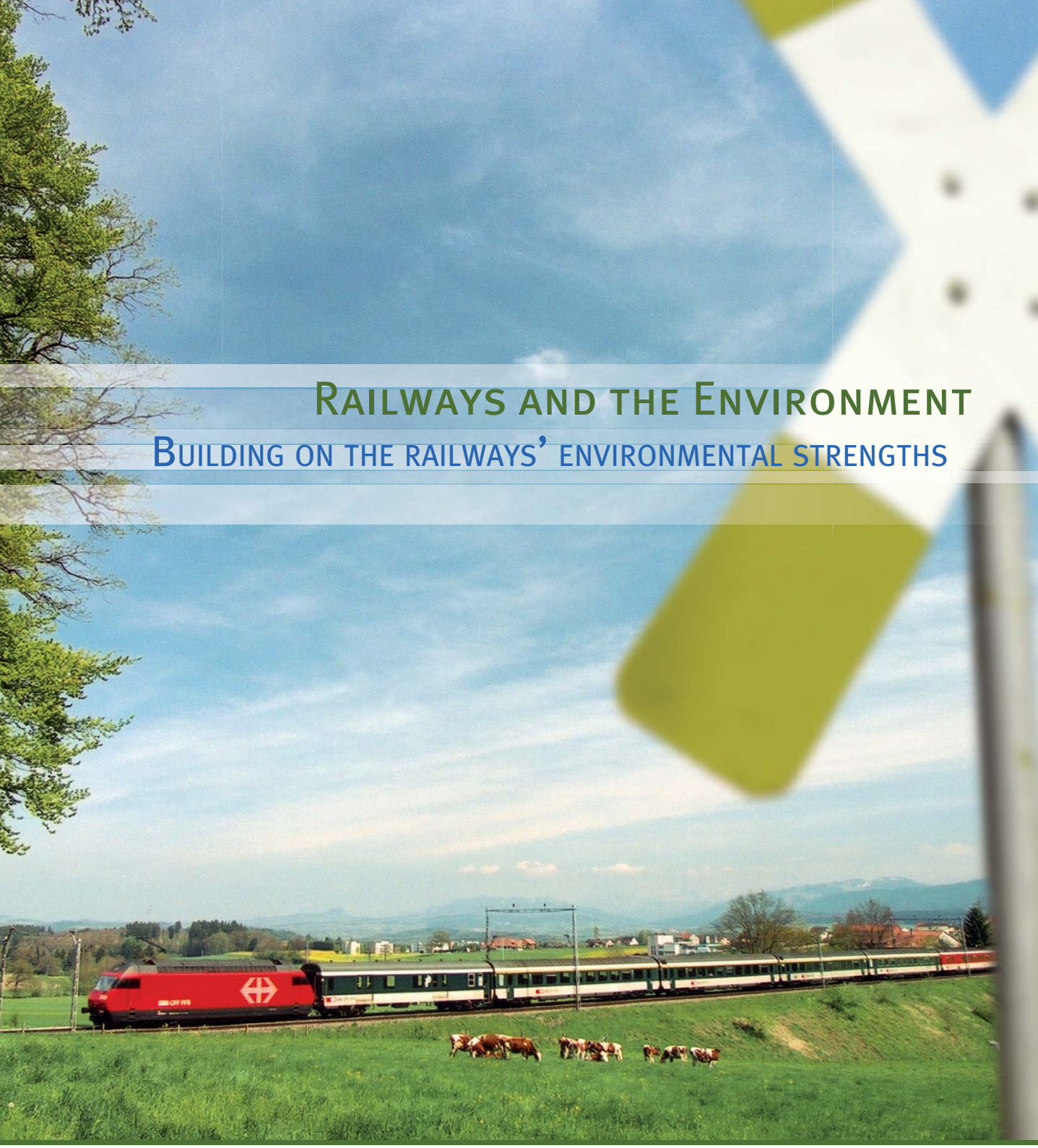
Railways and the Environment

Building on the railways' environmental strengths



UIC

CER

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January 2009

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Executive summary

Rail: putting transport on a greener track

As one of the most efficient and environmentally friendly ways to move people and goods, railways have a tremendous potential to reduce the environmental impact of transport and improve the quality of life of EU citizens.

European policy up to now has failed to properly address the impacts of increasing transport demand, which is a major source of greenhouse gas emissions and a driver of global climate change. There is now an urgent need for action to cut transport-related CO_2 emissions.

It is widely accepted that a modal shift towards railways can contribute to meeting EU targets on climate protection and reducing greenhouse gas emissions. A stronger role for rail will help to achieve real progress towards the 2020 target of a 20% cut in the EU's greenhouse gas emissions. However, concerted action must be taken by governments and policy-makers to help bring this about.

