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EERA BIOENERGY NEWSLETTER

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Joint Programme Coordinator's corner

Myrsini Christou
EERA Bioenergy Coordinator

Dear EERA Bioenergy members, dear eebionews readers,

I want to take this opportunity today to share some insights on the current and emerging pathways toward unlocking Europe's biomass potential for SAF (Sustainable Aviation Fuel), drawing inspiration from the Icarus project that was born within the EERA Bioenergy community, and I'm proud to be coordinating.

Sustainable Aviation Fuel represents one of the most promising solutions for reducing carbon emissions in aviation. It is a safe, drop-in alternative to fossil jet fuel—nearly chemically identical—but produced from renewable feedstocks that absorb carbon dioxide during their life cycle. This results in significantly lower net emissions compared to conventional fuels.

In the **Icarus project**, we examine the current state of feedstock availability for SAF production in the EU, focusing on advanced biofuels outlined in Annex IX Part A of the Renewable Energy Directive (RED II). These are the only feedstocks currently eligible under the ReFuelEU Aviation initiative, which sets the framework for integrating SAF into the aviation fuel mix. Our focus is not only on what resources are available today, but on how feedstock supply can grow sustainably over time. Improvements in cropping systems, advances in waste collection, better residue utilisation, and emerging technologies are all helping to expand the landscape of viable SAF feedstocks.

From the agricultural sector, vegetable oils such as rapeseed, carinata, and camelina are commonly used in HEFA (Hydroprocessed Esters and Fatty Acids) conversion technologies. However, their high production costs and limited yields and availability present scalability challenges. In contrast, lignocellulosic crops—like switchgrass, miscanthus, legume cover crops, and biomass sorghum—offer higher biomass yields and can be grown as dedicated energy crops or in innovative cropping systems that carry a low risk of indirect land-use change (ILUC). These species also support biodiversity and improve soil health.

To expand the sustainable biomass base, growing interest is turning toward dedicated cultivation strategies such as sequential/mixed cropping systems and biomass production on marginal or phytoremediated lands. Sequential cropping—cultivating an energy crop after a food or feed crop—maximises land-use efficiency, improves soil health, and diversifies farm income. EU-funded projects, including BECOOL, BIKE, and ICARUS, are already exploring this avenue. Their findings are expected to inform policy frameworks and support the scale-up of sustainable biomethane production. Marginal lands, including degraded or contaminated areas, offer additional potential. Cultivation on such lands can reduce land-use conflicts, improve ecosystem services, and—in the case of phytoremediation—simultaneously restore soil quality. Nonetheless, challenges remain: low biomass yields, limited input tolerance, and lack of harmonised definitions and legislative clarity across Member States. A growing body of EU-funded research projects—including BECOOL, BIKE, BIO4A, CERESIS, GOLD, ICARUS, MAGIC, Phy4Climate—is working to address these gaps, quantify feedstock potential, and develop robust biomass supply chains.

Alongside dedicated crops and cropping systems, residues from agriculture and forestry represent a significant but underutilised resource. Cereal straw is among the most abundant and accessible, with more than 66 million tons potentially available each year in Europe. Additionally, the pruning of fruit trees could yield another 25 million tons of lignocellulosic material. Forest operations also generate substantial amounts of leftover biomass that often remain unused. Despite the diversity and volume of potential resources, significant technical and logistical barriers remain, including efficient biomass collection, transportation, and processing of these scattered and low-density residues. Costs are often high, and feedstock availability is affected by seasonality and geographic dispersion. Supply chains must adapt to these realities through better planning, infrastructure, and innovation.

Further promising sources include dried sewage sludge and municipal solid waste (MSW). Dried sludge, rich in organics, can be processed via thermochemical pathways. Europe generated nearly 2.8 million tons of sludge (dry solids) in 2021 alone. Meanwhile, MSW—comprising packaging, textiles, food waste, and yard clippings—has seen a dramatic increase in recycling and recovery. With over 111 million tons recycled in 2022, much of this material could serve as SAF feedstock, especially through gasification and advanced waste-to-fuel technologies.

In parallel, we must also consider the role of bioenergy carriers—intermediates that transform raw biomass into usable SAF. Our research has investigated three main carriers: microbial oils, isobutanol, and syngas. Oleaginous yeasts can accumulate more than 20 % of their biomass as lipids, and although their development is still at low TRLs (3–4), they show strong long-term potential. Despite their inherent potential, non-conventional oleaginous yeast strains require extensive research and several years of development to attain commercial viability. Isobutanol, another promising molecule that emerged as a promising alternative to ethanol, is currently being optimised through metabolic engineering to enhance production yields. Ongoing research aims to overcome limitations and advance the TRL of isobutanol production strains, which is now at 3. Syngas, produced from biomass gasification and upgraded via Fischer–Tropsch synthesis, is the most mature route among these, with commercial-scale projects like Fulcrum BioEnergy's Sierra BioFuels Plant in the US and Velocys' commercial Fischer–Tropsch BtL plant in the UK leading the way. However, its application in drop-in biofuel production using Fischer-Tropsch (FT) synthesis based on biomass feedstocks brings a different set of challenges, which have an important impact on the gasification technology selection and on the type of syngas cleaning and conditioning to be carried out.

> **"Europe holds a substantial untapped feedstock potential to support the scale-up of Sustainable Aviation Fuel."**

Ultimately, what this work highlights is that Europe holds a substantial untapped feedstock potential to support the scale-up of SAF. An integrated approach—combining **organic waste recovery, dedicated energy cropping**, promoting innovative low-ILUC cropping practices, and **advanced conversion technologies**—is essential to scale up SAF production and move closer to decarbonising the aviation sector, meeting Europe's 2030 goals. Continued interdisciplinary research and coordinated policy efforts will be key to unlocking this potential.

Enjoy a well-earned summer break — recharge, relax, and return with renewed energy for the exciting months ahead!

Myrsini

EERA Bioenergy news in brief

WEBINARS ON COLLABORATIVE EU PROJECTS GENERATION

On 23 May, EERA Bioenergy JP organised two internal webinars to boost project generation and promote synergies among the five Subprogrammes.

These webinars gathered scientists and researchers from the organisation who expressed their interest in exploring key technologies and solutions for calls for proposals under the topics included in the Horizon Europe Cluster 5: Climate, Energy and Mobility and Cluster 6: Food Resources, Bioeconomy, Natural Resources, Agriculture, and the Environment.

The Cluster 5 topics addressed in the first webinar were:

- **HORIZON-CL5-2026-02-D3-01:**
  Large-scale production of liquid advanced biofuels and renewable fuels of non-biological origin
- **HORIZON-CL5-2026-02-D3-02:**
  Competitiveness, energy security and integration aspects of advanced biofuels and renewable fuels of non-biological origin value chains
- **HORIZON-CL5-2026-02-D4-06:**
  Phase out fossil fuel in energy-intensive industries through the efficient integration of renewable energy sources
- **HORIZON-CL5-2025-02-D3-15:**
  Building a Long-Term Africa Union (AU) and European Union (EU) Research and Innovation joint collaboration on Sustainable Renewable Energies.

With more than 40 Expressions of Interest (EoIs) received, several EERA Bioenergy members have already gathered to form potential consortia. In addition, a second webinar for each of the identified proposals in topic HORIZON-CL5-2026-02-D3-02: 'Competitiveness, energy security and integration aspects of advanced biofuels and renewable fuels of non-biological origin value chains' was held on 10 July.

The second webinar was focused on the following Cluster 6 topics:

- **HORIZON-CL6-2025-01-CIRCBIO-08:**
  Bioprospecting and optimised production of the terrestrial natural products: new opportunities for bio-based sectors
- **HORIZON-CL6-2025-01-CIRCBIO-09:**
  Unleashing the potential and advancing the impact of the digitalisation/Artificial Intelligence of the climate-neutral bio-based value chains
- **HORIZON-CL6-2025-01-CIRCBIO-11:**
  Demonstration of reduced energy use and optimised flexible energy supply for industrial bio-based systems

Out of the more than 20 EoI's presented, topic HORIZON-CL6-2025-01-CIRCBIO-09: 'Unleashing the potential and advancing the impact of the digitalisation/Artificial Intelligence of the climate-neutral bio-based value chains' brought the most attention, and thus the organisation of a second webinar to support the initiation of the proposal process was set for 10 July.

These webinars served as a valuable platform to foster collaboration, align research interests, and initiate proposal development among EERA Bioenergy JP members. The high level of engagement and the strong response in the form of Expressions of Interest confirm the relevance and timeliness of the selected Horizon Europe topics.

STEERING COMMITTEE MEETING IN THE FRAME OF EUBCE 2025

Figure 1. Attendees to EERA Bioenergy's Steering Committee, held on 11 June in the frame of EUBCE 2025.

In the framework of the 33rd European Biomass Conference & Exhibition (EUBCE), which took place in Valencia (Spain), EERA Bioenergy held its first Steering Committee meeting in 2025, on 11 June.

Myrsini Christou, Joint Programme Coordinator, opened the meeting by welcoming the EERA Bioenergy members present at the EUBCE and led to the reporting activities tour de table, in which the different Subprogram Coordinators and Secretariat took the floor to review the goals achieved since January and present the activities planned for the 2nd semester of 2025.

Biljana Kulišić, Policy Officer at European Commission, was invited to introduce the Directorate-General for Energy (DG-ENER) activities in the field of bioenergy, biofuels, synthetic fuels, biogases, biorefineries, and related areas. This insightful presentation provided a valuable perspective and guidance for the EERA Bioenergy community, which is firmly committed to developing R&D&I activities that contribute to achieving the policy targets.

Another highlight of this meeting was the presentation by Dr Marco Selig, Head of Data Lab at DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, on 'The role Artificial Intelligence can play in bioenergy and other biobased applications and specifically in research in this area', a topic that is generating increasing interest within the EERA Bioenergy members. It was a great opportunity for our members to become familiar with the possibilities of AI in their fields and help draft recommendations for research priorities, which EERA Bioenergy plans to formulate later this year.

Finally, EERA Bioenergy members initiated a debate on proposals and recommendations for the next Framework Programme for Research and Technological Development 2028-2034 (FP10).

EERA BIOENERGY RESPONDS TO OPEN CONSULTATION FOR UPDATING THE EU BIOECONOMY STRATEGY

The European Commission launched a public consultation on 31 March, titled **"Towards a Circular, Regenerative and Competitive Bioeconomy,"** to gather input and views to offer solutions that promote a circular and climate-neutral economy, contributing to EU growth and competitiveness within planetary limits. The results of the public consultation will be used to develop a new bioeconomy strategy expected by the end of 2025, which will complement the Competitiveness Compass and the Clean Industrial Deal.

The new Bioeconomy Strategy aims to advance innovation and maintain the EU's leadership in the bioeconomy. It will promote the more circular and sustainable production and consumption of biological resources for food, materials, energy and services, providing potential alternatives to fossil fuels. The strategy will aim to reduce the pressure on the limited resources through innovation in primary production, increased circularity, and resource efficiency, as well as address barriers and identify drivers for the bioeconomy innovations and solutions to reach the market.

