



The Voice
of European
Railways



INTERNATIONAL UNION
OF RAILWAYS

MOVING TOWARDS SUSTAINABLE MOBILITY

A STRATEGY FOR 2030 AND BEYOND
FOR THE EUROPEAN RAILWAY SECTOR

Summary





UIC, the international railway association which celebrates its 90th anniversary in 2012, counts 200 members across five continents. UIC's chief task is to promote railway transport around the world and help its members to meet all the current and future challenges of mobility and sustainable development. UIC's cooperative undertakings aim to boost the railway system's competitiveness and interoperability, particularly on an international scale.

For more information, see www.uic.org



The Community of European Railway and Infrastructure Companies (CER) brings together more than 70 European railway undertakings and infrastructure companies. CER represents the interests of its members towards the European institutions as well as other policymakers and transport actors. CER's main focus is promoting the strengthening of rail as essential to the creation of a sustainable transport system which is efficient, effective and environmentally sound.

For more information, see www.cer.be

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Foreword

Rail can play a key role to reduce the environmental impact of transport. By offering efficient transport with low environmental impacts, rail can help create a more sustainable approach to transport. Modal shift to rail from higher-emitting modes, in particular aviation and road freight, can further increase these advantages, and produce the biggest benefit for society and the environment.

The European rail sector already has an environmental record to be proud of. For example, total CO₂ emissions from the railway sector in 2007 were 38% less than in 1990. However, the railways recognise that they have to continue to improve in order to continue playing a significant role in meeting future transport needs.

Moving towards Sustainable Mobility concentrates on what the rail sector itself can do to improve its environmental strengths. It was developed by CER and UIC to provide a medium and long-term plan for the rail sector that fits in with wider environmental and political policy objectives.

By establishing its own voluntary strategy, the rail sector is showing that it is a responsible and forward thinking low-carbon mode of transport, whose role should be enhanced as part of the wider move to decarbonise transport. Through the creation of this strategy, the railways are showing the path towards an even cleaner, greener rail sector for 2030 and beyond.