The rail sector is doing its part, having already agreed on a voluntary target for 2020, to cut its 1990 levels of specific emissions by 30%. It is also funding research to work towards standardised technologies that will further improve environmental performance.

More needs to be done now to get traffic off the roads and on to rail. Real prices have to be charged that reflect the real costs caused by polluters. The wider use of market-based instruments will bring about more cost-oriented pricing and fairer market conditions, which would lead to modal shift, behavioural changes, and help pay for improvements in rail infrastructure.

The greater use of combined transport will allow each mode to use its strengths best – particularly over long distances, where the use of road and rail can complement rather than compete with each other.

1 Transport and the environment

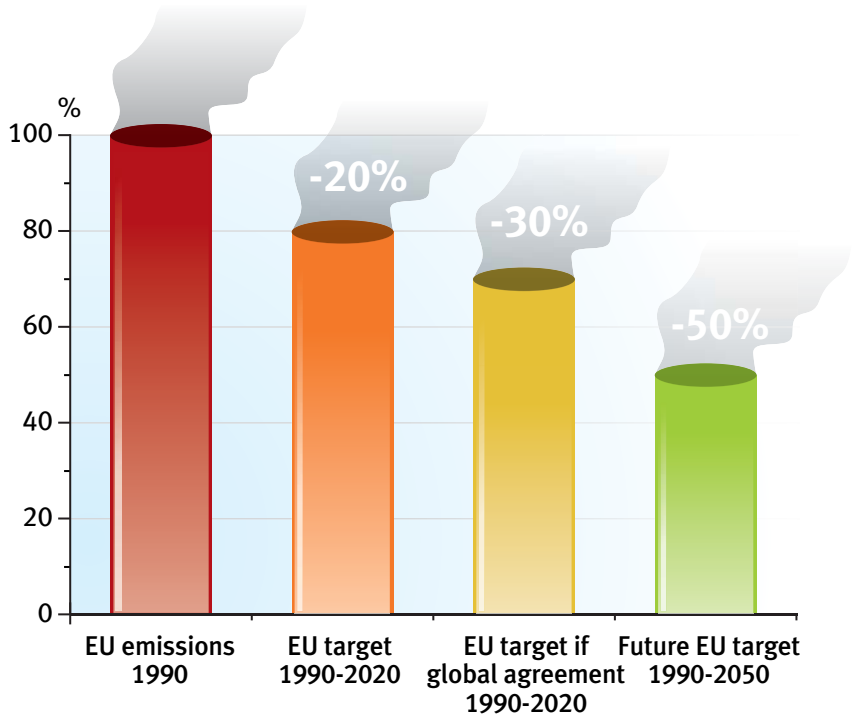
- Transport is a big contributor to climate change
- Rail can play a larger part in reducing the negative environmental effects of transport

How transport is affecting climate change

The debate on climate change has shifted dramatically in recent years. There is now unequivocal scientific evidence – summarised in the 2007 report from the Intergovernmental Panel on Climate Change (IPCC) – that global warming is happening; that human actions are responsible; and that this poses an enormous threat to life on Earth.

Politicians, businesses and the public are increasingly aware of the problem and are calling for urgent action to cut the man-made emissions of greenhouse gases (GHGs) that cause climate change, in particular carbon dioxide (CO_2).

Figure 1: Planned reductions of EU-wide greenhouse gas emissions



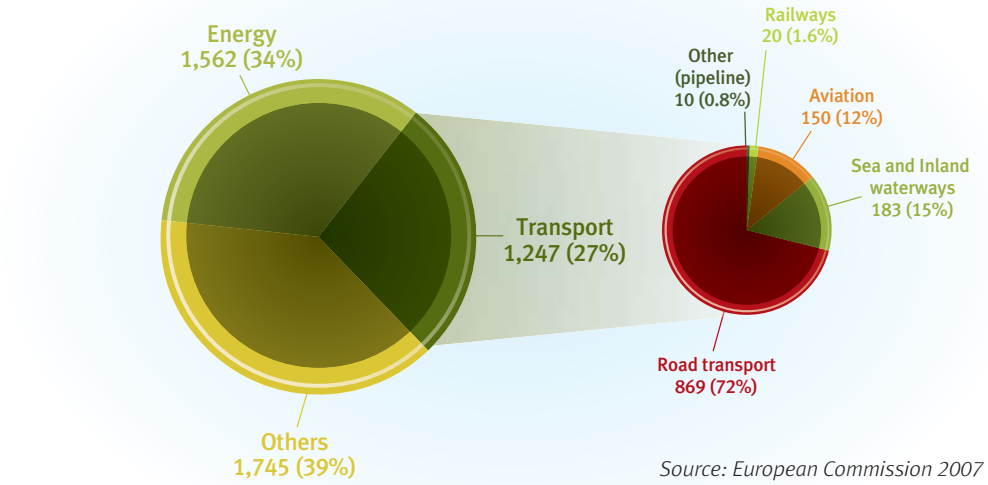
Hot topic

Globally, GHG emissions rose by 70% between 1970 and 2004. The IPCC predicts rises of between 1° and 6°C from current levels by 2100, depending on the levels of future GHG emissions. If the higher estimates are accurate, there would be catastrophic consequences, so decisive action is a must.

