

EERA BIOENERGY JOINT PROGRAMME

JOIN EERA BIOENERGY!

EERA Bioenergy is open for any organisation actively involved in research and innovation focusing on biobased fuels, power and heat, of the European Union*, to join.

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

* Including candidate countries of the European Union or countries associated to the Framework Programme of the European Union.

*The European Alliance for excellent
research in sustainable bioenergy*

Biobased fuels, power and heat in a circular bioeconomy

CONTACT

JOINT PROGRAMME COORDINATOR

Prof. Andrea Monti, University of Bologna
a.monti@unibo.it

JOINT PROGRAMME SECRETARIAT

Dr. Margarita de Gregorio, Spanish Technology and Innovation
Platform "Biomass for the Bioeconomy" (BIOPLAT)
margadegregorio@bioplat.org

eera-bioenergy.eu



Objectives

The EERA Bioenergy JP addresses the challenges of the European energy and environment policies from a research and innovation perspective. The main European organisations involved in R&D&I in biobased fuels, power and heat, and bioeconomy are part of EERA Bioenergy.

EERA Bioenergy promotes international co-operation to accelerate the SET-Plan priorities and actions to contribute to the decarbonisation of the energy sector, by assessing R&D&I priorities to accelerate the implementation of biomass technologies in Europe. Bioenergy in all its forms (power, heat and biofuels) is an essential component of the existing and future

low-carbon technologies mix in all climate-change mitigation scenarios.

EERA Bioenergy supports the Innovation Challenges (ICs) which were endorsed at the United Nations Conference of Parties in Morocco (COP22), in particular IC4 (Sustainable Biofuels), IC7 (Affordable Heating and Cooling of Buildings), IC3 (Carbon Capture) and IC8 (Renewable and Clean Hydrogen). Biobased fuels, power and heat are able to provide significant benefits in reducing greenhouse gas emissions, increasing energy security and creating new opportunities for clean economic growth.

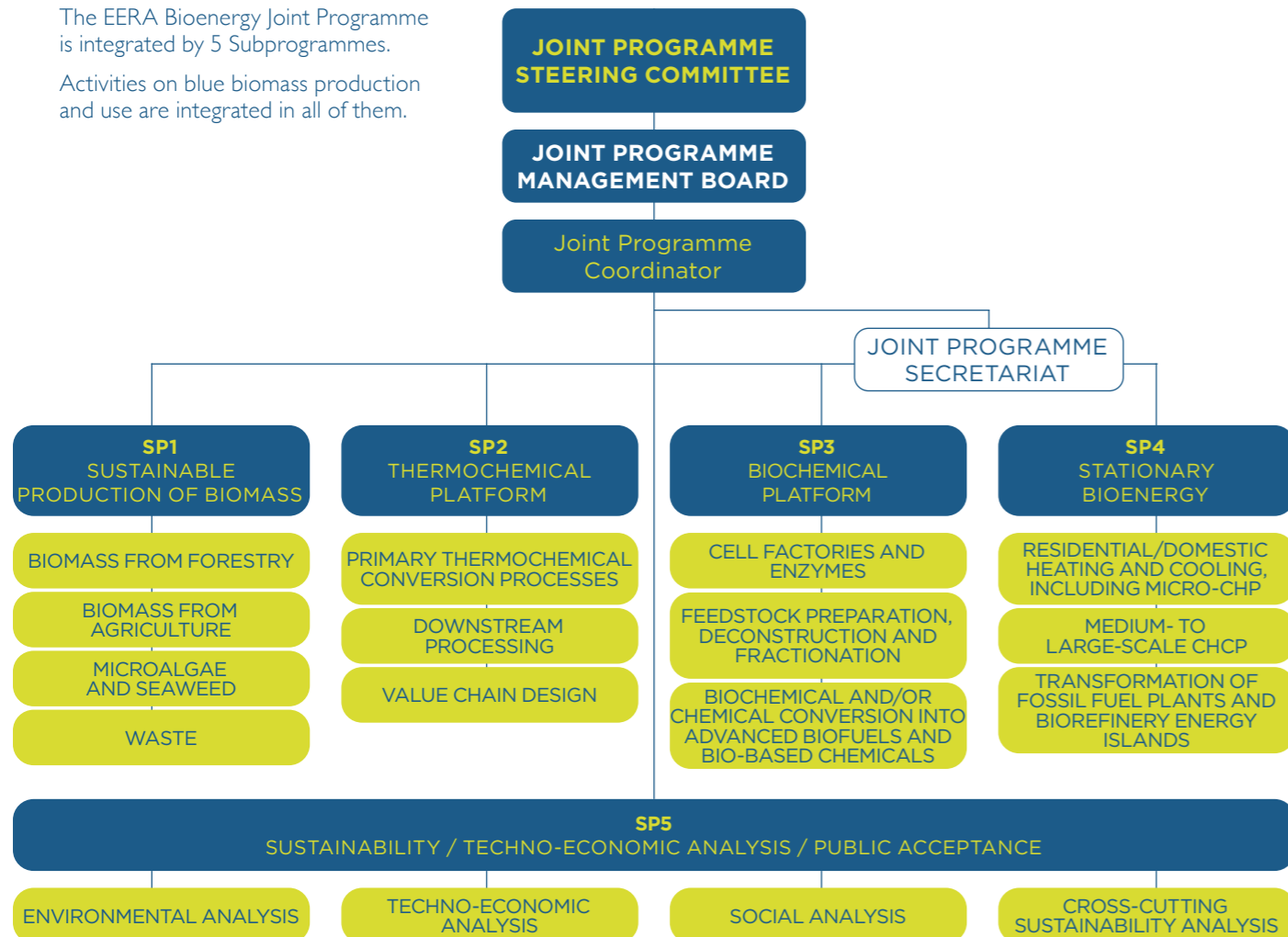
The specific objectives of the EERA Bioenergy Joint Programme are:

