EERA European Energy Research Alliance BIOENERGY

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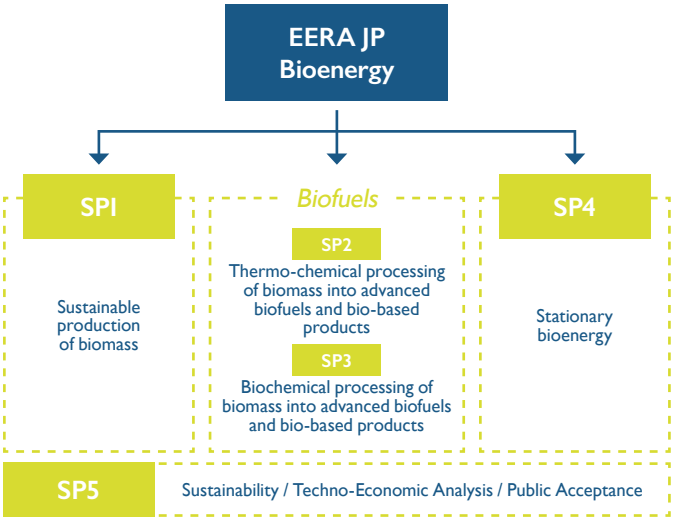
EERA Bioenergy brief news

NEW APPOINTMENTS: JOINT PROGRAMME COORDINATOR AND SUBPROGRAMME COORDINATORS

The EERA Bioenergy Steering Committee meeting that took place in Brussels, at SINTEF office, on 28 June addressed relevant issues related to the Joint Programme structure and guidelines.

The complete draft of the new SRIA – Strategic Research and Innovation Agenda was presented. This draft included the new proposed structure of the Joint Programme, in which the present Subprogrammes has been reorganized in a more intuitive way and a new Subprogramme (SP5) focused on Sustainability, techno-economic analysis and public acceptance was included.

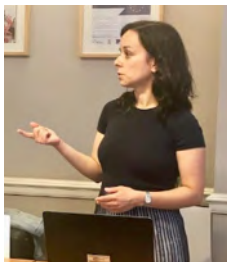


Two Subprogramme Coordinators were re-elected by the EERA Bioenergy Steering Committee:

- SP1 Coordinator (SP2 Coordinator in the new Structure): Jaap Kiel (ECN-TNO).

- SP2 Coordinator (SP3 Coordinator in the new Structure): Francisco Gírio (LNEG).

And a candidacy for coordinating the new SP5 was presented by Raquel Santos (NTNU).



Besides, a new Joint Programme Coordinator was electec by the EERA Bioenergy Steering Committee: Andrea Monti, Full Professor of Agronomy & Crop Science in the Bologna University - UNIBO (Italy). Qualified as Director of Research Centre for Industrial Crops (CREA - Italian Ministry of Agriculture – Mipaaf).

Former EERA Bioenergy Coordinator (Juan Carrasco) and new EERA Bioenergy Coordinator (Andrea Monti) shacking hands.

Andrea Monti
EERA Bioenergy Coordinator

Dear EERA Bioenergy Members,

It will be my honor and privilege of serving as Joint Programme Coordinator and I am really grateful for this wonderful opportunity.

Currently, we are in a very important moment for the bioenergy sector in both, Europe and worldwide: Bioenergy is expected to provide around one fifth (160 EJ) of total primary energy supply in 2050; about 67% of total renewable energies in the EU-28 derives from biomass today and 7.1% is the current share of biofuels in the total fuel consumption. The EU-wide share of renewable energy use increased from about 10% to 17% over the last decade and, it has great significance to report that, in 2016 the investments in renewable energies was double that in traditional fossil resources.

The phase of European development ahead of us is determined by several relevant signals and actions. I am firmly convinced that the EERA Bioenergy Community can exert a significant degree of influence on important decisions and play a primary role in the shaping of EU research and implementation strategies. I am eager to offer any aid I can in contributing to this mission and our success.

I promise to work hard, and I hope to maintain the confidence and trust you have shown in me.

The EERA Bioenergy Joint Programme is a well-structured Community, organized in five complementary Subprogrammes, covering the whole bioenergy value chains from feedstock to biofuels and end-uses. Under this umbrella, I'm convinced the convergence and synergies between the numerous skills from our members will strengthen the primary role of EERA Bioenergy in fostering knowledge development at European and National levels. This may seem a bit ambitious, especially considered in the context of the measures outlined in the Action 8 Implementation Plan (107 billion € of R&I investments). However, a coordinated action and a strong cooperation among Subprogrammes will enable us to achieve our targets, while maintaining a leading role in the bioenergy sector.

From this perspective, it is very important to keep a fruitful cooperation with other key European entities operating in the bioenergy sector, in order to avoid duplications or conflictual reports, to transform possible overlaps into synergies and to align our priorities and actions. To identify common priorities and to enhance the EERA Bioenergy participation in the working agenda of influential European networks and working groups such as ETIP-Bioenergy and ETIP-RHC, AEBIOM, SCAR-SWG, IEA, EBB, EREF, ESHA, EUFORES etc. should be one of our primary objectives. In particular, focus meetings with ETIP Bioenergy and EC representatives (DGs) to promote joint initiatives will have a high priority.

Other important activity is to facilitate the organization of consortiums within EU calls related to EERA Bioenergy activities in order to maximize the quality level of the "EERA Bioenergy" labeled proposals. Synergies among EERA Bioenergy members, as well as with other EERA JPs, will be deeply explored to maximize the success of ambitious and challenging proposals.

Not less important, EERA Bioenergy should be a key research advisor to the Industrial Partners or Public-Private Partnerships according to our Strategic Innovation and Research Agenda (SIRA). It should be recognized that the private sector is the major source of R&I investment in all SET-Plan R&I priorities. Of the total R&I investments on renewable energies, the contribution by private sector is about 77% (18% from Member States and 5% from EU). The involvement of EERA Bioenergy in, among others, the Bio-Based Industries Joint Undertaking (BBI JU), a funding programme in which the private sector effort is €2.7 billion (70% out total amount), will be therefore carefully explored.

