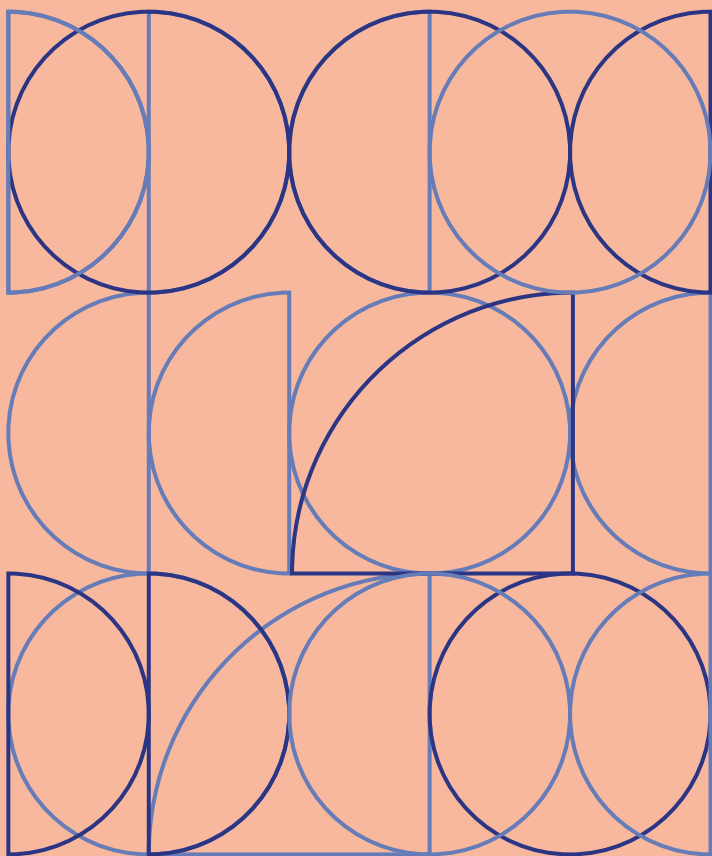




**Circular
Bio-based
Europe**
Joint Undertaking



A COMPETITIVE BIOECONOMY FOR A SUSTAINABLE FUTURE

2026

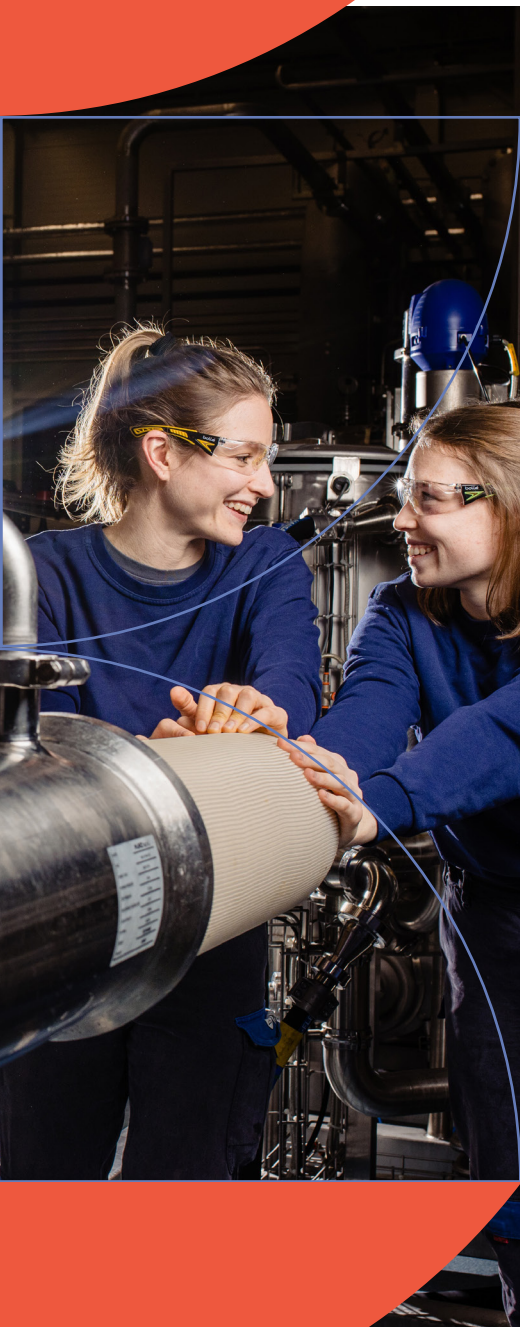


SCALING UP EUROPE'S BIO- BASED ECONOMY

Climate change is an existential risk and reliance on fossil resources is no longer an option. Simultaneously, the European economy faces global industrial competitiveness and geopolitical challenges. How can Europe transition to a low-carbon economy while ensuring strategic autonomy and economic growth?

A sustainable and circular bioeconomy contributes to addressing these challenges. Biomass and leftovers of other production processes all offer the potential for conversion into chemicals, materials, food and feed ingredients and other bio-based products. These local renewable biological resources, along with waste from households and industrial processes, can replace the existing non-renewable and fossil materials for a wide range of sectors.

CBE JU accelerates this transition by bringing together industry, academia, public authorities and other stakeholders to move bio-based innovations from research to industrial deployment. Through public-private investment and cross-sector collaboration, CBE JU strengthens Europe's strategic priorities into competitive, market-ready solutions that deliver economic, environmental and societal benefits.





WHY ARE BIO-BASED INDUSTRIES ESSENTIAL?

Bio-based industries transform renewable biological resources into sustainable materials, chemicals, products and ingredients, forming a key pillar for Europe's necessary industrial transformation. By creating value from locally available feedstocks, they strengthen Europe's industrial base, advance strategic autonomy and accelerate the shift towards a more circular and competitive economy.

