

# **Bellona Response to the Call for Evidence on the Biotech Act II**

**CONSULTATION RESPONSE**

June, 2026

---

Bellona welcomes the European Commission's initiative to develop a **Biotech Act II** that supports a greater uptake of bio-based industrial products in the EU, while advancing decarbonisation and circularity, and recognising the constraints associated with finite biomass resources.

To ensure the initiative delivers on these objectives, it is essential that policy design reflects the reality of **biomass resource constraints**, prioritises **high-value and climate-efficient uses**, and avoids lock-in into **resource-intensive or suboptimal pathways**. In this context, our feedback focuses on three key areas: the need for a biomass value hierarchy, the strategic role of marine biomass and biorefineries, and the efficient use of biogenic CO<sub>2</sub>.

### 1. Biomass value hierarchy as a core governance tool

The call for evidence correctly identifies the sub-optimal use of feedstock as a key barrier. However, the **absence of a clear framework for prioritising biomass use remains a fundamental gap** in EU policy. Bioresources are finite and increasingly constrained due to increased demand induced by the transition away from fossil feedstocks, reduced productivity linked to climate-related pressures on ecosystems, and growing competition between food, feed, materials, and energy uses. Without clear prioritisation, these competing demands risk leading to inefficient allocation, undermining both climate and economic objectives.

A **biomass value hierarchy** provides a practical framework to address this challenge. It enables policymakers and market actors to prioritise biomass uses based on societal value, resource efficiency, and environmental impact. In such a hierarchy, food and feed for food-producing animals rank highest together with chemicals, followed by high-value uses for biomaterials and fertilisers, while energy recovery and combustion represent the lowest-value applications due to the irreversible loss of material functionality.

This concept builds on existing EU frameworks, including the cascading use principle in RED III and the broader logic of the Waste Framework Directive, as well as the objectives of the 2025 EU Bioeconomy Strategy. However, these principles remain fragmented and insufficiently operationalised across sectors. As a result, **there is currently no binding EU framework that governs competing biomass uses in a consistent and coherent manner**.

The Biotech Act II should address this gap by introducing a cross-sectoral biomass hierarchy as a guiding principle for legislation, public funding, and market incentives. This should include expanding the cascading use principle beyond woody biomass to other streams, as well as strengthening its implementation to explicitly reflect biomass scarcity and carbon efficiency considerations. In parallel, policy should disincentivise inefficient biomass combustion and redirect biomass towards higher-value material uses, thereby supporting the development of industrial biotechnology and a more resource-efficient bioeconomy.

See chapter 2 of Bellona's report titled "**Regulatory barriers to the use of biological by-products in European feed production**":  
<https://eu.bellona.org/publication/regulatory-barriers-to-the-use-of-biological-by-products-in-european-feed-production/>

## 2. Marine biomass and kelp biorefineries as a strategic opportunity

While the initiative rightly aims to create lead markets for bio-based materials, it does not sufficiently recognise the role of emerging biomass sources, in particular low-trophic aquaculture (LTA) such as kelp. **Marine biomass represents a significant untapped opportunity for the EU, both in terms of sustainable feedstock supply and ecosystem benefits.** However, its scale-up is currently constrained by a reliance on relatively small and niche end markets, particularly in food applications, which are insufficient to support large-scale industrial deployment, as well as by the lack of processing infrastructure and integrated value chains.

Unlocking this potential requires a shift in perspective: kelp should be treated not merely as a food product, but as a **versatile industrial feedstock**. The industrialisation of marine biomass will depend on the large-scale development of land-based infrastructure capable of processing and fractionating biomass into multiple product streams. Through a biorefinery approach, kelp can be separated into high-value outputs such as speciality biochemicals and functional animal feed, alongside intermediate inputs for bio-based materials and chemicals.

This model ensures that each unit of biomass is used at its highest economic and ecological value, fully aligned with the principles of a biomass hierarchy and cascading use. At the same time, it supports the broader objectives of the Biotech Act II by contributing to the sustainable production of chemicals and materials, reducing reliance on fossil-based inputs, and enabling the creation of new lead markets in high-impact sectors.

