Highlights of the Conference

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# EUBCE 2018

**26th European Biomass Conference & Exhibition**

**14 - 17 May Conference & Exhibition | 18 May Technical Tour**

## Overview

- **1375 Registered Participants**
- **65 Countries**
- **49 Associations + International Organisation**

## Participants by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>21%</td>
</tr>
<tr>
<td>Germany</td>
<td>11%</td>
</tr>
<tr>
<td>Italy</td>
<td>10%</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>6%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>6%</td>
</tr>
<tr>
<td>Sweden</td>
<td>4%</td>
</tr>
<tr>
<td>Finland</td>
<td>3%</td>
</tr>
<tr>
<td>Spain</td>
<td>3%</td>
</tr>
<tr>
<td>France</td>
<td>3%</td>
</tr>
<tr>
<td>Belgium</td>
<td>3%</td>
</tr>
<tr>
<td>USA</td>
<td>3%</td>
</tr>
<tr>
<td>P.R. China</td>
<td>2%</td>
</tr>
</tbody>
</table>

24 EU countries represented, equivalent to 77% of all EUBCE registered participants.

## Participants by Sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Biofuels</td>
<td>12%</td>
</tr>
<tr>
<td>Biomass feedstock</td>
<td>9%</td>
</tr>
<tr>
<td>Biomass production</td>
<td>8%</td>
</tr>
<tr>
<td>Biorefineries</td>
<td>8%</td>
</tr>
<tr>
<td>Biogas - biomethane</td>
<td>7%</td>
</tr>
<tr>
<td>Waste management</td>
<td>5%</td>
</tr>
<tr>
<td>Gasification</td>
<td>5%</td>
</tr>
<tr>
<td>Energy crops</td>
<td>4%</td>
</tr>
<tr>
<td>Solid Biofuel</td>
<td>4%</td>
</tr>
<tr>
<td>Integrated energy systems</td>
<td>4%</td>
</tr>
<tr>
<td>Power</td>
<td>4%</td>
</tr>
<tr>
<td>Chemicals</td>
<td>4%</td>
</tr>
<tr>
<td>Heating and cooling</td>
<td>4%</td>
</tr>
<tr>
<td>Bioliquids</td>
<td>4%</td>
</tr>
<tr>
<td>Biopower</td>
<td>3%</td>
</tr>
<tr>
<td>Algae</td>
<td>3%</td>
</tr>
<tr>
<td>Bio-fertilizers</td>
<td>2%</td>
</tr>
<tr>
<td>Energy storage</td>
<td>2%</td>
</tr>
<tr>
<td>Bio-plastics</td>
<td>2%</td>
</tr>
<tr>
<td>Bioenergy trade</td>
<td>2%</td>
</tr>
<tr>
<td>Short rotation forestry</td>
<td>2%</td>
</tr>
<tr>
<td>Others</td>
<td>1%</td>
</tr>
</tbody>
</table>

## Participants by Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Sector/University/Research Organisation/Laboratory/ Research &amp; Development</td>
<td>50%</td>
</tr>
<tr>
<td>Policy/Financial/Associations/Governamental Organizations/Chamber of Industry and Commerce</td>
<td>9%</td>
</tr>
<tr>
<td>Engineering/Energy Consulting/Architectural Consulting/Building/Urban Planning</td>
<td>7%</td>
</tr>
<tr>
<td>Equipment Manufacturer/Technology Provider</td>
<td>4%</td>
</tr>
<tr>
<td>Distributor/Supplier/Assembler/Supply chain</td>
<td>2%</td>
</tr>
<tr>
<td>Grid/Network/Electricity/Utility/Energy Companies</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>27%</td>
</tr>
</tbody>
</table>

## Conference

- 811 Presentations and Further Activities
- 3169 Authors and Co-authors from 83 Countries
- 4 Parallel Events + 8 Workshops
- 156 B2B Matchmaking Meetings

## Participants by Profile

<table>
<thead>
<tr>
<th>Profile</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>61%</td>
</tr>
<tr>
<td>Project management</td>
<td>11%</td>
</tr>
<tr>
<td>Executives/Managers</td>
<td>15%</td>
</tr>
<tr>
<td>Financial, Marketing &amp; Sales</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
</tr>
</tbody>
</table>