EERA Bioenergy welcomed the European Commission's initiative to revise and reinforce its Bioeconomy Strategy, since it advocates for a stronger recognition of **bioenergy** as a cornerstone of the EU's circular, regenerative, and competitive bioeconomy, due to its key role in decarbonisation, energy resilience, and industrial innovation.

The Position Paper (The Position Paper on the European Commission's Public Consultation on the Future EU Bioeconomy Strategy) that was submitted to respond to the European Commission consultation was articulated around four main points:

1. **Bioenergy: A Strategic Vector for the Bioeconomy.** EERA Bioenergy underlined that bioenergy is already a mature, scalable, and innovation-driven pillar of the circular bioeconomy.

2. **Technological Readiness and Deployment Pathways.** Technologies as biogas and biomethane, advanced biofuels, conversion technologies and hybrid biorefineries are probed to foster regional development, industrial decarbonisation, and clean clusters.

3. **Environmental, Economic and Social Impacts.** The main environmental, economic and social benefits associated with bioenergy (net/negative GHG cuts, methane mitigation, value chain scale-up, reduced fossil imports, rural job creation, tech leadership or energy security) are all aligned with the Green Deal, REPowerEU, Climate Law, and Fit for 55.

4. **R&I Needs and Policy Recommendations.** Bioenergy must be recognised as a long-term enabler of climate neutrality and circularity, which implies:

   - Funding for demo and first-of-a-kind plants via EU and national programmes.
   - Support for integrated biorefineries that optimise biomass use.
   - Regional coordination hubs for R&I and deployment.
   - EU-wide harmonisation of sustainability criteria and certification.

EERA BIEOENERGY DRAFTS A POSITION PAPER TO UNLOCK THE FULL POTENTIAL OF BIOENERGY AND BIO-BASED TECHNOLOGIES IN FP10

Even though the next Framework Programme for Research and Innovation (FP10) is not due to start until January 2028, discussions have already begun on how it should shape European funding for research, technology and innovation. EERA Bioenergy Joint Programme has developed the Position Paper 'Unlocking the Full Potential of Bioenergy and Biobased Technologies in FP10: A strategic path to resource-efficient and sustainable climate neutrality, resilience, and industrial sovereignty' to ensure that bioenergy and bio-based technologies reach their full potential in FP10 and empower sustainable bioenergy and bio-based systems as cornerstones of Europe's energy transition, strategic autonomy, and circular economy.

Among the ideas that the joint programme puts on the table, the following stand out:

- Enable longer project durations and multi-phase funding to support complex industrial technologies.
- Remove the artificial division between energy and non-energy uses of biomass.
- Support integrated value chains, from biomass provisioning to end-use, through cross-sectoral and cross-cluster collaboration.
- Prioritise the valorisation of all bio-based outputs (digestate, CO_2, ashes, heat) and the creation of regional biohubs.
- Ensure that biomass flows are managed based on quality, carbon cycle length, and climate value, not solely on end use.

Bioenergy highlights

RESEARCH AND DEMONSTRATION PROJECT PILOT-SBG: BIORESOURCES AND HYDROGEN TO METHANE AS FUEL

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Figure 1. Pilot plant for renewable methane on the site of the German Biomass Research Centre in Leipzig.

INTRODUCTION

The Pilot-SBG project focuses on producing renewable methane as a sustainable energy carrier for transport sectors that are difficult to electrify. Using biogenic residues, waste, and green hydrogen, a pilot plant was successfully built and operated at the German Biomass Research Centre in Leipzig. The concept combines proven and innovative technologies to generate renewable methane and valuable by-products for use in transport and other energy applications.

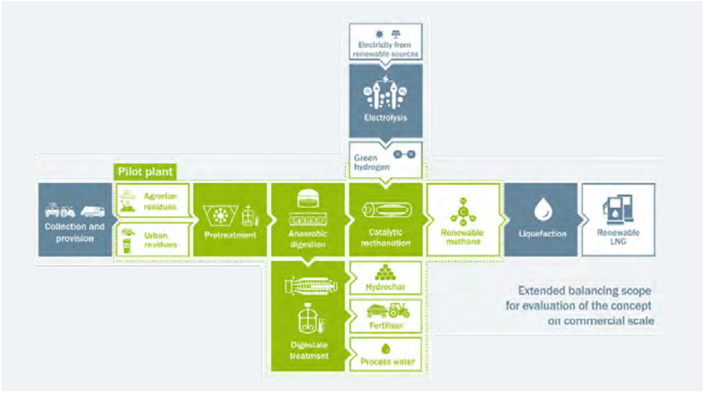


Figure 2. Flow chart of the individual process steps within the pilot plant (green) and the extended balancing scope (blue).

Practical research trials on the one hand and their evaluation on a conceptual level on the other are realised. The pilot plant will be run on agricultural (straw and cattle manure) and urban resources (organic and green waste). Continuously operated anaerobic fermentation and methanation as the central processes will be complemented by hydrothermal processes and a flexible separation cascade to emphasise the modular plant concept.

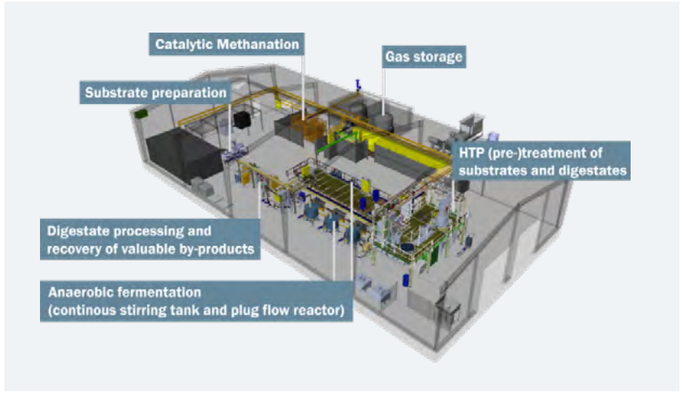


Figure 3. 3D model of the modules of the pilot plant for renewable methane.

In addition to routine operation of the pilot plant, technology- and interface-specific test series are also carried out. Based on modelling and scaling of the results and extending to the entire supply chain, ecological assessments, as well as cost and revenue structures, are considered. Following the Pilot-SBG project, the pilot plant itself will be offered as an R&D technology platform for further research and development projects with partners from industry and science.

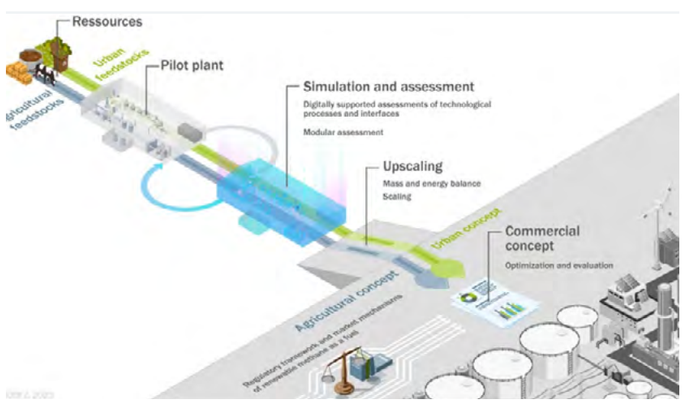


Figure 4. Infographic on the Pilot-SBG project: 'Bioresources and hydrogen to methane as fuel: piloting | optimisation | concept development'.

GOALS

Research at the pilot plant for renewable methane has the following specific goals:

- Reduction in greenhouse gas abatement costs for renewable LNG
- Optimisation of resource efficiency, especially regarding maximisation of the specific methane yield and utilisation of fermentation residues
- Development of optimised example concepts on a commercial scale and sensitivity analysis
- Identification of criteria for long-term viable plant concepts for renewable methane

The Pilot-SBG project supports a circular economy by using biogenic waste from agriculture and urban substrates. It integrates green hydrogen to boost methane production and decarbonise key sectors, aligning with the National Hydrogen Strategy. The project also advances the Climate Protection Plan by promoting renewable fuels that significantly cut greenhouse gas emissions.

Various topics such as GHG quota, infrastructure, methanisation and liquefaction, substrate processing and anaerobic fermentation are available free of charge on the project website in a series of focus booklets here.

MODULAR PILOT PLANT

The pilot plant itself integrates anaerobic fermentation of agricultural and urban waste with catalytic methanation of biogas to produce renewable methane. It features innovative pre- and post-treatment processes to enhance resource efficiency and generate valuable by-products like fertilizer or hydro char. Processing 0.2 – 1.2 tons of raw materials monthly, it demonstrates the complete process chain on a unique scale. The plant allows for flexible integration of different technology modules and supports studies on process stability, component interaction, and yield optimisation. Built in a modular way, the pilot plant enables the integration of additional process chains or technologies. We welcome collaboration—if your company or research centre is interested, please don't hesitate to contact us.

More detailed information on the pilot plant and its modules can be found in the technical brochure here.

CEREMONIAL COMMISSIONING OF THE PILOT PLANT IN MARCH 2025

After several years of planning and construction, the research facility was officially put into operation on March 18, 2025, in the presence of around 120 guests from research, politics and industry in a ceremony. Hartmut Höppner, State Secretary at the Federal Ministry for Digital and Transport, pointed out in a statement that the climate targets in the transport sector could hardly be achieved without renewable fuels: *"We need innovative solutions like those being developed in the 'Pilot SBG' project in Leipzig. It is of great importance that projects like this one are implemented at the German Biomass Research Centre to create the conditions for climate-neutral mobility and logistics of the future".*

OUTLOOK

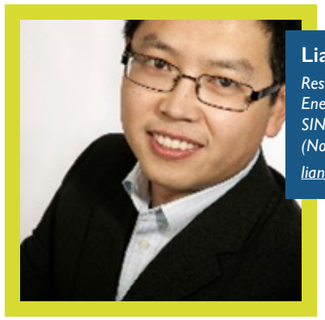
The research focus in 2025 will continue to be on the agricultural residues, straw and liquid manure, and in 2026, then on municipal waste. In addition to the routine operation and the automated and continuous interaction of all modules, process-specific and conceptual research questions will also be answered, including: How should the hydrothermal digestion of selected biogas substrates be assessed? Which residence time achieves optimum results in the fermentation of agricultural feedstocks, and which reactor type is better suited for this? Which catalysts and adsorbents are most promising for the methanation of biogas? What influence does the recirculation of process water into the fermentation process have on avoiding additional waste streams? What are the cost and revenue structures and ecological key figures of optimised overall concepts? How can the market opportunities for renewable methane as a fuel be assessed?

Pilot-SBG is a research and demonstration project with more than 20 scientists, technicians and staff specialising in anaerobic fermentation, hydrothermal pre- and post-treatment, methanation, separation technologies and process design, as well as automation and digitisation.

Do you have any questions? Feel free to contact us or have a look at are FAQ-section on our project website next to publications, posters, presentations and more:

www.dbfz.de/pilot-sbg

ENERGYPROSAFE – IMPROVING ENERGY PRODUCTION AND SAFETY IN BIOCARBON VALUE CHAINS, AND BIOCARBUPGRADE



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In the project BioCarbUpgrade *(Upgrading biocarbon for sustainable metallurgical industries; 2023-26)*, a large effort is currently made towards upgrading biocarbon for the metallurgical industry, to improve the biocarbon properties, especially connected to its end-use behaviour in furnaces in the metallurgical industries.

