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Environmental organisations, think tanks and recycling industry call for measures to boost the use of recycled steel in the automotive sector

In July 2023, the European Commission adopted its proposal to revise and merge the End-of-Life Vehicles Directive and the 3R Type-Approval Directive into a single Regulation on Circularity Requirements for Vehicle Design and on Management of End-of-Life Vehicles. The proposal aims to strengthen the EU single market while improving the circularity of the sector and reducing the environmental impacts associated with the design, production, use, and end-of-life treatment of vehicles.

The undersigning organisations support the objectives of the proposal to improve the circularity of the automotive sector through measures such as design requirements for new vehicles and treatment obligations for end-of-life vehicles (ELVs), as well as improved definitions, information requirements, and enhanced traceability of ELVs.

While these new measures are welcomed, the signatories want to highlight the exceptional importance of steel in the context of the proposed Regulation and various new studies that provide robust evidence to support more ambitious measures that should be taken into consideration in the co-legislation process. Specifically, the signatories demand:

- **A target of 30% recycled content for steel from post-consumer scrap in all vehicles covered by the Regulation by 2030, increasing to 40% by 2035.** This target should include a share of recycled steel sourced from ELVs as well as a significant share of recycled steel sourced from local post-consumer scrap (i.e., made or processed in Europe).

Background: Steel in cars

The automotive industry is the second biggest consumer of steel in the EU with 17% of European steel consumed[1] - a typical car in the EU contains 800 kg of steel.[2] Steel represents 16% to 30% of cars embedded emissions from the production phase depending on the type of powertrain.

At the same time, only 6 % of scrap steel from ELVs makes it back into new cars despite the significant climate benefits of secondary steel compared to primary steel.[3] In fact, the European car industry continues to rely on high emission steel based on coal with an estimated emissions intensity more than double the EU average.[4]

More broadly, the European Union is also underutilizing its valuable resources. In recent years, the amount of recycled steel scrap being used within the EU has declined, following the trend of decrease in EU steel manufacturing. This trend is largely driven by reduced demand from European industries - particularly the steel sector - and more favourable market conditions for recycled steel scrap in non-EU countries. Consequently, exports of recycled steel scrap have surged, with volumes more than doubling and reaching approximately 19.43 million tonnes in 2021, accounting for around 20% of the total recycled steel scrap produced in the EU.[5]

In its Steel & Metals Action Plan, the European Commission assesses that the first action to increase the usage of more steel scrap in the EU, is "to stimulate demand of such resources in Europe" and "to achieve this, scrap should be better sorted and treated to ensure its usability in high-quality applications such as automotive." Against this background, it becomes obvious that improving the recycling of steel from ELVs and incorporating it in new cars will benefit both the EU's climate ambition and contribute to its strategic autonomy and resilience.

Nevertheless, steel related measures in the proposed Regulation on Circularity Requirements for Vehicle Design and on Management of End-of-Life Vehicles fall short of harnessing these potentials, with co-legislators often citing a lack of empirical evidence and uncertainties. However, four recently published studies show that additional measures would be feasible and effective in contributing to improving the quality and quantity of steel recycled from ELVs and its use in new

[1] Hill, Nikolas, Harry Scammell, Marco Raugei, Andres Kilstein, and Andrew King. "The Use of Green Steel in the Automotive Industry." Final Report. Harwell: Ricardo Energy & Environment, August 4, 2024.
[2] Bui, Anh, Aaron Isenstadt, Yuanrong Zhou, Georg Bieker, and Marta Negri. "Technologies to Reduce Greenhouse Gas Emissions from Automotive Steel in the United States and the European Union." Berlin: International Council on Clean Transportation (ICCT), 2024.
[3] Ibid.
[4] Ibid.
[5] COM(2025) 125: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A European Steel and Metals Action Plan

vehicles, with technologies that are technical and economically feasible already today (see Annex for details on studies):