The bio-based sector is a rapidly developing strategic field, predominantly driven by innovative small and

medium-sized enterprises (SMEs), which play an essential role in the European economy. These companies are key to scaling bio-based technologies, strengthening Europe's industrial capacity and connecting scientific research with real-world applications across regional value chains.

In today's shifting geopolitical landscape, bio-based industries are no longer only an environmental ambition, they have become a strategic asset. A strong European bioeconomy delivers multiple benefits:

- ▢ Strengthened Europe's strategic autonomy by reducing dependence on imported fossil resources, chemicals and other critical raw materials.

- ▶ Improved resilience of local supply chains using domestic renewable and circular feedstocks.
- ▶ Enhanced European competitiveness by developing innovative bio-based products, technologies, and industrial value chains.
- ▶ New high-quality jobs and economic opportunities across rural, coastal and industrial regions.
- ▶ Sustainable management of natural resources, protecting biodiversity, soils and water, while supporting the modernisation of European industry and strengthening its global competitiveness.
- ▶ Increased resource efficiency by valorising biomass, side streams and organic waste within a circular economy.

EU's vision for the bioeconomy is set out in several strategic documents including the EU Bioeconomy Strategy, the Clean Industrial Deal and the Competitiveness Compass. Together, they recognise the bioeconomy as a key driver of Europe's green transition and long-term competitiveness.

By replacing fossil-based inputs with renewable alternatives the bioeconomy helps reduce waste and CO₂ emissions while supporting more circular production systems.

At the same time, investments in the bioeconomy create new business opportunities and quality jobs across Europe, particularly in rural, remote and coastal regions, where they can help address demographic and economic challenges.

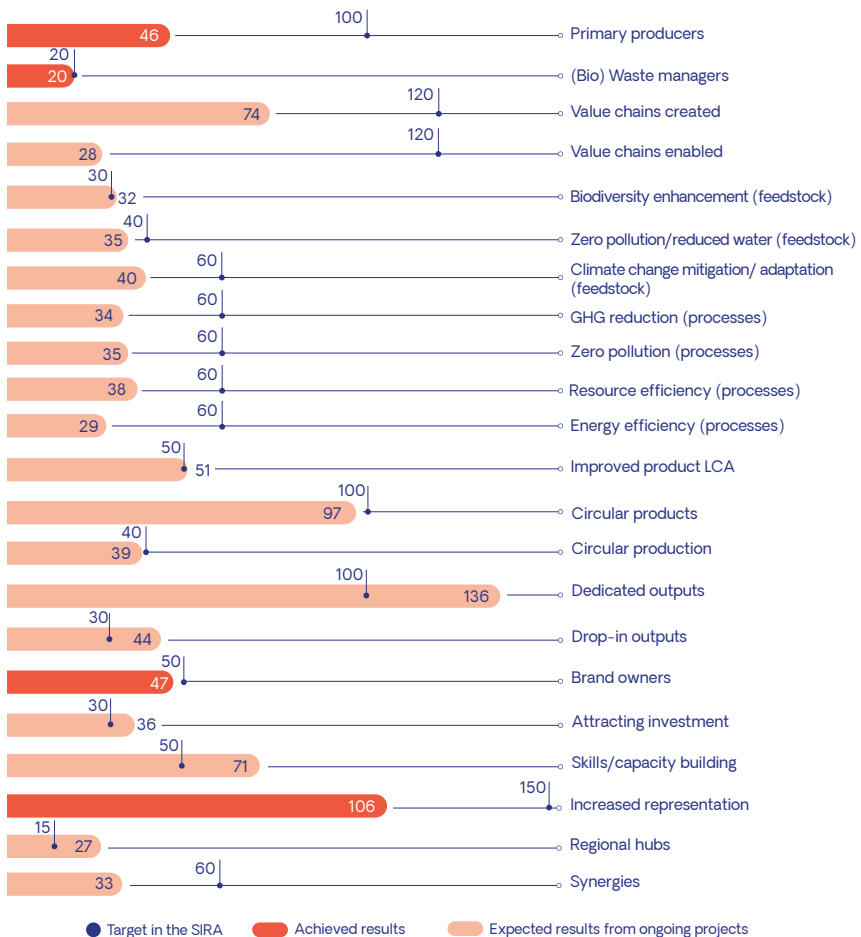
WHAT IS CBE JU?

The Circular Bio-based Europe Joint Undertaking (CBE JU) is a public-private partnership that funds projects deploying competitive, sustainable and circular bio-based solutions in Europe. By combining public funding with private investments, CBE JU manages to simultaneously reduce the risk of investing in scaling up innovative technologies while adding the skills and knowledge necessary to fulfil market demands.

CBE JU builds on the success of its predecessor, the Bio-based Industries Joint Undertaking (BBI JU), which helped position Europe as the world's bioeconomy leader. Continuing this legacy, CBE JU's goal is to help Europe become the world's first climate-neutral continent while increasing EU's economic leadership, strategic autonomy and resilience.