In March 2007, as part of a wide-ranging attempt to cut emissions, European heads of state agreed to set legally binding targets to reduce Europe-wide emissions of greenhouse gases by 20% of 1990 levels by 2020. This target may be increased to 30% by 2020 if a new global climate change agreement is reached in Copenhagen in 2009. The European Commission has further stated that work must begin immediately on a longer-term target of a 50% cut in global emissions by 2050 (see Figure 1).

Producing 27% of all emissions, transport is the second largest source of man-made CO_2 in the EU-27 after energy production (see Figure 2). Moreover, latest projections from the European Environment Agency (EEA) estimate that the sector's emissions are set to increase by 25% between 1990 and 2020. This is in contrast to emissions from industrial and energy sectors, which are falling.

Figure 2: CO_2 emissions 2005 in EU-27 by sector and transport mode (million tonnes)

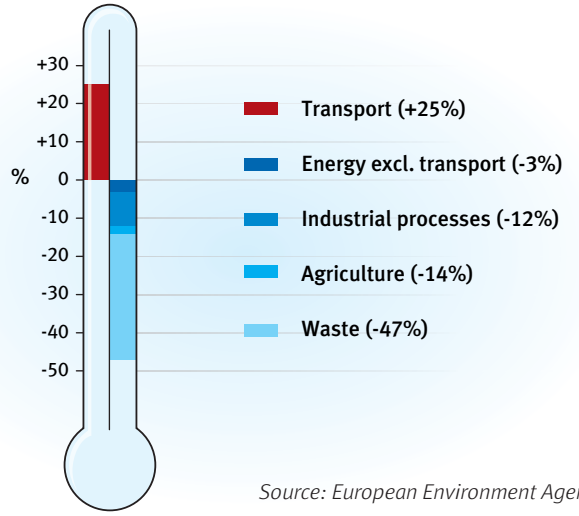


Source: European Commission 2007

The alarming performance of the transport sector is largely due to road traffic, which accounts for 72% of transport emissions in the EU (2005 figures). In contrast, rail accounts

for just 1.6% of total transport emissions, while it transports 6% of all passengers and 10.3% of all freight. This is a clear indicator that railways can do more for less. A modal shift from road and air towards rail is one obvious way to reduce CO_2 emissions.

Figure 3: Projected changes in EU-15 GHG emissions from 1990 to 2010 with existing policy measures



Source: European Environment Agency 2007

EU transport policy lacks a 'roadmap'

The EU institutions have repeatedly underlined the need to address transport emissions. The European Commission has issued several policy papers since 1992 that outlined the need for the application of the 'polluter-pays' principle and fair competition between modes of transport.

In July 2008, the Commission published its 'Greening Transport' package which includes a series of proposals to make the transport sector more environmentally friendly and to promote sustainable mobility.

Yet the measures agreed so far are not sufficient to contain the negative environmental effects of transport growth. Furthermore, there is still no coherent 'roadmap' to reduce emissions from transport.

The rail sector strongly recommends that transport policies in the EU and elsewhere start to make more use of the energy efficiency of railways in order to progress towards the 2020 targets. Railways already offer the most energy-efficient performance and are constantly improving, both in terms of passenger km (pkm) and tonne km (tkm).

Best practice: 'le Grenelle Environnement' in France

With its 2007 Grenelle Environnement, the French government outlined several measures to reduce the country's CO_2 emissions by 20% by 2020. These include:

- A shift from road to rail and waterways, with the modal share of rail freight to be increased to 25% by 2012;
- The development of two new rail freight corridors from Paris to the south and the south-west for combined traffic;
- Long-term public loans of some €800 million for the purchase of necessary rolling stock;
- Shifting long-haul and transit truck operations from road to rail.

In addition, France is committed to investing €16 billion in extending its high-speed network by 2,000 km within the next decade.