- **A report by the Mobility in Transition Institute** on the potential of ELV deep-dismantling and use of copper depolluted recycled steel scrap. This study is the first output of a broader project looking at solutions to decarbonize automotive flat steel production and will be complemented by a report on industrial sorting techniques, whose assessment is still ongoing. (Link)
- **A study by the Oeko-Institut, commissioned by T&E** highlighting the potential for increasing the use of recycled steel in the EU automotive industry through steel recycled content targets in the new ELV Regulation. (Link)
- **A paper by the International Council on Clean Transportation** exploring strategies to improve the circularity of automotive steel in the EU. (Link)
- **A paper by Sandbag** proposing minimum recycled steel content targets for different types of flat and long steels, based on a study on the environmental, safety and structural aspects of automotive design. (Link)

The four studies demonstrate that increasing the share of recycled steel in car production offers substantial benefits for decarbonizing vehicle manufacturing - enabling up to a 20% reduction in steel-related greenhouse gas emissions through a higher share of secondary steel.[6] It also reduces Europe's dependency on critical raw materials such as coking coal and iron ore, while significantly boosting the availability of copper within the EU. [7]

The undersigned organizations therefore strongly urge the European Parliament and the Council to consider the new scientific evidence and to introduce strong measures that will increase the uptake of more recycled steel in the automotive industry. We are convinced that this will reduce the environmental impact of car production, increase the EU's competitiveness, and lessen Europe's reliance on strategic and critical raw materials.

[6] Ibid.

[7] Sutter, Jürgen, Frederick Adjei, Yifaat Baron, and Izabela Kosińska-Terrade. "Boosting the Use of Recycled Steel in the EU Automotive Industry under the ELV Regulation: Quantitative Impact Study." Darmstadt: Oeko-Institut e.V., February 12, 2025.

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Annex – Executive summaries

Mobility in Transition Institute

Gross, Hannah, and Hermine Jean-Philippe. "Car-to-Car Steel: Potential of End-of-Life Vehicle Deep-Dismantling and Use of Copper Depolluted Steel Scrap to Decarbonize Automotive Flat Steel Production." Paris: IMT-IDDRI, 2025.

The Mobility in Transition Institute (IMT in French) is a not-for-profit association which aims to produce analyses and recommendations based on data, expertise and multi-stakeholder dialogue, to foster the transition in the transport sector.

The study examined the technical and economic feasibility of closed-loop ELV steel scrap recycling for high-quality automotive flat steel production. IMT conducted a deep-dismantling testing project to assess whether enhanced copper removal from ELVs could improve scrap quality to the level required for reintegration into DRI-EAFs for high-end flat steel grades, while maintaining a viable business model for stakeholders across the recycling value chain.

The findings indicate that by increasing and improving manual wiring removal during ELV dismantling, the copper content in E40 scrap can be reduced to 0.09%, a significant improvement compared to the current average 0.4% in E40 from ELVs commercialized in Western Europe. The quality of this post-consumer E40 scrap is sufficient to be considered as part of the raw material mix for the production of automotive high-grade flat steel in EAFs in addition to virgin iron (as DRI, HBI or hot metal), pre-consumer scrap and other sources of post-consumer scrap, in very high proportions. The additional value recovered through the sale of copper wires offsets the additional extra cost due to in-depth wire extraction. Additionally, new revenues in the value chain can be generated from a better valorization of the improved steel scrap quality.

The study provides technical and economic evidence regarding the importance of requiring or incentivizing copper removal at the dismantling or post-shredding stage. Establishing quantitative targets in the new ELV Regulation will be key to defining a new scrap classification that fosters value creation and fair distribution throughout the supply chain. Additionally, the regulation should include eco-design requirements for OEMs to facilitate the removal of copper wiring from ELVs.

This study, which focuses on the dismantling stage, will be complemented in 2025 by further trials at the shredding stage, to assess the capabilities of sophisticated sorting technologies.

Öko-Institute (commissionned by T&E)

Sutter, Jürgen, Frederick Adjei, Yifaat Baron, and Izabela Kosińska-Terrade. "Boosting the Use of Recycled Steel in the EU Automotive Industry under the ELV Regulation: Quantitative Impact Study." Darmstadt: Oeko-Institut e.V., February 12, 2025.

Founded more than 40 years ago, the Oeko-Institut is one of Europe's leading independent research and consultancy organisations working for a sustainable future.