CBE JU KPIs: results vs SRIA targets

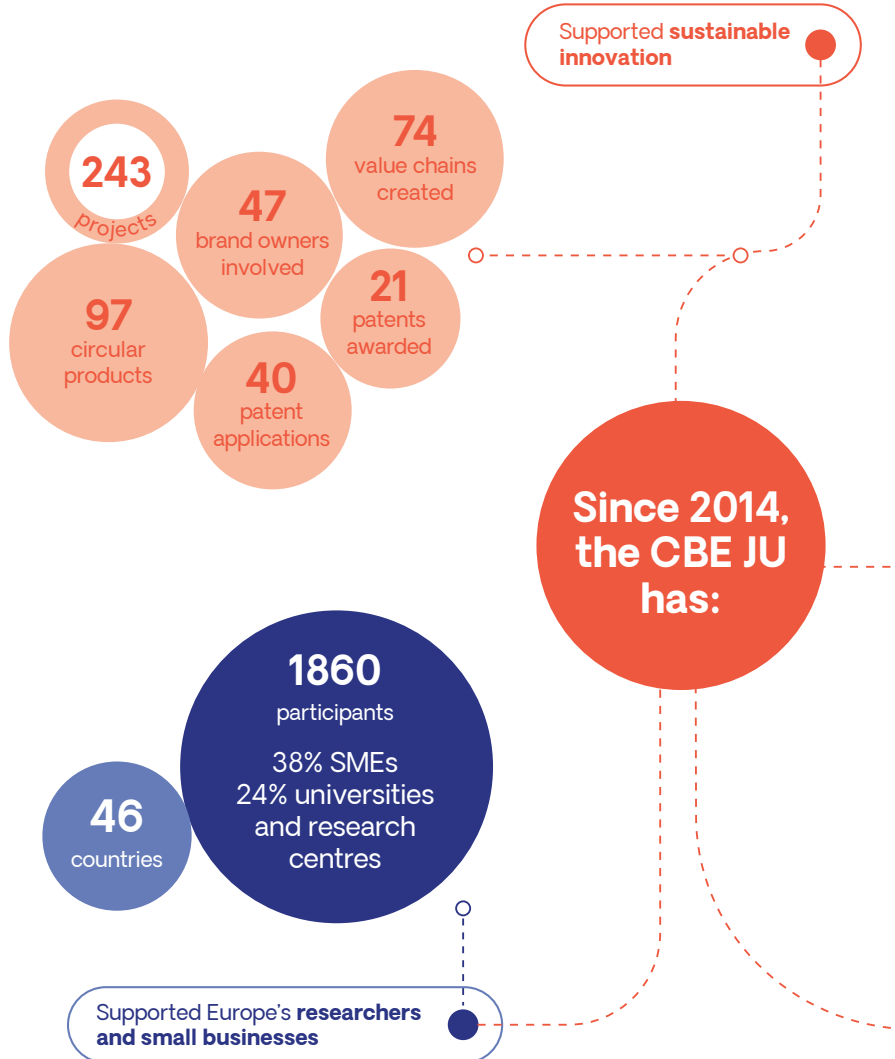
By the end of 2025, participation across CBE JU-specific KPIs shows strong progress towards the 2030 targets set out in the Strategic Research and Innovation Agenda (SRIA). Projects have already involved 50 primary producers, reaching 50% of the target, while waste managers participation have reached its benchmark and brand owner involvement is close to completion, with 47 out of 50 already involved. Participation from underrepresented countries and regions also increased, with 106 newcomers out of the 150 target, confirming CBE JU is actively broadening inclusion while supporting market uptake and socio-economic impact.





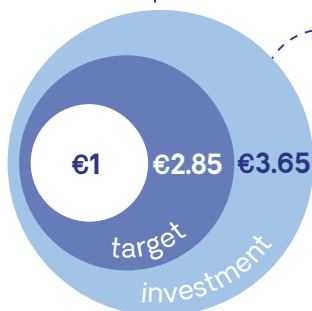
CBE JU-FUNDED PROJECTS IN NUMBERS

CBE JU is a central pillar in establishing Europe's
bio-based sector as a global leader



For **every €1** of EU funding, the **BBI JU** mobilised private investments of **€3.65**, well above the target of **€2.85**.

At higher TRLs, leverage increases: **every €1** of EU funding in flagship and demo projects has attracted around **€5.20 in private investment**.



Invested strongly in **bio-based industries** and mobilised **private investments**

€1.45 billion
invested
in projects



The expected leverage effect in **CBE JU** is **€1.28**, above the target objective of **1€**.

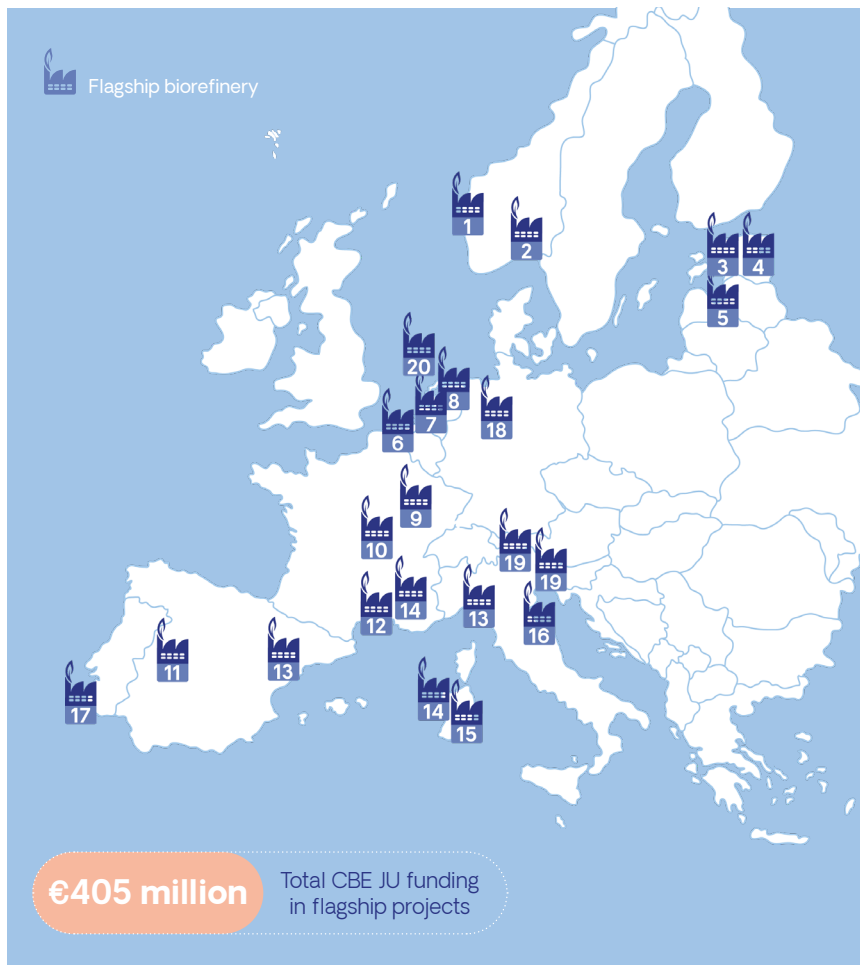
*Measured since 2025.

