy, carbon capture, biochar applications, carbon sink of bio-based material - use environmental assessments more widely in LCA**
- **perspectives of alternative solutions for agricultural systems with limited resources (water or soil) and the alternatives for reutilising food agroresidues**
- **overview about the integration of biomasses into EU bioeconomy; flexible bioenergies and systems integration**



Topic 3 Biomass, Bio-based Products and Bioenergy Integration

- **progress in thermochemical process gasification for ultra-clean syngas for a range of renewable fuels and chemical applications-biomethanol, bioethanol and chemicals**
- **integrated concepts and environmental impact for biorefineries employing a range of technologies to optimal output, for SAF production and other high-added value products**
- **examples and advancements on flexible biogas plants, smart control systems and power-to-gas systems; bioenergy as key role to phase out from the largely dominant fossil heat**
- **cases on the valorization of bioresources for market uptake of intermediate bioenergy carriers and bio-based chemicals**



Topic 4 Biomass Conversion for Bioenergy

- **technology development of small-scale combustion in small-scale pellet boilers, increased efficiency and zero emissions**
- **novel methods for emission reduction through catalysts and additives, novel CO2 removal technology for carbon capture based on a dual bed calcination reactor**
- **developments in gasification and gas cleaning for hydrogen-rich syngas, bio-methane and biochar; developments towards polygeneration concepts**
- **development of pretreatment processes of biomass feedstocks upgrading fuel quality and valorization options and processes of various residues in combustion processes**
- **biogas developments, novel solutions and innovative biogas innovative research a good technological base for further expansion of biogas production in the EU up to 2030**



Topic 5 Biomass Conversion to Intermediate Bioenergy Carriers and Sustainable Biofuels

- **advances in technologies, and key breakthroughs for the production of SAF, renewable hydrocarbon biofuels and bio-LPG with renewable hydrogen**
- **new technologies & process designs for the conversion of biomass and CO₂ with H₂ to fuels, solutions combining sustainable production pathways for BtL, PBtL and PtL**
- **progress in pyrolysis, novel concepts and integrated processes, valorisation of the pyrolysis products and bio-oil upgrading for renewable fuels and bio-carbon**
- **investigations on catalytic and non-catalytic supercritical water gasification and process development; innovative biotechnological processes for bio-hydrogen through dark fermentation and supercritical water gasification**



Topic 6 Biomass Conversion to Bio-based Products and Chemicals

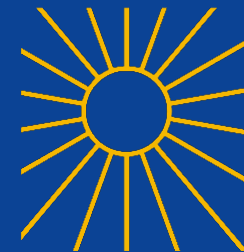
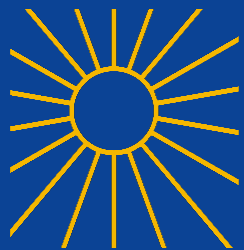
- **diverse lignocellulose biomass utilization options with various pretreatment methods - alcohol-based pretreatment, alkali hydrolysis and thermo-chemical fractionation**
- **novel green processes, approaches, solvents, and catalysts to obtain bio-based platform chemicals, products and biofuels**
- **conversion of low value stream into high value products/chemicals through fermentation, hydrothermal carbonization and pyrolysis processes**
- **process developments lignocellulosic feedstock processing and transformation to intermediate products (biofuels and chemicals) through gasification & syngas fermentation;**
- **innovative biological ways for CO₂ conversion and for the future use of CO₂ for biomethane and co-produce further value-added products**



Some key messages

- **renewable carbon avoids or substitute the use of any additional fossil carbon**
- **the main question is be there enough biomass?**
- **biomass resources from crops from abandoned, marginal, contaminated lands and organic waste**
- **trade-offs and ecosystem services – we have to consider all private and societal benefits**
- **technology advances, multiple options ready to be implemented**





Thank you

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Keep in touch



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