J. Loubinoux

Jean Pierre Loubinoux
UIC Director-General

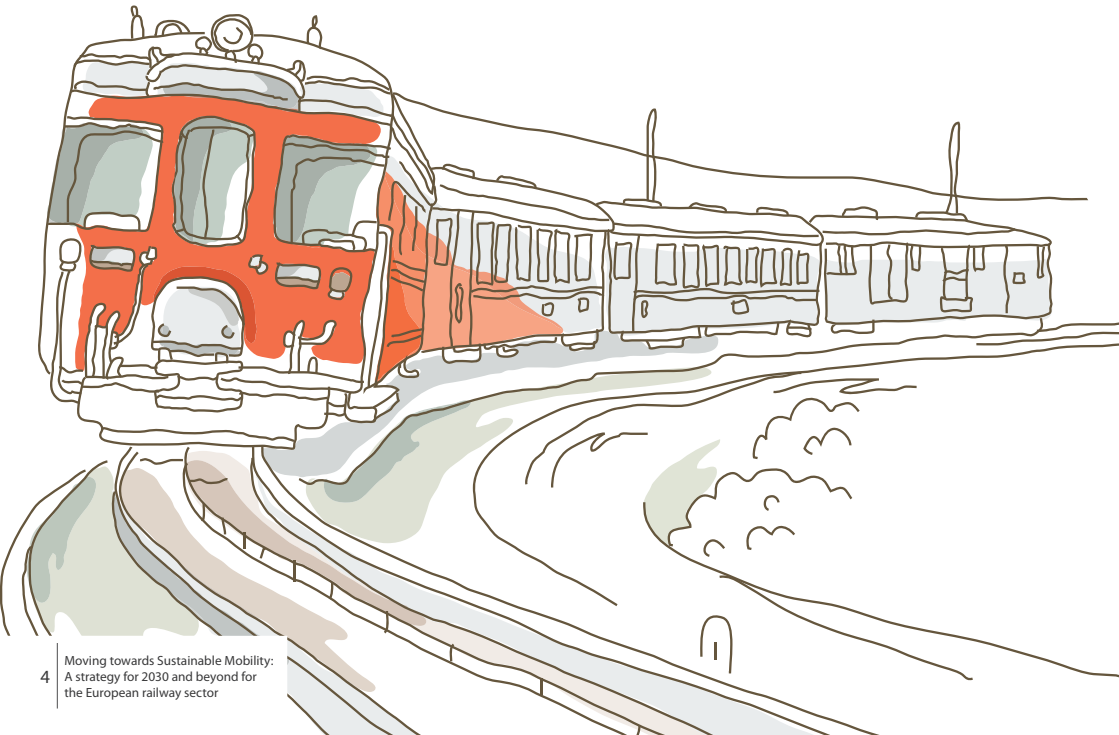


Libor Lochman

Libor Lochman
CER Executive Director

Introduction

'Moving towards Sustainable Mobility: European Rail Sector Strategy 2030 and beyond' was jointly agreed and endorsed by members of UIC and CER in December 2010 to provide a unified approach to environmental and sustainability topics in the European rail sector. It outlines how the rail sector should be performing in environmental terms in 2030 and 2050, and provides a framework that allows companies in the rail sector to make suitable long-term plans.





The strategy builds on the commitment already made by UIC and CER members in 2008 to commit to a sectorwide cut of 30% of specific CO₂ emissions from rail traction over the 1990-2020 period. This commitment is monitored annually by UIC through its Energy and CO₂ Database, and the most recent monitoring shows that the sector is clearly on target to meet the 30% reduction in both freight and passenger sectors.

The strategy is built on four key environmental topics: **climate protection, energy efficiency, exhaust emissions, and noise emissions**. It sets out specific objectives for the rail sector to meet by 2030, and as uncertainties make predictions for the longer timeframe of 2050 more difficult, more general “visions” for 2050. This summary document outlines the objectives and vision statements.

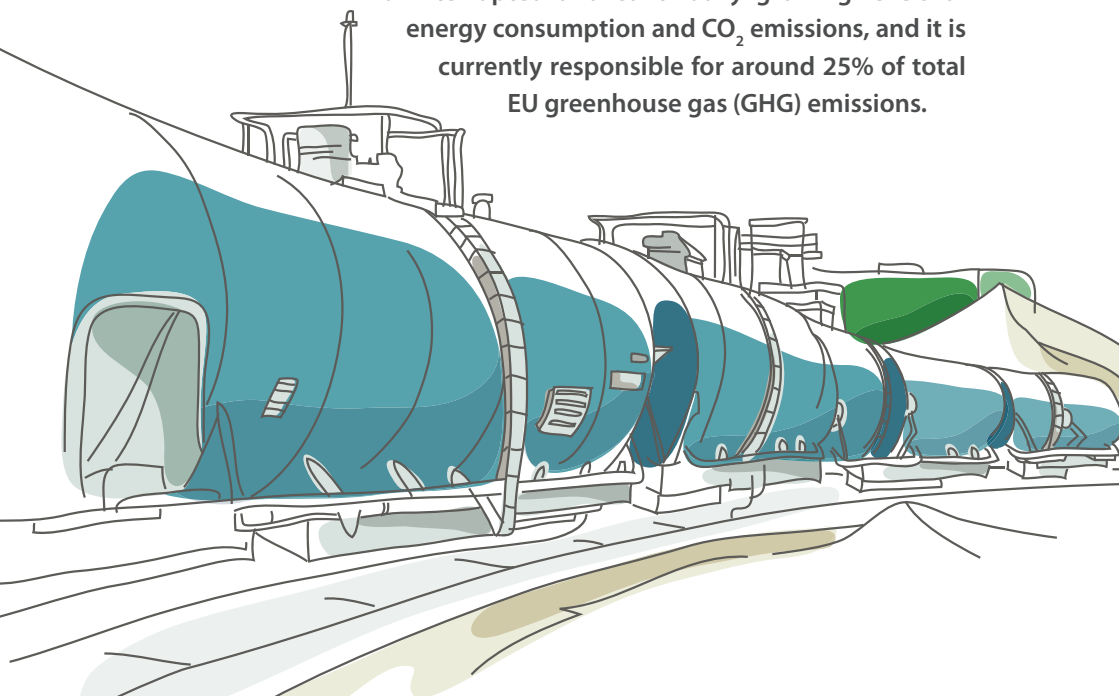
The full version of the strategy also contains technical annexes and roadmaps to enable the rail sector to plan properly to meet the targets.