Boosted
local economies

WHAT ARE THE CBE JU'S FLAGSHIP PROJECTS?

Flagship projects provide support for designing and constructing first-of-their-kind large-scale production facilities in Europe. The goal is to deliver technically mature industrial facilities that are ready for operation by the completion

of the project. Flagship projects seek to demonstrate the viability of processes for the production of materials and products with improved environmental and economic performance compared to existing fossil-based competitors.



Project focus, feedstock and project output



7

CIRCLE

Bio-based chemicals

Food waste

- ↳ Lactic acid (LA) & Polylactic acid (PLA)

10

CERISEA

Bio-based chemicals

Fructose from non-food sidestreams

- ↳ 5-HMF for biopolymers, crop science, resins & plasticisers

17

RenewChem

Bio-based chemicals

Bioethanol streams from agricultural & industrial residues

- ↳ Long-chain drop-in bio-alcohols

9

AFTERBIOCHEM

Bio-based chemicals

Sidestreams from sugar beet

- ↳ Flavourings, fragrances, hygiene products, pharmaceuticals, antimicrobials & polymers

15

FIRST2RUN

Bio-based chemicals

Underutilised oil crops

- ↳ Building blocks for polyester production

20

PACE

Bio-based chemicals

Potato juice from food industry sidestreams

- ↳ Bio-based medium-chain fatty acids (MFCAs)



2

EXILVA

Bio-based polymers & plastics

Cellulose

- ↳ MFC - MicroFibrillated Cellulose

4

WOODCELL

Bio-based polymers & plastics

Locally sourced wood waste

- ↳ MCC - Microcrystalline Cellulose

13

CIRCULAR BIOCARBON

Bio-based polymers & plastics

Municipal solid waste

- ↳ High-value products from fertilisers to 5G technology

19

SOWISE+

Bio-based polymers & plastics

Urban organic waste streams (post-consumer absorbent hygiene products)

- ↳ Bio-based polyesters (PHBV)



3

SWEETWOODS

Construction

Lignin & hardwood residues

- ↳ High-quality C5/C6 sugars & dried lignin

5

VIOBOND

Construction

Forest-based

- ↳ Bio-based resins



1

PROTEUS**Food, feed & cosmetics**

Brown algae

↳ Bio-based ingredients for food, feed, personal care products and industrial applications

11

SUSTAINEXT**Food, feed & cosmetics**

Crops & agro-industrial sidestreams

↳ Ingredients for food, feed, cosmetics & fertilisers

14

Runfaster4EU**Food, feed & cosmetics**

Vegetable oil & residual biomass

↳ Bio-based cosmetics, feed ingredients, herbicides, bioplastics & building blocks

6

PLENITUDE**Food, feed & cosmetics**

Residues of cereal crops

↳ Mycoproteins

12

SCALE**Food, feed & cosmetics**

Microalgae

↳ Nutritional ingredients for food, feed & cosmetics



8

PEFeRence**Packaging**

Crop residues

↳ FDCA for bio-based materials

16

TERRIFIC**Packaging**

Waste from agriculture & food industry

↳ Bio-based packaging

18

BIOWRAP**Packaging**

Nanocellulose fibres

↳ Compostable paper bubble wrap alternative



Project: **AFTERBIOCHEM**
 Biorefinery location: **Saint-Avoid, France**
 CBE JU funding: **€20 million**
 Coordinator: **AFYREN NEOXY, France**

The EU is the world's largest producer of sugar beet. The sector currently supports 140,000 sugar beet growers and around 27,000 direct jobs in sugar beet processing. The AFTERBIOCHEM project has built the first biorefinery for transforming the sugar industry's sidestreams – mainly pulp and non-food waste – into bio-based molecules of industrial interest for the flavourings, fragrances, hygiene products, pharmaceuticals, antimicrobials and polymers sectors. This has improved the economic and environmental sustainability of the sugar beet industry by creating 80 direct and 200 indirect local jobs in a rural area, and is expected to reduce CO₂ emissions by around 30,000 tonnes per year.



Project: **BLOWRAP**
 Biorefinery location: **Rethem, Germany**
 CBE JU funding: **€13 million**
 Coordinator: **PAPAIR GMBH, Germany**

The EU generates 16 million tonnes of plastic packaging waste each year, with less than 40% recycled. While EU regulation requires all packaging to be recyclable by 2030, major gaps remain in performance, cost and infrastructure. BLOWRAP aims to deliver a certified, fully compostable paper-based alternative to plastic bubble wrap, using patented nanocellulose fibre bonding instead of synthetic adhesives. The project will establish a first-of-its-kind production facility, combining advances in fibre sourcing, paper formulation, coatings and machinery to serve diverse industry needs. By supporting Packaging and Packaging Waste Regulation (PPWR) targets, BLOWRAP offers a scalable circular solution to replace plastic packaging and reduce marine and landfill pollution.



Project: **CERISEA**

Biorefinery location: **Péage de Roussillon, France**

CBE JU funding: **€20 million**

Coordinator: **Michelin Engineered Polymers, Clermont-Ferrand, France**

Fructose from food-industry sidestreams is often underused. The CERISEA project is pioneering the first industrial-scale process to produce 5-HMF, a key bio-based molecule, from fructose and non-food sidestreams. 5-HMF offers a sustainable alternative to petrochemical building blocks, with applications in biopolymers, crop science, resins and plasticisers. By improving waste use and product stability, CERISEA enhances resource efficiency, adds value to low-grade feedstocks and supports European resilience.



