Sustainability Criteria for Biomass

Bioplastics require incentives before further hurdles

The transition from a fossil-based to a renewable, biobased economy is vital for the long-term resilience, competitiveness and strategic autonomy of Europe. It is also of essential importance if the European Union wants to achieve its goal set in the European Green Deal to become climate neutral by 2050. This transition requires a strong collaboration among the actors in the entire supply chain, from feedstock providers to intermediate materials to manufactured products. In particular, the plastics industry can contribute to the circular economy through the adoption of sustainable feedstocks, such as biobased feedstocks.

Bioplastics encompass a family of different materials that are biobased, biodegradable, or both. 'Biobased' means the material or product is wholly or partly derived from biomass[1]. 'Biodegradable' refers to a biochemical metabolisation process during which micro-organisms available in the environment convert materials into natural substances such as water, carbon dioxide, and biomass.

Using biomass for industrial purposes, e.g., to produce bioplastics, has major benefits such as reducing the dependency on limited fossil resources and lowering greenhouse gas emissions. Through the introduction of legislative framework incentives, bioplastics can make an important contribution to the bioeconomy by creating green jobs and reducing the reliance on fossil resources. This is aligned with the Commission's new Working Programme and strategies such as the Clean Industrial Deal. It is also enabling the implementation of the cascading principle[2].

Playing an important role within the circular economy, the bioplastics industry has developed dynamically in recent years and has a significant growth potential: a growth of

[1] To increase the amount of plastics based on renewable resources on the market and decrease dependence on depletable feedstocks, such as crude oil, the mass balance approach is a complementary step that can be necessary for a fossil-free future. Find out more about European Bioplastics' position paper: https://docs.european-bioplastics.org/publications/pp/EUBP_PP_Mass_balance_approach_for_the_use_of_biobased_feedstock_for_polymer_production.pdf

[2] The principle aims to achieve the resource efficiency of biomass use by prioritising, wherever possible, the material use of biomass over its energy use, thus increasing the amount of biomass available within the system. Such an alignment is intended to ensure fair access to the biomass raw material market for the development of innovative, high value-added bio-based solutions and a sustainable circular bioeconomy" according to the Renewable Energy Directive (EU) 2023/2413 (also known as RED III).

over 130% is forecasted in global bioplastics production capacity between 2024 and 2029[3]. Maintained access to sustainably grown biomass is essential to guarantee this growth.

EUBP acknowledges that the initial effort of implementing sustainability criteria for the use of biomass for material production will inherently need to be carried out by the farmers and other biobased feedstock providers. We believe therefore that it is extremely important that the perspective of the farmers and the whole value chain is considered in the decision-making process.

The call for Sustainability Criteria

Sustainability criteria for renewable energy sources were adopted by the EU through the Renewable Energy Directive[4] (RED) to ensure that they truly contribute to climate and environmental goals without causing unintended social or environmental harm. The criteria were necessary to prevent environmental damage (deforestation, biodiversity loss, overexploitation of resources, etc.) to ensure greenhouse gas savings in comparison to e.g., fossil fuels, and to support the EU climate goals. These legally binding criteria were also used to create a level playing field between biofuels and fossil fuels.

Bioenergy may, for example, not be taken from primary forests, highly biodiverse forests, nature-rich grasslands, wetlands, peatlands, or land with high carbon stock. It must also provide real greenhouse gas savings. It must be generated from sustainably managed sources, e.g., forests that are being regenerated, and must protect biodiversity. Specifically, the revised Renewable Energy Directive (RED III)[5] introduces and promotes the cascading use of biomass (i.e., using biomass for materials before using it for bioenergy). Recognised sustainability certification schemes must be in place, with regular audits and compliance checks. The sustainability criteria apply to all bioenergy used in the EU, regardless of whether it is sourced from inside or outside the EU.