Besides, there is a tremendous potential to strengthen our research collaborations with non-European Countries, particularly with Latin-American countries, Republic of China, India and the developing countries in view of future calls for association in this matter. Bioenergy in Latin America, in particular, is a relevant topic for the European Commission due to exports to the European Union. Maintaining and reinforcing the existing partnerships in several ongoing or recently concluded projects such as PROETHANOL2G, BECOOL, SWEETFUEL, SUNLIBB, etc. involving many EERA Bioenergy members can greatly help the creation of stable and long-term cooperation with non-EU countries.

Last -but not least-, a secure and long-term feedstock supply is essential for the bioenergy deployment and for a more effective debottlenecking of promising supply and production chains. This could be ensured only by an integrated multi-actor approach, embedding agriculture and logistics issues, conversion processes and by-product and products end-uses. In general, the multi-actor approach has not taken in due consideration in a large number of projects on bioenergy (e.g. feedstock diversification and feedstock/process matching). This is, definitely, an issue that would deserve more attention by researchers.

I promise to work hard, and I hope to maintain the confidence and trust you have shown in me.

Thank you!

Andrea.

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Bioenergy highlights

BIO_LIGWASTE PROJECT DEVELOPING A MULTIFUNCIONAL BIOREFINERY FROM TREE PRUNING AND GARDEN CLEANING

Mercedes Ballesteros
Head of Liquid Biofuels Unit
m.ballesteros@ciemat.es

A significant amount of cellulosic waste (herbaceous grass and woody pruning) from maintenance of garden urban parks is generated annually as a result of maintenance of species planted in public or private gardens (trees, lawns, grass, etc.). These garden residues (GR) are low density and heterogeneous waste fraction composed of grass clippings, pruning, flowers, branches, weeds and roots. GR contains considerably good amount of cellulose and hemicellulose and therefore, they could be interesting feedstocks for the production of biofuels and other high added value bioproducts. GR requires effective and specific management that guarantees the conservation and protection of both natural resources and human health.

In this context, CIEMAT is participating in the project "New concept of multifunctional biorefinery based on the production of lignocellulosic bioethanol and other bioproducts from tree pruning and garden cleaning" (Bio_Ligwaste). The objective of Bio_Ligwaste project, coordinated by the Spanish company Tetma (Técnicas y Tratamientos Medioambientales), is to determine the technical feasibility of using GR to produce biofuels and bioproducts by determining the optimal operating conditions of the different processes involved. The expected results will allow determining the possibilities, not explored so far, of using GR as cheap and abundant feedstock for the production of ethanol, lactic acid and bio-oil obtained from the catalytic pyrolysis of the lignin residue, which can be used for the production of aromatic products or as liquid fuel.

To achieve the global objective, the following specific objectives will be developed:

- To determine the seasonal and compositional variation of GR.
- To select the optimal conditions of GR pretreatment process to increase the accessibility of the fibers to the enzymatic attack.
- To establish the optimal conditions for enzymatic hydrolysis of the cellulose fraction of GR.
- To propose an efficient conversion scheme to transform cellulosic sugars into ethanol.
- To optimize the production process of lactic acid from hemicellulose fraction of GR.
- To valorize lignin-rich waste obtained from bioethanol production process, so that all fractions of the lignocellulosic biomass can be used to develop a zero waste process.

The 3-year Bio_ligwaste project, supported by the Spanish Ministry of Economy, Industry and Competitiveness (link), is a collaboration among private (Tetma and CentreVerd) and public (CIEMAT and IMDEA Energy) partners with background in waste management and in the development of processes and technologies to produce biofuels and bioproducts from lignocellulosic biomass.

Project results will represent a huge breakthrough in the treatment and disposal of GR and the creation of a renewable and sustainable energy production system.

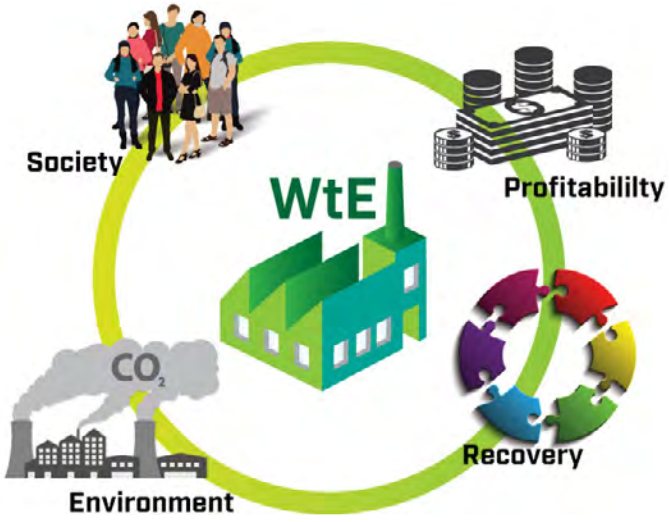
Heterogeneous waste fraction from garden maintenance.

Laboratory equipment for determining garden residues composition.

DO NOT LET YOUR WASTE GO TO WASTE: THE WTE 2030 R&D PROJECT

Michael Becidan
Senior Research Scientist SINTEF Energy Research, Department of Thermal Energy
Michael.Becidan@sintef.no

SINTEF Energy Research was recently awarded a new R&D project on Waste-to-Energy (WtE) – WtE 2030. Our main target is to contribute to keeping this sector competitive and performant as it is at the center of a complex web of interests (the public, politics, energy, economy, environment) in the development of circular economy.



WtE and the society
(waste management – energy – environment – economy – politics – public).

More from less

Using a local, secure supply of mainly renewable (i.e. biogenic) feedstock, Waste-to-Energy – heat and power from Municipal Solid Waste combustion – is an integral part of the Norwegian (and European) energy system as it produces about half of district heating.

