

Positioning renewable materials at the core of circular bioeconomy: Driving demand through life cycle -based performance metrics

The success of the EU Ecodesign for Sustainable Products Regulation (ESPR) in textiles will depend on whether it drives a real transition away from fossil carbon. If circularity is defined narrowly as recycled content alone, ESPR risks unintentionally reinforcing long-term dependence on fossil-based fibres, despite the availability of renewable, low-emission alternatives.

Bio-based textiles contribute to climate neutrality by substituting fossil-based fibres, supporting circular material flows and enabling eco-design and future-fit textile industry using renewable raw materials from sustainably managed and traceable forest resources. For this reason, renewable materials must be properly recognized within ESPR's performance-based framework.

The Finnish Forest Industries Federation (FFIF) considers **wood-based textile fibres a strategically important pillar of the EU bioeconomy and circular economy**, promoting the clean industrial transition. Wood-based textile fibres, currently represent only a small share of global textile markets (6 %) ¹. However, innovative wood-based man-made cellulosic fibres (MMCFs) and biobased synthetic fibres produced from wood-based renewable carbon (e.g. biobased polyester) already deliver significantly lower fossil greenhouse gas emissions than conventional fossil-based or even natural fibres. Scaling these solutions requires policy frameworks that properly reflect their environmental benefits and do not unintentionally favour fossil products.

FFIF calls for ESPR to enable a truly circular bioeconomy by:

1. Recognising renewable bio-based content as circular content, complementary to recycled content

Circularity in textiles cannot be achieved through recycling alone. Limited availability of recycled fibres, quality losses in recycling processes and continued growth in textile demand make renewable feedstocks structurally necessary to transition away from a linear, fossil-based system. Renewable bio-based content must therefore be recognized as circular content, complementary to recycled content, in line with ISO 59020, across textile product rules and delegated acts under ESPR.

Specifically, FFIF calls for:

- **Recognition of renewable, bio-based textile fibres as circular content within ESPR ecodesign criteria**, alongside recycled content, using material-neutral, science-based definitions.
- Consideration of **renewable content** not only in product ecodesign requirements, but **also in Green Public Procurement (GPP) criteria** developed alongside ESPR, as well as in the broader **EU public procurement framework**.
- Full consideration of **renewability as a product parameter**, as already identified in ESPR preparatory work, when drafting textile ecodesign criteria.

The Joint Research Centre (JRC) acknowledges that 60–63% of a textile product's environmental performance originates from the fibre itself. Despite this, current ESPR preparatory study places limited emphasis on raw material choice, while focusing predominantly on manufacturing technologies, which represent 21–29% of impacts.²

¹ Materials Market Report. 2025. Textile Exchange. <https://textileexchange.org/knowledge-center/reports/materials-market-report-2025/>

² Working document of the 3rd milestone. European Commission. 2026. <https://susproc.jrc.ec.europa.eu/product-bureau/product-groups/467/documents>

A narrow focus on voluntary or mandatory recycled content risks disadvantaging renewable bio-based fibres, which deliver environmental benefits. Given the current shortage of recycled textile fibres and recycling technologies still under development, ESPR must utilize all circular content pathways, including renewable materials, to enable Europe's transition from a linear to a circular textile economy. The benefits of recycled content shall be demonstrated by lower environmental footprint. This is to ensure the recycled content does not lead to higher use of fossil energy to produce energy intensive recycled fiber.

As ESPR is designed to operate through performance requirements, FFIF considers the current emphasis on voluntary information requirements insufficient. To create lead markets for sustainable textile solutions, **circular performance criteria must explicitly include both recycled and renewable raw materials across ESPR product rules and public procurement.**

2. Capturing the full climate benefits of bio-based textiles through Product Environmental Footprint

Robust and comparable life-cycle assessment (LCA) is essential for fair evaluation of textile sustainability. FFIF therefore supports the development of the Product Environmental Footprint (PEF) methodology and integrating it into the ESPR performance, not only information, criteria. However, FFIF is concerned that current methodological development does not sufficiently capture the specific benefits of bio-based textile fibres, particularly regarding renewability, biogenic carbon accounting and end-of-life modelling.

The EU Bioeconomy Strategy explicitly emphasizes fossil substitution through renewable materials and states that the renewed PEF methodology will improve the assessment of bio-based products. **To ensure policy coherence, the influential role of raw materials in textile environmental performance must therefore be quantified scientifically correctly.**

Specifically, FFIF calls for the ongoing PEF revision to:

- **Integrate biogenic carbon accounting using a -1/+1 approach**, crediting carbon uptake while addressing non-renewability through land-use impact categories. This approach ensures consistency, avoids double counting and aligns with EN 15804. Renewability should be defined through legality and forest management practices that ensure the regeneration of harvested areas, with further refinement possible at PEFCR level.
- FFIF supports the proposal **to model all carbon remaining in landfill after 100 years as emitted, for both fossil and biogenic carbon** to discourage landfilling, promote recycling and energy recovery and align with circular economy principles. However, this approach further reinforces the need to include fossil carbon transfers, as the ultimate End-of-Life emissions of fossil-based intermediate products would otherwise remain invisible.
- **Temporary and permanent carbon storage should be recognized as additional information, with detailed methods defined in PEFCRs, consistent with EN 18027.** Temporary carbon storage contributes to climate mitigation by delaying emissions and supporting long-lived, circular material loops. Recognising this effect is consistent with EU policy goals on product longevity and circularity.

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