Project: **CIRCLE**

Biorefinery location: **Amersfoort, The Netherlands**

CBE JU funding: **€17 million**

Coordinator: **TripleW, Israel**

The chemical industry in Europe is a crucial driver of the economy; however, it faces several challenges, such as energy costs, dependence on imported fossil sources, as well as high greenhouse gas emissions. The CIRCLE project is working on an innovative biorefinery that will transform locally sourced food industry residues waste and other biological residues into valuable bio-based chemicals like lactic acid to be used in cosmetics, cleaning products, the automotive industry and the food packaging sector. The project aims to retrofit an existing biogas plant to demonstrate the wide application of these products on the market and demonstrate the replication potential.



Project: **CIRCULAR BIOCARBON**
 Biorefineries location: **Zaragoza, Spain & Sesto San Giovanni, Italy**
 CBE JU funding: **€15 million**
 Coordinator: **Urbaser, Spain**

Despite major advances in waste recycling in recent decades, the organic fraction of municipal solid waste and sewage sludge are still not recovered efficiently. The CIRCULAR BIOCARBON flagship project has built two first-of-their-kind biorefineries converting waste into four value-added products and a range of other intermediate products. The project opened new business frameworks based on an innovative circular approach to urban waste treatment. By doing so, it reduced the amount of organic waste sent to landfill and incineration, while also cutting greenhouse gas emissions, notably methane and carbon dioxide.



Project: **EXILVA**
 Biorefinery location: **Sarpsborg, Norway**
 CBE JU funding: **€27.4 million**
 Coordinator: **Borregaard AS, Norway**

Why do we need to use fossil-based materials to absorb water when trees give us the most advanced water absorption technology? The EXILVA project was conceived to substitute fossil-based chemicals in personal care, coatings and adhesives with advanced bio-based innovations. By using forestry sidestreams, the EXILVA biorefinery enabled a significantly lower carbon footprint compared to existing technologies. This project was among the first to receive the joint undertaking's support.



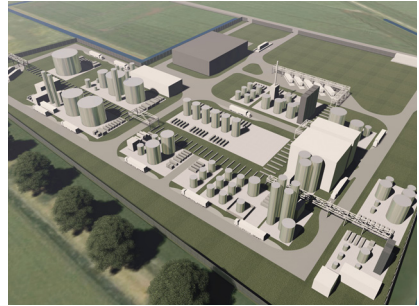
Project: **FIRST2RUN**

Biorefinery location: **Porto Torres, Italy**

CBE JU funding: **€17 million**

Coordinator: **Novamont SPA, Italy**

In Europe, many lands are not suited for agriculture due to their topography or past uses. However, marginal lands could be leveraged to produce renewable resources for bio-based material production. The FIRST2RUN project involved local farmers to grow cardoons, an underutilised oil crop, in the Mediterranean landscape of Sardinia to make biobased plastics, biodegradable and compostable products for fruit and vegetables for the consumer market. This project was among the first to receive the joint undertaking's support.



Project: **PACE**

Biorefinery location: **Ter Apelkanaal, The Netherlands**

CBE JU funding: **€19 million**

Coordinator: **Chaincraft BV, The Netherlands**

Europe's circular bioeconomy is essential to reaching climate targets, but it remains constrained by imported feedstocks, logistical barriers and underused waste resources. Integrated biorefineries can unlock the potential of local waste and sidestreams as sustainable bio-based products. PACE will demonstrate a first-of-its-kind, full-scale biorefinery by retrofitting part of Avebe's existing facility. Using advanced fermentation and microbial chain elongation, the project will convert a residue from potato juice into valuable bio-based medium-chain fatty acids (MFCAs), supporting zero-waste operations and new circular value chains for the chemical industry.



Project: **PEference**

Biorefinery location: **Delfzijl, the Netherlands**

CBE JU funding: **€25 million**

Coordinator: **Avantium Chemicals BV, the Netherlands**

Modern human societies need plastic for a wide range of applications. At the same time, plastics are polluting the environment at an alarming level. The PEference flagship project has built the first industrial-scale biorefinery producing FDCA, a bio-based chemical, to make high-value packaging products. The goal is to replace a significant share of fossil-based plastics with 100% bio-based polyesters. These can compete with traditional packaging products in price and performance when produced at scale. In addition, the resulting bio-based material is sustainable and completely recyclable.



Project: **PLENITUDE**

Biorefinery location: **Sas van Gent, the Netherlands**

CBE JU funding: **€17 million**

Coordinator: **3F BIO Ltd, United Kingdom**

Europe needs to increase alternative sources of homegrown sustainable proteins. The process consumes significantly less water compared to beef farming and uses agriculture residues as the main resource. The PLENITUDE project built a biorefinery to produce affordable plant-based proteins for human consumption. When running at total capacity, the production of the mycoproteins will cut CO₂ emissions by 5 million tonnes a year compared with the production of meat proteins.



Project: **PROTEUS**

Biorefinery location: **Avaldsnes, Norway**

CBE JU funding: **€9.6 million**

Coordinator: **Alginor, Norway**

Brown algae, particularly *Laminaria hyperborea*, offer an abundant source of renewable resources in Europe, yet current harvesting methods limit their use. PROTEUS seeks to unlock the full potential of this type of seaweed by optimising its harvesting and extraction techniques. The project's biorefinery will transform 100% of the biomass into bio-based food and feed ingredients, personal care and other consumer products. This approach aims to sustainably boost Europe's blue economy by improving circularity and creating new business opportunities.



Project: **RENEWCHEM**

Biorefinery location: **Sines, Portugal**

CBE JU funding: **€20 million**

Coordinator: **Catalyxx Procesos**

Cataliticos Sociedad Limitada, Spain

Europe has invested billions in more than 100 bioethanol plants, yet ethanol remains a low-value and subsidy-dependent commodity. RenewChem aims to change this by building the world's first industrial-scale facility to convert renewable ethanol into long-chain, smart drop-in bio-alcohols. These molecules match fossil-based alternatives, work with existing infrastructure and supply chains, and can be produced through a cost-competitive, carbon-negative process. Using existing first- and second-generation ethanol capacity from European suppliers, mainly ALCO, RenewChem will help shift the sector in Europe's green industrial transition.