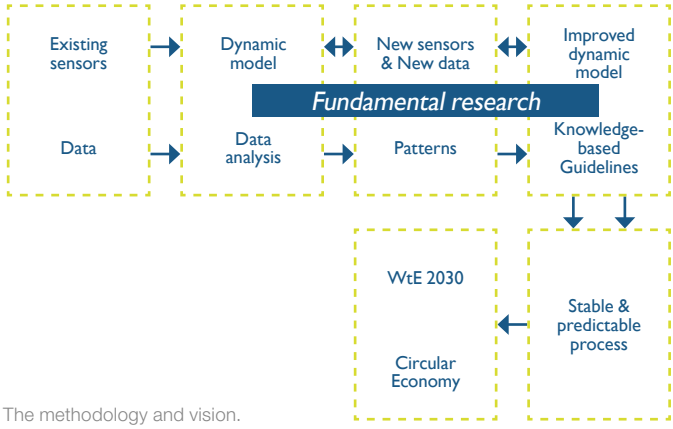
This sector is tightly regulated and is facing more and more stringent legislation, especially concerning environmental as well as energy performance. The EC commission had a clear message to the WtE sector at the 2016 CEWEP Congress (Confederation of European WtE Plants):

"Extract more energy from less waste by optimisation of energy efficiency and by harnessing existing WtE capacities in the EU".

In this context, our project aims at preserving and improving the sector competitiveness. We will focus on developing cost-effective solutions for **increased process performance through a more stable and predictable process for existing installations**. This will be attained using dynamic modelling, process data analysis and new sensor concepts (see the methodology figure).

Increased process stability will have a direct consequence on process performance, enabling increased energy efficiency, decreased emissions and consumables use, and increased plant capacity and availability.

Other important aspects in the project are:
Waste-to-Energy (especially MSW properties) and the circular economy, heat storage and fly ash valorization.



The methodology and vision.

About the project:

- WtE 2030 is a EnergiX KPN (Knowledge-building project for industry) project co-funded by the Research Council of Norway and industry and public partners (see list below).
- Funding: 17.7 MNOK (ca. 1.7 M€).
- Project period: 2018-2020.

R&D partners:

- SINTEF Energy Research.
- NTNU.
- Åbo Akademi University (Finland).

Industry partners:

- Statkraft Varme.
- EGE Oslo.
- Hitachi Zosen Inova.
- Returkraft.
- NOAH.

Public partner:

- Enova.

If you want to know more about this project, you can contact Senior Research Scientist and WtE 2030 Project Manager Michael Becidan; michael.becidan@sintef.no.

CENER, TECHNICAL ADVISOR OF THE 'INTERREGIONAL PARTNERSHIP TO DEVELOP COMPETITIVE EUROPEAN VALUE CHAINS'

Goizeder Barberena
Biomass Project Manager in CENER
gbarberena@cener.com

Experts of the Biomass Department of CENER (National Renewable Energy Centre) provide technical advice to the team led at regional level by Government of Navarra, and in which ADItech Technology Corporation also participates, to establish an interregional partnership to develop the competitiveness of European value chains. Indeed, this pilot action financed by the European Commission through the Directorate General for Regional and Urban Policy (DG REGIO), aims at fostering the development of an interregional innovation partnership in Bioeconomy. Its main goal is to promote technological development and investments at regional level, by commercializing and scaling-up interregional projects in Bioeconomy.

The project idea on Bioeconomy, created during 2017 in the framework of the European Network VANGUARD Initiative, will be developed throughout 2018 with the double objective of improving the development of European value chains (such as the production of bioaromatics from lignin, or gas fermentation), and attracting private investment in specific areas.

The regional-technological consortium on Bioeconomy headed by Flanders region (Belgium), is composed by a wide range of European regions such as "Lower Austria", Emilia Romana (Italy), North Brabant (Holland), and "Navarra" (Spain).

This pilot approach is of special interest for the European Commission since on top of the specific aspects of each supply chain, within this action the basis for a possible new financial instrument that could be implemented during the future 9th Framework Programme for research and innovation, might be also laying.

About Vanguard Initiative

The partnerships were envisaged as a pilot project by the European Commission Communication related to "Strengthening Innovation in Europe's Regions" published last 18th July 2017 (link). The communication acknowledged that Interregional innovation partnerships supported by EU funds were inspired by the success of the Vanguard initiative, being the aim of this pilot project to identify and scale up 'bankable' interregional projects that can create European value chains in priority sectors such as big data, bioeconomy, resource efficiency, connected mobility or advanced manufacturing. Besides, the Vanguard Initiative has developed a 4-step methodology (Learn, Connect, Demonstrate and Commercialise/Uptake) which has also inspired the creation of the "thematic partnerships" of the European Commission.

About Navarra, CENER and Bioeconomy partnership

Navarra region, and more specifically CENER, are working in cooperation with the industry on the main two axes of this Bioeconomy partnership.

In relation to bioaromatics supply chain, CENER is working since 2016 with an industrial partner, in the demonstration of vanillin production from Kraft lignin obtained from black liquors, both at lab and pilot scales. In parallel, and in collaboration with the Public University of Navarra, CENER is working on the valorization of solid residual streams of advance biofuel production processes. The focus is on the valorization of lignin rich fractions to high value-added aromatic compounds of wide use in fine chemistry, pharmaceuticals and food.

Regarding gas fermentation, during the last years, CENER has developed in cooperation with industry, gas fermentation processes to obtain ethanol and acetic acid using acetogenic bacteria, both at laboratory and pilot scale. Following the same research line, in the framework of H2020 AMBITION project, CENER in collaboration with other European research centers is working on syngas fermentation for 1-butanol and butyric acid production as promising building blocks for biochemical industry.

The **Bioeconomy partnership kick-off meeting** was held in Brussels last February with the participation of Mikel Irujo, Delegate of the Government of Navarra in Brussels, Jorge Molina Villanueva, ADItech Office in Brussels and Goizeder Barberena, Biomass researcher in CENER.

