Boosting the EU Bioeconomy

The Bioeconomy Strategy
The Common Agricultural Policy
Horizon 2020
What is the Bioeconomy?

The bioeconomy encompasses the production of renewable biological resources and their conversion into food, feed, bio-based products and bioenergy via innovative and efficient technologies provided by Industrial Biotechnology. It is already a reality and one that offers great opportunities and solutions to a growing number of major societal, environmental and economic challenges, including climate change mitigation, energy and food security and resource efficiency.

The Bioeconomy vision

The ultimate aim of the bioeconomy is to help keep Europe competitive, innovative and prosperous by providing sustainable, smart and inclusive economic growth and jobs, and by meeting the needs of a growing population whilst protecting our environment and resources. This means an economy based, besides food and feed, increasingly on biomass derived fuel, chemicals, and materials, sustainably sourced and produced, as an alternative to our heavy reliance on finite fossil fuel resources. Today, the European bioeconomy is already worth more than €2 trillion annually and employs over 22 million people, often in rural or coastal areas and in Small and Medium Sized Enterprises (SMEs). The bioeconomy alone is not a silver bullet for all of society’s needs, but it is an important piece of the puzzle in creating a more sustainable future where resources are used in the most efficient way.

How to get there?

At EuropaBio, as leaders in industrial biotechnology we are part of the solution. Through these bio-based industries, EuropaBio’s members represent a sector that is a key enabler of the wider bioeconomy. Indeed, the bioeconomy brings together many people, from a broad range of professions and sectors, to create a strong and diverse value chain across Europe including farmers, technology providers, consumer brands, retailers and consumers themselves. Europe is a leader in the development of the bioeconomy, but competition and interest in this field continues to grow around the globe. We need to act now to develop the skills and infrastructure necessary to ensure that Europe not only retains, but also grows its jobs and scientific excellence in the bioeconomy and that it does not fall behind other competing economies like the US, Brazil or Asia. Biorefineries will be at the centre of the bioeconomy and will contribute to the principles of a «zero waste» society. The concept of biorefineries is analogous to that of petrochemical refinery processes, which produce a wide range of products and fuels from fossil resources. Biorefineries also aim to produce multiple bio-based products and fuels instead using biomass as a carbon source and bio-based processes. The biorefinery concept can be integrated in a wide range of environments, ranging from small-scale plants using agricultural residues in remote rural areas to large plants using waste from surrounding industries and municipalities in a symbiotic manner.
Biorefinery concept

Renewable raw materials, for example in the form of agricultural and forestry residues and municipal wastes, are used as feedstocks for the integrated biorefinery.

The biorefinery uses cutting edge technology to turn renewable feedstocks into bio-based products such as fuels, fibres, food, feed and chemicals. These can then be substituted in a broad range of applications replacing their fossil fuel equivalents.

The biorefinery also focuses on developing more resource efficient processes as well as products. As such, waste can be minimized and all «fractions» or by-products can be used for other purposes. The ultimate goal is to achieve a «zero waste» society where more is produced using less resources.

Using biomass as a sustainable renewable resource is key to replacing carbon from fossil sources in the manufacture of chemicals, materials and fuels. To make this route competitive with oil-based products, an integrated biorefinery process has been developed to optimize the added value from biomass. This process applies the approach used in oil refineries to biomass (raw material fractionation, integration of mass and energy flows and integration of processes) to produce a spectrum of products and maximize overall added value.
What are the challenges?

Many challenges still remain to be tackled, including raising understanding of what the bioeconomy represents and increasing awareness of the benefits it can provide both in the EU and worldwide. Risks, too, must be responsibly managed throughout the value chain to ensure that the growth of the bioeconomy lives up to its potential for contributing to sustainability and resource efficiency. Other hurdles include the need to secure feedstock (plants and waste) through the Common Agricultural Policy (CAP), to build new and to improve existing pilot and demonstration biorefineries at industrial scale to process the feedstock and to turn it into competitive products, and the need to stimulate market demand for sustainable bio-based products. In this context, overcoming the barriers associated with the deployment of new technologies and bridging the so-called innovation “Valley of Death” between research and market remains a critical issue in Europe and one that requires a robust and stable political framework underpinning the entire bio-based value chain.

These measures of support should be accompanied with safeguards that guarantee the sustainability of bio-based products using life-cycle assessments. Furthermore, a regular review is needed to assess where we are and whether additional measures are needed to unlock the full potential of the bioeconomy by 2020. Below, the most critical challenges to creating jobs and sustainable economic growth through the EU bioeconomy are set out together with the important windows of opportunity relating to them and 7 key actions on how to overcome them.