Project: **RUNFASTER4EU**

Biorefinery location: **Porto Torres & Crescentino, Italy**

CBE JU funding: **€19.9 million**

Coordinator: **Versalis Spa, San Donato Milanese Mi, Italy**

Vast areas of marginal land in Europe remain underused, contributing neither to agriculture nor ecosystems or land regeneration. RUNFASTER4EU transforms these underutilised lands into productive sources of biomass for bio-based industries. Using advanced biorefinery processes, the project converts vegetable oils into high-value bio-based products, ranging from building blocks and intermediates to cosmetics, bioplastics, feed ingredients, herbicides, and bio-based, non-toxic polyurethanes in materials for vertical gardens. Scalable and replicable, the project shows how regional bio-based value chains can support Europe's bioeconomy transition with both economic and environmental gains.



Project: **SCALE**

Biorefinery location: **Baillargues, France**

CBE JU funding: **€14.3 million**

Coordinator: **Microphyt, France**

What if we could grow renewable resources in a reduced space to free land for agriculture and forestry? What if we could even capture CO₂ from the atmosphere to feed this resource? The SCALE project has built the first fully integrated microalgae biorefinery to produce natural active ingredients of high nutritional value for the food supplements, feed, and cosmetics sectors. Led by a French small enterprise, Microphyt, this project helps to reduce the dependency on fossil-based resources, replacing them with bio-based alternatives.



Project: **SOWISE+**
 Biorefinery location: **Trevignano & Lovadina di Spresiano, Italy**
 CBE JU funding: **€14 million**
 Coordinator: **Contarina SPA, Italy**

Europe remains heavily dependent on imported bio-based polymers and lacks sustainable, high-performance alternatives to fossil-based plastics. SOWISE+ addresses this gap by demonstrating a first-of-its-kind multipurpose biorefinery. The facility will produce polyhydroxyalkanoates (PHAs) from urban organic waste streams, including post-consumer absorbent hygiene products. Hosted by CONTARINA, a leading municipal waste management operator, the flagship plant will convert heterogeneous urban waste into bio-based polymers, supporting Europe's circular bioeconomy, strengthening industrial competitiveness, and reducing reliance on fossil-based plastics.



Project: **SUSTAINEXT**
 Biorefinery location: **Hervás, Spain**
 CBE JU funding: **€14 million**
 Coordinator: **Natac Biotech, Spain**

How to put into practice a zero-waste and circular-by-design industrial process in a rural region in Europe? SUSTAINEXT is up to the challenge in Extremadura, Spain. The project has turned an existing production plant into a digitalised circular biorefinery to produce healthy plant-based ingredients from local medicinal and aromatic plants and agricultural sidestreams. This will generate value and new jobs for the region boosting the local economy. The project's model is easily adaptable and replicable and can run on renewable energy produced by solar panels.



Project: **SWEETWOODS**
 Biorefinery location: **Imavere, Estonia**
 CBE JU funding: **€21 million**
 Coordinator: **Fibinol OÜ, Estonia**

Lubricants, adhesives and plastics are extremely useful materials, but when they are made of fossil-based raw materials, they contribute to global warming and pollution. SWEETWOODS has built a first-of-its-kind, highly efficient, reduced environmental impact industrial biorefinery to obtain high-value compounds using hardwood residues as a raw material. The biorefinery is part of a new industry that advanced an innovation hub in Estonia focused on forestry-based chemicals and materials.



Project: **TERRIFIC**
 Biorefinery location: **Bottrighe, Italy**
 CBE JU funding: **€16.8 million**
 Coordinator: **Novamont, Italy**

The goal of the TERRIFIC project is to support the decarbonisation of the packaging sector and make it circular with bio-based materials for recyclable, compostable and high performing packaging. The project will build a first-of-its-kind biorefinery to produce bio-based and biodegradable film laminated on pulp or paper, as well as rigid and flexible thermoplastic bio-based materials for packaging solutions.



Project: **VIOBOND**
 Biorefinery location: **Riga, Latvia**
 CBE JU funding: **€15.9 million**
 Coordinator: **Latvijas Finieris A/S, Latvia**

Wood panels require glues whose components – phenol and formaldehyde – may pose risks to human health. By transforming hardwood residues, the VIOBOND project demonstrates the feasibility of an effective and efficient business model for lignin transformation into harmless and sustainable bio-based resins for wood panels and construction materials. This technology has high market potential, as the current sales of phenolic resins in Europe are around €1 billion and will be directly embedded in the production facility Latvijas Finieris in Riga.



Project: **WOODCELL**
 Biorefinery location: **Imavere, Estonia**
 CBE JU funding: **€17 million**
 Coordinator: **Fibinol, Estonia**

Bio-based materials, like lignin and wood sugars, offer a sustainable alternative to fossil-based materials. WOODCELL works on micro-scale microcrystalline cellulose (MCC) from hardwood residues by building on the successful SWEETWOODS production. The project will promote industrial competitiveness, reduce dependency on imports by using wood residues as feedstock, and offer a wider range of bio-based applications for the chemical and materials industry. Additionally, it aims to improve the environmental sustainability of the production process and create new job opportunities in the region.