CATALYTIC VALORIZATION OF OXYGENATED ORGANIC COMPOUNDS PRESENT IN AQUEOUS EFFLUENTS IN BIOREFINERIES

Marcelo E. Domine
Scientific Researcher of CSIC
mdomine@itq.upv.es

The valorization of lignocellulosic biomass and its derivatives has become a sustainable alternative to the use of fossil sources for the production of fuels and chemicals. However, lignocellulosic biomass processing biorefineries using both thermo-chemical and fermentative (or enzymatic) processes produce together with the desired bio-fuels and bio-chemicals large amounts of aqueous fractions as side-streams containing diluted organic compounds, which actually are non-profitable for further applications. Industries focused on biomass pyrolysis, ABE fermentation for butanol production, succinic and levulinic acids production are some representative examples, among others.

In this context, the conversion of the oxygenated organic compounds present in aqueous side streams derived from primary treatments of biomass is a key step in the actual bio-refinery scheme processes. One of the affordable strategies is based on the transformation of these low-value water-soluble oxygenated compounds via C-C bonds formation reactions (i.e. condensations, alkylations, etc.) into a mixture of hydrocarbons and aromatics useful for blending with automotive fuels [1]. In general, the activity of the catalysts (i.e. Ce-Zr-O mixed oxides) up to now reported in literature for these processes is based on their bifunctional character [2]. Nonetheless, their activity in complex aqueous mixtures and their low stability under faithful operating conditions close to industrial scenarios is a critical factor to be further improved [2].

Recently, the design of novel and improved solid catalytic materials for biomass derivatives transformations in aqueous systems has been successfully carried out at the Instituto de Tecnología Química (ITQ, UPV-CSIC) of Valencia, Spain [3-6]. The new catalytic approaches allow the effective transformation of low-added value oxygenated compounds present in aqueous effluents derived from biomass primary treatments into a mixture of hydrocarbons and aromatics in a separated organic phase by using metallic oxides and metallic mixed oxides specifically designed at ITQ (UPV - CSIC) [3-6]. Particularly, hydrothermally synthesized NbO_x with pseudo-crystalline structure [3,4] and faceted TiO_2 materials [5] have demonstrated their excellent activity in aqueous-phase condensation of oxygenated compounds mixtures representative of aqueous fractions of pyrolytic bio-oils. These water resistant catalysts with enhanced and tuneable acid and textural properties are highly stable and efficient for the production of chemicals (organic yield ≈70%) under moderated process conditions. The catalytic process could be also extended to the effective transformation of fermentative aqueous fractions (i.e. ABE mixture) containing highly diluted organic compounds into hydrocarbons and higher alcohols mixtures under mild reaction conditions.

References:

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[4] M.E. Domine, J.M. López-Nieto, D. Delgado, A. Fernández-Arroyo, *WO 2017162900* (PCT Int. Appl. ES 2017/070167), 2017.

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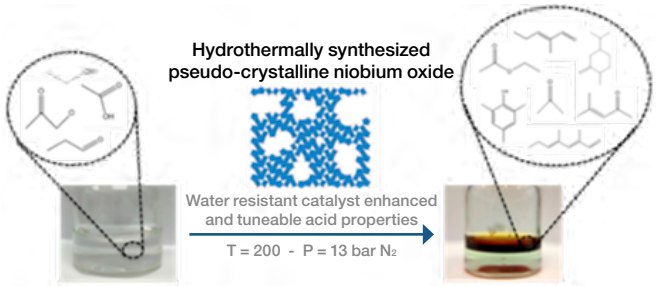
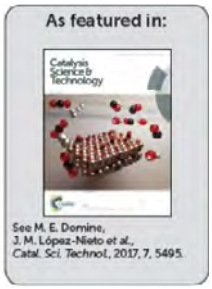


Highlighting research from the Instituto de Tecnología Química (UPV-CSIC) of Valencia, Spain.

Ungrading of oxygenated compounds present in aqueous biomass-derived feedstock ober NbOx -based catalysts.

From aqueous residues to fuels precursors: low-added value oxigenated compounds present in aqueous effluents derived from biomass primary treatments in a biorefinery are catalytically transformed into a mixture of hydrocarbons and aromatics in separated organic phase by using a hydrothermally synthesized pseudo-crystalline Nb oxide. This water resistant catalyst with enhanced and tuneable acid properties is highly efficient (org.yield = 70%) and more stable than other reported materials.



DEVELOPING SUSTAINABLE VALUE CHAINS FOR ADVANCED BIOFUELS

Maurizio Cocchi[1]
ETA-Florence Renewable Energies,
Via Antonio Giacomini 28, Florence, Italy
maurizio.cocchi@etaflorence.it

Andrea Monti[2]
University of Bologna viale G. Fanin 44,
Bologna, Italy
a.monti@unibo.it

BECOOL is a Horizon 2020 project that fosters the development of advanced biofuels from sustainable agricultural value chains, based on lignocellulosic biomass. Launched in June 2017, the 4-year project is based upon three pillars covering the whole value-chain: from the production and harvesting of non-food crops and crop residues, to the efficient logistic of feedstock, and their conversion into a range of products, for transport biofuel, including aviation.

Innovative cropping systems and feedstock diversification

On the agricultural side, partners are testing and demonstrating integrated cropping systems, based on a rotation of annual lignocellulosic crops with food crops, and intercropping. Trials were established with fiber sorghum, Sunn hemp, kenaf and hemp grown in rotation cereals. Preliminary results are very encouraging, especially rotational trials of Sunn hemp grown as summer catch crop. Perennial grasses grown on marginal and idle lands are also being tested.

Efficient biomass harvesting and logistics

Biomass logistics is another important element to ensure a viable production of advanced biofuels at large scale. Novel biomass logistic concepts are being developed to provide cost-effective supply of biomass from a range of diverse feedstocks suitable for the requirements of industrial plants. Optimizing and increasing the efficiency of harvesting of crop residues, is another task carried out by the project, harvesting trials and demonstrations are planned for this summer.

