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# New study shows how policy and industry can unlock a textile recycling breakthrough by 2035

- Europe could increase textile-to-textile polyester recycling nearly tenfold by 2035 and unlock significant environmental and socio-economic benefits
- Ten key levers identified to bridge the gap in cost and access to feedstock and demand
- Policy action on Extended Producer Responsibility (EPR) and the Ecodesign for Sustainable Products Regulation (ESPR) is essential for building a competitive textile recycling system

London, 21 May 2025 – A new study released today by Systemiq finds that Europe could reach a tipping point for textile-to-textile recycling of post-consumer polyester waste – where recycling polyester through depolymerisation becomes more competitive than producing virgin polyester from fossil fuels. If policymakers and brands act now to unlock investment, infrastructure and long-term demand, depolymerisation output could grow nearly tenfold by 2035. This breakthrough could unlock significant environmental and socio-economic benefits.

The report, **"The Textile Recycling Breakthrough: Why policy must lead the scale-up of polyester recycling in Europe"**, offers the first quantification of the cost gap between textile-to-textile recycled and virgin polyester and presents key interventions to close it. It identifies ten levers that could dramatically expand depolymerisation in Europe – a promising chemical recycling process suited to handling the growing volumes of post-consumer polyester textile waste and reducing CO<sub>2</sub> emissions vs. virgin material production when reuse or mechanical recycling are unviable. These include ambitious EPR schemes, standardising and automating waste sorting processes, recycled content mandates and long-term brand offtake agreements.

"Europe can drive and achieve a textile recycling breakthrough. But without leadership from policymakers, the system will remain stuck in pilot mode as the business case does not work," said **Sophie Herrmann**, **Partner at Systemiq**. "We have the technology to recycle polyester back into textiles. Investors are watching the space. Now we need the enabling conditions to take these solutions to scale. If we get this right, Europe can lead on creating a competitive, circular textile industry – contributing to economic resilience, job growth and GHG emission reductions."

## A system under pressure - and an opportunity to lead

Each year, over 125 million tonnes of raw materials are consumed by the global textiles industry, yet less than 1% of fibres are made from recycled textile waste. Most unwanted clothing is landfilled, incinerated or exported – often to countries lacking the infrastructure to manage it responsibly. Meanwhile Europe's own collection and sorting systems are increasingly financially strained.

The study focuses on depolymerisation, a set of chemical recycling technologies that break polyester down into its original monomers, which can be used to create virgin-quality polyester. It can process most blended, coloured or degraded garments, is close to commercial maturity in Europe and offers a lower-emission alternative to virgin polyester production. Despite its potential, producing recycled polyester from post-consumer textile waste in Europe is estimated to be around 2.6 times more expensive than virgin polyester from Asia. This is due to underdeveloped collection and sorting infrastructure, high energy and capital costs, lack of consistent brand demand and missing externality pricing.

## The breakthrough opportunity: aligning policy, demand and investment

To overcome these barriers of affordability and accessibility, the report outlines **four key intervention areas** and **ten priority levers** that policymakers, brands, and investors must act on together:

- I. **Improving access to textile waste feedstock for depolymerisation** by redesigning products for recyclability, increasing separate collection, standardising feedstock specifications, and clarifying end-of-waste and trade rules;
- II. **Strengthening offtake demand for recycled materials** through demand-side policy incentives such as recycled content targets under the ESPR and long-term brand commitments;
- III. **Reducing the production costs for recycling polyester** by lowering electricity prices and derisking capital investment;
- IV. **Closing the remaining cost gap** primarily through EPR funding and modest green premiums.

The report proposes an EPR fee in the direction of  $\leq 250-330$  per tonne, which will differ by EU Member State This could bridge more than half of the cost gap in a scaled system and cover the net costs of collection, sorting, and recycling. A 5% brand-level green premium – equivalent to around  $\leq 0.15$  for a 400g polyester jumper – could cover shipping costs to Asian supply chains and close the remaining gap.