With regard to sustainability criteria for biobased plastics, according to the Packaging and Packaging Waste Regulation (PPWR) Article 8§1, “By 12 February 2028, the Commission shall review the state of technological development and environmental performance of biobased plastic packaging, taking into consideration the sustainability criteria laid down in Article 29 of Directive (EU) 2018/2001 of the European Parliament and of the Council”. EUBP fully supports creating sustainability criteria for biobased plastics, as long as they are accompanied by certain incentives[6] supporting their uptake in the market. Such incentives should include, e.g., the introduction of mandatory biobased content targets in industry

[3] Bioplastics Market Development Update 2024, compiled by European Bioplastics in cooperation with the market experts of the nova-Institute (Hürth, Germany).

[4] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 (also known as RED I) on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

[5] The revised Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources, also known as RED III.

[6] Further information can be found in the position paper of European Bioplastics, “EU Bioeconomy Strategy Review” June 2025, https://www.european-bioplastics.org/eu-bioeconomy-strategy-review/

sectors, access to financing for investments in biobased production and biomanufacturing, tax credits for the bioeconomy industry, and monetary and regulatory support for innovation scale-up and bioplastic recycling infrastructure.

Today, bioplastics are commonly derived from sugar and carbohydrate-rich plants, such as wheat, corn, or sugar beet[7]. The mechanisms to grow renewable feedstock for a continuously developing bioeconomy do not have to conflict with the need to reverse climate change and to provide sufficient (healthy) food for a growing world population, as also confirmed in the Bio-based Industries Consortium & Renewable Carbon Initiative report issued in 2025[8]. On the contrary, by combining regenerative farming practices with new carbon credit mechanisms, the industry and farm economy have caught up with the calls for action to improve natural ecosystems. At the same time, they create incentives to improve soil health and enhance productivity. This is the reason why EUBP supports the development of clearly defined and harmonised sustainability criteria[9] for sourcing sustainable feedstocks.

Using the Renewable Energy Directive as basis for developing future sustainability criteria for non-energy uses

As consumer-, brand owner-, and regulatory demand for sustainable, circular products increases, companies that meet robust sustainability criteria are better positioned in the global market — gaining a competitive edge through consumer and supply chain trust and innovation. Thus, developing sustainability criteria for biomass in non-energy uses is essential for ensuring both environmental protection and economic stability. Sustainable biomass sourcing and processing can minimise greenhouse gas emissions across the supply chain, contributing to broader climate goals.

RED III is only for energy use. As the supply chain of materials is very different from that for energy use, not all the sustainability criteria are directly implementable. EUBP supports the development of a legal sustainability criteria framework and the use of Article 29[10] of RED III

[7] The EUBP paper "Industrial use of agricultural materials as feedstock for biobased plastics" published in June 2025, describes the advantages of using agricultural feedstock for the production of bioplastics, and explains why there is no competition between the use of biomass for plastics versus for feed or food.

[8] "Is there Enough Biomass to Defossilise the Chemicals and Derived Materials Sector by 2050?" The Bio-based Industries Consortium (BIC) and the Renewable Carbon Initiative (RCI) commissioned a study from the nova-Institute with the co-operation of EuroCARE Agricultural Policy Research and the Thünen Institute of Forestry (TI-WF). A Joint BIC and RCI Scientific Background Report Authors: Michael Carus, Olaf Porc, Christopher vom Berg (nova-Institute), Markus Kempen (EuroCare), Franziska Schier (TI-WF) and Julia Tandetzki (TI-WF) February 2025.

[9] According to PPWR Article 8§1 "By 12 February 2028, the Commission shall review the state of technological development and environmental performance of biobased plastic packaging, taking into consideration the sustainability criteria laid down in Article 29 of Directive (EU) 2018/2001 of the European Parliament and of the Council".

[10] Whereas the comparison of GHG emissions between biofuels and conventional fuels is obviously quite straightforward, a similar comparison between bio-based and conventional products is considerably more complicated. The use of novel polymers with special properties for which there are no conventional counterparts, and their effect on the performance of the end product to be compared, allow for a variety of criteria on the basis of which the comparisons can be made. It is therefore necessary to ensure, on a case-by-case basis, that these comparisons are made on an objectively comprehensible and fair footing.

as a basis to develop future sustainability criteria, but some adaptation is needed. For example, an adaptation of the sustainability requirements regarding GHG emissions reduction targets. Biobased plastics demonstrating lower GHG emissions than their conventional counterparts should not be subject to unreasonable target requirements in the form of a GHG reduction percentage. Unlike biofuels, for the production of which the use of biomass is currently heavily incentivised and, therefore, justifying the implementation of additional GHG emission reduction targets, biobased plastics should need to prove only a simple comparative GHG emission reduction[11].

