

EERA BIOENERGY JOINT PROGRAMME

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EERA Bioenergy is open for any scientific-technical entity actively involved in bioenergy research of the European Union, a candidate country of the European Union or a country associated to the Framework Programme of the European Union for research, technological development and demonstration activities, to join.

EERA Bioenergy has two categories of members: Full Members (Participants) and Associate Members.

Where research boosts bioenergy competitiveness in Europe

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Objectives

The general objective of the EERA Bioenergy Joint Programme is to become a **robust research and development instrument** to assess and develop the research challenges and priorities that have been established for Bioenergy in the Technology Roadmap of the SET-Plan.

The alignment of the SET-Plan priorities with the activities of the Joint Programme members, with other relevant European bioenergy stakeholders, and with other bioenergy activities at National level, will be essential **to accelerate the achievement of the medium to long term objectives of the strategic and research agenda of the SET-Plan.**

Bioenergy, as an integral part of the Bioeconomy, is facing today important challenges, including the need to be produced hand in hand with higher value products such as biochemical/ biomaterials, within the so-called biorefinery concept.

Intensive well-addressed research and development efforts appear as a crucial element to meet these challenges, which is also considered within the Bioenergy Joint Programme priority activities.

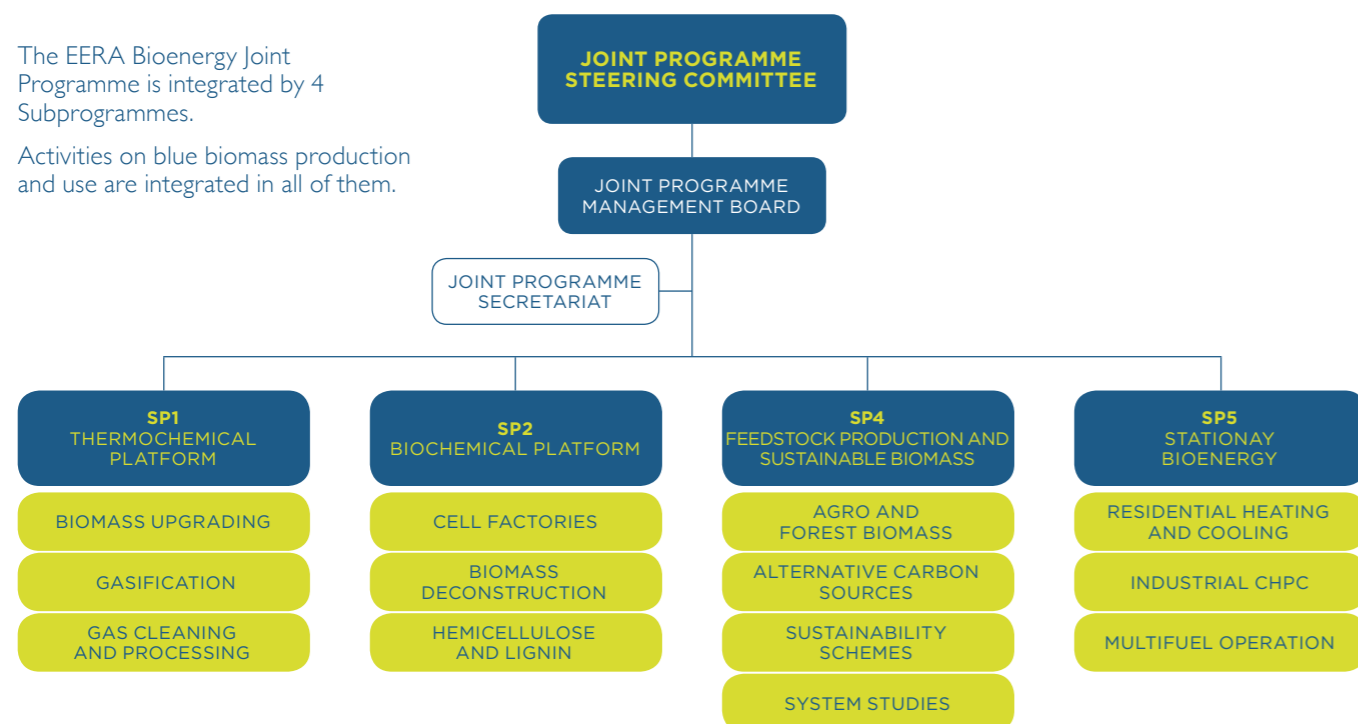
The specific objectives of the EERA Bioenergy Joint Programme are:

- ✓ To develop a framework for the better understanding, the exchange of information and human resources, and the discussion of opportunities for collaboration.
- ✓ To align research activities within EERA institutes to give a techno-scientific basis for further development of advanced bioenergy routes and to foster the possibilities for joint technology development.
- ✓ To have an advisory role to SET-Plan and to the industrial sector about biomass and bioenergy research priorities for the middle to long term.
- ✓ To enforce an efficient collaboration with the industrial sector as well as with the related European Technology and Innovation Platforms (ETIPs), and to achieve the interest and the mobilization of national resources to support the development of the Joint Programme activities.
- ✓ To promote an open discussion and analysis of the most realistic research and development alternatives to develop sustainable bioenergy.
- ✓ To boost collaborative research between the members of the Bioenergy Joint Programme and with other Joint Programmes members', as well as other external partners outside EERA, in order to develop research and development projects that support the Joint Programme activities and the Joint Programme impact.
- ✓ To develop and establish international cooperation on Bioenergy.
- ✓ To promote infrastructures sharing (including the creation of new ones) and scientist mobility in order to achieve a more efficient and relevant use of the research resources.

Structure

The EERA Bioenergy Joint Programme is integrated by 4 Subprogrammes.

Activities on blue biomass production and use are integrated in all of them.



Subprogrammes

Subprogramme 1: Thermochemical Platform

Coordinator: Dr. Jaap KIEL from the Energy Research Centre of the Netherlands (ECN) kiel@ecn.nl

Aims at improving competitiveness and facilitating the development and implementation of next generation thermochemical processing technologies for biofuels and other bioproducts production from biomass (containing) residues and energy crops. Biofuels studied comprise a wide range of biobased fuel options for aviation, maritime and (long-distance) road transport, as well as a substitute of natural gas and other gaseous fuels. Other bioproducts typically involve the coproduction of biochemicals, power and heat applying biorefinery concepts to biofuels production.

To reach this goal, SP1 is divided into the following three working R&D areas:

- ▶ Biomass upgrading
- ▶ Gasification
- ▶ Gas cleaning and processing

Subprogramme 2: Biochemical Platform

Coordinator: Dr. Francisco GIRIO, from the National Laboratory of Energy and Geology of Portugal (LNEG) francisco.girio@lneg.pt

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Aims at improving competitiveness and facilitating the development and implementation of next generation technologies for biofuels and sustainable alternative fuels from all types of organic fractions of biomass that produce sugars upon hydrolysis. Complementarily, non-sugar moieties from biomass are integrated in the sugar platform to reduce costs.

The subprogram has two main objectives:

- Developing cost-effective technologies of lignocellulosic ethanol, higher alcohols and sugar biomass derived hydrocarbons for petrol diesel and jet fuel substitutes.
- Developing lignin and hemicelluloses platforms to other commodities to allow the economic feasibility of biofuel biorefineries from lignocellulosic biomass.

For reaching these goals, SP2 is divided into three working R&D areas:

- ▶ Cell factories
- ▶ Lignocellulosic biomass deconstruction
- ▶ Lignin and hemicellulose valorization under a biorefinery context

Subprogramme 4: Feedstock production and sustainable biomass

Coordinator: Dr. Jean TAYEB, from the French National Institute for Agricultural Research (INRA) jean.tayeb@inra.fr

Aims at designing feedstock production systems and logistics ensuring a reliable and sustainable supply of biomass from agriculture, forestry, algae and biowaste to the bioenergy/ biorefinery plant gate. The first focus is on the optimization of feedstock production, depending on local soil and climatic conditions and based on innovative management practices in accordance with the needs of the conversion processes. The second focus deals with the logistics of supply chains, particularly from forestry or agricultural products.

The overall objective is to provide tools for the estimation of realistic cost-supply scenarios for various kind of biomass for energy production and identify means to overcome the challenges related with high demand variation of biomass supply.

This subprogramme comprises four working R&D areas:

- ▶ Innovative agricultural and forestry feedstock production systems and supply chains
- ▶ Study of the potential of alternative carbon sources (algae, biowaste)
- ▶ Analysis of the impact of certification schemes and policy frameworks
- ▶ Global sustainability analysis of bioenergy systems, deployment scenarios and case-studies

Subprogramme 5: Stationary bioenergy

Coordinator: Dr. Berta Matas Güell, from SINTEF (Norway) Berta.Guell@sintef.no

Aims at improving competitiveness of stationary bioenergy for different scales, technologies and systems. All the main products, heat, power and cooling are included.

It addresses three major themes which define three working R&D areas:

- ▶ Residential/domestic heating and cooling, including micro-CHP
- ▶ Industrial and municipal combined heat, power and cooling (CHPC)
- ▶ Utility multifuel operation

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