The best improvements will require changes too in other sectors: the rail sector depends on further changes in the generation of green electricity by the energy supply industry in particular, in order to strive towards the vision of carbon-free operation in 2050. This is obviously outside the direct control of the rail sector, but by creating strategic partnerships with energy suppliers, European railways will seek to secure access to such green energy supplies as the European electricity sector decarbonises.

UIC and CER are developing monitoring processes to ensure that progress is being made in reaching the objectives. Given the long-term nature of the strategy, it will be regularly reviewed and adjusted to account for changing circumstances. It is also intended to include other objectives relevant to sustainable development in the strategy at a later date.

Transport policy: the European situation

Transport plays a vital role within the European economy and society: transport systems are of crucial importance for the competitiveness of any nation or regional economy as well as for the mobility of its citizens. However, while they bring significant benefits to society there are also substantial costs. The current growth of the transport sector is far from being sustainable. In Europe it is the only sector with uninterrupted and continually growing levels of energy consumption and CO₂ emissions, and it is currently responsible for around 25% of total EU greenhouse gas (GHG) emissions.





There have undoubtedly been some improvements: exhaust emissions such as particulates, acidifying substances and ozone precursors have reduced over the last decades. But as the European Environment Agency (EEA) has pointed out, absolute emissions of CO₂ continue to rise as the gains from the technical improvements in transport continue to be outpaced by increased transport activity. The current transport system is a heavy burden for the environment and the health of citizens, and continues to move in the wrong direction¹. Such is the level of growth that the EEA has estimated that, on current trends, the transport sector's projected emissions would, by 2050, be more than the total emissions target for all the sectors combined in Europe.

Europe's transport system has so far failed to keep up with the other main sectors of the economy in terms of sustainability and decarbonisation. While the total level of greenhouse gas emissions fell by 20% both in industry and in agriculture between 1990 and 2005, it rose by a staggering 30% in transport over the same period. By 2009, transport was responsible for 24% of the EU's total greenhouse gas (GHG) emissions.

A major re-orientation of the transport system is therefore essential if long-term carbon reduction targets are to be achieved. An emissions reduction target was agreed for the transport sector in the European Commission's 2011 Transport White Paper, 'Roadmap to a Single European Transport Area'. This commits the EU to achieving a reduction of 60% of total greenhouse gas emissions in transport compared to the 1990 level by 2050. The White Paper also identifies two segments of the transport market where it would particularly welcome a greater share for rail. These are long-distance overland freight, and medium-distance passenger travel, notably through the expansion of high-speed rail.

While rail emissions are only a very small percentage of total transport emissions, the rail sector has already recognised the need to take voluntary action to reduce its CO₂ emissions and demonstrate that it is playing its part in the overall move to cut transport emissions.

1. TERM 2008, European Environment Agency, Report No. 3/2009

THE TARGETS



TARGET 1

CLIMATE PROTECTION

2020

In 2008, European railway companies agreed that by 2020 the European railways **will reduce their specific average CO₂ emissions from train operation by 30%** compared to the 1990 base year, measured per passenger-km (passenger service) and tonne-km (freight service).