## Reaching a tipping point for textile recycling in Europe

If these levers are activated together, Europe could reach a tipping point for textile recycling, where producing recycled polyester from post-consumer textile waste becomes competitive with virgin polyester from fossil fuel feedstocks. Europe's depolymerisation output from textiles could grow tenfold, from ~30,000 to ~300,000 tonnes/year, by 2035. This could unlock significant emission savings and cut textile waste pollution. According to related analysis by Systemiq [1], a broader system change across PET packaging and polyester textiles – combining depolymerisation and mechanical recycling, reduction and reuse – could generate €5.5 billion in annual value and create 28,000 net new jobs in Europe's recycling sector by 2040.

The Textile Recycling Breakthrough was prepared by Systemiq, with funding from Arc'teryx, Eastman, Interzero, Textile Exchange, and Tomra, and guided by an independently-chaired Steering Group spanning industry across the value chain, civil society, and academia.

"Europe has the opportunity to lead the transition to circular textiles, and technologies like depolymerisation are ready to play a central role," said **Eric Dehouck, Managing Director at Eastman Circular Solutions France**. "What's needed now is the right and demanding policy framework, long-term offtake commitments, and derisking mechanisms to take these solutions to scale."

"At Arc'teryx, we believe that great design should extend beyond singular products to the systems we create. We're committed to building a circular ecosystem, and this requires bold, collaborative action, and partnership across the industry," said **Kyle Wood, Senior Director, Strategy at Arc'teryx**. "This study helps chart a path forward for brands looking to support a circular transition and shift toward regenerative textile systems in Europe. It's also a powerful reminder that design does not exist in isolation, and must proceed in partnership with long term commitments and policy frameworks. We're excited to contribute to this conversation and help push the industry in the right direction."

"This whitepaper comes at a key moment for Interzero. As a leading service provider with extensive expertise in EPR and high-quality sorting we strongly believe that Europe is currently facing a unique momentum to drive the much-needed transition of the textiles waste industry," said **Julia Haas, Head of Commercial Partnerships at Interzero**. "With a strong yet pragmatic policy framework and by fostering collaboration along the entire reverse value chain, Europe can make circularity in textiles become a reality and a competitive advantage. Real progress

will require clear policy signals, stable demand, and strong long-term partnerships – and that's exactly where we're focused."

The study is available for download at www.systemiq.earth/textile-recycling.

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# NOTES TO EDITORS

[1] Systemiq, "Circular PET and Polyester: A circular economy blueprint for packaging and textiles in Europe," 2023. [Online]. Available: <u>https://www.systemiq.earth/wp-content/uploads/2023/07/Circular-PET-and-Polyester-Full-Report-July-2023.pdf</u>

## About this study

**The Textile Recycling Breakthrough** is a multi-stakeholder study led by **Systemiq**, providing the first tipping point analysis on textile-to-textile polyester recycling. Drawing on economic modelling, systems analysis, real financial data and insights from 17 organisations across the value chain – including brands, recyclers, civil society, and infrastructure providers – the study identifies ten key levers to unlock exponential growth in polyester recycling in Europe. It quantifies the cost gap between chemically recycled and virgin polyester, outlines policy and investment solutions, and shows how Europe can scale depolymerisation nearly tenfold by 2035 – cutting waste and emissions. The study was funded by grants from **Arc'teryx**, **Eastman**, **Interzero**, **Textile Exchange**, and **Tomra**. It was guided by an **independently chaired Steering Group** representing industry across the value chain, civil society, and academia which ensured its independence and rigour. <u>www.systemiq.earth/textile-recycling</u>

## About Systemiq

Systemiq is a systems change company that works with businesses, policymakers, investors and civil society organisations to reimagine and reshape the systems that sit at the heart of society – energy, nature and food, materials, built-environment, and finance – to accelerate the shift to a more sustainable and inclusive economy. Founded in 2016, Systemiq is a certified B Corp, and has offices in Brazil, France, Germany, Indonesia, the Netherlands, and the UK.

Find out more at <u>www.systemiq.earth</u> or via <u>LinkedIn</u>.