Optimizing process efficiency

During the first year, gasification trials were conducted to determine the viability of a range of diverse lignocellulosic feedstock and the optimal process conditions to produce a gas suitable for further upgrading into biofuels. The project also addresses the valorization of the lignin-rich residue derived from lignocellulosic ethanol plants to produce additional heat, power, and lignin oil from fast pyrolysis.

Integrated sustainability assessment

Another objective of the project is to perform an integrated sustainability and market assessment of the different value chains. For this task, a technical workshop was held in Athens last January where partners from all work packages exchanged data for giant reed, eucalyptus, fibre sorghum and lignin-rich residue. The workshop was very successful in understanding the cross-cutting issues across different disciplines and in providing a clear picture of all the steps involved in the specific value chains.

International cooperation

The activities of BECOOL are aligned with those of BioVALUE, a twin project in Brazil, funded by several State Foundations and Brazilian industrial companies. The two projects will develop a series of research and demonstration activities, covering the entire value chain in a balanced way.

Some of the activities and the preliminary results of the first year of the project were presented extensively last May by different partners at the European Biomass Conference and Exhibition in Copenhagen:

- *Biomass Production and Feedstock Diversification for Advanced Biofuels: the BECOOL Project*, M.Christou (CRES Greece).
- *Evaluation of Sunn hemp productivity after wheat under no tillage conditions*, A. Parenti et al. (Univ. of Bologna, Italy).
- *Sunn hemp, a promising leguminous energy crop as inter-cropping system: preliminary results for Spain*, C. Sastre et al. (CIEMAT, Spain).
- *Maize cob harvesting: first assessment of an innovative system, Luigi Pari et al. (CREA, Italy).*
- *Investigation of slurries made of char-in-pyrolysis oil in terms of formulations, stability, and rheological properties*, M. Buffi et al. (RE-Cord, Italy).

The papers and the slides will be pubished with open access in the EUBCE Conference Proceedings this July.

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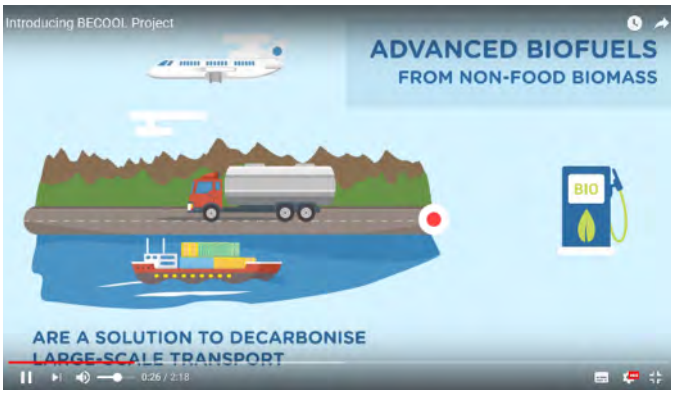


BECOOL (Brazil-EU Cooperation for Development of Advanced Lignocellulosic Biofuels) has received funding from the European Union's Horizon 2020 Programme under Grant Agreement 744821.

ON-GOING BIOENERGY PROJECTS IN SLOVENIA

Blaž Likozar
Head (D13 Department of Catalysis and Chemical Reaction Engineering) researcher (D13 Department of Catalysis and Chemical Reaction Engineering). National Institute of Chemistry (NIC)
Blaz.Likozar@ki.si

National Institute of Chemistry (NIC) is an internationally recognized research organization in the field of chemistry and related disciplines. It was founded in 1946 as a Chemical Laboratory of the Slovenian Academy of Sciences and Arts, and today it functions as a public research institute in the field of scientific and research and development. NIC has 309 employees, of which around 269 (all those employed in the research sector) are engaged in research work in 10 departments and two infrastructural centers. 140 associates have PhD.

The Department of Catalysis and Reaction Engineering is primarily dedicated to chemical (process) engineering, planning and construction of reactors and operating units, as well as multi-level process modeling. The segment's main topic concerns mainly the conversion of carbon dioxide and natural gas, hydrogen technology and fuel cells, the evaluation of biomass for the preparation of bio-based substances and processes in (bio) pharmaceuticals.

Two high-potential on-going relevant projects are presented below:

FRESME (LCE-25-2016, GA No.727504)

Aim

FReSMe wants to demonstrate feasibility of valorising CO_2 and H_2 capture from Blast Furnace Gases by turning into a versatile platform chemical and renewable fuel such as methanol (MeOH).

The Concept

FReSMe purpose is to demonstrate the feasibility of methanol fuel synthetized from captured CO_2 and H_2 from BFG plus H_2 produced using surplus renewable energy.

Project benefits

- FReSMe provides a valorisation alternative for captured CO_2 from emission intensive steel production which contributes to building a more attractive business case around CCS.
- The project aims to contribute to use green methanol fuel and to achieve the EC ambitious targets for renewable energy use in 2020 and 2030 and increase its energy security and sovereignty by reducing fossil fuel imports.

Wepbage: http://www.fresme.eu/

MEFCO$_2$ (SPIRE-02-2014, GA No. 637016)

Aim

MefCO_2 wants to demonstrate the economic feasibility of valorising captured CO_2 by turning it into a versatile platform chemical and renewable fuel such as methanol using hydrogen produced from renewable energy surplus.

The Concept

MefCO_2 aims to produce green methanol as energy vector from captured CO_2 and hydrogen produced using surplus renewable energy. The technology is being designed in a modular intermediate scale, with the aim of being able to adapt it to varying plant sizes and gas composition.

Project benefits

- MefCO_2 provides a valorisation alternative for captured CO_2 which contributes to building a more attractive business case around CCS.
- Flexible hydrogen production from water electrolysis contributes to a more efficient operation of electric grid by absorbing surplus renewable generation and providing valuable ancillary services.
- Using renewable methanol in fuels can contribute to the achievement of the EC ambitious targets for renewable energy use in 2020 and 2030 and increase its energy security and sovereignty by reducing fossil fuel imports.