Sustainability criteria that are very important and that EUBP fully support include:

- Protecting soil carbon (Art 29 (2) RED III)
- Protecting biodiversity (Art 29 (3) RED III)
- Maintaining land carbon stocks (Art 29 (4) RED III)
- Protecting peatlands (Art 29 (5) RED III)
- Ensuring sustainable forest management (Art 29 (6) RED III)

For feedstocks already regulated by existing sustainability legislation, the sustainability criteria should not be made more restrictive, in alignment with the goal of regulatory simplification and coherence**.**

EUBP is willing to work with the Commission on establishing appropriate sustainability criteria that are implementable specifically for the biobased plastic industry.

Europe needs a level playing field for products made from biomass.

Creating suitable sustainability criteria will not be sufficient to create the demand required to move away from fossil products. In addition, the industry also needs to have a legal and regulatory framework that allows for the use or uptake of biomaterials in the same way as for bioenergy production[12]. A first step towards this is taken in the PPWR Article 8§2, "…the Commission shall, where appropriate, present a legislative proposal…" to "…lay down targets to increase the use of biobased feedstock in plastic packaging". EUBP is looking forward to concrete proposals and is willing to contribute to support the work of the Commission on this.

Europe needs a level playing field for all biobased products to ensure the highest economic value creation for the whole value chain and to provide the strongest environmental benefits. A level playing field for the use of biomass in materials, compared to the use of biomass for energy, needs to be established for the industry to have fair access to feedstock.

[11] In addition, LCAs and/or the PEF method adducted to illustrate environmental performance comparisons between biobased and fossil-based products need to be adapted in order to take into account the benefits of biogenic carbon in a transparent and balanced manner.

[12] In February 2025, EUBP addressed a letter to the Competitiveness Council calling for endorsing the adoption of a European policy framework on chemicals promoting the production and marketing of biopolymers to realise the shift from fossil to sustainable carbon feedstocks, to secure long-term competitiveness of the European chemical industry in a climate-neutral and circular economy.

At European level, many measures exist for using biomass for energy, such as mandates, quotas, taxes, etc. These incentives should at least be bestowed equally on all different industries using biomass. Currently, the bioenergy sector is promoted through different robust legislative measures, whereas the bioplastics industry lacks such support - a condition that distorts the effectiveness of biobased market segments. Equally strong incentives for all biomass applications would enable the actual implementation of the cascading principle.

The principle aims to achieve the resource-efficiency of biomass use by prioritising, wherever possible, the material use of biomass over its energy use, thus increasing the amount of biomass available within the system. Such an alignment is intended to ensure fair access to the biomass raw material market for the development of innovative, high-value-added biobased solutions and a sustainable circular bioeconomy".[13] Using biomass for industrial purposes, such as the production of bioplastics, is essential to transition from a fossil-based to a renewable, biobased economy.

Summary:

- European Bioplastics agrees with the Commission on the necessity of laying down suitable sustainability criteria to protect nature, tailored to biobased feedstocks for plastic products.
- However, these must be combined with market pull measures such as the introduction of mandatory biobased content targets in industry sectors.
- Moreover, Europe needs a level playing field for all biobased products to ensure the highest economic value creation for the whole value chain and to provide the strongest environmental benefits.
- It is extremely important that the perspective and interest of the whole value chain are considered in the decision-making process

13. ("RED III") 2023/2413: Directive (EU) 2018/2001 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652.

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About European Bioplastics

European Bioplastics (EUBP) is the European association representing the interests of the bioplastics industry along the entire value chain. Its members produce, refine, and distribute bioplastics i.e. plastics that are biobased, biodegradable, or both. More information is available at www.european-bioplastics.org