[www.eubce.com](http://www.eubce.com)
SCIENTIFIC OPENING: APPLICATIONS OF SCIENCE IN INDUSTRY

- Recycling carbon for fuel, food, chemicals and jobs - an opportunity and not a liability
- Technology is ready, many plants are operational
- CO$_2$ emissions from transport in Europe are rising
- We need all sustainable solutions, there is no one solution to the problem
- Denmark - a world leader on biogas production and gas grid injection
  - 35% green gas into natural gas grid by 2035 in Denmark
  - 500 biomethane plants in Europe in 2016
OPENING ADDRESSES AND PANEL DISCUSSION

The vital role of biomass for climate protection and sustainable development.
How to make it happen.

- Energy system - a major change is going to take place by 2050. Bioenergy is central to a decarbonized energy system.
- In addition to energy and climate, additional environmental and social benefits needs to be accounted for.
- Biofuels crucial to decarbonize the transport sector (e.g. aviation, maritime, heavy duty transport).
- There is no competition but complementarity between bioenergy and other options (e.g. transport electrification).
- The level of ambition of decarbonisation in Europe is not large enough – other markets are developing fast.
- We need a common communication.
PLENARY SESSION BP.1 Climate and Sustainability

- LCA and ILUC: large variation of results, system boundaries, reference systems, assumptions are determinant, models based on worst case scenarios
- More robust sustainability criteria needed, to address carbon stocks and indirect effects risks
- Many opportunities and benefits from bioenergy on C sequestration and climate change adaptation, but also risks
- Forest biomass can make an important contribution to bioenergy (“Cheap, Quick, Simple, Popular”)
- No black or white for bioenergy, no good or bad – good communication essential
PLENARY SESSION CP.1 Innovation and Integration

- Mapping of the biomass yields for various energy crops confirming the > 1 bn tons biomass potential in the US
- Ultra-low emissions, fuel flexible residential biomass heating based on an extreme air staging technology
- Integrated thermo-chemical biomass conversion to syngas and hydrogen from renewable electricity
- Integrated process (intermediate pyrolysis, gas cleaning and catalytic reforming) ready for industrial applications
- Drop-in diesel by hydrofaction from residues, high efficiency, high fuel flexibility, ready for commercialization
TOPIC 1: BIOMASS RESOURCES

Biomass potentials and mobilisation

- GIS tools for spatially explicit assessments. Climate change impacts on spatial distribution & feedstock availability
- ILUC-free, sustainable biomass streams for energy - “unloved” wood in Quebec

Integrated biomass production

- Integrated food & non-food systems and bioeconomy oriented cropping systems

Waste valorization

- Bio-plastic (PHA) production from urban biowaste

Algae production system

- Investigations of growth conditions of microalgae
- Learning from algae-based nutraceuticals for setting up sustainable algae biorefineries

Energy Crops

- New energy crops, cold-tolerant sorghum, miscanthus, benefits of energy crops for remediating contaminated
- Cultivation of industrial crops on marginal lands
TOPIC 2: BIOMASS CONVERSION TECHNOLOGIES FOR HEATING, COOLING & ELECTRICITY

Biomass combustion

- Investigations of combustion of a range of fuels (agri, woody biomass), corrosion, agglomeration, fouling
- Biomass combustion modelling and optimisation, fuel flexible and low-emission

Gasification

- Design, analysis and testing on gasifiers, instrumentation and control systems
- Hot gas cleaning using char or oxygen transport membranes

Biogas

- Evaluation of biogas feedstock composition and yield and economics of anaerobic digestion
- Biogas from biological methanation of syngas, microbial power-to-gas
- Technical-economic evaluation of bio-LNG production
TOPIC 3: BIOMASS CONVERSION TECHNOLOGIES FOR FUELS, CHEMICALS & MATERIALS

Thermally treated solid biofuels

- Comprehensive study targeting a number of feedstocks and conversion technologies

Oil-based biofuels and bio-alcohols

- Supercritical methanolysis of waste cooking oil for biodiesel production
- Novel pretreatment and fermentation technology for lignocellulosic butanol production