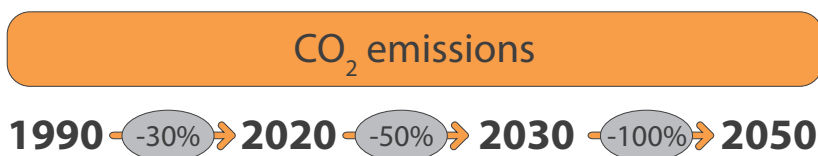
2030

By 2030 the European railways will **reduce their specific average CO₂ emissions from train operation by 50%** compared to the 1990 base year, measured per passenger-km (passenger service) and tonne-km (freight service).

In addition, by 2030 the European railways will **not exceed the total CO₂ emission level from train operations** in absolute terms even with projected traffic growth **compared to the 1990 base year**.

2050

The European railways will **strive towards carbon-free train operation by 2050** and provide society with a climate neutral transport alternative.



TARGET 2

ENERGY EFFICIENCY

2030

By 2030 the European railways will **reduce their specific final energy consumption from train operation by 30%** compared to the 1990 base year, measured per passenger-km (passenger service) and tonne-km (freight service).

2050

The European railways will **strive towards halving their specific final energy consumption from train operation by 2050** compared to the 1990 base year, measured per passenger-km (passenger service) and tonne-km (freight service).



TARGET 3

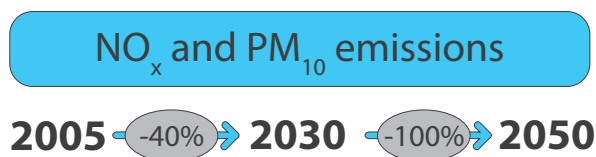
EXHAUST EMISSIONS: NITROGEN OXIDES AND PARTICULATE MATTER

2030

By 2030 the European railways will **reduce their total exhaust emissions of NO_x and PM₁₀ by 40% in absolute terms**, even with projected traffic growth compared to the 2005 base year.

2050

The European railways will strive towards **zero emission of nitrogen oxides (NO_x) and particulate matter (PM₁₀) from non-electric trains** by 2050.

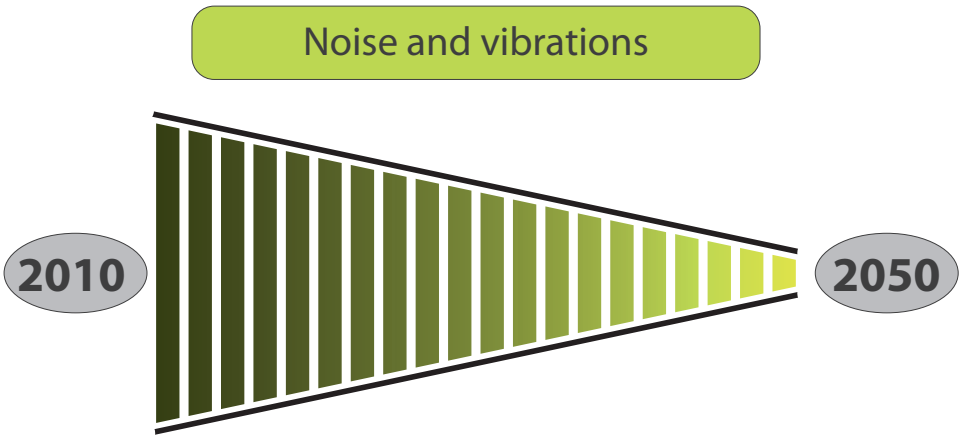


TARGET 4

NOISE AND VIBRATIONS

2050

The European railways will **strive towards noise and vibrations no longer being considered a problem for the railways** – meaning that noise levels are socially and economically acceptable and allow for 24-hour passenger and goods operations in 2050.