Midway in the BioCarbUpgrade project work, many valuable results have emerged as a result of experimental work and theoretical assessments connected to possibilities for influencing the biocarbon quality and LCA analyses of whole biocarbon value chains. Enhanced biocarbon production processes (atmospheric and pressurised) are studied as well as methods to remove unwanted ash elements and influence properties, e.g. the reactivity and strength, of the final biocarbon product. A recent highlight is a study on the use of water leaching for the removal of water leachable ash elements from different barks, showing that water leaching can contribute significantly to biocarbon quality enhancement using such lower-quality, but also lower-cost and abundantly available biomass resources. See the BioCarbUpgrade website and its publication page for more info on project results.

In parallel with this effort, past and recent experiences with safety issues (fires, dust explosions, air quality) connected to the biocarbon value chain have clearly shown the need for increased focus on the whole range of safety issues that can arise throughout the value chain, from its production to its final end-use in the metallurgical industries. Main safety issues are connected to self-ignition and dust explosion, while biocarbon dust also represents a significant air pollution source and hence a health risk.

Now, a new knowledge-building project, improving energy production and safety in biocarbon value chains **(EnergyProSafe)**, has started and will run for 4 years (2025-28). The focus is on the safety and health issues in the biocarbon value chains, and how to abate those through improvements throughout the value chains. As biomass is a valuable renewable resource that should be utilised in a resource-efficient manner, focus is also on energy and biomass material utilisation efficiency to enhance the sustainability of the biocarbon value chains. EnergyProSafe is led by SINTEF Energy Research and is 80 % financed by the Research Council of Norway and 20 % financed by several industrial partners.

The overall objective of EnergyProSafe is to improve and enhance energy production and safety in biocarbon value chains.

The sub-objectives are:

- Optimisation of biocarbon production processes to maximise energy output and produce biocarbon with minimised hazardous properties
- Identifying and evaluating safety-related vulnerabilities and risks during biocarbon production, transportation, handling and storage for metal production
- Increasing fundamental knowledge through experimental and simulation studies on the safety-related issues to identify and investigate root causes and influential factors under industrial-relevant conditions
- Developing, testing and assessing the effectiveness of measures to predict, detect and prevent safety-related issues throughout the biocarbon value chains, considering different conditions and scenarios
- Proposing and developing guidelines and recommendations for assessing and evaluating technical, HSE, economic and environmental consequences and impacts of the main safety issues identified
- Increasing expertise on safe production, logistics and storage throughout the biocarbon value chains from biocarbon production to metal production processes
- Education of highly skilled candidates and training of industrial partners
- Monitoring of activities and state-of-the-art within this area and dissemination of results to the industry partners, and other relevant parties when applicable

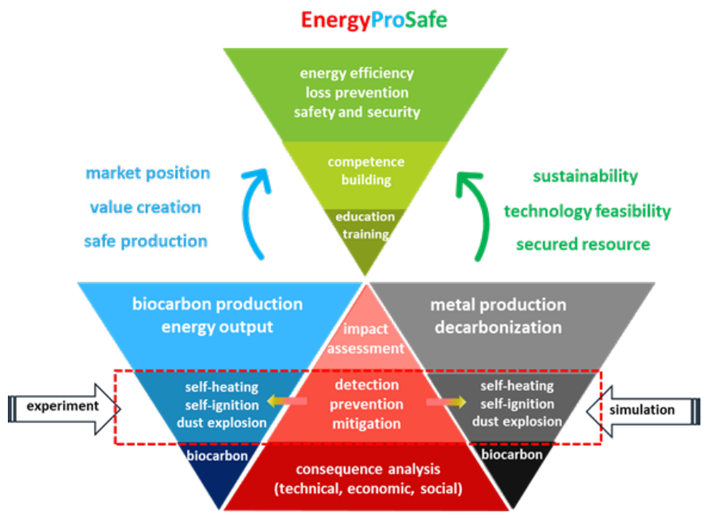


Figure 1. EnergyProSafe project concept.

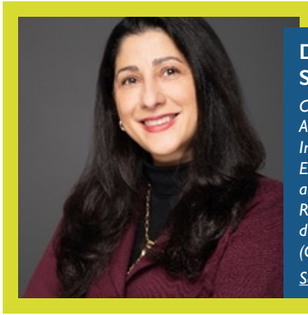
Through experimental and theoretical work, the aim is to increase the knowledge on how to avoid and mitigate but also to detect and prevent safety hazards, to minimise negative technical, economic and social consequences and improve the biocarbon value chain concerning resource utilisation efficiency, value creation and safety. This will then contribute to increased sustainability for the involved industries and as well as a secure resource base and improved market position towards the final goal, a net-zero contribution to global warming.

As our foundation today is built on the availability of metals used in numerous products, we need to ensure that the production of these metals is done sustainably. We therefore not only need to replace fossil-based reductants and materials in these metallurgical industries, but we need to do that as efficiently and safely as possible, while providing the needed societal and economic value. That means a combined focus on resource utilisation efficiency as well as reducing environmental, climate and health impacts.

The EnergyProSafe project will be highly international, through both large international partners and scientific collaborators, and has as well a significant integrated educational activity, through a PhD candidate financed by the project, focusing on improving safe handling and storage of biocarbon, and connected graduate students as well.

More information about the EnergyProSafe project, project partners, and results is available on the project homepage.

BIOMASS LIGNIN ELECTROLYSIS FOR HYDROGEN AND FINE CHEMICAL PRODUCTION



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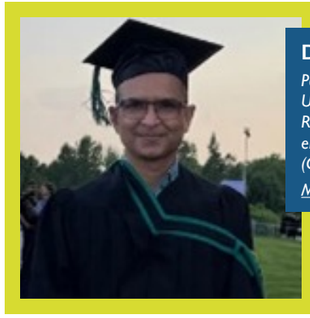

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The worldwide fuels and chemicals production is on the verge of transition from fossil fuels to renewable and green processes. To this quest, waste biomass lignin electrolysis has emerged as an enticing solution to produce hydrogen and high-value chemicals, addressing both energy and carbon emission issues associated with fossil-based energy systems. However, this transition faces challenges due to inadequate electrocatalysts and infrastructure, making it difficult for hydrogen and high-value chemicals production from waste biomass lignin electrolysis.

Lignin, as an abundantly available, low-cost aromatic biopolymer, presents a compelling alternative feedstock to petroleum to produce fuel and fine aromatic compounds. Canada's sustainable and green strategy for fuel production and financial commitments of both federal and provincial governments make it a true leader in the future of sustainable energy production. Efficient depolymerisation of lignin into monocyclic hydrocarbons and fuel is pivotal and highly desirable for the sustainability of biorefineries. However, depolymerisation of lignin is hindered by its complex polymeric nature, composed of methoxylated phenylpropane subunits linked to various C-O and C-C linkages. Traditional chemical and pyrolysis processes involve the modification and breaking of most inter-unit bond linkages of lignin but suffer from complex processes and high energy consumption, generating an unwanted array of byproducts, diverting from the selectivity and green viewpoint. Therefore, further upgrading of lignin into selective high-value hydrocarbon fuels, using a low-cost, simple electrochemical method, is crucial.

Recently, Shahgaldi's research group has examined electrolysis of lignin under mild conditions (temperature and energy) to generate value-added chemicals and hydrogen, unlike conventional thermal and chemical processes, which require high temperature and complex processes. We found that the electrocatalytic approach is an energetically effective approach that simultaneously modulates the electrochemical oxidation and reduction (hydrogenation) of raw lignin in an additively manufactured flow reactor to co-generate hydrogen and fine chemicals at low voltage compared to typical water electrolysis. In the additively manufactured flow reactor, the anolyte of raw lignin was fed to electro-oxidise, generating oxygenated products along with abundant H^+ and e^- the anode. This method promises to narrow down the undesirable bunch of chemicals produced at the anode by selectively catalysing using a nickel-based electrocatalyst in a paired electrolysis of raw lignin. The electrochemically oxygenated and hydrogenated compounds obtained at the anode and cathode were qualitatively analysed, employing high-performance liquid chromatography-mass spectroscopy. The scientific challenge proposed in this project is to provide a prolific new idea for the paired electrolysis of biomass lignin, leading to a green and sustainable route for high-value chemicals and hydrogen production, valorising waste biomass lignin. Thus, this research project addresses the important challenges in the progress of green and sustainable electrochemical routes for high-value chemicals and hydrogen fuel production with novel electrochemical methodologies. However, high Faradaic efficiency and current density remain a significant challenge.

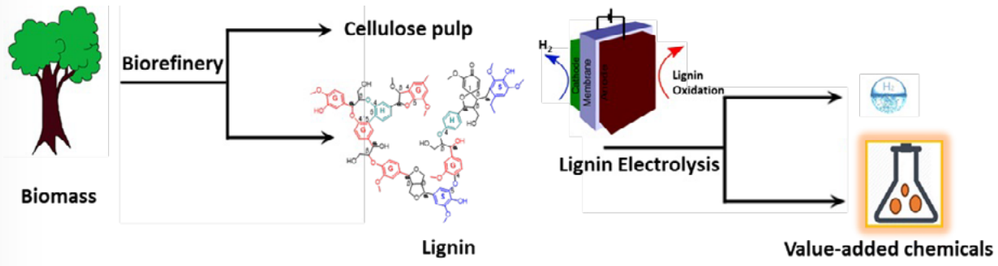

Figure 1. Demonstration of lignin electrolysis.

WORKING GROUP MECHANICAL BENIFICATION PROCESSES

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The working group Mechanical Benification Processes is a new working group established in the Thermo-chemical Conversion Department of the DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH at the beginning of 2024. Dr Claudia Kirsten leads this working group and has been working on the mechanical processing of biomass as a scientist since the DBFZ was founded in 2008.

Figure 1: The Team of the Working Group Mechanical Benificiation Processes (from left to right: Raphael Dürrse, Christoph Kröhl, Dr Claudia Kirsten, Nikolaus Manolikakes and Roman Adam) © Paul Trainer / DBFZ.

The working group deals with all issues related to the characterisation, processing and modification of biogenic solids, including biogenic residues and waste materials for a wide range of applications. Thereby, the team focuses on the following topics:

- Processing of solid biomass and biogenic residues, and waste materials into high-quality products
- Agglomeration of biogenic coals
- Implementation of preparation process steps such as comminution, drying, mixing and homogenisation as well as their process optimisation
- Implementation of compaction processes such as pelletisation, briquetting and granulation, as well as the associated process optimisation
- Influencing the properties of solid biomass through conditioning and additives
- Modelling of compaction processes
- Investigations into binding mechanisms during the agglomeration of biogenic raw materials or coal
- Research and development of new alternative (mixed) fuels from biomass
- Development of a fuel database including combustion-relevant properties
- Legal issues regarding the termination of end-of-waste properties
- Market observation for the production of innovative material products from biogenic solid

Figure 2. Focus and technical processes within the working group.