- ✓ To boost collaborative research between the EERA Bioenergy (and other JPs) members in order to develop European projects.
- ✓ To have an advisory role on the SET-Plan for the EC and industrial sector about biomass and bioenergy research priorities.
- ✓ To align research activities across Europe, promoting infrastructures sharing (including the creation of new ones) and scientist mobility, to create synergies between national resources and research programmes on bioenergy, thereby providing a lasting foundation for industrial development.
- ✓ To develop a framework for the better understanding, the exchange of information and human resources, and the discussion of opportunities for further development of advanced biofuels routes, and to foster the possibilities for joint technology development.

Structure

The EERA Bioenergy Joint Programme is integrated by 5 Subprogrammes.

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



Subprogrammes

Subprogramme 1: Sustainable production of biomass

Coordinator: Dr. Wolter Elbersen, from Wageningen University and Research (WUR) wolter.elbersen@wur.nl

Aims at optimizing biomass resources for conversion plants, with the security and flexibility of supply, biomass quality, environmental sustainability, and reducing the costs of biomass feedstocks as the main challenges to be addressed.

To reach these goals, SPI is divided into the following four R&D areas:

- ▶ Biomass from forestry
- ▶ Biomass from agriculture
- ▶ Microalgae and seaweed
- ▶ Waste

Subprogramme 2: Thermochemical Platform

Coordinator: Dr. Jaap Kiel, from ECN part of TNO (Netherlands) kiel@ecn.nl

Aims at increasing the efficiency, sustainability (lower GHG emissions) and cost-competitive production of advanced biofuels and bioenergy carriers from biomass through thermochemical processing. Research areas are identified for the development of primary thermochemical conversion processes, downstream processing and advanced biofuel and intermediate carrier value chains.

To reach these goals, SP2 is divided into the following three R&D areas:

- ▶ Primary thermochemical conversion processes
- ▶ Downstream processing
- ▶ Value chain design

Subprogramme 3: Biochemical Platform

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

Aims at improving the technology and developments in biochemical and chemical processes and technologies for producing advanced biofuels, including jet fuels, and the eventual co-production of other bio-based products in biorefinery approaches from all fractions of lignocellulosic biomasses; the biogas from anaerobic digestion; the syngas obtained from thermochemical biomass and bio-waste processing; and the hydrogen from biological and renewable origin.

To reach these goals, SP3 is divided into the following three R&D areas:

- ▶ Cell factories and enzymes
- ▶ Feedstock preparation, deconstruction and fractionation
- ▶ Biochemical and/or chemical conversion into advanced biofuels and bio-based chemicals

Subprogramme 4: Stationary bioenergy

Coordinator: Dr. Julien Blondeau, from Belgian Energy Research Alliance (BERA) Julien.Blondeau@vub.ac.be

Aims at upgrading the development of efficient, flexible, affordable and environmentally friendly heat, power and cooling production from biomass. It covers all plant scales, from small residential/domestic units to medium- to large-scale bioenergy plants focusing on the conversion of woody biomass, especially important for the residential sector, and low-grade feedstocks/residual streams through combustion and gasification technologies.

To reach these goals, SP4 is divided into the following three R&D areas:

- ▶ Residential/domestic heating and cooling, including micro-CHP
- ▶ Medium- to large-scale CHCP
- ▶ Transformation of fossil fuel plants and biorefinery energy islands

Subprogramme 5: Sustainability / Techno-economic analysis / Public acceptance

Coordinator: Dr. Raquel S. Jorge, from the Norwegian University of Science and Technology (NTNU) raquel.s.jorge@ntnu.no

Aims at creating a robust tool to tackle issues like the analysis of the environmental sustainability, based on relevant policy requirements, and the techno-economic analysis of bioenergy technologies and value chains, as they are essential for the successful implementation of Bioenergy.

The evaluation of social acceptance, as an indicator of the sustainability, and the determination and definition of measures, conditions and frameworks to foster the deployment of Bioenergy systems are two important purposes of this new Subprogramme.

Finally, SP5 will also address cross-cutting issues related to Bioenergy and the links between Bioenergy and the broader framework of Sustainable Development Goals.

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