VISION 2050

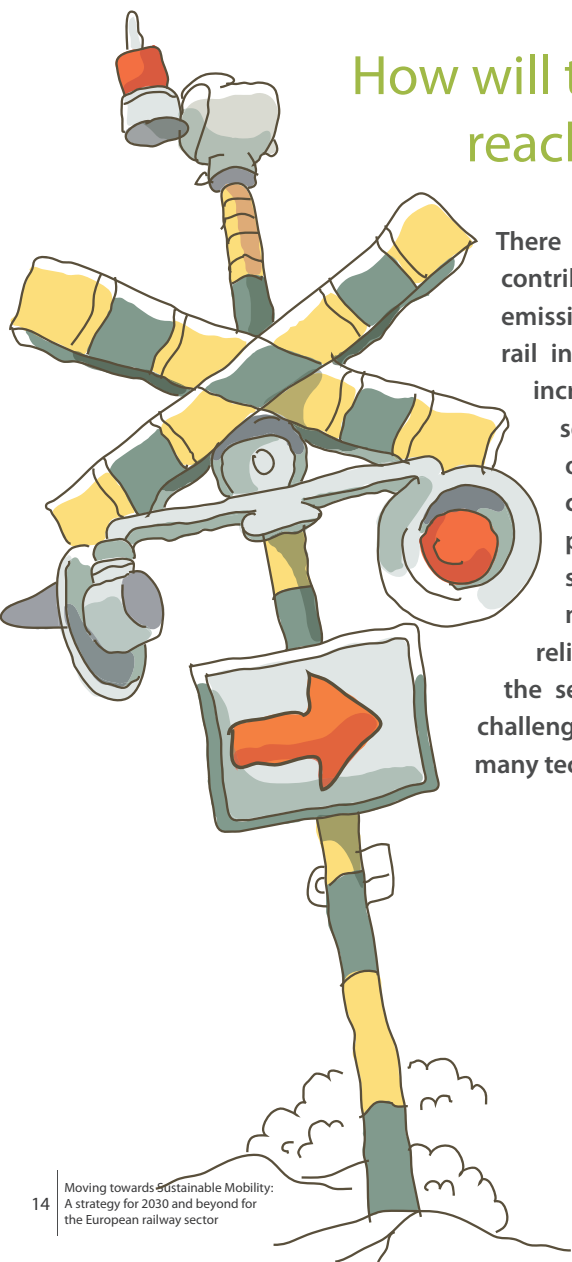
The European railway sector will seek to supply its customers and society with attractive, carbon-free and resource efficient solutions for sustainable mobility and transport.

Through responsible business leadership the European railway sector aims to maintain and expand its leading sustainability performance.



How will the objectives be reached?

There have been various factors contributing to the reduction in the CO₂ emissions and energy consumption of rail in recent years: these include the increased energy efficiency of railway services, further electrification of lines, and a reduction in carbon intensity of the electricity production by the power supply sector. Exhaust emissions and noise, in contrast, have largely relied on technical innovation within the sector, so change has been more challenging due to the long lifespan of many technical systems.





In the decades to come, these trends can play a crucial part in enhancing the environmental performance of rail further:

- » More railway operators will actively demand green energy and shift to CO₂-free energy sources, as European and national regulation facilitates more renewable and carbon-free electricity coming onto the market.
- » Further electrification will occur, and new low carbon propulsion technologies will replace diesel traction by electric traction or other less carbon-intensive propulsion concepts.
- » Energy efficiency will continue to increase through improved technology and service efficiency (occupation rates and load factors).
- » Quieter brake blocks will be developed to economically retrofit the freight wagon fleet with low noise technology, along with improved damping and grinding technologies.

To ensure the 2030 objectives are met, and to pave the way towards the vision of an attractive, carbon-free and resource efficient railway by 2050, the full version of the strategy outlines the milestones and activities needed to ensure new technologies will be available for implementation from 2020 onwards. Environmental legislation will also help drive the necessary improvements in the short and medium-term, and substantial cooperation will take place with other partners, such as engine manufacturers and system integrators, to develop new concepts and technologies.

In order to monitor the progress towards the targets, UIC and CER have established an Environmental Target Monitoring System to ensure the strategy's objectives are fulfilled. A report monitoring progress towards the targets is produced annually and can be found on the UIC website.

A longer version of this strategy is available at:

www.uic.org/environment and www.cer.be



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