Biorefineries

- Biorefinery concepts for chemicals, lignin biorefinery approach
- Sustainable biofuels from seaweed and processes for seaweed biorefinery
- Large potential of conversion routes for biochemicals and biopolymers

Renewable chemicals from biomass

- Improved BtL process with renewable H2
- Developing pyrolysis for bio-oils, synthetic fuels and green H2
- HTL studies of lignocellulosic biomass, microalgae and sewage sludge
TOPIC 4: BIOMASS POLICIES, MARKETS AND SUSTAINABILITY

Biomass strategies and policies

➢ Prospects of biofuels in the transport sector and in aviation in particular
➢ Least cost options for transport: electrofuels needed for GHG mitigation targets but high costs
➢ Exploiting marginal land and contaminated land for bioenergy

Sustainability

➢ Bioenergy, socio-economic benefits and the UN Sustainable Development Goals
➢ Regional and landscape-based approaches to facilitate bioenergy development

Climate impacts

➢ Quantifying the climate impact of bioenergy using dynamic LCA

Environmental impacts

➢ Particulate and gas emissions from bioenergy (bio-oil, wood stoves)
➢ Analysing the spatial environmental impacts from sugarcane expansion in Sao Paulo State
TOPIC 5: BIOENERGY INTEGRATION IN ENERGY SYSTEMS

- Holistic approach for integrated bioenergy solutions in future energy systems
- Integration of biogas plants in electricity grids with high share of variable power and demand-orientated power generation
- Bioenergy integration, optimisation and intelligent control in DH systems with heat storage
- The role of biomass for small renewable district heating and cooling grids
INDUSTRY SESSIONS

Policies for biobased products and energy

- Supply potential of alternative aviation fuels in the EU
- Overview of the impact of bioenergy additional values of the whole bio value chain

Biomass mobilization

- The use of wood for energy and market prospects
- Remote sensing systems for estimating wood energy from forests

Biomass combustion

- Test methods for firewood stoves based on different standards not reflecting true/practical conditions
- Studies on PM and NOx emissions from wood pellet stoves and large boilers

Thermochemical conversion

- Gasification and synthesis process for transport fuels
- Woody biomass to biochar via pyrolysis

Biorefineries

- Renewable diesel produced commercially at a UPM pulp and paper mill
- Lignocellulosic biomass fractionation to a value-added range of products and derivatives
Parallel EVENTS

**Danish bioenergy solutions and Denmark as testing ground**
- key elements of Danish bioenergy policy: bioenergy and climate goals, support for RTD, regulation and incentives

**EU policy and industry perspectives on biofuels in a global context**
- global perspective of advanced biofuels deployment; opportunities and threats from the policy framework

**Sustainability and governance of bioenergy supply chains**
- IEA Bioenergy project on methods & tools to assess the sustainability of various biomass supply chains - the way forward.

**SEEMLA - Sustainable exploitation of biomass for bioenergy from marginal lands in Europe**
- suitable innovative land-use strategies for sustainable production of bioenergy on marginal lands while improving general ecosystem services
Parallel EVENTS

Production and utilisation options for Solid Recovered Fuels
- the production and utilisation of SRF an important element in waste management practises, as part of the circular economy.

Increase in Reduction and Recovery of Expired Food - i-REXFO under EU LIFE
- handling food waste and using bio waste in the energy chain – current experience, barriers and bottlenecks

Sino-Europe Low-Carbon Integrated Waste Management Seminar
- Integrated Waste Management systems, replication of the demonstrated integrated solutions

Bioenergy towards 2030
- role of bioenergy in the Energy Union, SET-Plan, outlook and priorities for bioenergy in the research and innovation agenda

Getting (some) numbers right - derived economic indicators for the bioeconomy
- growth and job indicators for EU and MS and economic indicators of the emerging sector of bio-based chemicals

Bioeconomy trends in developing countries
- examples and views of bioeconomy in the Global South focusing on the value chains and different governance forms
COMMUNICATION

SLIDO interactive system for communication within the Conference
89 active users, 62 questions

Twitter: 94,400 views

Good communication is essential – simple and understandable
Thank you to all Presenters, Chairpersons, the Scientific Committee and Organisers