



## **Position Paper**

Brussels, 3 June 2016

# **Rail as a key to decarbonising transport**

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# Summary

CER and UNIFE consider the following actions as vital to decarbonise transport:

- Develop a reporting mechanism for Member States to monitor and facilitate their progress in reducing transport emissions. Annual reports should be published so as to incentivise Member States to achieve progress.
- Confirm in legislation the 60% reduction target for transport emissions by 2050 compared to 1990 levels (Transport White Paper 2011), with an additional binding target for 2030.
- Where carbon savings and the economic case of a project are positive, further electrify and upgrade the rail network (regional as well as main lines), as electrified railway transport is by far the most efficient form of e-mobility.
- Promote rail as backbone of sustainable mobility and its interconnectivity with other low-carbon modes, e.g. with bicycle sharing and parking facilities at railway stations.
- Support the development and market introduction of energy-efficient solutions and new vehicle concepts like hybrid locomotives and battery-operated vehicles for short sections of track where electrification is not viable.
- Encourage use of electric transportation by fair framework conditions for competing transport modes.
- Continue and intensify support to rail research and innovation.

## 1. Introduction

The European Commission has announced, for summer 2016, a **Communication on decarbonising the transport sector**, thus about reducing greenhouse gas (GHG) emissions from transport operations in the EU. The relevant Roadmap of 7 April 2016 suggests that a key objective will be to present, in a coherent way, the planned EU level actions and their contribution to transport decarbonisation in 2030, so as to give Member States and other stakeholders an idea of the scale of additional transport actions needed. By proposing a number of key actions, CER and UNIFE wish to contribute to this important initiative.

**Europe needs to move away from imported fossil fuels towards a low-carbon economy** while also reaching high efficiency standards. A low-carbon transport and energy system is crucial to deliver these goals. Welcoming the Commission's initiative, CER and UNIFE believe that decarbonisation of transport is crucial for delivering the EU's GHG reduction goals. To achieve this, a vital contribution can be made by **rail as the backbone of a low-oil and low-carbon transport system** in Europe.

CER and UNIFE invite policy makers to pursue a **win-win strategy by linking climate, energy and transport policies**: shifting more transport to rail will lead to transport decarbonisation as well as increased energy security.

## 2. Reaching the EU's GHG reduction targets

Significant reductions in GHG emissions from transport are required if the EU is to achieve its long-term goals. This is correctly formulated in the Commission's 2011 **Transport White Paper target** for 2050 to reduce GHG emissions from transport by 60% compared to 1990. Assessing in 2015 the progress in implementing the Paper, the European Parliament stressed the need for a 2030 reduction target for GHG emissions from transport in order to help achieve the 2050 target. CER and UNIFE suggest development of a monitoring mechanism to track the progress made, by each Member State and EU-wide, and the efforts still to be made for transport emission reductions. The European Environment Agency (EEA) should publish such progress indicators annually. Moreover, **the 60% reduction target for transport emissions by 2050 should be confirmed in legislation, with an additional binding target for 2030.**

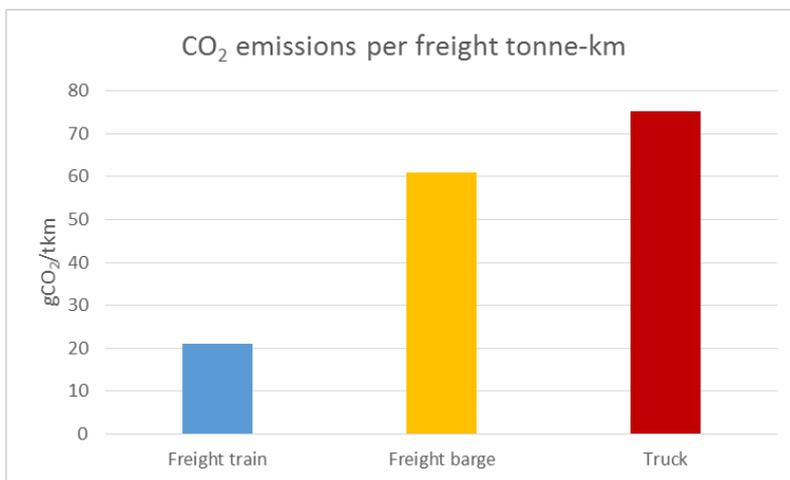
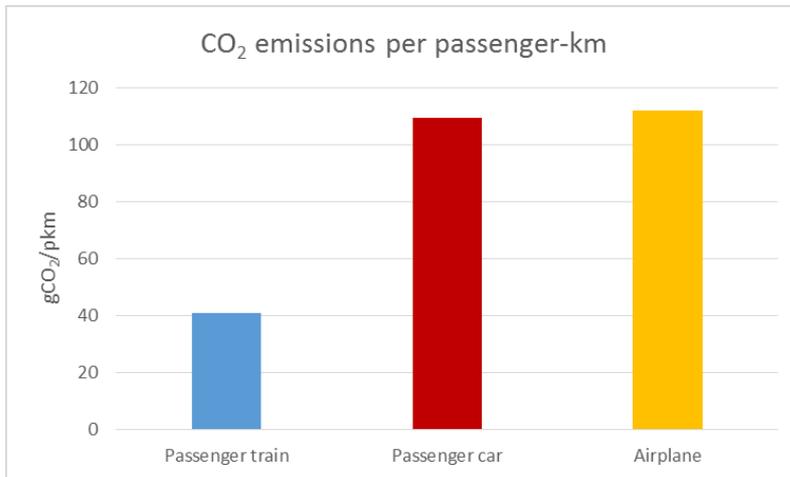
The rail sector has demonstrated with its own successful energy efficiency, low-carbon strategy and voluntary targets that it is a responsible and forward-thinking transport mode whose role should be amplified as part of the wider move to decarbonising transport. In the EU, rail's share of transport energy consumption is 1.3% despite a market share of 8.7%<sup>1</sup>.

