

Position Paper

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Setting the energy policy framework for the decade ahead: A railway perspective

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Summary

To cost-effectively achieve the EU's 2040 climate goals, the post-2030 energy framework must drive systemic, macro-level efficiency. Rail is the most energy-efficient mode of mass transport, yet it faces structural market distortions and disproportionate energy costs. This position paper presents rail's priorities for the upcoming Energy Efficiency Directive (EED) and Renewable Energy Directive (RED) revisions.

Key actions include:

- embedding the "energy efficiency first" principle to drive modal shift,
- implementing binding mandates to reduce electricity taxes and levies for electrified transport,
- supporting the deployment of Power Purchase Agreements (PPAs) through EU financial instruments, rewarding railway demand-side flexibility,
- strengthening and mandating renewable obligations for transport suppliers.

1. Introduction

The European railway sector welcomes the European Commission's initiatives to establish a modernised, strengthened, and streamlined energy efficiency and renewable energy framework for the decade ahead. Achieving the provisionally agreed target of reducing net greenhouse gas emissions by 90% by 2040 requires a transformative approach to both energy supply and consumption. Transport, which currently exhibits a renewable energy share of just 11.2%, must be at the centre of this transformation. To secure Europe's competitiveness, energy independence, and sustainability, the post-2030 legislative frameworks—specifically the EED and RED—must pivot from isolated technological improvements toward systemic efficiency and the financial recognition of clean transport. The framework must ensure a coherent link between the 2040 climate target and the technical feasibility of the transport sector, preventing administrative burdens from outweighing environmental benefits.

2. Systemic energy efficiency: the role of modal shift

Cost-effectively reaching the 2040 climate target requires a step change in energy efficiency improvements. While past regulatory cycles have successfully improved the energy performance of individual assets, they have often failed to address the broader inefficiencies within the European transport system, lacking the necessary mechanisms to incentivise a structural modal shift. Rail is fundamentally the most energy-efficient mode of mass land transport.

A future-proof EED must embed the "energy efficiency first" principle at the macro level. Assessing energy supply and demand options to deliver efficiently designed energy systems means prioritising transport modes that consume the least energy per passenger-kilometre or tonne-kilometre. European policies must align infrastructure planning, urban development, and transport funding with systemic energy efficiency goals, ensuring that energy demand reduction is achieved by shifting traffic away from energy-intensive road and aviation modes to the European rail network. Furthermore, the EED must recognise that energy efficiency cannot be measured solely on the basis of operational consumption. By adopting a comprehensive life-cycle assessment (LCA) approach, the framework would fully account for the significantly longer lifespan and recyclability of railway infrastructure and rolling stock compared to shorter-lived road transport assets. Integrating this LCA perspective is crucial to strengthen the priority given to rail within energy efficiency support schemes.

Applying the EED's "energy efficiency first" principle (Article 3) to rail infrastructure risks creating unnecessary administrative bottlenecks. Rail is already among the most energy-efficient transport modes, yet projects are still subject to detailed efficiency assessments that delay the infrastructure needed to decarbonise Europe's transport system.

These delays have a clear economic cost. A one-year delay on a €1 billion TEN-T project—driven by redundant reporting—can result in roughly €110–150 million in lost socio-economic benefits. At the same time, delayed projects slow modal shift. Every year a rail capacity upgrade is postponed, freight is forced to remain on carbon-intensive road networks, locking in unnecessary emissions that directly undermine the EU's climate goals.

To address this, the post-2030 EED should explicitly exempt rail infrastructure and electrification projects from Article 3 assessments as they already inherently deliver systemic emission reductions. Removing this administrative burden would accelerate TEN-T deployment and support the modal shift needed to meet the 2040 climate targets.