The working group has an extensively equipped technical centre at its disposal for the practical development of the topics. The equipment for pre-treatment processes includes, for example, various drying techniques and grinding systems such as hammer and cutting mills on a laboratory and pilot plant scale. Various mixing technologies in different sizes are available for homogenisation and additivation. Pellet and briquette presses, as well as granulation technology, are used for agglomeration and compacting. Various analysers are available to evaluate mixing quality, particle sizes or compaction success. At this point, the working group also work very closely with the DBFZ's very well-equipped analytical laboratory.

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Figure 3. Impressions of the preparation technology centre at the DBFZ used by the working group.

With this technical equipment and the experience gained from more than 15 years of mechanical biomass preparation, the working group can be an outstanding partner in the area of production, development, characterisation, pretreatment and additivation of solid biofuels or preliminary products for material applications.

WASTE-TO-ENERGY AND MUNICIPAL SOLID WASTE MANAGEMENT SYSTEMS IN CIRCULAR ECONOMY - SELECTED RESULTS FROM THE CIRCWTE PROJECT

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CircWtE (2021 – 2025) is a Norwegian competence-building project co-funded by industry & public partners and the Research Council of Norway (CircWtE - 319795).

R&D partners: SINTEF Energy Research (coordinator), NTNU, SINTEF Industry.

User partners: REG Oslo, NOAH AS, Tafjord Kraftvarme AS, CIVAC, Trøndelag fylkeskommune, Franzefoss Gjenvinning AS.

The CircWtE project is in its final phase, and we are now disseminating exciting results. An overview of the work carried out was recently presented at the EUBCE 2025 in June in Valencia, Spain. The project focused on Norway, but several aspects can be generalised to many European cases. Here are a few selected points we would like to share with you.

CircWtE background and objective

When implementing Circular Economy (CE) principles, radical changes can be expected both concerning Municipal Solid Waste (MSW) properties and amounts, but also MSW treatment value chains. CE unfolding will offer challenges and opportunities.

MSW is at the centre of a complex web of sometimes conflicting interests, e.g. more recycling, also of biogenic waste, and less Waste-to-Energy (WtE) will result in less renewable energy. The future will be affected by regulatory frameworks, but also by societal evolution and technological developments. The relative importance of these factors is currently unknown and hence needs to be quantified to optimise the route to a CE.

The main objective of CircWtE is to determine how future MSW management systems will look in a CE and what role they will have in the future energy system. CircWtE provides results and insights that will support the sector when transitioning towards a CE.

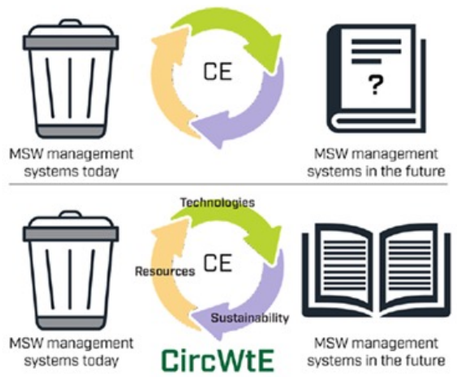

Figure 1. The project's main contribution: Knowledge on the effects a transition to CE will have on MSW management.

SP1 MSW – Comprehensive inventory

- Different regions = very different situations, local conditions matter!
- Total waste generation: population & wealth increase may very well compensate for a decrease in generation per capita
- Valuable to work at the sub-fraction level to generate meaningful results and conclusions
- The quality of waste data is paramount, and still not satisfactory for key fractions

SP2 Waste treatment technologies

- To achieve recovery targets, major changes are required; no business as usual
- Material and energy recycling go hand in hand and complement one another
- Innovation: Are there any upcoming game-changers? Difficult to say, even though some new technologies may play a role in helping the waste sector achieve its CE potential

SP3 Residues/side-streams

- A large increase in food waste treatment capacity is necessary soon
- More complex systems = more diverse residues to handle (e.g. rejects from recycling)
- Multifaceted WtE role: CCS (with mostly biogenic CO_2), energy production, and contaminants destruction

SP4 System analysis

- Need to develop more advanced & diverse indicators
- Targeted efforts better than general material recovery targets? Needs to be explored
- Less consumption of goods does not necessarily mean a lower environmental impact
- CE adaptation has economic but also social consequences to consider

A few additional thoughts

- The best waste is the waste not created!
- A strong shift towards CE is yet to happen
- While research provides knowledge, it is up to society to prioritise
- No miracle solution(s), only strategic choices with trade-offs & tough decisions
- The EU regulatory «tsunami» is still unfolding
- Many people are working to make things better!

Read CircWtE scientific articles:

https://www.sintef.no/en/projects/2021/circwte-waste-to-energy-and-municipal-solid-waste-management-systems-in-circular-economy/results-from-circwte/

CircWtE at EUBCE 2025:

https://programme.eubce.com/abstract.php?idabs=22904&idses=1881&idtopic=4

https://programme.eubce.com/abstract.php?idabs=22902&idses=1881&idtopic=4

DOC2025 | 8th DOCTORAL COLLOQUIUM BIOENERGY AND BIOBASED PRODUCTS

Prof Dr Michael Nelles
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Dear readers of the EERA Bioenergy Newsletter,

as the new patron of the Doctoral Colloquium BIOENERGY AND BIOBASED PRODUCTS, it is my pleasure to invite you all, and especially all young researchers in this field, to participate in the next edition of our doctoral colloquium DOC2025, to be hosted in Stuttgart from 10 to 12 September 2025 by the ValBio network of the University of Stuttgart.

The European Alliance for excellent research in sustainable bioenergy (EERA Bioenergy) proudly supports this event as a valuable contribution to early-career development, collaboration, and knowledge exchange within the European bioenergy research community – support that we, the organisers, scientific committee, and participants, very much appreciate.

Launched in 2018 with a primary focus on bioenergy, the Doctoral Colloquium has since evolved into an international platform on bioenergy and bio-based products. This year, it extends its thematic reach to include research on biotechnology and bioeconomy, reflecting the current political and economic development.

Biomass is the only renewable carbon source that we have. The biosphere is also a fascinating cosmos of sustainable interdependencies and solutions. As a "limited" resource, sustainable and efficient utilisation requires novel and innovative approaches and processes (e.g. cascading uses and co-production). Research on bioenergy and bio-based products, as well as system integration, demonstrates well how biomass and bio-based resources can contribute to transforming various sectors (chemical, pharmaceutical, construction, etc.) to high-quality processes and products.

Research in this area is already diverse and at a high level. However, many questions are open. Also, networking in the research community needs to be strengthened to deepen knowledge exchange and exploit synergies more efficiently and innovatively.

Since its foundation, the Doctoral Colloquium BIOENERGY AND BIOBASED PRODUCTS has served not only to further qualify young researchers, but also as an opportunity for networking and scientific exchange. Doctoral researchers from universities and research institutions present and discuss their latest results and progress.

The 8th Doctoral Colloquium BIOENERGY AND BIOBASED PRODUCTS is organised under the scientific coordination and direction of Prof Dr Ralf Takors and Dr. Ludger Eltrop, Senior Scientists at the University of Stuttgart. Prof Ralf Takors is head of the Institute of Biochemical Engineering and a leading scientist of the ValBio-Network ("Valorisation of Bioresources"). Dr Ludger Eltrop is Head of Department SEE at the Institute of Energy Economics and Rational Energy Use.

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This year, we received over 50 contributions for talks and posters. The programme is currently being finalised, and you can once again look forward to an exciting line-up. In addition to oral and poster presentations, the event will feature inspiring keynote speeches and networking opportunities, such as our interactive "Get-in-Touch" session. Excursions to the "Unterer Lindenhof" biogas plant as well as to the laboratories of the Fraunhofer Institute for Interfacial Engineering and Biotechnology (IGB) are also planned.

The Programme Committee carefully curated the papers for both oral and poster presentations with guidance from the esteemed Scientific Advisory Board, consisting of 47 renowned scientists from Germany, Austria, Switzerland, Italy and Norway, representing 37 research and higher education institutions working on bioenergy and bio-based products. A detailed list of all participating scientific institutions and members can be found on our website.

The Doctoral Colloquium BIOENERGY AND BIOBASED PRODUCTS (DOC2025) addresses all components of the biomass conversion chain, from feedstocks or conversion technologies to the resulting products and services. It also addresses overarching aspects, e.g. of economics, environmental or social aspects, and includes system analysis and system integration. Work on biological principles and knowledge rounds off the topic list.

DOC2025 will take place in the conference area of Campus Guest House on the main University Campus at Stuttgart, Vaihingen. The address is Universitätsstraße 28-34, 70569 Stuttgart. We warmly welcome your participation and valuable contributions to help shape and advance the scientific community.

Registration for the event will open soon. For more information, please visit our website.

Last but certainly not least, I would like to express my sincere gratitude to our former patron of the doctoral colloquium (DOC2018-DOC2024), Prof Dr Daniela Thrän (Helmholtz Center for Environmental Research – UFZ), whose vision and dedication laid the foundation for this event and guided it to its current success.

Sincerely,
Prof Dr Michael Nelles
Patron of the Event

Useful information

THE EUROPEAN COMMISSION OPENED THE YEAR WITH ITS COMPASS TO RESTORE COMPETITIVENESS AND ENSURE SUSTAINABLE PROSPERITY

The European Commission presented on 29 January the Competitiveness Compass, the first major initiative of this mandate, providing a strategic and clear framework to steer the Commission's work.

The Compass sets a path for Europe to become the place where future technologies, services, and clean products are invented, manufactured, and put on the market, while being the first continent to become climate-neutral.

According to this document, over the last two decades, Europe has not kept pace with other major economies due to a persistent gap in productivity growth. However, the EU would have what is needed to reverse this trend with its talented and educated climate-neutral workforce, capital, savings, Single Market, and unique social infrastructure, provided it acts urgently to tackle longstanding barriers and structural weaknesses that hold it back.

"Europe has everything it needs to succeed in the race to the top. But, at the same time, we must fix our weaknesses to regain competitiveness. The Competitiveness Compass transforms the excellent recommendations of the Draghi report into a roadmap. So now we have a plan. We have the political will. What matters is speed and unity. The world is not waiting for us. All Member States agree on this. So, let's turn this consensus into action", stated President of the European Commission, Ursula von der Leyen.

Three core areas for action: innovation, decarbonisation and security

The Draghi Report identified three transformational imperatives to boost competitiveness, and the Compass sets out an approach and a selection of flagship measures to translate each of these imperatives into reality:

- Closing the innovation gap: The EU must reignite its innovation engine. The European Union wants to create a habitat for young innovative start-ups, promote industrial leadership in high-growth sectors based on deep technologies and promote the diffusion of technologies across established companies and SMEs.
- A joint roadmap for decarbonisation and competitiveness: The Compass identifies high and volatile energy prices as a key challenge and sets out areas for intervention to facilitate access to clean, affordable energy. Clean Industrial Deal set out a competitiveness-driven approach to decarbonisation, aimed at securing the EU as an attractive location for manufacturing, including for energy-intensive industries, and promoting clean tech and new circular business models.