Webpage: http://www.mefco2.eu/

Useful information

1. Europe leads the global clean energy transition: Commission welcomes ambitious agreement on further renewable energy development in the EU

An ambitious political agreement on increasing renewable energy use in Europe was reached on 14th June between negotiators from the Commission, the European Parliament and the Council. The new regulatory framework includes a binding renewable energy target for the EU for 2030 of 32% with an upwards revision clause by 2023.This will greatly contribute to the Commission's political priority as expressed by President Juncker in 2014 for the European Union to become the world number one in renewables. This will allow Europe to keep its leadership role in the fight against climate change, in the clean energy transition and in meeting the goals set by the Paris Agreement. The rules agreed serve also to create an enabling environment to accelerate public and private investment in innovation and modernisation in all key sectors. Beyond updating and strengthening our energy and climate legislation, the EU aims at developing enabling measures that will stimulate investment, create jobs, improve the skills of people, empower and innovate industries and ensure that no citizen, worker or region is left behind in this process.

Following this political agreement, the text of the Directive will have to be formally approved by the European Parliament and the Council. Once endorsed by both co-legislators in the coming months, the updated Renewable energy Directive will be published in the Official Journal of the Union and will enter into force 20 days after publication. Member States will have to transpose the new elements of the Directive into national law 18 months after its entry into force.

Link

2. New Energy Performance in Buildings Directive comes into force on 9 July 2018

On 14th of May, the Council of Ministers of the EU approved The revised Energy Performance of Buildings directive (EPBD). The European Parliament had already approved the revised EPBD on 17 April with a very large support coming from the main political groups (546 votes in favour, 35 against and 96 abstentions). This decision marks the first adoption of the 8 legislative acts which make up the Clean Energy for All Europeans package published by the European Commission on 30 November 2016. This package is a key element of one of the Juncker Commission's priorities, "a resilient Energy Union and a forward-looking climate change policy". The revised Energy Performance of Buildings Directive (EU) 2018/844 was published in the EU Official Journal on 19th June and will enter into force as of 9 July 2018. EU countries will have to transpose the new elements of the Directive into national law within 20 months.

The revised EPBD changes tap into the huge potential for efficiency gains in the building sector, the largest single energy consumer in Europe. They include measures that will accelerate the rate of building renovation towards more energy efficient systems and strengthen the energy performance of new buildings, making them smarter. The changes will create jobs in the renovation and construction sector, and also signal potential for reducing household builds, addressing energy poverty and improving comfort in the home.

Link

3. BBI JU organised its fifth Info Day. Presentations and video recording available

The Bio-based Industries Joint Undertaking (BBI JU) organised on 17th April 2018 its fifth Info Day in Brussels, following the official launch of the 2018 Call for proposals. Over 600 participants registered for the event in the European Commission's Charlemagne building and more than 250 participants watched it via the live streaming.

The morning sessions provided information about the BBI JU initiative and all aspects of the Call process. Details of the 2018 Call topics as well as more information on the event are available on the BBI JU website. In addition to plenty of informal networking during the breaks, the afternoon provided an opportunity for participants to hold face-to-face meetings using the professional/corporate profile in the BBI JU Partnering Platform. During the afternoon more than 700 face-to-face meetings took place.

Link

4. European Bioeconomy in Figures 2008 – 2015 (update February 2018)

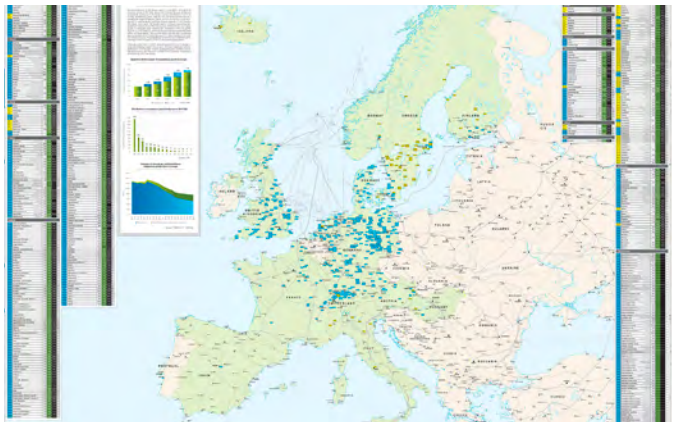
The bioeconomy comprises those parts of the economy that use renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms – to produce food, materials and energy. In 2016, a study conducted by nova-Institute on behalf of the Bio-based Industries Consortium (BIC) showed for the first time which macroeconomic effects are generated by these activities, e.g. turnover, employment, etc. for the years 2008 and 2013. This study has now been updated with data for 2014 and 2015.

As in the 2016 study, this update highlights the contribution of the often underrated bio-based industries, such as chemicals and plastics, pharmaceuticals, paper and paper products, forest-based industries, textile sector, biofuels and bioenergy to the bioeconomy. This sector shows considerable turnover of almost 700 billion € and 3.7 million employees in the EU-28 in 2015. In the bio-based chemical industry alone, turnover amounted to around 30 billion €.

Link

5. European Biomethane Map 2018

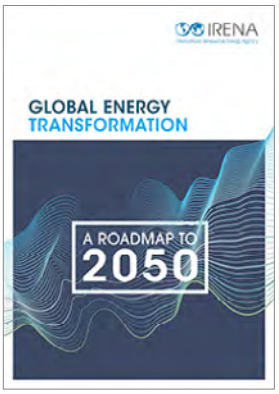
Gas Infrastructure Europe (GIE), in collaboration with the European Biogas Association (EBA), have just published the 'European Biomethane Map 2018'. This comprehensive map locates and lists all known biomethane installations running in Europe, which amount to over 500 units. It is the first of its kind, produced thanks to up-to-date information gathered from national biogas associations, energy agencies and companies.



The map provides specific details about each biomethane plant, including their connection to the gas grid, feed-in capacity, main substrate used, upgrading process and date of start of operation. Cross-border interconnection points and pipelines are also indicated. Furthermore, the map brings additional data about the European biomethane market evolution, distribution of plants in European countries, and forecasts of natural gas and biomethane indigenous production in Europe until 2037.