The Bioeconomy Strategy

**Challenge:**
The EU needs a holistic strategy which weaves the bioeconomy into the fabric of policy making across many sectors throughout its Member States. To be successful, it is essential that we address the regulatory fragmentation that exists across the range of policy areas that can enhance the bioeconomy. This is a problem which is especially keenly felt in Europe and which is much less present for the EU’s global competitors.

**Opportunity:**
On 13 February 2012 the European Commission adopted its strategy on the bioeconomy. This represents a milestone in the recognition of the potential and value of the bioeconomy and its actors across Europe. Leading the world in transitioning to an economic model which uses more renewable resources is an ambitious goal. EuropaBio believes that the bioeconomy strategy, as proposed by the European Commission, is an important first step toward the development of a strong and sustainable European bioeconomy.

**Action:**
To harness the potential of the bioeconomy we call upon EU and national decision makers to:

1. Integrate the bioeconomy strategy into agricultural, environmental, energy, regional, climate and industrial policies.

2. Implement the Priority Recommendations from the Lead Market Initiative (LMI) for Bio-based products to help bridge the gap from research to EU commercialization of sustainable bio-based products. The LMI for Bio-based products Priority Recommendations address a range of measures including access to feedstock, research and development, access to markets, public procurement and communications aspects.

3. Communicate the benefits of the bioeconomy with farmers, consumers, investors, industry, and policy makers via dedicated communication programmes.

**Challenge:**
If Europe is to develop a robust bioeconomy, it will require access to renewable feedstock, sustainably produced, in sufficient quantities, of guaranteed quality and at a competitive price.

**Opportunity:**
Growing, harvesting and converting the EU’s agricultural material into food and other high value products, such as chemicals, plastics, advanced biofuel or textiles can help diversify and supplement farmer’s incomes whilst bringing big benefits for the wider EU economy and its resource efficiency. Furthermore, with a clear policy of sustainable intensification to improve agricultural productivity, it will be possible to increase renewable feedstock production for industrial applications without any detrimental impacts on the EU’s ability to produce more food.

**Action:**
Through the reformed CAP, EuropaBio calls on EU and national decision makers to:

4. Encourage the development of alternative cropping systems that optimise existing and underutilised land to contribute to the EU 2020 objectives: sustainable, smart and inclusive growth.

5. Encourage and support farmers to diversify and supplement their incomes by investing in dedicated biomass crops for sustainable bio-based products and develop a dedicated programme to support collection, harvest, storage, and transportation of renewable raw materials, especially agricultural residues.

6. Support cooperation approaches between sectors and the development of pilot, demonstration and commercial scale biorefineries across the EU, to help ensure that biomass can be sustainably sourced and processed.

Horizon 2020 (2014–2020)

**Challenge:**
Europe must seek to improve its capacity to innovate through bringing the results of research to market when compared with its worldwide competitors such as China, the US, India and Brazil. Although part of the problem is lower spending of GDP on research and development a bigger issue is that the EU takes too long to transform research and innovation results into marketable products.

**Opportunity:**
With the European Commission’s proposal for a new European Strategic Framework for Research and Innovation, Horizon 2020, the EU has taken a decisive step towards improving its competitiveness. The proposed approach is the right one: to focus on developing demonstration biorefineries and to develop access to risk finance and partnerships for the development of sustainable bio-based products, processes and services. These moves will help Europeans to take advantage of the social, economic and environmental benefits of the bioeconomy.

**Action:**
EuropaBio therefore calls on Member State officials and MEPs to:

7. Support Horizon 2020 by endorsing research and innovation in industrial biotechnology, and the bioeconomy including through Public Private Partnerships (PPPs) and through safeguarding the budget allocated to both the Bioeconomy and to Industrial Biotechnology as a Key Enabling Technology.
Why act now?

The Commission has adopted an ambitious but achievable roadmap towards a bioeconomy. In parallel, frameworks and programmes such as Horizon 2020 and the CAP have been developed which could help translate the EU’s great potential in this area into real, tangible benefits for Europeans. The full support of the EU and national decision makers is now needed to integrate and implement these policies in order to make the bioeconomy an EU success story.

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The Common Agricultural Policy

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Horizon 2020

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1) http://ec.europa.eu/research/bioeconomy/pdf/201202_commision_staff_working.pdf