

BIOREFINERY JOINT CALL

Biorefinery is the sustainable processing of biomass into a spectrum of value-added products (chemicals, materials, food and feed) and energy (biofuels, power and heat). By producing multiple bioproducts and bioenergy, a biorefinery takes advantage of components and intermediaries and maximises the value derived from refining operations.

The aim of the joint call is the research, development and integration of innovative technologies to prove the viability related to the entire value chain (biomass production, biomass conversion, safe recycling and/or disposal of waste, conformity of end-products to end-user requirements) of advanced biorefineries. It will be implemented through two topics. The topic "Sustainable Biorefineries" will be targeted at the funding of a limited number of large, multi-disciplinary, collaborative projects addressing bio-products, bio-energy, sustainability and technical and economical viability. The topic "Enhancing exchange of information, synergies and cross-fertilization between projects in the field of Biorefineries" will further seek to promote coordination of on-going research at European and national levels across Biotechnology, Energy, Industrial Technologies and Environment on distinctive features of the biorefinery concept through a single Coordination Action.

Quality proposals with the intended level of integration are expected to achieve a breakthrough beyond "the business as usual" scenario. Furthermore, proposals shall necessarily include the sustainability assessment of any proposed solution on the basis of a life cycle approach. This shall be developed with the aim to provide a robust scientific basis for policy and decision making at different levels and scales (from production unit to policy development).

Specific information on the joint call evaluation and implementation is provided in the call fiche.

Topic ENERGY.2009.3.3.1: Sustainable Biorefineries

Scope: Development of advanced biorefineries for sustainable processing of biomass into building blocks for the production of bio-based chemicals, materials, second generation biofuels, power and heat. The biorefineries shall demonstrate their performance, sustainability and feasibility at least at pilot scale in an integrated approach. Part of the biorefinery complex that is closer to the market shall be demonstrated at industrial pilot plant scale.

All proposals shall address the entire value chain from biomass feedstock production, logistics and pre-treatment to the development of thermo-chemical and bio-chemical technologies, including bio-technological routes, for the conversion of different types of biomass feedstock into bio-based products and energy. The utilisation and upgrading of residues and process waste streams and the purification and upgrading of the various products into final marketable services to consumers shall also be addressed. Bio-technological tools for the development of new non-food industrial crops and/ or biomass sources as feedstock may be applied. The upgrading and integration of new stable materials as well as of new nonenzymatic high-selective catalysts may be considered. The integration and optimisation aspects of all the main biorefinery sub-systems shall be described and show progress beyond the state-of-the-art.

With regard to sustainability, all proposals shall assess for the entire value chain the environmental, economic and social sustainability, including consequences due to the competition for food and biomass resources, the impact on water use and quality, changes in land-use, soil carbon stock balance and fertility, net balance of greenhouse gases, impact on biodiversity, potential toxicological risks, energy efficiency. Impacts on international and regional dynamics, end-users and consumer needs, investment feasibility may also be considered.

Funding Scheme: Collaborative Project

Expected Impact: Funded projects are expected to demonstrate the capacity of biorefineries to contribute to European competitiveness and wealth by responding to the need for supplying a wide range of bio-based products and energy in an economically, socially, and environmentally sustainable manner. New competences, new job opportunities and new markets are also expected. Furthermore the development of biorefineries is expected to also contribute to the implementation of several EU policies and initiatives, notably the Lead Market Initiative, the SET Plan, and the Energy & Climate Package in general.

Other information: The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieve the expected impact. This will be considered in the evaluation. The proposals may consider opportunities of international cooperation and address international integration of value chains, provided that they respond to sustainability criteria.

Open in call: FP7-2009-BIOREFINERY

Topic ENERGY.2009.3.3.2: Enhancing exchange of information, synergies and crossfertilisation between projects in the field of Biorefineries

Scope: The aim is to promote coordination of on-going research at European and national levels across Biotechnology, Energy, Industrial Technologies and Environment on distinctive features of the biorefinery concept. Information exchange and cross fertilisation may concern any aspect of the feedstock, the conversion and fractionation technologies, the integration of processes and uses of side-streams, the biofuels and the bio-based products, the energy efficiency, the economic, socio-economic and environmental performance, as well as other sustainability issues (impacts on food production schemes, impact on water use and quality, changes in land-use, access to resources, impact on biodiversity, and the net balance of greenhouse gases). Activities should aim to overcome fragmentation in this multidisciplinary field and develop cross-thematic synergies, identifying gaps and overlaps, defining research priority needs and infrastructure. In addition, activities shall involve dissemination of results.

Funding Scheme: Coordination and support action (coordinating action)

Expected Impact: Significant improvement is expected in the exchange and use of the information available on biorefinery concepts within the thematic projects, in the identification of complementary research results and the cross-fertilisation to make best use of them, and in the synergies between the thematic projects. Significant enhancement is also expected in the cooperation between key researchers and industries that are active in biorefinery research funded by EU and national programmes.

Other information: The consortium should include a balanced partnership from all scientific domains involved (biotechnologies-agriculture-food, energy, environment and industrial technologies) with solid experience and competence in the field and strong project management skills. The partnership should demonstrate the added value of the cross-thematic collaboration in the proposed action. In that respect, the participation of relevant industrial partners is deemed as essential to achieve the expected impact. This will be considered in the evaluation. Networking and exchange activities with relevant international programmes shall be established. Up to one project may be funded.

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