The study modelled the environmental and economic impacts of various policy options that could be integrated in the new ELV Regulation, including – among others - different scenarios for mandatory recycled content targets for steel and the removal of additional copper containing components. The results demonstrate the feasibility of 25% closed-loop steel recycled content by 2030 and 30% by 2035 as well as that mandatory dismantling of 50% of the main wire harness and the reduction of the copper content to 0.1% in steel scrap from ELVs appears to be both technically and economically feasible.

To boost recycled steel use in the EU automotive industry, the study therefore recommends:

- Setting mandatory recycled content targets for all steel products in new vehicles sold from post-consumer scrap: Establish targets for recycled steel content in new vehicles, starting with 25% by 2030 and increasing to 30% by 2035. This will drive demand for high-quality recycled steel.
- Reducing copper content in steel scrap: Implement measures to reduce copper content in steel scrap to below 0.1%. This can be achieved through a combination of mandatory dismantling of copper-rich components and advanced sorting technologies.

International Council on Clean Transportation

Negri, Marta, and Georg Bieker. "Closing the Loop: Improving Automotive Steel Recycling for a Circular Economy." Policy Brief. Berlin: International Council on Clean Transportation (ICCT), March 2025.

The ICCT is an independent, nonprofit research organization founded to provide exceptional, objective, timely research and technical and scientific analysis to environmental regulators. Its work empowers policymakers and others worldwide to improve the environmental performance of road, marine, and air transportation to benefit public health and mitigate climate change.

This policy brief discusses approaches to incentivizing a more circular use of automotive steel in the European Union. It explores the challenges and opportunities of increasing the quantity and quality of steel recovered from the recycling of vehicles, discussing the potential displacement effects and its technical and economic feasibility.

The brief concludes that a more circular use of steel can reduce the environmental impact of vehicle production if it does not divert recycled steel from other sectors or regions. Replacing 30% of primary steel with recycled steel could cut steel-related emissions for EU passenger cars by 20%.

Current recycling practices result in the pollution of automotive steel with different materials, notably copper. This prevents the reuse of recycled steel for new vehicles production. Increasing recycled steel use must therefore be paired with efforts to improve its availability and quality. Cost-neutral improvements in copper wire removal during vehicle recycling or post-shredding treatment can reduce copper pollution in steel scrap to levels suitable for reuse in vehicles.

A closed-loop recycled steel quota requiring the use of steel scrap from end-of-life vehicles would create a demand for improved end-of-life vehicles recycling. ICCT estimates that a recycled steel quota of up to 30 % could be fully met using end-of-life vehicle steel scrap.

Sandbag

"Towards a Minimum Recycled Steel Content in Passenger Cars: Setting an Initial Target." Policy Brief. Brussels: Sandbag, March 2025.

Sandbag is a think tank, founded in 2008, conducting data-driven and evidence-based advocacy to improve EU climate policy, combining expertise in decarbonisation with data analysis to propose policies that drive impactful and cost-effective emissions reductions in the EU and beyond.

The policy brief is based on a study conducted by Sandbag which examined the challenges and possibilities for increasing the recycled content in steel products, and subsequently for setting a minimum recycled steel content for EU passenger cars.

The study found that recycled content targets should be differentiated and based on different types of steel to mitigate adverse effects and optimise the potential for circularity. Doing so requires considering the limitations of increasing the recycled content, which vary greatly across different types of steel. Specifically, the study found that setting a recycled content target for the entire vehicle, rather than for its individual components, can lead to unintended consequences. For example:

- As electric vehicles use a higher share of flat steel products than internal combustion engine vehicles, a single target would act stronger on electric vehicles than internal combustion engine vehicles – disadvantaging manufacturers of electric vehicles.
- Currently, High-Strength Steels (HSS) and Advanced High-Strength Steels (AHSS) are used for their strength properties to enable lighter vehicles with lower fuel consumption. However, these HSS have higher quality requirements than regular steel, of which for example long carbon steel already consists of 98% scrap. Therefore, a single target for the entire car rather than the type of steel would incentivise the use of the heavier long carbon steel instead of HSS, leading to an increase in fuel consumption and emissions.

The policy brief therefore proposes the following targets for 2030: 5-10% post-consumer scrap in flat AHSS, 10-15% in flat carbon steel, and 70% in long AHSS. These targets would improve scrap management and drive investment in advanced post-treatment facilities.