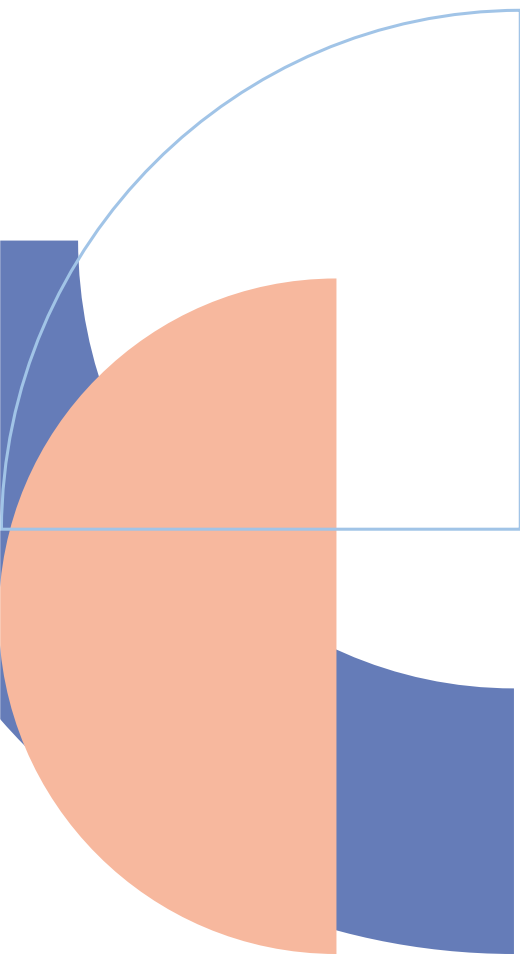
WHAT IS THE REAL ECONOMIC AND SOCIAL IMPACT OF THESE PROJECTS IN EUROPE?

Currently, the EU's bioeconomy has a turnover of € 2.7 trillion and employs 17.1 million people.

The bio-based economy **has attracted and retained private investments** in Europe. Many of these are new, highly skilled jobs located in remote, rural and coastal areas, where renewable resources and biomass can be found. Moreover, the **bio-based sector creates alternative income sources** and sustainable production opportunities for primary producers in the agriculture, aquatic and forestry sectors.

The development of bio-based industries can contribute to the socio-economic revitalisation of European regions suffering from youth emigration in search of better employment prospects.

Moving forward, the CBE JU-funded flagship projects are boosting the impact of these green sectors, as the funded first-of-their-kind biorefineries are built across Europe with a **high replicability potential** in other regions and countries.





DEMONSTRATION ACTIONS

These actions are designed to demonstrate the technical and financial feasibility of new or improved bio-based processes.

By the end of their activities, these projects are expected to reach TRLs (Technology Readiness Levels) 6 or 7 and allow validation of the business model and products at pre-industrial scale.

87
projects

€590.2
million
in CBE JU funding

DEEP PURPLE

The DEEP PURPLE project addressed the EU's urban organic waste challenge - 140 million tonnes annually, most of it landfilled or incinerated - by developing a breakthrough biorefinery system. This approach converts mixed waste streams, including municipal solid waste and sewage sludge, into valuable bio-based materials for sectors like packaging, construction, cosmetics and agriculture.

The project successfully operated demonstration photobioreactors, achieved high-purity bioproducts such as PHA and bio-based polyesters, created a self-healing additive for concrete and produced an organic fertiliser tested on farms in France, Italy and Spain.

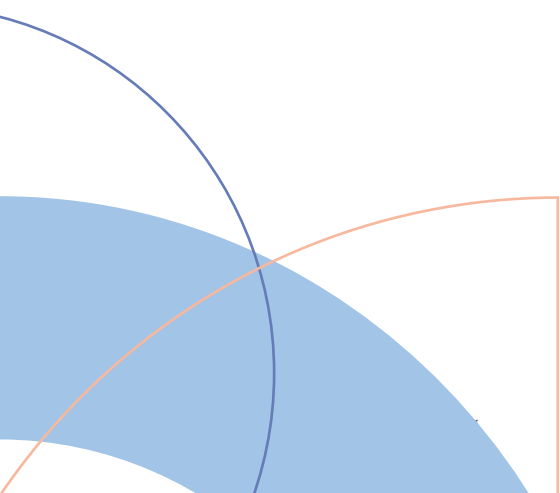
DEEP PURPLE also significantly improved the treatment of municipal organic waste by increasing hydrolysis efficiency, lowered production costs and enhanced recycling rates for sludge. The project fostered new partnerships across industries, creating value chains linking waste management with packaging, construction, fertiliser, and cosmetics sectors. **Overall, it reduced landfilled organic waste by up to 76%, outperforming existing technologies.**

Rural BioReFarmeries

The Rural BioReFarmeries project is developing Europe's first small-scale, decentralised green biorefinery model, in Ireland, to help grassland farmers turn green biomass into valuable products like feed, fertilisers, and high-value ingredients. Aimed at boosting rural resilience and sustainability, the project brings together farmers, industries and researchers to demonstrate a farmer-focused bioeconomy. **It enhances biorefinery standards, tests fair business models, and uses smart logistics tools to improve efficiency and economic returns.** By promoting local value creation and lower emissions, the project seeks to replicate its model across Europe's grassland regions and provide scalable, sustainable solutions for rural communities.

REDwine

The REDWine project, coordinated by a Portuguese wine cooperative, has demonstrated the feasibility of an innovative concept with strong potential to improve the sustainability of winemaking. **The REDWine facilities capture around two tonnes of CO2 annually generated during wine fermentation and use it as a carbon source for the cultivation of the microalgae *Chlorella* in two types of photobioreactors.** Liquid effluents from the winemaking process are also used as the microalgae cultivation medium. The produced microalgal biomass is subsequently processed into ingredients for the food, cosmetics, and agricultural sectors.



RESEARCH AND INNOVATION ACTIONS

Research and innovation actions fund the development and testing of new technologies and solutions to fill the gaps in existing bio-based value chains and foster new breakthrough innovation.

WoodTreat

The WoodTreat project recovers materials from contaminated wood and transforms them into high-value, bio-based products, reducing the risks linked to wood preservatives.