Link

Publications



Global Energy Transformation: A Roadmap to 2050

International Renewable Energy Agency (IRENA)

The International Renewable Energy Agency (IRENA) has published this report that argues that the combination of renewables and increased energy efficiency can provide over 90% of the necessary energy-related CO_2 reductions. The report compares a Reference Case – a scenario based on current and planned policies of countries, with the REmap Case, which analyses a scenario where low-carbon technologies and renewables are deployed to transform the global energy system and keep global temperature rises to below 2°C of preindustrial levels by the end of the century.

The report makes a strong case for the role 'modern bioenergy' will have to play.and calls for greater focus on the likes of anaerobic digestion of residues, wood pellet heating systems, liquid biofuels produced from bagasse and other plants, and biorefineries.

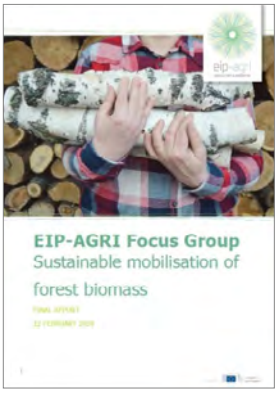
PDF

Renewable Capacity Statistics 2018

International Renewable Energy Agency (IRENA)

The International Renewable Energy Agency (IRENA) produces comprehensive renewable energy statistics on a range of topics. This publication presents renewable power generation capacity statistics for the last decade (2008-2017) in trilingual tables. Renewable power generation capacity is measured as the maximum net generating capacity of power plants and other installations that use renewable energy sources to produce electricity. For most countries and technologies, the data reflects the capacity installed and connected at the end of the calendar year. Data has been obtained from a variety of sources, including IRENA's questionnaire, official national statistics, industry association reports, other reports and news articles.

PDF

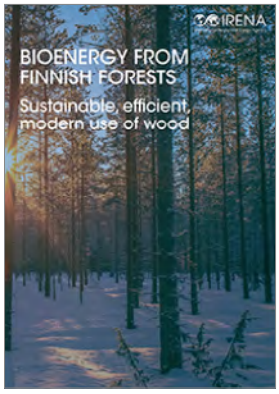


EIP-AGRI Focus Group Sustainable mobilisation of forest biomass

The agricultural European Innovation Partnership (EIP-AGRI)

This report summarises the comprehensive work of 20 experts from all over Europe, who examined the potential to increase the sustainable mobilisation of forest biomass as a key renewable resource. At two face-to-face meetings, the 20 experts shared their experience and carried out group work, to identify the most relevant questions in relation to sustainable mobilisation of forest biomass. This included the identification of success and fail factors that stimulate or limit the supply of forest biomass and how these factors might be addressed by exploring the role of innovation and knowledge exchange. The group identified and discussed relevant examples, best practices and tools and also barriers to their implementation in different regions. An important area identified was how to improve the cooperation of forest owners with small-scale forest areas. The report also takes into account supply and demand factors and the potential to provide a link between the two, e.g. via electronic marketing tools.

PDF



Bioenergy from Finnish forests: Sustainable, efficient, modern use of wood

International Renewable Energy Agency (IRENA)

This report describes Finland's approach to sustainable solid biomass supply based on forest wood resources. The study – prepared by VTT Technical Research Centre of Finland Ltd in close co-operation with the International Renewable Energy Agency (IRENA) – offers insights for other countries on the development of sustainable forest bioenergy.

Wood residues form Finland's main source of bioenergy. About half of the country's wood production is used for heat and power, either through district heating systems or through combined heat and power (CHP) plants. The most modern of these plants use fluidised bed technology to combust or gasify a wide range of forest residues.

PDF

Biomass production, supply, uses and flows in the European Union: First results from an integrated assessment

Joint Research Centre

The report delivers an assessment of EU biomass production, uses, flows and related environmental impacts for the sectors agriculture, forestry, fisheries and aquaculture, and algae. Quantitative estimates are derived from available data and current knowledge, yet highlighting the uncertainties and the remaining gaps. The work is framed within the JRC biomass study and is meant to support the EU bioeconomy and the related policies.

PDF

Save the date! International bioenergy events

JULY 2018

24-27 July 2018
15th International Symposium on Bioplastics, Biocomposites and Biorefining (ISBBB 2018)
Ontario, Canada
link

AUGUST 2018

16-18 August 2018
International Conference on Industrial Biotechnology and Bioprocessing
Copenhagen, Denmark
link

7th Asia-Pacific Biomass Energy Exhibition (APBE2018)
Guangzhou, China
link

SEPTEMBER 2018

4-5 September 2018
13th Global Summit and Expo on Biomass and Bioenergy
Zurich, Switzerland
link

11–13 September 2018
World Bioeconomy Forum
Ruka, Finland
link

16-19 September 2018
2nd International Conference on Bioresource Technology for Bioenergy, Bioproducts & Environmental Sustainability
Sitges, Spain
link

18-19 September 2018
Advanced Biofuels Conference
Gothenburg, Sweden
link

27-28 September 2018
IFIB 2018 International Forum on Industrial Biotechnology and Bioeconomy
Torino, Italy
link

OCTOBER 2018

10 – 11 October 2018
Biofuels International Conference & Expo
Berlin, Germany
link

16 – 18 October 2018
European Forum for Industrial Biotechnology & the Bioeconomy (EFIB)
Toulouse, France
link

23 – 25 October 2018
8th Nordic Wood Biorefinery Conference
Helsinki, Finland
link

24 – 26 October 2018
4th Iberoamerican Congress on Biorefineries
Jaén, Spain
link

NOVEMBER 2018

7 – 8 November 2018
8th European Biomass to Power
Stockholm, Sweden
link

JANUARY 2019

7 – 9 January 2019
5th Latin American Congress on Biorefineries
Concepción, Chile
link

EERA Bioenergy in Europe

Participants and Associate Participants of EERA Bioenergy Joint Programme.