The **leading performance of rail transport in terms of GHG emissions** is well-documented by the EEA and is illustrated for freight and passenger transport respectively with the following charts.

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<sup>1</sup> *Railways Handbook 2015: Energy Efficiency and CO<sub>2</sub> Emissions (IEA & UIC)* [www.uic.org/IMG/pdf/iea-uic\\_2015-2.pdf](http://www.uic.org/IMG/pdf/iea-uic_2015-2.pdf)

### Specific CO<sub>2</sub> emissions by mode of transport in Europe in 2011



Source: European Environment Agency, 2013

Railways have a track record of improving their energy efficiency, thus becoming more CO<sub>2</sub>-efficient for both passenger and freight transport. For instance, energy consumption of the vehicles improved by 20% between 1990 and 2010. On certain types of vehicles the savings are estimated to represent as much as 50%. Following strong performance achieved towards the sector's 2020-2030 targets for CO<sub>2</sub> emissions, in 2015 the European railways decided to further tighten their targets. They have committed to reducing their specific CO<sub>2</sub> emissions from train operations by 40% by 2020 compared to 1990. They also have committed to a 30% reduction of the total CO<sub>2</sub> emissions by 2030 relative to 1990, despite the envisaged modal shift in line with the White Paper goals.<sup>2</sup>

**Rail is expecting to achieve further energy savings** thanks to lighter materials in vehicles and wider use of energy recuperation devices (e.g. regenerative braking or energy storage technologies). In particular, the recently concluded European R&D project REFRESCO and the ongoing Roll2Rail project are paving the way for lighter-weight rolling

<sup>2</sup> The sustainable mobility targets for the European railway sector can be found in Section 8 (page 45) of the CER and UIC brochure "Rail Transport and Environment facts and figures (2015)": [www.cer.be/publications/latest-publications/rail-transport-and-environment-facts-figures](http://www.cer.be/publications/latest-publications/rail-transport-and-environment-facts-figures)

stock, which will consume less energy and further reduce rail system CO<sub>2</sub> emissions. On the operational side, eco-driving and parked train management (reducing energy consumption of parked trains) and smart grids are other areas where rail will continue to improve its energy efficiency, thus reducing its GHG emissions.

Electrified rail is the only major form of transport within the EU using a significant share of renewable energies and further increasing their use. **Increasing the modal share of railways** is probably the most cost-effective way to increase the renewable energy use in transport and thereby **reduce total transport GHG emissions**.

Modal shift to environmentally friendly transport modes is an objective in the Transport White Paper 2011 and remains important today in reaching the 60% GHG reduction target. CER and UNIFE call on the Commission to closely monitor the modal shares and to set them against the modal shift goals.

### 3. Promoting electrified public transport in Europe

**Rail in Europe is mostly electrified and therefore a key to decarbonising transport.** Especially in urban areas, rail almost exclusively runs on electricity already today. Regarding main lines, 60% of the European rail network is already electrified and 80% of traffic is running on these lines. There are no technical obstacles to further electrification, but the cost for upgrading and electrifying the existing rail infrastructure and the expected carbon reduction need to be considered on a case by case basis, with EU funding support where necessary. On busy lines electrification makes most sense economically and from a carbon savings perspective.

According to the International Energy Agency, **40% of the electricity mix used by railways in Europe is low-carbon**, which originates with an average of around 20% from renewable sources. In Sweden only renewable electricity is used for electric rail traction. 90% of electricity for railway operations of SBB (Switzerland) is sourced from renewables. Some railway companies in Europe have published targets for renewables, e.g. DB (Germany) 45% in 2020 and NS (Netherlands) 100% in 2025.

As a way of responding to changing mobility patterns, **the rail sector is committed to contribute to door-to-door mobility including the promotion of active modes and intermodality, with rail as the backbone of sustainable mobility.** A current barrier for further development of electric rail is a lack of public investment in intermodality.

Scenarios exploring future urban mobility with shared and autonomous vehicles developed by the International Transport Forum show that, in mid-sized and bigger cities, to relieve congestion and reduce carbon emissions (from reduced car-kilometres travelled), the most **effective integrated solutions depend on a high-capacity public transport.**<sup>3</sup>

CER and UNIFE suggest **fitting railway stations with electric vehicle charging facilities** where justified by forecast demand. CER and UNIFE support electrification of surface transport, but not subsidies for electric passenger cars, unless such subsidies are demonstrated to be more cost-effective in decarbonising transport than other measures.