Reducing excessive dependencies and increasing security: The EU's ability to diversify and reduce dependencies will hinge on effective partnerships. The EU already has the largest and fastest-growing network of trade agreements in the world, covering 76 countries that account for almost half of the EU's trade. To keep diversifying and strengthening our supply chains, the Compass refers to a new range of Clean Trade and Investment Partnerships to help secure the supply of raw materials, clean energy, sustainable transport fuels, and clean tech from across the world.

THE EU OFFERS SUBSIDIES TO BOOST SUSTAINABLE AVIATION FUEL USE

The European Union is offering subsidies to encourage airlines to switch from traditional kerosene to more sustainable aviation fuels (SAF), according to Reuters. The initiative includes support for the purchase of over 200 million litres of SAF.

Based on calculations by the news agency, using European Commission data, this volume represents around 15 % of current global SAF production and could significantly increase demand from airlines.

To help bridge the cost gap between conventional jet fuel and SAF, the EU plans to use revenue generated from the sale of 20 million carbon emissions permits. The subsidies aim to make SAF more affordable for airlines operating within Europe.

Reuters estimates that the financial support could fund the purchase of up to 216 million litres of e-fuels—synthetic fuels produced from captured CO_2—or as much as 2.6 billion litres of biofuels.

Under the scheme, the EU will provide up to €6 per litre for e-fuels and €0.50 per litre for biofuels. The EU has also set targets requiring that 2 % of all aviation fuel supplied at EU airports must be SAF by 2025, increasing to 6 % by 2030.

Source: Reuters

A CLEAN INDUSTRIAL DEAL FOR COMPETITIVENESS AND DECARBONISATION IN THE EU

The European Commission presented on February the Clean Industrial Deal, a bold business plan to support the competitiveness and resilience of European industry. The Deal will accelerate decarbonisation, while securing the future of manufacturing in Europe.

Faced with high energy costs and fierce and often unfair global competition, EU industries need urgent support. This Deal positions decarbonisation as a powerful driver of growth for European industries. This framework can drive competitiveness as it gives certainty and predictability to companies and investors that Europe remains committed to becoming a decarbonised economy by 2050.

"Europe is not only a continent of industrial innovation, but also a continent of industrial production. However, the demand for clean products has slowed down, and some investments have moved to other regions. We know that too many obstacles still stand in the way of our European companies, from high energy prices to excessive regulatory burden. The Clean Industrial Deal is to cut the ties that still hold our companies back and make a clear business case for Europe", said President Ursula von der Leyen.

The Commission is also taking actions to make our regulatory environment more efficient while reducing bureaucratic hurdles for businesses. Clean Industrial Deal's measures are the results of the active engagement with industry leaders, social partners and civil society in the context of the Antwerp Declaration for a European Industrial Deal and the European Commission's Clean Transition Dialogues.

The Deal focuses mainly on two closely linked sectors:

1. Energy-intensive industries: The sector faces high energy costs, unfair global competition and complex regulations, harming its competitiveness, since it requires urgent support to decarbonise and electrify.

2. Clean Tech: It is at the heart of future competitiveness and growth, as well as crucial for industrial transformation. Circularity is also a central element of the Deal, as the EU needs to maximise its limited resources and reduce overdependencies on third-country suppliers for raw materials.

The Deal presents measures strengthening the entire value chain. It serves as a framework to tailor action in specific sectors.

BIOMETHANE DEPLOYMENT IS KEY TO COMPLYING WITH THE CLEAN INDUSTRIAL DEAL AND BOOSTING REINDUSTRIALISATION AND ENERGY INDEPENDENCE, REPORT REVEALS

Coinciding with the presentation of the Clean Industrial Deal, the four Horizon Europe projects within the biomethane cluster BIOMETHAVERSE, HyFuelUp, METHAREN and SEMPRE-BIO presented in a webinar on 26 February the main conclusions of their second joint report, entitled 'State of Play of Biogas and Biomethane in Europe: An Update on Market Gaps and Policy Recommendations', which analyses the gaps in the biogas and biomethane market in Europe and proposes policy recommendations for the sector.

Representatives of the renewable gas sector who drafted the report and intervened in the webinar agreed that biomethane is a key renewable energy source to comply with the Clean Industrial Deal, whose purpose is to accelerate decarbonisation and ensure the future of the manufacturing industry in the European Union. They also stressed that it is essential to ensure the reindustrialisation and energy independence of the European Union, especially in such a complex geopolitical situation.

Biomethane is a renewable fuel with neutral CO_2 emissions and high energy density. It can be transported through existing gas infrastructures, thus gradually reducing Europe's dependence on Russian fossil fuels and exposure to volatile natural gas prices. Since it valorises organic waste, it is a constant and storable source of energy that contributes to biocircularity and the revitalisation of rural areas, promoting synergies with the primary and secondary sectors, and fostering the development of local economies.

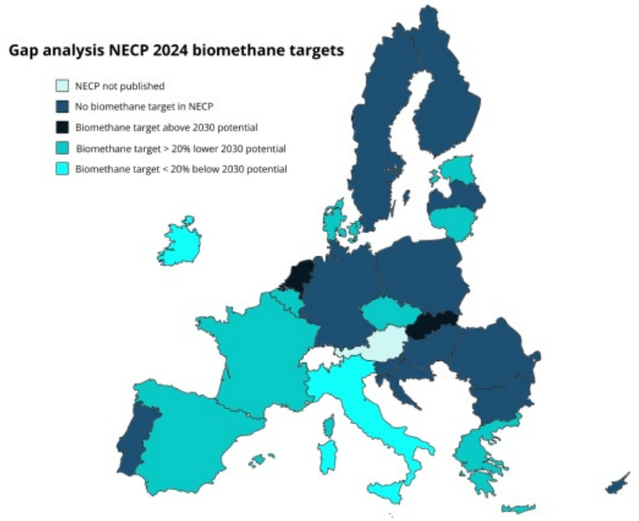


Figure 1. Countries' NECPs with a 2030 biomethane target (Source: 'State of Play of Biogas and Biomethane in Europe' report)

Report: 'State of Play of Biogas and Biomethane in Europe'

The report, which analyses the biogas and biomethane market gaps in Europe and proposes policy recommendations for the sector, was jointly drafted in October 2024 by the Horizon Europe projects BIOMETHAVERSE, HyFuelUp, METHAREN and SEMPRE-BIO. It provides a current overview of the European renewable gas sector, analysing the gap between the targets that each country has set in their respective National Energy and Climate Plans (NECPs) and their actual production potential; the main challenges faced by the different countries to meet the REPowerEU target of producing 35 bcm of biogas and/or biomethane by 2030, the situation of certificates of origin and cross-border trade, as well as a compilation of policy and market recommendations to make biomethane production take off in the European Union.

Given the importance that the European Commission attaches to biomethane, not only as a formula for improving Europe's energy security but also for reducing greenhouse gas emissions, four projects (and not the two originally budgeted) were finally funded by the European Union under the HORIZON-CL5-2021- D3-03 (Sustainable, Secure and Competitive Energy Supply) call.

This decision, motivated by the REPower EU plan launched at that time, implied that the European Climate, Infrastructure and Environment Executive Agency (CINEA) structured a collaboration between these four projects in the drafting of three policy recommendation reports on biomethane over 3.5 years (October 2023 - March 2026), among other collaborative actions for the benefit of the European biogas and biomethane sector.

The webinar speakers included representatives from different EERA Bioenergy members, such as DBFZ, BIOREF CoLAB or BIOPLAT, which are also partners in the sister projects. They all agreed that biomethane is one of the best assets the European Union must ensure its reindustrialisation and energy independence from Russian fossil fuels. Despite the upward trend in biomethane production in recent years, the European Union is still far from reaching the target set by the REPowerEU plan.

Among the obstacles that still hinder the full development of biomethane in Europe are the lack of political will, the problems derived from the social license and the low acceptance of biomethane in many countries, and the excessive permitting that the projects must bear.

AVIATION AND MARITIME SECTORS COULD CONSUME ALMOST ALL AVAILABLE BIOFUEL

Both the aviation and maritime sectors have committed to reducing their net greenhouse gas emissions to near zero by 2050. To achieve this, there are many measures that can be implemented, of varying effectiveness and reliability: efficiency improvements, modal shift, offshoring and offsets outside the sector, etc. However, the most impactful step would be to drastically reduce the carbon intensity (CI) of the fuels used by aircraft and ships.

The total shift to low-carbon energy carriers poses enormous quantitative and qualitative challenges to both industries, not least because they must act in concert. The challenges associated with this shift and the tools that could be used to address them are interrelated and have important implications for each sector's decarbonisation strategy.

One of these implications concerns biofuel, a key energy carrier for both industries' plans, because biofuels can be blended with conventional fuel for shipping and aviation. According to a recent model developed by the consultancy DNV for the International Maritime Organisation (IMO), biofuel demand in the maritime sector will reach between 2.0 and 7.8 Exajoules (EJ) by 2050, which is between 47 % and 181 % of the 4.3 EJ of biofuels currently produced globally.

The problem, in short, is that the amount of biofuels that both industries plan to use in the future far exceeds the number of existing biofuels, and scaling up new supply chains and climate-friendly biofuels comes with significant challenges. Airlines have fewer alternatives when it comes to energy carriers, so they will be highly motivated to spend more than shipping companies (and any other industry) on all the biofuel they can get their hands on. The implication for the shipping industry is clear: unless things change, the role biofuels can play in its energy transition will be limited at best.

The process of moving a 200,000-tonne cargo-laden ship across ten thousand kilometres of ocean favours energy-dense fuels, not least because the amount of space devoted to on-board energy storage affects the amount of paying cargo a ship can carry. Aircraft have even less room for manoeuvre. Energy-dense hydrocarbons power the vast majority of aeronautical applications and will continue to do so for the foreseeable future, as liquid fuels, which pack a lot of energy into a small, lightweight package, help mitigate the fundamental difficulty of getting and staying airborne.

For years, the aviation industry has looked to biofuel as the energy source to rely on to drastically reduce emissions. It has popularised a generic term for the fuel – 'sustainable aviation fuel' or SAF – that appropriates biofuels' promise of a carbon-neutral, closed-loop future, while maintaining some distance from biofuels' real challenges. However, regardless of how it is marketed, PBS made from biogenic feedstock is still biofuel, which means that production at bio-SAF scale poses many of the same challenges to food markets, water quality and ecosystem health that have made mass production so problematic.

Hence, innovation in technologies that can produce biofuels more sustainably and efficiently is now more necessary than ever.

Source: Clean Air Task Force

REPowerEU, 3 YEARS ON: THE SHARE OF RUSSIAN GAS IMPORTS HAS FALLEN FROM 45 % TO 19 %

The European Commission has decided to take stock of progress towards cleaner, more autonomous and affordable energy just 3 years after the launch of the REPowerEU Plan.

The plan, launched in May 2022, set out measures to phase out Russian fossil fuels, while accelerating the transition to clean energy with more emphasis on renewables, energy efficiency and energy savings.

Since its implementation, Russian gas imports were reduced from 150 billion cubic metres (bcm) in 2021 to 52 bcm in 2024, bringing the share of Russian gas imports down from 45 % to 19 %. Russia's crude oil imports, meanwhile, fall from 27 per cent to just 3 per cent, and coal imports fall to zero.

