

# How new EU legislation is driving circularity in the automotive industry



Every year, over six million vehicles in Europe reach the end of their life. Until now, most were treated as waste. But that's changing. New EU rules will require cars to be easier to dismantle and recycle, with stricter recovery targets and full producer responsibility. Read on to see what this means, and how the industry can get ready.

# Plastic circularity in car industry

In July 2023, the European Commission proposed new legislation to overhaul vehicle design, production, and end-of-life treatment. Replacing outdated directives, the regulation aims to shift the industry from linear to circular, turning waste into value and making sustainability a core part of automotive manufacturing.

## A new mandate for circularity

At the heart of the proposed regulation is a bold requirement: 25% of the plastic used in new vehicles must come from recycled sources, and 25% of that must be sourced from ELVs themselves. This is a game-changer for fiber-reinforced plastics (also called thermoplastic composites or TPCs), which are increasingly used in lightweight vehicle design.

But the regulation goes further. It mandates that 30% of plastics from ELVs must be recycled, and it introduces Extended Producer Responsibility (EPR) schemes to ensure that manufacturers are financially and operationally accountable for the entire lifecycle of their vehicles.

## Are you ready?

This raises a critical question for the industry: Is your supply chain ready to meet upcoming recyclability regulations and turn end-of-life vehicles into valuable resources?

For many, the answer is: not yet. The transition to circularity is complex. It requires more than just technical innovation. It demands systemic change across the entire value chain.

## From design to dismantling: Building a circular chain

To comply with the new rules, automakers must rethink how vehicles are designed. Components must be easier to dismantle. Materials must be traceable and separable. And recyclers must be equipped to recover high-quality raw materials, plastics, steel, aluminium, and even critical raw materials like rare earths.

This is where thermoplastic composites offer a unique advantage. Their recyclability, combined with their strength and lightweight properties, makes them ideal for circular design. But to unlock their full potential, we need to address key challenges:

- **Reliable Supply:** Can recyclers deliver consistent volumes of high-quality TPCs?
- **Economic Viability:** Can circularity be profitable, not just sustainable?
- **Demand Creation:** Will brand owners commit to using recycled content?
- **End-of-Life Strategy:** Are dismantlers and recyclers ready to close the loop?

## The strength of collaboration

No single actor can solve this alone. The success of the circular transition depends on collaboration between OEMs, recyclers, material suppliers, and policymakers. Initiatives like [the GIC Automotive Plastic Recycling Pilot](#), [the BMW Car2Car project](#), [the Audi MaterialLoop project](#) and [IDDRI Car to Car Steel project](#) are already demonstrating how dismantling and recycling can be scaled effectively.

At TNO, we're working with partners across the value chain to develop innovative recycling technologies, improve material traceability, and design circular business models that work in practice, not just on paper.

## Time to act now

The message is clear: new legislation is coming, and the time to act is now. The automotive industry stands at a crossroads. One path leads to compliance and cost. The other leads to innovation, resilience, and long-term value.

Which road will you take?

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