



# A Bioeconomy Strategy for Europe

*Working with nature  
for a more sustainable  
way of living*



*Research and  
Innovation*

# A strategy for sustainability

## What does it cover?

Launched in 2012, Europe's Bioeconomy Strategy addresses the production of renewable biological resources and their conversion into vital products, ranging from food and feed to bio-based products and bio-energy. As such, the core of the EU bioeconomy encompasses agriculture, forestry, fisheries, food processing, and parts of the energy, chemicals and biotechnology sectors, while its impacts go much wider. At present, the EU bioeconomy sectors employ 22 million people and have an annual turnover of €2 trillion. Their strength and development therefore have significant economic, environmental and social impacts; both today and for future generations.

## Why is it needed?

The bioeconomy, as such, has existed for millennia, so why is a European strategy needed now? The answer lies in the challenges Europe and the world are facing: increasing populations that must be fed; the depletion of many natural resources – biological, such as forests and fish stocks, or fossil, such as petrol – and the impacts of increasing environmental pressures and climate change which, for example, affect crop yields and could give rise to plant pests and diseases. A strategy is also needed to ensure that fossil fuels are replaced with sustainable, natural alternatives as part of the shift to a post-petroleum society. Furthermore, as Europe recovers from the economic crisis, a growing bioeconomy offers opportunities to reallocate resources and use them in better, more sustainable ways.

These are challenges that do not respect national borders. This is the reason behind a European-level strategy. Because Europe needs to preserve its rich natural resources for future generations, sustainability is at the core of this strategy. Sustainability requires a new approach to exploiting Europe's forests, farmland and fishing grounds; and it demands innovative techniques for the production, processing, storage, consumption, recycling and disposal of natural resources.

*“Greater use of renewable resources is no longer just an option, it is a necessity. We must drive the transition from a fossil-based to a bio-based society, with research and innovation as the motor”*

## Driven by discovery

The Bioeconomy Strategy calls for these new approaches to come from scientific research and innovation, combining a wide range of disciplines, including agronomy, ecology, food processing, engineering, biotechnology and chemistry, genetics, economics and the social sciences. It recognises that advances in bioeconomy research will allow better management of Europe's natural resources and more effective allocation of biomass resources along value chains. Advances will also open new and diverse markets, for example in food and bio-based products. This in turn will boost economic growth and create jobs in established and new industrial sectors and applications. It will contribute to reducing dependence on fossil resources, better promoting environmental sustainability and ensuring food security.

The reliance on science and technological leadership to drive tangible improvements to Europe's social, economic and environmental welfare – as contained in the Bioeconomy Strategy – is an integral part of the EU's Horizon 2020 Research and Innovation programme, which supports the Europe 2020 agenda for ensuring growth and jobs in the years to come.



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<http://ec.europa.eu/research/bioeconomy>



# From words to actions

The EU is implementing the three pillars of its action plan for the bioeconomy: investing in science and skills; reinforcing policies and partnerships; and boosting bioeconomy markets and their competitiveness.

## Investing in science and skills

The action plan aims to mobilise substantial public and private EU and national funding for research and innovation and outlines the research priorities for bioeconomy sectors. These include sustainable agriculture, forestry, and fishing and maritime activities, sufficient, safe and nutritious food, and innovative and competitive bio-based industries. By coordinating research efforts at EU and national levels, programmes will build synergies and be more coherent with each other – for example through joint research programming.

Support is available for research-intensive SMEs and companies. Multidisciplinary research identifies complex social impacts and guides policymaking to ensure rapid transfer of research results to industry. Horizon 2020 plays an instrumental role in achieving this ambition. However, much effort will also be needed from EU Member States, regions and the private sector, in particular in developing technologies.

## Reinforcing policies and partnerships, engaging with society

Researchers, industry, policymakers and civil society are cooperating within the Bioeconomy Panel and engaging in regular Stakeholders' Conferences to ensure research and innovation does not happen in a vacuum. Research and innovation must be seamlessly linked to the bioeconomy's industrial sectors, markets and policies, but also respond ambitiously to an array of social challenges. At EU level, a new Observatory is monitoring the progress and impacts of the bioeconomy, and looking at future directions.

New ways of organisation are being developed to bring regional, national and EU level bioeconomy strategies and programmes together to work coherently. On the international front, cooperation on the bioeconomy is being promoted to facilitate access to the best research and innovation across the world, address global issues, such as climate change and biodiversity loss, and to respond to global commitments such as the United Nations' Millennium Development goals.

Boosting bioeconomy markets and competitiveness by providing science-based evidence, the action plan is helping design policies that balance economic, social and environmental goals. Research is also supporting the competitive, innovative and sustainable supply chain logistics that the growing biorefinery sector needs to produce bio-chemicals and energy products from agricultural and forestry residues and waste – from processing to transport and retail. New safety standards, food labelling and assessment methodologies are under development to support innovative bio-products and services. Moreover, socio-economic studies are helping design new ways of attracting and informing consumers about their benefits. This includes, for example, nutrition information, impact on animal welfare and eco-friendliness.

At an EU-wide level, a public-private partnership on bio-based industries – co-funded by Horizon 2020 – will support industry's efforts and promote the transition towards a post-petroleum society, while decoupling economic growth from resource depletion and negative environmental impacts. This partnership, in areas such as bio-based plastics and polymers, biochemicals and biofuels, will play an important role in spurring sustainable growth in the nascent bioeconomy. It will help overcome technological barriers and drive re-industrialisation through new bio-based value chains, thus boosting Europe's competitiveness, revitalising rural areas and creating many high-skilled jobs over the next decade.



Greater use of renewable resources is no longer just an option, it is a necessity. We must drive the transition from a fossil-based to a bio-based society, with research and innovation as the motor.

Launched in 2012, Europe's Bioeconomy Strategy calls for this new approach to come from scientific research and innovation, combining a wide range of disciplines, including agronomy, ecology, food processing, engineering, biotechnology and chemistry, genetics, economics and the social sciences. The Strategy addresses the production of renewable biological resources and their conversion into vital products, ranging from food and feed to bio-based products and bio-energy.

### *Research and Innovation*



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