EU countries operating Russian-designed nuclear reactors (VVER) are increasingly turning to non-Russian alternatives. At the same time, the EU continues to develop renewable energy. Almost half of the EU's electricity already comes from renewables (47 %). Industry estimates that installed wind and solar capacity has increased by 58 % cumulatively between 2021 and 2024, saving about 38 bcm of gas in 3 years.

By 2025, it could increase further, by 16 %, replacing an additional 16 bcm of gas. Simplified permitting processes and increased investment will help to stay on track towards the target of renewables accounting for 42.5 % to 45 % of the EU countries' energy mix by 2030.

COMMISSION LEAK REVEALS PLAN TO FOLD ALL R&I INVESTMENTS INTO COMPETITIVENESS FUND DESPITE OPPOSITION FROM CO-LEGISLATORS AND STAKEHOLDERS

The European Commission is expected to heavily change the structure of its next long-term budget for 2028-2034, or Multi-Annual Financial Framework (MFF), due to long advocating for a massive simplification effort across EU funding programmes. In this context, the creation of a European Competitiveness Fund (ECF) aggregating a large portfolio of initiatives, including all investments related to research and innovation (R&I), crystallises all the interrogations, ahead of the publication of the Commission's official proposal in July.

Commission's Executive Vice-President for Prosperity and Industrial Strategy Stéphane Séjourné confirmed on 12 May previous rumours that Framework Programme 10 (FP10), which will replace Horizon Europe in 2028, should be part of the Competitiveness Fund, described as a *"new, coherent architecture that follows the entire life of companies from research to industrial production."*

While the details of the proposition remain unknown at this stage, the architecture of the Fund seems to have been drawn with little regards to the opinion of the research community, which has widely been advocating for a ring-fenced, standalone research programme, fearing the reattribution of R&I funds to other priorities, if all put under the umbrella of the Competitiveness Fund. Similarly, the European Parliament and most EU member states have so far rejected the superfund proposed by the Commission.

On 13 May, a new leaked chart gave further insights into the structure of the proposed ECF and reiterated its ambitious objective of supporting the entire investment journey from fundamental research to infrastructure deployment. According to the leaked presentation, the Commission is planning to divide the Competitiveness Fund into five different pillars: Digitalisation; Resilience, Defence and Space; Clean Transition and Decarbonisation; Health and Biotechnology; and finally, Blue-sky Research and Careers. The current clusters composing Horizon Europe are scattered across these pillars, alongside other central EU programmes. For instance, the Clean Transition and Decarbonisation pillar seems to gather the LIFE programme, the Innovation Fund, and Horizon Europe Cluster 5 (Climate, Energy & Mobility).

If the governance of the Competitiveness Fund is yet to be clarified, it appears that each pillar will be steered by a Chair and a Vice Chair, and that the overall ECF will be under the supervision of a Fund Manager and a Steering Board. However, the European Commission has refused to comment on the leaked memo and whether it indeed corresponds to its current plans for the next MFF. The next steps in the process will undoubtedly lead to a stark political confrontation, given the markedly different positions held by the Commission on one side, and the member states, the European Parliament, and the wider research community on the other.

Source: EERA

ERC BACKS CUTTING-EDGE RESEARCH WITH €721 MILLION IN FUNDING

The European Research Council (ERC) announced on 17 June the winners of its latest Advanced Grant competition. The funding, worth in total €721 million, will go to 281 leading researchers across Europe. The Advanced Grant competition is one of the most prestigious and competitive funding schemes in the EU. It allows senior researchers to pursue ambitious, curiosity-driven projects that could lead to major scientific breakthroughs. The new grants are part of the EU's Horizon Europe programme.

The new grantees' work will cover a wide range of subjects; from developing a preventive vaccine for hereditary breast cancer and investigating how diet and exercise affect brain cells related to ageing, to creating AI digital twins that mirror and enhance human thought and social skills, and exploring the hidden oceans on Jupiter's and Saturn's moons.

The new grantees will be based at universities and research centres in 23 EU Member States and associated countries, notably in the UK (56 grants), Germany (35), Italy (25), the Netherlands (24), and France (23). Among the winners are 45 Germans, 37 Italians, 26 Britons and 22 French, as well as researchers of 28 other nationalities.

This competition attracted 2,534 proposals, which were reviewed by panels of internationally renowned researchers. Over eleven per cent of proposals were selected for funding. Estimates show that the grants will create approximately 2,700 jobs in the teams of new grantees.

EUROPEAN COMMISSION FINALLY OPTS FOR 90 % EMISSION REDUCTION TARGET BY 2040, WITH THE SHADOW OF 'EXCESSIVE FLEXIBILITY' HANGING OVER IT

On 2 July, the European Commission presented its long-awaited 2040 climate target, which finally marks a middle ground between the agreed goals of reducing net greenhouse gas (GHG) emissions by 55 % by 2030 compared to 1990 levels and achieving climate neutrality by 2050. After delays, fears of setbacks and complicated preliminary negotiations, the European Commission has settled on a 90 % emissions reduction target for 2040, as well as introducing greater flexibilities, drawing criticism from climate and environmental experts.

For the first time, the EU's carbon emissions reduction target will include several adjustments aimed at helping member states meet the target, while allowing them to adapt to the specificities of their economies. First, the Commission's proposal allows for the use of international credits from 2036 onwards, which will allow Member States to externalise part of their efforts by financing climate projects in developing countries and counting the resulting emission reductions towards their national targets. However, this mechanism could only account for a maximum of 3 percentage points of the target, and the European Commission's Directorate-General for Climate (DG CLIMA) will oversee designing the precise rules for the use of these credits.

In addition to complementing the reduction of greenhouse gas emissions, the 90 % target should also allow for the use of domestic permanent removals, both natural and technological, and develop incentives for their use through the 2026 revision of the EU Emissions Trading Scheme (EU ETS). This is intended to offset residual emissions from sectors that are difficult to phase out and thus alleviate pressure on energy-intensive industries. Finally, the Commission proposes to increase flexibility between sectors, meaning that a Member State that has difficulties decarbonising in one area, such as transport or agriculture, could compensate by reducing emissions in another sector instead.

While the European Commission points out that the proposal is based on an in-depth impact assessment and the recommendations of both the Intergovernmental Panel on Climate Change (IPCC) and the European Scientific Advisory Board on Climate Change, the latter had strongly advised against the use of international carbon credits in its 2 June report 'Scientific advice for amending the European Climate Law: Setting climate targets to strengthen EU strategic priorities'. Leading environmental NGOs have also criticised the 2040 target since its publication, arguing that it is insufficient, fails to address the urgency of the climate crisis and does not provide sufficient clarity on the proposed new flexibilities.

The Commission's proposal will now go through the ordinary legislative procedure, and the European Parliament and Council will work to adopt a common position on it. Discussions among environment ministers, which observers expect to be heated, could start soon. The French, Polish, Italian and Czech governments have already spoken out against an excessive target, as the emissions reductions needed to meet it will impact on many industries. In comparison, the 2030 target was largely based on emission reductions in the power sector.

In addition to the 2040 target, another difficult negotiation lies ahead: the submission of the EU's Nationally Determined Contribution (NDC), the EU's national climate action plan, as well as the submission of its 2035 climate target, both required by the United Nations (UN) Paris Agreement ahead of the flagship Climate Change Conference, COP30, to be held in Belém, Brazil, next November. Poland, Hungary and France called for decoupling the 2035 target from the 2040 target to allow for longer negotiations. However, Denmark, which will lead the discussions, aims to reach both targets in September.

Source: EERA

Figure 2. Commissioner Wopke Hoekstra presents the revision of the EU's 2040 climate target on 2 July in Brussels. (© European Union, 2025, CC BY 4.0).

THE EUROPEAN COMMISSION SHARES FOR THE FIRST TIME A DRAFT VERSION OF THE WORK PROGRAMS 2026-2027 FOR THE HORIZON EUROPE PROGRAM

In a transparency exercise, the European Commission has published for the first time a first draft version of the Work Programs 2026-2027 for the Horizon Europe Program, the European Union's framework program for research and innovation (R&I) for the period 2021-2027. According to the leaked draft, planned spending will fall from €506 million in 2025 to €452.55 million in 2026, before rising slightly to €457.70 million in 2027.

The plan for 2026 is dominated by Twinning, a measure that aims to stimulate collaboration between research institutions in lagging EU member states and leading counterparts. This will receive the bulk of that year's budget, a total of €207.50 million.

In 2027, calls for proposals under the European Research Area (ERA) Chairs and ERA Research Managers schemes will be granted €170 million and €60 million respectively. This lines up with the Commission's stated goal of boosting links between research and innovation players, and attracting experienced research managers to universities and research organisations in Widening nations.

The Horizon Europe Program is structured in three pillars:

- **Pillar 1.** Excellent Science, which, through the European Research Council (ERC), will fund research projects at the frontier of knowledge, designed and led by researchers. It will also support the professional development and training of research staff and invest in improving and optimising transnational access to world-class research infrastructures.

- **Pillar 2.** Global Challenges and European Industrial Competitiveness will fund research within social challenges, strengthen industrial technological capacities, and establish missions with ambitious objectives aimed at major global challenges (health, climate change, renewable energies, mobility, security, digital, materials, etc.). To maximise impact, flexibility, and synergies, R&I activities will be organised into six clusters, which will individually and collectively encourage interdisciplinary, intersectoral, cross-cutting, cross-border, and international cooperation, with Social Sciences and Humanities fully integrated into all clusters, also with specific and specialised activities. The R&D activities will be carried out within the following clusters:

1. Health;
2. Culture, Creativity, and Inclusive Society; Culture, creativity, and inclusive society;
3. Civil security for society; Civil security for society;
4. Digital world, industry, and space;
5. **Climate, energy, and mobility;**
6. **Food resources, bioeconomy, natural resources, agriculture, and the environment.**

- **Pillar 3.** Innovative Europe aims to make Europe a pioneering power in market-creating innovation and the growth of innovative SMEs through the European Innovation Council (EIC). It will support top innovators, entrepreneurs, SMEs, and scientists with the ambition to grow on an international scale. Additionally, the European Institute of Innovation and Technology (EIT) will continue to promote the integration of research, higher education, and entrepreneurship through Knowledge and Innovation Communities (KIC).

The priority areas of interest in the field of bioenergy and bioeconomy are addressed in Clusters 5 and 6 of Pillar 2.

- **Cluster 5.** Climate, energy, and mobility aim to impel the transition towards a climate-neutral, resilient, and sustainable society through research and innovation in climate, energy, and mobility. To achieve this, it identifies the following priority areas: CLIMATE (improving the understanding of the causes, evolution, risks, impacts, and opportunities of climate change, as well as developing solutions for mitigation and adaptation), ENERGY (renewable energies for use at the energy system, domestic, and transportation levels; energy systems, grids, and storage; CO_2 capture, storage, and utilization technologies; energy efficiency in buildings and industry; communities and cities), and TRANSPORT (industrial competitiveness in transportation; clean, safe, and accessible transportation and mobility; smart mobility; energy storage).