**Smart grids** should be promoted to aid the storage and optimised use of the electricity, and railway stations can be a key component of those smart grids.

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<sup>3</sup> ITF CPB (2015), "Urban Mobility System Upgrade. How shared self-driving cars could change city traffic" [www.itf-oecd.org/urban-mobility-system-upgrade-1](http://www.itf-oecd.org/urban-mobility-system-upgrade-1)

Improved energy-efficient solutions and **new vehicle concepts for non-electrified railway lines** are being developed. For example, manufacturers of rail vehicles are experimenting emission-free trains equipped with fuel cell drive. Hybrid diesel-electric locomotives are able to operate in emission-free mode as well. In parallel, the European rail supply industry has declared energy efficiency as one of the key topics to be addressed by the Shift2Rail Joint Undertaking - a major Public Private Partnership of €920 Million for the period 2014-2020 which aims at increasing the attractiveness and competitiveness of rail transport. The **support to rail research and innovation** (Shift2Rail, Horizon 2020 and beyond) is vital to ensure that energy efficient innovations can be deployed swiftly across the rail system.

A strong and credible EU ETS (Emissions Trading Scheme) should encourage further decarbonisation of power generation, including electricity used for transport. **ETS auction revenues could be earmarked for the further promotion of low-carbon modes.** Given Europe's high dependence on imported fossil fuels, **increases in fossil fuel taxation** should be considered, with revenue recycling in favour of low-carbon transport, including rail. Until a level playing field in terms of carbon pricing across transport modes is achieved, Member States should fully **compensate railways for their indirect ETS charges to further promote low-carbon transport.**

#### 4. Rebalancing transport with fair intermodal competition

There is an urgent need to **internalise all external costs of transport in all modes.**

Levelling the playing field between competing transport modes will support transport decarbonisation in a cost-effective way. CER and UNIFE, therefore, request the existing paradoxical situation to be corrected:

- Railways, unlike fossil-fuel powered vehicles bear heavy charges to the EU-wide development of electricity production from renewable sources (through schemes promoting electricity production from renewables).
- Railways, also pay for CO<sub>2</sub> emissions as electrified rail is indirectly included in the ETS.

Decarbonisation of transport should consider all modes and their possible substitution (modal shift), urban/regional as well as long-distance trips, all combinations of modes (e.g. combined road-rail transport). Active modes (walking, cycling) as access to public transport should also be promoted.

In urban areas with comprehensive public transport, complemented with services like bicycle-sharing, bicycle parking, car-sharing, shared taxi services and ride-sharing, an **integrated combination of sustainable urban mobility services** can match the flexibility and convenience of the passenger car.

Planning of **integrated mobility services at, from and to train stations** and the key role of train stations in urban planning should be considered and promoted. European funding (e.g. from Structural and Cohesion Funds and CEF) for intermodality, including information and ticketing, could have a strong leveraging effect.

Policy makers should also correct policies leading to a reverse modal shift, level rail's playing field with aviation for VAT on cross-border travel and rectify the distortive tax treatment of company cars.

**Each transport mode should pay distance-based tolls to cover at least its short-run marginal costs**, including those of wear and tear, congestion, accidents and – in line with the polluter-pays principle – **including those of CO<sub>2</sub>, air pollution and noise.** The

Commission should firmly anchor this principle in its forthcoming **road transport initiatives** (formerly known as “road package”), including legislative proposals, and give guidelines to Member States on how to implement it with appropriate road tolling. Marginal-cost pricing should also apply to trucks and coaches using secondary roads, which currently are mostly toll-free.

CER and UNIFE are committed to further contribute to the decarbonising-transport initiative, in dialogue with policy makers and other stakeholders.

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### About CER

The Community of European Railway and Infrastructure Companies (CER) brings together more than 70 railway undertakings, their national associations as well as infrastructure managers and vehicle leasing companies. The membership is made up of long-established bodies, new entrants and both private and public enterprises, representing 73% of the rail network length, 80% of the rail freight business and about 96% of rail passenger operations in EU, EFTA and EU accession countries. CER represents the interests of its members towards EU policy makers and transport stakeholders, advocating rail as the backbone of a competitive and sustainable transport system in Europe. For more information, visit [www.cer.be](http://www.cer.be) or follow us via Twitter at [@CER\\_railways](https://twitter.com/CER_railways).

### About UNIFE

UNIFE represents the European Rail Industry in Brussels since 1992. The Association gathers around 80 of Europe’s leading large and medium-sized rail supply companies active in the design, manufacture, maintenance and refurbishment of rail transport systems, subsystems and related equipment. UNIFE also brings together 14 national rail industry associations of European countries. UNIFE members have an 84% market share in Europe and supply 46% of the worldwide production of rail equipment and services. For more information, visit [www.unife.org](http://www.unife.org) or follow [@unife](https://twitter.com/unife) on Twitter.

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