More broadly, **the development of marine biorefineries can provide the EU with a pathway to transition away from petroleum-based precursors by leveraging the restorative capacity of marine biomass, both for ocean ecosystems and as a sustainable alternative to fossil-based resources.** This dual benefit (industrial decarbonisation combined with ecosystem regeneration) makes marine biomass particularly relevant in the context of the EU's long-term climate and bioeconomy objectives.

As such, the Commission should explicitly **recognise marine biomass as a strategic feedstock within the Act and support the development of biorefinery infrastructure** through targeted funding, industrial partnerships, and innovation frameworks.

See Bellona's report titled "**Developing a value hierarchy for biomass: case study on kelp**": <https://eu.bellona.org/publication/developing-a-value-hierarchy-for-biomass-case-study-on-kelp/>

### **3. Efficient use of biogenic CO<sub>2</sub> and implications for synthetic aviation fuels**

The call for evidence highlights the importance of diversifying carbon sources, including through carbon capture and utilisation (CCU). However, it does not sufficiently address the need to **prioritise the most efficient uses of biogenic CO<sub>2</sub>, particularly in a context of increasing demand for carbon-neutral feedstocks.**

As highlighted in Bellona's latest **analysis** on synthetic aviation fuels (e-SAF), the way biogenic CO<sub>2</sub> is used critically impacts overall climate efficiency. For example, evidence from Norway, indicates that e-SAF is a highly resource-intensive pathway:

- e-SAF requires approximately five times higher costs and around 43 times more electricity than permanent CO<sub>2</sub> storage to achieve the same climate benefit.
- Even modest blending levels result in significant increases in both system costs and electricity demand, in a context where these resources are already constrained.
- The climate benefit of e-SAF is highly sensitive to electricity carbon intensity: if this exceeds approximately 140 gCO<sub>2</sub>/kWh, e-SAF can lead to net increases in emissions. Given the current EU average (around 180 gCO<sub>2</sub>/kWh), this risk is significant.

**These findings underline the need for a system-level approach to resource allocation** (e.g. prioritise total climate effect, public spending efficiency) while considering the wider economic impacts, including effects on electricity prices and industrial development.

Furthermore, **permanent storage of biogenic CO<sub>2</sub> offers high, durable climate benefits with lower energy demand, hence it should be prioritised**, supported by strengthened policy frameworks and investment in CO<sub>2</sub> transport and storage infrastructure.

At the same time, existing approaches to synthetic aviation fuels should be carefully reassessed to ensure alignment with these principles. This includes exploring alternatives to e-SAF blending mandates, such as buy-out options (allow airlines to pay into a dedicated carbon removal fund); stricter quality standards to avoid low-quality carbon removal undermining emissions cuts or the EU ETS; focus on scalable, high-permanence solutions (e.g., geological storage).

Overall, ensuring the efficient use of biogenic CO<sub>2</sub> will be critical to maximising climate benefits, avoiding unnecessary resource use, and supporting a coherent and cost-effective EU decarbonisation strategy.

## **Concluding remarks**

The Biotech Act II represents a critical opportunity to shape Europe's bioeconomy. To succeed, it must go beyond enabling technologies and markets and ensure that limited resources are used in the most effective and sustainable way.

Embedding a biomass value hierarchy, supporting the scale-up of innovative feedstocks such as marine biomass, and ensuring the efficient use of carbon and energy resources will be essential to achieving the Act's objectives. Without such an approach, there is a significant risk of inefficient resource use, misallocation of investment, and missed opportunities for both climate action and industrial leadership.

Bellona remains available to support the Commission with further analysis and evidence.

## **Contacts:**

**Carolina Rodriguez Balda**  
Bioeconomy Policy Manager  
[carolina@bellona.org](mailto:carolina@bellona.org)

**Louis Hennequin**  
CDR Research and Technology Advisor  
[louis@bellona.org](mailto:louis@bellona.org)