- **Cluster 6.** Food resources, bioeconomy, natural resources, agriculture, and the environment aim to generate knowledge and innovative solutions that accelerate the transition towards the sustainable management of natural resources (biodiversity, water, and soil). To achieve this, it has the following lines of activity: environmental observation; biodiversity and natural resources; agriculture, forestry, and rural areas; food systems; bioeconomy and biological value chains; circular systems; oceans, seas, and inland waters.

The latest public version of the drafts of the respective Work Programs 2026-2027 (version 27/05/2025) are available at the following links:

Cluster 5. Climate, energy, and mobility

Draft Implementing Decision – Work Programme 2026-2027 – Part 8 – Climate, Energy and Mobility - version 2 of 27/05/2025

The following topics are included:

- **HORIZON-CL5-2026-09-D3-05:**
  Demonstration of solid biofuel supply and conversion to large-scale CHP from fully sustainable regional value chains

- **HORIZON-CL5-2027-08-D5-19:**
  Onboard renewable energy solutions and energy saving measures to reduce the fuel consumption of ships by at least 55 % (ZEWT Partnership)

Cluster 6. Food resources, bioeconomy, natural resources, agriculture, and environment

Draft Implementing Decision – Work Programme 2026-2027 [Part 9. Food, Bioeconomy, Natural Resources, Agriculture and Environment] v2 of 27/05/2025

The following topics are included:

- **HORIZON-CL6-2026-01-CIRCBIO-05:**
  Understanding biomass flows in Europe

- **HORIZON-CL6-2026-01-CIRCBIO-06:**
  Bioeconomy policy support hub for Member States, regions and sectors

- **HORIZON-CL6-2026-01-CIRCBIO-07:**
  Advancing the European bio-based innovation enabled by biotechnology and biomanufacturing concepts

- **HORIZON-CL6-2026-01-CIRCBIO-08:**
  Supporting pre-normative research for standardisation of the bio-based products

- **HORIZON-CL6-2026-01-CIRCBIO-10:**
  Bio-based innovation in society: supporting the sustainable way of living

- **HORIZON-CL6-2026-01-CIRCBIO-11:**
  Harnessing the unique properties of marine organisms to deliver sustainable blue bio-based products

- **HORIZON-CL6-2027-01-CIRCBIO-06:**
  Towards a Europe of Bioeconomy Places

- **HORIZON-CL6-2027-01-CIRCBIO-07:**
  Improving biomass flows for a sustainable and circular bioeconomy

DANISH EU PRESIDENCY SETS ITS PRIORITIES: GREEN TRANSITION, COMPETITIVENESS AND SECURITY, WITH R&I CENTRAL TO RESILIENCE AND GROWTH

Denmark has unveiled its priorities for its Presidency of the Council of the European Union, which it will hold for six months since 1 July. Under the motto "A Strong Europe in a Changing World," the Danish Presidency has put the building of a more secure, competitive and green Europe, in a context marked by global uncertainty, strategic rivalry and intensified economic competition, at its core, continuing the main strategies of the Union. In presenting its priorities, the Danish government emphasised that the green transition must be closely linked to strengthening Europe's economic and strategic resilience and called for securing stable supply chains, bolstering economic security and enhancing the EU's position on the world stage. In addition, it was notably emphasised that research and innovation remain central to future growth.

Looking at the work planned within the Competitiveness Council, the Danish Presidency will continue to carry forward the current priorities of the European Commission, focusing on simplifying regulation and reducing administrative burdens for businesses and stakeholders, to create a clearer regulatory environment. At the same time, Denmark plans to promote an industrial policy that leverages the EU's strengths in green technology and supports both investment and technological development. Closing the innovation gap in critical areas such as artificial intelligence, quantum computing, biotechnology and space technology is also expected to be an important focus over the next six months. In that regard, Denmark will work on the EU Innovation Act, with preparations set to start by the fourth quarter of the year.

Regarding its work in the Energy Council, Denmark has announced its intention to support initiatives that strengthen Europe's energy security, improve competitiveness and accelerate the green transition. This includes ensuring access to clean, affordable energy, furthering the EU's independence from Russian energy and continuing efforts towards the decarbonisation of European industry, as laid out in the Clean Industrial Deal. During Denmark's tenure at the helm of the Council of the EU, the Industrial Decarbonisation Accelerator Act and the Trans-Mediterranean Energy and Clean Tech Cooperation Initiative are notably expected to be published by the European Commission.

Denmark also commits to continuing efforts to reduce Europe's environmental footprint and cut greenhouse gas emissions, pledging to push for environmental ambition and climate leadership. In addition, on the international stage, Denmark will oversee the EU's engagement in multilateral forums, including COP30, which will take place from 11 to 22 November in Belém, Brazil.

Finally, a significant file during Denmark's presidency will be negotiations on the Multiannual Financial Framework (MFF), with the European Commission's proposal for the EU's seven-year budget for 2028 to 2034. While negotiations are expected to continue well beyond the Danish Presidency, the country will likely initiate the initial discussions on the topic

Source: EERA

Figure 3. Press conference in the Danish Parliament of Minister for European Affairs Marie Bjerre. (© Danish Presidency of the Council of the EU, 2025, CC BY-NC-ND 4.0).

PLAN FOR STRONGER EU CHEMICAL INDUSTRY

The European Commission has presented an action plan for the chemicals industry to strengthen the competitiveness and modernisation of this sector. The action plan addresses key challenges – high energy costs, unfair global competition, and weak demand–, while promoting investment in innovation and sustainability.

This action plan comes after the release of an 8-European-countries joint paper in March, which stated that the chemical industry is in a "massive competitiveness crisis" and identified key molecules used across industries, including petrochemicals, organic chemistry, pharmaceuticals, construction, cars, electronics, batteries and agriculture.

The action plan presented in July proposes the following measures:

- Resilience and level playing field: establishing a Critical Chemical Alliance to address the risks of capacity closures in the sector and applying trade defence measures to ensure fair competition.
- Affordable energy and decarbonisation: swiftly implementing the Affordable Energy Action Plan to help reduce high energy and feedstock costs.
- Lead markets and innovation: highlighting fiscal incentives and tax measures to boost demand for clean chemicals.
- Taking action on per- and polyfluoroalkyl substances (PFAS): minimising PFAS emissions through a robust, science-based restriction, while ensuring continued use in critical applications under strict conditions where no alternatives are available.

THE EUROPEAN COMMISSION SHOWS INTEREST IN INCREASING THE BUDGET OF THE EUROPEAN INNOVATION COUNCIL

In a recent appearance before the European Parliament, Research Commissioner Ekaterina Zaharieva announced the Commission's intention to double, or even triple, the budget of the European Innovation Council (ERC) in the next EU Framework Programme.

With current funding only supporting 4 % of proposals submitted, Zaharieva highlighted the need for greater investment to finance excellent projects and make Europe a leading innovation hub. The ERC, which helps start-ups and small businesses scale up their innovative technologies, currently has a budget of €10 billion under the third pillar of Horizon Europe. In contrast, Pillars I and II receive €25 billion and €53.5 billion, respectively.

Both the ERC and the ERC had jointly requested a significant increase in the budget. Parliament and stakeholders are advocating for a dedicated allocation of €200 billion for the next Framework Programme. In parallel, the Commission plans to create a Europe Fund to enable the ERC to make larger capital investments in strategic fields such as artificial intelligence, quantum technologies, and clean technologies.

Publications

Decoding Biogases 2025

PDF

European Biogas Association (EBA)

The European Biogas Association (EBA) has published a report which provides an overview of how biogas is produced, its environmental and societal benefits, and its role in the future energy landscape.

The impact of biogases goes far beyond energy production, as they provide solutions to significant societal challenges. They support grid stability, provide affordable and sustainable energy, and offer effective waste management solutions. The offsetting of fossil energy with biogases stimulates leadership in clean technologies and the creation of green jobs, boosting the development of a European Bioeconomy.

Renewable capacity statistics 2025

PDF

International Renewable Energy Agency (IRENA)

This publication presents renewable power generation capacity statistics for the past decade (2015-2024) in trilingual tables in English, French and Spanish.

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 various sources, including an IRENA questionnaire, official national statistics, industry association reports, other reports, and news articles.

23rd annual overview barometer

PDF

EurObserv'ER

EurObserv'ER has been gathering information and data on renewable energy sources in the EU for more than twenty years to describe the state and development of the sectors in themed barometers. The first part of this opus is a summary per RES sector, communicating the main tendencies in each sector for the years 2022 and 2023.

The following chapters supply socioeconomic indicators on employment and turnover, investment costs, avoided fossil fuel use and resulting avoided expenses and GHG emissions thanks to the development of the RES sectors. They also provide an insight into EU competitiveness and innovation capability regarding renewable energy technologies.

Outlook for Biogas and Biomethane

PDF

International Energy Agency (IEA)

This report presents a first-of-its-kind global geographical analysis of the untapped potential of biogas and biomethane from agriculture, municipal waste and forestry residues. Using detailed geospatial and production cost data, it assesses the potential, costs and suitability of over 30 types of feedstocks in more than 5 million locations worldwide.

More broadly, the report also analyses the current state of play of the biogas and biomethane sector, reviewing today's policies, business models, consumption patterns and supply trends. Additionally, it examines the environmental impacts of biogas projects, highlighting the importance of minimising associated methane emissions and responsibly managing organic waste streams. And it considers the latest technologies and innovations in the sector, plus the scope for reducing costs through higher yields or economies of scale.

Technologies for Flexible Bioenergy

PDF

IEA Bioenergy

As the share of variable renewable energy sources, such as wind and solar, increases, flexibility becomes a key requirement for stable and resilient energy systems. This IEA Bioenergy report explores how sustainable bioenergy can provide flexibility to the energy system across multiple dimensions, including temporal, spatial, and sectoral flexibility, as well as flexibility with respect to feedstock, operation, and end products.

Bioenergy contributes to both short-term flexibility (e.g., by balancing electricity grids, providing heat during peak hours) and long-term flexibility (e.g., by storing and transporting biomass-based energy carriers). The report presents a concise description of core technologies that demonstrate how bioenergy can, either individually or in combination with other energy sources, enhance system controllability and stability.

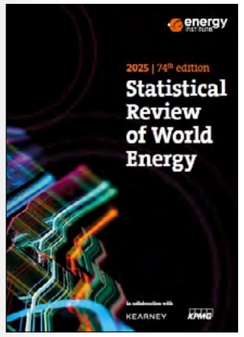
EU Biomass supply, uses, governance and regenerative actions

PDF

Publications Office of the European Union

This report is the fourth comprehensive public report by the European Commission's Joint Research Centre (JRC) entirely dedicated to the topic of biomass in its many shapes and forms. This is the ten-year anniversary edition of the JRC Biomass Mandate. It discusses the competing requirements for biomass and why this makes it so important to address biomass governance. In the central chapters of the report, biomass supply from forests, agriculture, and marine ecosystems is quantified, as well as waste streams for a wide range of uses in the European Union. The second half of the report is dedicated to a presentation and discussion of various possible actions to address biomass governance. The report concludes by highlighting the need for system-level assessments to facilitate policy coherence. It reflects the direct work of JRC scientific staff and their collaborators, bringing together expertise from several units of the organisation, all united by a common attention to biomass.