3. Accelerating renewable electrification and rewarding front-runners

The electrification of demand is vital for a transition to more energy-efficient systems, yet progress has been hampered. To meet the 2040 climate targets, the revised energy framework must ensure expedited grid connection procedures for rail electrification and charging infrastructure. Grid operators must be mandated to prioritise connection requests for zero-emission mass transport services. This will prevent infrastructure bottlenecks from hindering the phase-out of diesel traction and inflating the capital expenditure of rail modernisation projects. The railway sector stands as best case of successful, large-scale electrification, yet it faces persistent financial penalties for its early transition. In 2025, railways continue to pay, on average, more than 120 €/MWh for traction electricity—prices that remain significantly higher than pre-crisis levels.

Currently, heavily electrified railways are burdened by high electricity taxes, grid tariffs, and levies. Taxes and levies still account for approximately 18% of electricity prices in the EU. Concurrently, competing transport modes continue to benefit from unpriced externalities and explicit or implicit fossil fuel subsidies. To guarantee a level playing field, the post-2030 energy framework must:

- Establish a strong electrification target that explicitly protects and financially rewards early movers in decarbonisation.
- Include binding mandates to reduce taxes and levies on renewable electricity used by transport operators.
- Strengthen and mandate renewable obligations for transport suppliers. The post-2030 framework must build upon existing mechanisms—such as the option offered in Directive 2023/2413 (Art. 27 para 2d) to include electricity for rail transport to fulfil the renewable obligations of energy suppliers in the transport sector, accounted for by a factor of 1.5. Making the inclusion of rail electricity mandatory across Member States would offer the rail sector a substantial economic opportunity to participate in national credit trading schemes, effectively rewarding early movers and generating revenues to offset disproportionately high traction electricity costs.
- Remove barriers to Power Purchase Agreements (PPAs). Data shows that railways in countries like Spain, Denmark, and Slovakia have successfully negotiated multi-year PPAs, resulting in substantial price decreases compared to the 2022 energy crisis peaks. Standardising PPA contract structures and bridging regional gaps through dedicated financial instruments will be essential for widespread adoption. Furthermore, the RED should introduce a fast-track permitting process for renewable energy installations located on railway infrastructure or adjacent land.

4. Sector integration and grid flexibility

The electricity system faces constraints in absorbing high flow of variable renewable generation due to grid capacity limitations and a lack of flexibility. Railways are uniquely positioned to alleviate these constraints and improve energy system integration. Railway stations and depots can be transformed into multi-modal clean energy hubs, integrating solar generation, battery storage, and electric vehicle charging infrastructure.

Moreover, modern electrified rail systems offer demand-side flexibility, which is highly valuable when PPAs are infeasible. The railway sector can still actively stabilise European electricity networks through targeted ancillary and technological adjustments. There is significant room for measures such as modulating lighting and heating in stations, utilising

delayed and smart charging for stationary trains and deploying reversible substations or depot battery storage.

The RED must include robust provisions that recognise and financially reward large energy consumers, such as railway infrastructure managers and operators, for providing these vital flexibility services to the grid, ensuring these technological investments are economically viable.

5. Financing the transition

Accelerating investments in energy efficiency solutions and homegrown renewables requires an enabling financing framework. The limited use of performance-based contracts and high upfront capital needs currently constrain private capital mobilisation. To bridge these gaps and reduce the complexity of PPAs, national banks and International Financial Institutions (such as the EIB) must promote standardised financial instruments like project debt, construction loans, and credit guarantees.

Finally, to meet the considerable investment needs towards 2040, public funding must be better targeted to leverage private investments and de-risk projects. We urge European co-legislators to ensure that revenues generated from the EU Emissions Trading System (ETS) and energy taxation are strictly ring-fenced to finance railway infrastructure modernisation, electrification projects, and the deployment of clean heating and cooling solutions within sustainable transport systems. Specifically, a mandatory portion of ETS II revenues generated from road transport should be earmarked for bridging the price gap between diesel and electric rail freight transport, thereby preventing traffic from shifting back to the roads on non-electrified sections.

About CER

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