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Press release

Rail transport: a roadmap for decarbonisation together

The first phase of the AERRL study on alternatives to fossil diesel use in railways is now at an end. The conclusions of the study, launched by the Association of European Rail Rolling Stock Lessors (AERRL), Akiem, Beacon and Cargounit, with support from Crédit Agricole CIB, ING, KfW IPEX-Bank and Societe Generale, show that the entire rail sector needs to design a common strategy to address the challenge of transitioning from fossil diesel. AERRL is proud to share an initial roadmap of technology alternatives for the years to 2050, based on results of a study conducted by [eolos](#).

In terms of climate challenges, the European Commission's Green Deal sets a clear target: by 2050, transport emissions must fall by 90% compared to 1990 levels. Responsible for less than 1% of total European CO₂ emissions, rail is part of the solution and is committed to growing its market share. Indeed, freight traffic is forecast to rise 100% by 2050. But rail also needs to design a process for phasing out diesel fuel if it is to remain the most sustainable form of land transport.

Launched in July 2022 and carried out by [eolos](#), an industrial consulting company that helps the rail sector to embed environmental sustainability into business operations, the study examines the EU regulatory framework and certain national strategies, providing a preliminary assessment of technology alternatives. The qualitative and quantitative research – including extensive stakeholder consultations and workshops with AERRL members – produced unique insights into technological maturity as well as infrastructure and supply chain readiness.

Extract from the report AERRL Study on Alternatives to fossil diesel use in railways, December 2022

“While electrification remains the most efficient solution from a holistic perspective, complementary solutions can help to accelerate decarbonisation. HVO is rated as an immediate candidate. It can reduce CO₂ emissions by 85 to 90 percent and is easy to implement. Obstacles due to higher taxation can and should be adjusted by future regulation. RNG and Ammonia ICE are considered short- to medium-term options, though several operational challenges remain. Hydrogen has a high energy density (per kilogram), but "green production" is still very limited and requires high expenditure. It is an option for applications where no other solution is available (e.g. long non-electrified routes) and after substantial infrastructure improvements are achieved. Though major problems remain, battery technology is a solution for the rail sector. Especially Dual-Mode battery/electric trains combined with partial electrification for the longer term could become a game-changer.

To enable the sustainable transition of the rail sector, the different stakeholders need to come together in a “freight transport system for efficiency” organised either by the Commission or an appointed actor in the field. The investments between rolling stocks and infrastructure need to be balanced.



To achieve maximum leverage for industrial decarbonisation, the rail sector should be, after pipelines, the first choice for green hydrogen transport. With such a position in a new supply chain, the rail sector can increase its freight market share and provide safe and reliable low carbon-emission energy to today's most emissive industries."

Fabien Rochefort, AERRL chair, says: "An ambitious and aligned roadmap for near-term decarbonisation is currently the missing link in European policy. HVO can contribute very easily to short-term decarbonisation of existing diesel-powered fleets. Battery-electric technology seems to be a likely game-changer for the medium and long term. Hydrogen, and potentially ammonia, could be later alternative solutions for heavy freight trains where infrastructure electrification, even partial is not available and batteries not suitable. Working from this initial roadmap, we hope to hold further discussions, leading to a common project with all rail stakeholders and pushing policy makers to support our willingness to promote green transportation furthermore.

Carole Coune, AERRL secretary general, adds: "Our webinar on 4 May is the first step in a process we hope will lead to a common roadmap, supported by a deliverable action plan. We believe that decarbonisation of rail rolling stock should be on the sector's policy agenda for the coming years, but also on its research agenda. The game-changing possibilities of battery-electric technology should be prioritised for further study because of the positive impact for the future of rail rolling stock and infrastructure."

Robert van Duuren, ING, representing the supporting banks, concludes: "The banks have supported this initiative by rolling stock leasing companies because we share their determination to continue to drive down emissions in the rail industry. We anticipate a combination of solutions will be needed to make progress in the real world, and I therefore find it interesting that the study describes multiple alternative technologies. We hope this initiative will motivate many actors to begin their transition."

The report is available from today on the AERRL's website: [AERRL Study Report](#)

The key conclusions will be presented during a webinar, aiming to initiate a process leading to an alignment of the various actors' positions and the establishment of an action plan for the sector.

**Thursday 4 May
12.00-13.15 UTC-1 (Brussels time)**

Click here [🔗 AERRL Webinar](#) to register before 12pm on 2 May

About AERRL

An international non-profit association under Belgian law, created in May 2021 and headquartered in Brussels, AERRL represents most EU rail rolling stock lessors and seeks to directly promote interoperable and safe European rolling stock, the growth of rail transport and better collaboration between lessors and European institutions. AERRL members are active in more than 14 EU countries.



AERRL members: seven effective members (Akiem, Railpool, MRCE, Northrail, Renfe Alquiler, Nexrail, Cargounit) and two associate members (ELP, Beacon Rail Finance). Eight of them are established in the EU (D-PL-F-L-NL), one in Switzerland.

For more information

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