Statistical Review of World Energy



PDF

Energy Institute

The Energy Institute Statistical Review of World Energy™ analyses data on world energy markets from the prior year. Previously produced by BP, the Review has been providing timely, comprehensive and objective data to the energy community since 1952.

In a year when average air temperatures consistently breached the 1.5°C warming threshold, global CO_2-equivalent emissions from energy rose by 1 %, marking yet another record, the fourth in as many years.

This latest review underscores a stark truth: while renewable energy is scaling faster than ever, global demand is rising even faster. Rather than replacing fossil fuels, renewables are adding to the overall energy mix. This pattern, marked by simultaneous growth in clean and conventional energy, illustrates the structural, economic, and geopolitical barriers to achieving a truly coordinated global energy transition.

Integrated assessment of bioeconomy sustainability

PDF

Joint Research Centre (JRC) Publications Repository

This report explores the epistemic and methodological foundations of the Integrated Bioeconomy Land Use Assessment (IBLUA) project, in which an innovative deliberation support system is developed toward more informed discussion over bioeconomy futures in the European Union (EU). In terms of the knowledge it delivers, integral to the support system, the project employs a biophysical approach to scientific accounting, emphasising key insights from the Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM) framework, among other frameworks.

More broadly, the project is situated within the paradigm of post-normal science, emphasising a high-quality process of decision-making suitable for situations of high uncertainty complicated by conflicting values and the need for urgent decisions.

Horizon Europe missions monitoring flash

PDF

Publications Office of the European Union

This report offers a snapshot of Horizon Europe's contribution to the five EU Missions: Adaptation to Climate Change, Cancer, Climate-Neutral and Smart Cities, Ocean and Waters, and Soil. It draws from project data across both Mission-specific calls and broader research portfolios, highlighting how each Mission is being supported through targeted and complementary R&I efforts.

The analysis presented in this report provides key figures related to the performance of EU Missions based on Horizon Europe monitoring data only. This document uses information as it stood on 1 July 2024, three and a half years after the start of the Framework Programme.

Align, act, accelerate

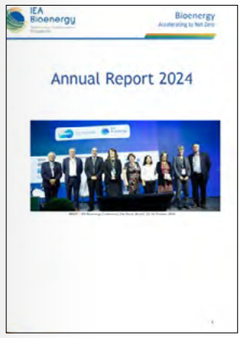
PDF

Publications Office of the European Union

This independent expert report provides strategic recommendations on maximising the impact of EU Research and Innovation programmes in the future. It is based on the preliminary findings and data on Horizon Europe and findings and conclusions stemming from the ex-post evaluation of the Horizon 2020 programme, and on other sources.

It advocates that Europe should pursue a transformative agenda to address four critical and interdependent core spheres of action. This transformative agenda should be implemented in the short term, through specific actions in the last three years of Horizon Europe, 2025-2027, and embedded in future EU support to research and innovation.

Annual Report 2024



PDF

IEA Bioenergy

The IEA Bioenergy Annual Report 2024 includes a special feature article on 'Flexible Bioenergy – Enabler for Energy Transition for Zero Emission Energy Systems' prepared by Task 44 (Flexible Bioenergy and System Integration). It also features a report from the Executive Committee and a detailed progress report on each Task. The document comprises key information such as Task participation, Contracting Parties, budget tables and lists of reports and papers produced by the Technology Collaboration Programme.

Save the date! International bioenergy events

AUGUST 2025

4-6 August 2025
International Conference on Sustainable Energy Information Technology (SEIT-2025)
Leuven, Belgium

14-15 August 2025
International Conference on Biofuels and Bioenergy (ICBB 2025)
Hamburg, Germany

SEPTEMBER 2025

2-3 September 2025
SAF Global Summit 2025
London, United Kingdom

10-12 September 2025
8th Doctoral Colloquium Bioenergy and Biobased Products (DOC 2025)
Stuttgart / Vaihingen (Germany)

11-12 September 2025
6th International Conference on Biofuels and Bioenergy
Rome, Italy

11-13 September 2025
Global Conference on Biofuels & Bioenergy 2025
Valencia, Spain

24-25 September 2025
Biogas PowerON 2025
Hamburg, Germany

25-26 September 2025
International Forum on Industrial Biotechnology and Bioeconomy (IFIB)
Turin, Italy

25-26 September 2025
3rd International Conference & Expo on Biofuels and Bioenergy
Vienna, Austria

OCTOBER 2025

1-2 October 2025
Greencities & S-Moving 2025
Malaga, Spain

8-9 October 2025
Biomass PowerON 2025
Stockholm, Sweden

14-15 October 2025
European Biomethane Week 2025
Brussels (Belgium)

27-28 October 2025
19th Global Summit & Expo – Biomass and Bioenergy
London, United Kingdom

29-31 October 2025
6th International Conference on Advances in Energy Research and Applications (ICAERA 2025)
Barcelona, Spain

30 October – 1 November 2025
Bio-Energy Pavilion 2025
Greater Noida, India

NOVEMBER 2025

12-13 November 2025
Sustainable Road Transport Europe 2025
Amsterdam, The Netherlands

21-23 November 2025
10th International Conference on Renewable Energy and Conservation (ICREC 2025)
Florence, Italy

26-27 November 2025
Future of Biogas Europe 2025
Seville, Spain

DECEMBER 2025

9-10 December
European Biocarbon Summit 2025
Amsterdam, The Netherlands

11-12 December 2025
International Conference on Bioenergy and Innovative Biotechnology (ICBIB)
Madrid, Spain

16-17 December
10th Biogas Congress & Expo
Warsaw, Poland

EERA Bioenergy in Europe

Table 1. Full members of the EERA Bioenergy Joint Programme.

Aalborg University
Department of Energy Technology (Denmark)

BERA
Belgian Energy Research Aliance (Belgium)

CEA
French Alternative Energies and Atomic Energy Commission (France)

CIEMAT
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (Spain)

CNR
Istituto Motori del Consiglio Nazionale delle Ricerche (Italy)

CRES
Center for Renewable Energy Sources and Saving (Greece)

CSIC
Agencia Estatal Consejo Superior de Investigaciones Científicas (Spain)

DBFZ
Deutsches Biomasseforschungszentrum gemeinnützige GmbH (German Biomass Research Center gGmbH)

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

I2E3-UQTR
Institute of Innovations on Eco-materials, Eco-products and Eco-Energy, University of Quebec at Trois-Rivières (Canada)

IEN
The Institute of Power Engineering (Poland)

KIT
The Research University in the Helmholtz Association (Germany)
KIT / BIOLIQ

LNEG
Laboratório Nacional de Energia e Geologia (Portugal)

NTNU
Norwegian University of Science and Technology (Norway)

PSI
Paul Scherrer Institut (Switzerland)

SINTEF
(Norway)

TNO
(Netherlands)

TÜBITAK
Scientific and Technological Research Council of Turkey (Turkey)

TU/e
Eindhoven University of Technology (Netherlands)

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

UNIBO
Universitá di Bologna (Italy)

UPV/EHU
University of Basque Country (Euskal Herriko Unibertsitatea) (Spain)

VŠB
Technical University of Ostrava (Czech Republic)

VTT
Technical Research Centre of Finland Ltd (Finland)

WUR
Wageningen University & Research (The Netherlands)

Table 2. Associate members of the EERA Bioenergy Joint Programme.

Agricultural University of Plovdiv (Bulgary)	**CNRS** Centre National de la Recherche Scientifique (France)	**CoLAB BIOREF** Collaborative Laboratory for the Biorefineries (Portugal)
Energy Agency of Plovdiv (Bulgaria)	**ETA-Florence Renewable Energies** (Italy)	**FCiências.ID** Associação para a Investigação Desenvolvimento de Ciências (Portugal)
IFK Stuttgart Institute of Combustion and Power Plant Technology (Germany)	**IIASA** International Institute for Applied Systems Analysis (Austria)	**NIC** National Institute of Chemistry (Slovenia)
RE-CORD Renewable Energy Consortium for Research and Demonstration (Italy)	**UNICT** Università degli studi di Catania (Italy)	**UNIMORE** University of Modena and Reggio Emilia (Italy)

UNIPD Università degli Studi di Padova (Italy)	**UNITO** Università di Torino (Italy)	**UNL** Universidade NOVA de Lisboa, Faculdade de Ciências e Tecnologia (Portugal)
WIP WIP Renewable Energies (Germany)		

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

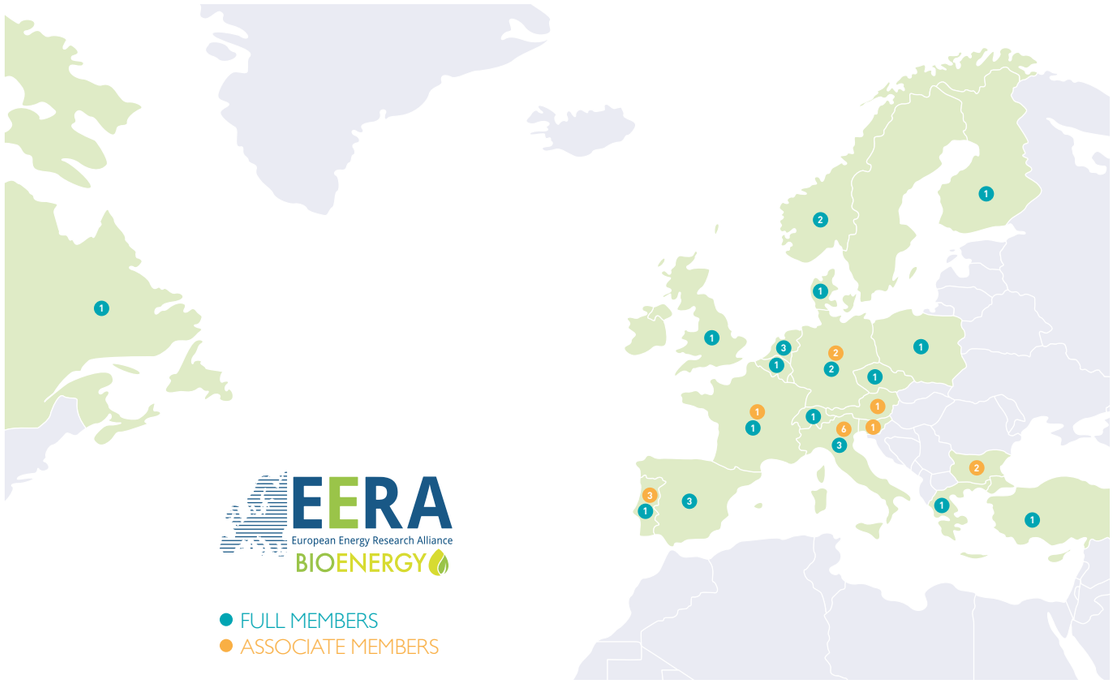


Figure 1: The EERA Bioenergy Joint Programme consists of 44 members (25 Full members and 16 Associate members) from a total of 19 countries. Link

www.eera-bioenergy.eu

Contacts

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