

Net-Zero Logistics: The Contribution of Rail Transport

Europe's Rail Joint Undertaking
Policy paper
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A new study contracted by Europe's Rail Joint Undertaking (EU-Rail) to Ernst & Young, in collaboration with a Steering Committee representing European rail and logistics stakeholders, analyses the potential contribution of rail freight to the development of net-zero logistics chains across Europe. The study confirms that greater integration of rail freight delivers significant reductions in CO₂ emissions and externalities such as congestion and accidents, while also generating long-term energy savings and socio-economic returns.

The study examines three ambitions scenarios (low, moderate and high) and assesses their impacts on CO₂ emissions, energy efficiency and wider socio-economic benefits, using a model endorsed by independent academia. The results, based on five major freight corridors representing 65% of EU rail freight volumes have been extrapolated to the EU level for the period 2025–2060. The

high ambition scenario includes essential measures that can foster European competitiveness driven by investments in rail freight innovations and multimodal hubs, international rule harmonisation, capacity and traffic management, and digital automatic coupling.

The study also shows that these benefits remain significant even when compared to a very ambitious baseline scenario in which other modes such as road and inland waterways are fully decarbonised over the study period. The positive results are thus conservative and represent a lower bound of what could be achieved through a coordinated shift across transport modes to net-zero logistics.

In particular, the high ambition scenario demonstrates that:

- ✓ Major further CO₂ emission reduction towards zero at the end of the period. Cumulative emissions avoided of 121,3 M t CO₂.
- ✓ Despite requiring €33bn for five corridors (€51bn EU-wide), it offers the best economic return in the shift to net-zero logistics. Each €1 invested in sustainable logistics yields €5 in societal value.
- ✓ Better integration of rail freight across logistic chains development cuts externalities like road congestion and accidents, saving €85bn in external costs and reducing carbonisation costs by €44bn.
- ✓ Harnessing rail energy efficiency cuts consumption by €74bn (3344 PJ).

The findings highlight that rail freight development can substantially reduce the costs associated with decarbonising transport of goods.

Commenting on the findings, **Giorgio Travaini**, Executive Director of Europe's Rail Joint Undertaking, said: *"The results confirm that investing in rail freight is not only a key lever for decarbonisation but also an opportunity to improve logistics efficiency and competitiveness across Europe. The study offers a solid evidence base for policy decisions in the context of the Clean Industrial Deal and the Sustainable and Smart Mobility Strategy."*


Alberto Mazzola, Executive Director at CER, said: *"This study also contributes to the forthcoming EU strategy on ports by highlighting the need for policy action to enhance rail links between seaports and inland networks. As the backbone of sustainable logistics, rail freight offers strong returns even under ambitious road decarbonisation assumptions. However, rail freight is today in a very difficult economic situation across Europe—hampered by an uneven playing field and scarce capacity on existing infrastructure. Strategic intermodal investments will improve system efficiency, cut emissions and costs, and strengthen the EU's competitive, net-zero economy."*

Enno Wiebe, Director General at UNIFE, said: *“According to the study, rail freight is fundamental to achieving net-zero logistics in Europe and could help alleviate significant external costs that society and the economy currently bear. For rail freight to serve as the backbone of Europe’s freight transport, decision makers will need to make significant investments in key modern technologies that enhance efficiency and competitiveness.”*

Gilles Peterhans, Secretary General at the UIP, said: *“the credentials of rail freight in terms of efficiency and environmental friendliness no longer need to be demonstrated. What is needed now is a clear path towards the full integration of rail freight in competitive global logistics chains. This study provides precisely that, with a list of priority actions, their costs and benefits for society. UIP considers that, with performing infrastructure management, further digitalisation of rail freight services and more multimodal cooperation, this vision can become a reality.”*

The study was carried out by Ernst and Young. The Steering Committee consisted of CER, CLECAT, EIM, ERFA, ETP-Alice, UIP, UIRR, UNIFE, with the European Commission (DG MOVE) and EU-Rail. A group of academics has been formed to frame the development of the methodology.

 The full study and accompanying policy paper are available on EU-Rail website **here**.

 **Save the date on the 30 June** for the Online Launch of the Net-Zero Logistics Study by registering to the dedicated webinar **here**.

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