EERA Bioenergy Full members

Aalborg University
Department of Energy Technology (Denmark)

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BERA
Belgian Energy Research Aliance (Belgium)

web

CEA
French Alternative Energies and Atomic Energy Commission (France)

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CENER
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Centre National de la Recherche Scientifique (France)

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ECN part of TNO
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IEN
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(Poland)

web

ENEA
Italian National Agency for New Technologies, Energy and Sustainable Economic Development (Italy)

web

INRA
French National Institute for Agricultural Research (France)

web

KIT
The Research University in the Helmholtz Association (Germany)

web KIT
web BIOLIQ

LNEG
Laboratório Nacional de Energia e Geologia (Portugal)

web

NTNU
Norwegian University of Science and Technology (Norway)

web

PSI
Paul Scherrer Institut (Switzerland)

web

SINTEF
(Norway)

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RISE
Research Institutes of Sweden (Sweeden)

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TÜBITAK
Scientific and Technological Research Council of Turkey (Turkey)

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UKERC
UK Energy Research Centre
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ASTON UNIVERSITY
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SUPERGEN Bioenergy Hub
web
(United Kingdom)

UNIBO
Universitá di Bologna (Italy)

web

VTT
Technical Research Centre of Finland Ltd (Finland)

web

WUR
Wageningen University & Research (The Netherlands)

web

EERA Bioenergy Associate members

AICIA
Asociación de Investigación y Cooperación Industrial de Andalucía (Spain)

web

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Campus de Excelencia Internacional del Valle del Ebro
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web
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(Italy)

web

Università degli Studi di Perugia CRB - Biomass Research Centre
(Italy)

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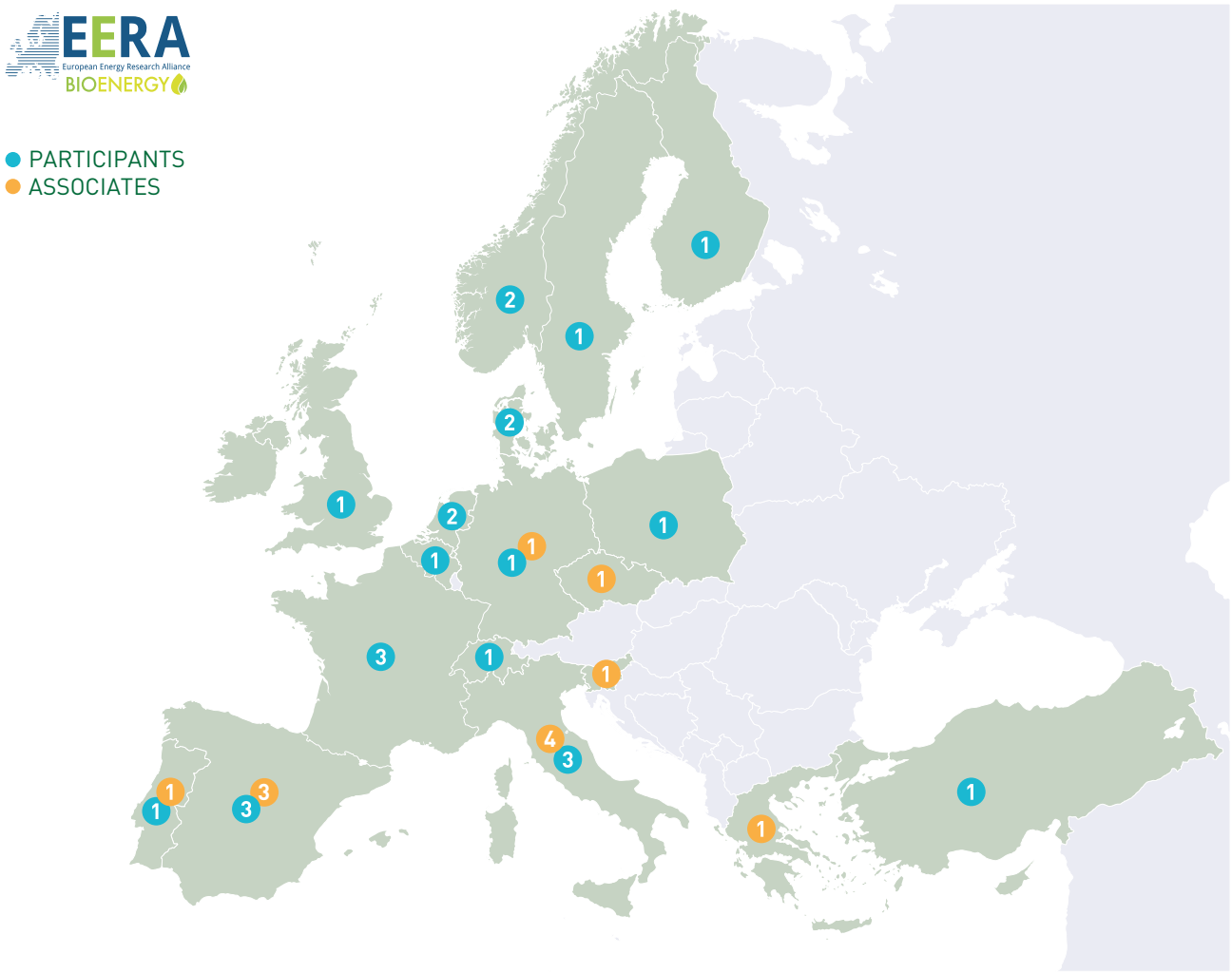
EERA Bioenergy in Europe

EERA Bioenergy is open to new complementary RTD organisations.
Please contact the Joint Programme Secretariat for further details at secretaria@bioplat.org



The EERA Bioenergy Joint Programme consists of 24 participants and 12 associate participants from a total of 18 countries.
www.eera-bioenergy.eu

Contacts

Editor
Margarita de Gregorio
BIOPLAT - Spanish Biomass Technology Platform
Doctor Castelo 10, 3C-D. Madrid, Spain.

T: +34 91400 96 91
E: margadegregorio@bioplat.org

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