Most wood used today is treated with preservatives to extend its lifespan, but this creates a growing challenge at end-of-life. Preservative-treated wood, including material treated with creosote, contains hazardous chemicals that make it difficult to recycle: most of it is currently incinerated or landfilled, creating ongoing environmental and health risks.

To tackle this, the project develops a multi-dimensional cascade approach: **new methods to detect and remediate chemical contamination, tested through seven pilot validation trials.** A central objective is to create a system

108
projects

€411.4
million
in CBE JU funding

that detects chemical pollutants in post-consumer wood, improving sorting efficiency and supporting circular economy practices. The outcome: safe, value-added products made from recycled wood.

pHYBi

The pHYBi project addresses a challenge in Europe's bioeconomy: how to produce sustainable biomass without competing with food crops.

It focuses on cultivating industrial crops on degraded, polluted and saline soils or land that is unsuitable for food production.

By combining soil phytoremediation with biomass valorisation, **pHYBi promotes a circular economy model that supplies high-value raw materials for industries like textiles.**

The project tests woody and herbaceous crops in contaminated soils, enhancing their growth using fungi, bacteria and custom-made soil additives. It also aims to restore ecosystems while improving soil health through phytomanagement practices. **pHYBi develops processes to extract and valorise lignocellulosic biomass** (cellulose, hemicellulose, lignin), and supports market uptake through stakeholder engagement, social innovation and a virtual tool for replicating the approach across Europe. Ultimately, the project demonstrates how degraded land can become a sustainable feedstock source, contributing to a resilient and inclusive European bioeconomy.



COORDINATION AND SUPPORT ACTIONS

The long-term success of Europe's bio-based sector relies on bringing new, innovative solutions to the market and, once there, boosting their uptake and building market share. This is one of the aims of the CBE JU-funded coordination and support actions, which address the cross-sectoral challenges of the bioeconomy including developing skills, identifying regulatory barriers and promoting user acceptance.

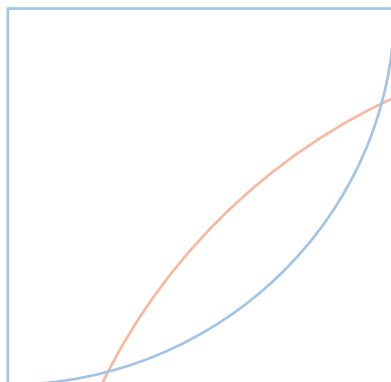
26
projects

€38.6
million
in CBE JU funding

Rootlinks

The RootLinks project supports primary producers in agriculture, forestry and the blue economy, building their capacity and awareness on bio-based solutions and related funding opportunities. **Primary producers play a central role in the circular bioeconomy, yet often lack the connections and resources needed to engage with research and innovation funding programmes or access markets for newly developed value chains.** RootLinks bridges this gap, connecting producers across the three sectors with relevant funding opportunities and facilitating access to emerging markets.

The project focuses on raising awareness and strengthening cross-sector collaboration. It also supports the CBE JU Working Group on Primary Producers, facilitating their work, strengthening communication and turning ideas into action.





ENCOURAGING BUSINESSES DEVELOPMENT AND RESEARCHERS

CBE JU-funded projects offer opportunities for small and medium-sized enterprises (SMEs), industry, primary producers, trade associations and end users to develop technologies and business models that can drive Europe's green economy while helping companies to scale up their own technologies and improve their market access.

CBE JU has
1860 participants

38% of these participants are SMEs

SMEs coordinate 25% of all CBE JU-funded projects

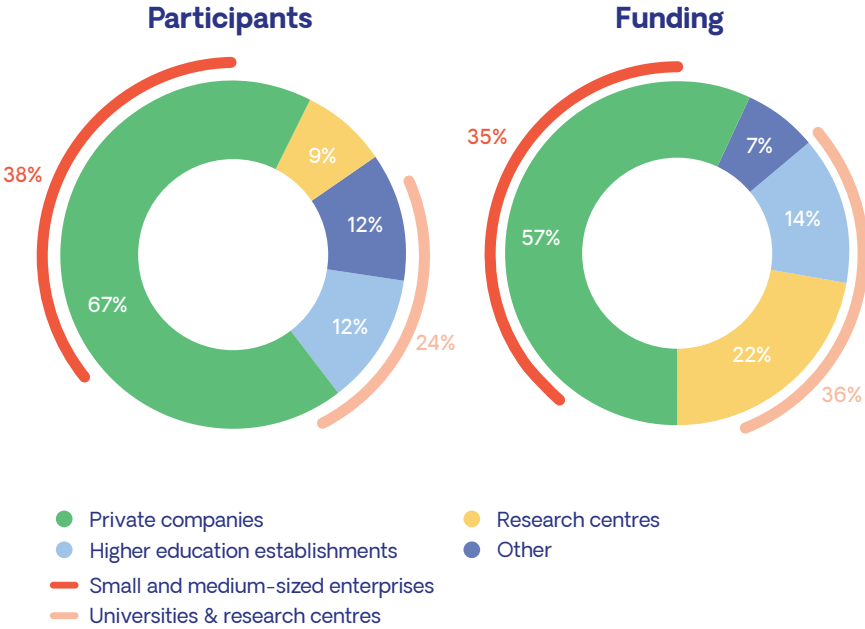
SMEs receive 35% of CBE JU funding



With a CBE JU funding share of one-third, industrial SMEs, including biotechnology ones, are important technology providers in CBE JU-funded projects.

Other small enterprises are involved in a variety of sectors, such as chemicals, food, feed, materials, engineering, construction, waste processing, recycling, plastics packaging, agriculture and aquaculture.

Accelerating the innovation process for bio-based solutions and fostering technology transfer are part of CBE JU's core objectives. Universities and research centres, representing one-quarter of all CBE JU participants and one-third of all funding, are key providers of innovative bio-based solutions for the projects.



Application areas of the bio-based products and solutions



Main source of feedstock used in CBE JU projects



Approximately 18% of projects use more than one source of feedstock.

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