2 Rail's environmental impact

- Rail offers the best overall efficiency and CO_2 performance
- The rail sector leads by example, initiating further voluntary improvements
- High-level research is addressing noise and pollution reduction

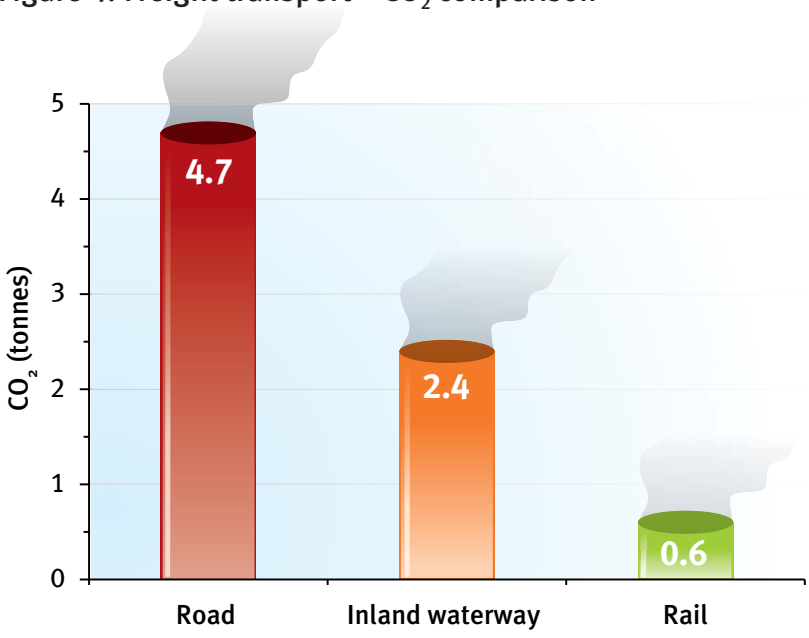
Sustainable rail transport

No other major transport mode can boast energy efficiency similar to that of rail transport. Moreover, rail is the only mode that has decreased its share of CO_2 emissions since 1990. All other motorised transport modes have increased their share.

About 80% of the European rail fleet runs on electric power, meaning most trains can switch to clean electricity when it becomes available. Furthermore, modern trains are equipped with 'regenerative systems' that recover energy for power generation when braking.

Rail transport generates the lowest specific CO_2 emissions compared with road, air, and even waterborne transport. Figure 4 compares total CO_2 produced during the transport of 100 tonnes of freight from Basel to the port of Rotterdam. Rail emissions are almost eight times lower than lorry emissions and four times lower than inland waterway emissions.

Figure 4: Freight transport – CO_2 comparison



Source: Ecological Transport Information Tool (EcoTransIT) 2008

Leading by example

The European railway industry outlined its role in the fight against climate change in the *Railway Community Aspiration*, signed by all the major players in the sector in June 2007 (see Annex I).

More recently, in May 2008, members of the Community of European Railway and Infrastructure Companies (CER) voluntarily agreed to reduce specific CO_2 emissions by 30% by 2020, compared with 1990 levels (see Annex II). This clearly demonstrates the European rail industry's commitment to greater efficiency and lower emissions.

Concrete action

The rail sector is well on its way to meeting its targets. The achievement of a significantly higher load factor has been an important step, meaning more material can be transported per unit of energy, but there are many other areas where state-of-the-art research is tackling efficiency, aiming to improve both environmental and economic performance:

- Education and eco-driving – a combination of new 'energy meters' and advanced driver training, encouraging drivers to be more efficient, and reducing energy consumption by 10%;
- Operations – centralised line control reduces unnecessary braking and acceleration, optimising traffic flow for better overall energy efficiency on main rail corridors.

Big potential

Railways and public transport are the backbone of any sustainable transport system. The fact that they are often underused is difficult to justify. There is no good reason for not taking advantage of the potential benefits of rail transport now, including vastly lower energy consumption and environmental impact, plus enhanced economic performance and competitiveness.

Spain's AVE high-speed train

Best practice: a closer look at high-speed rail

It is widely recognised that high-speed lines attract new travellers to the railway system. A recent study undertaken on the Madrid-to-Seville AVE line also revealed big savings in terms of greenhouse gas emissions, showing that without the AVE an additional 48,000 tonnes of CO_2 would be produced on this route every year.

AVE passengers were asked which transport mode they would have chosen if there were no high-speed trains: 13% said conventional train, 26% air transport, 24% private car, 3% coach and 34% said they would not have made the journey at all.

Thus, of the 2.5 million passengers now travelling by AVE every year, one-third of them represent 'induced traffic', i.e. people who would not otherwise travel. But emissions on the Madrid-Seville corridor would still be more than three times higher if just the remaining two-thirds used other more polluting modes of transport.

Source: Spanish Railways Foundation 2008

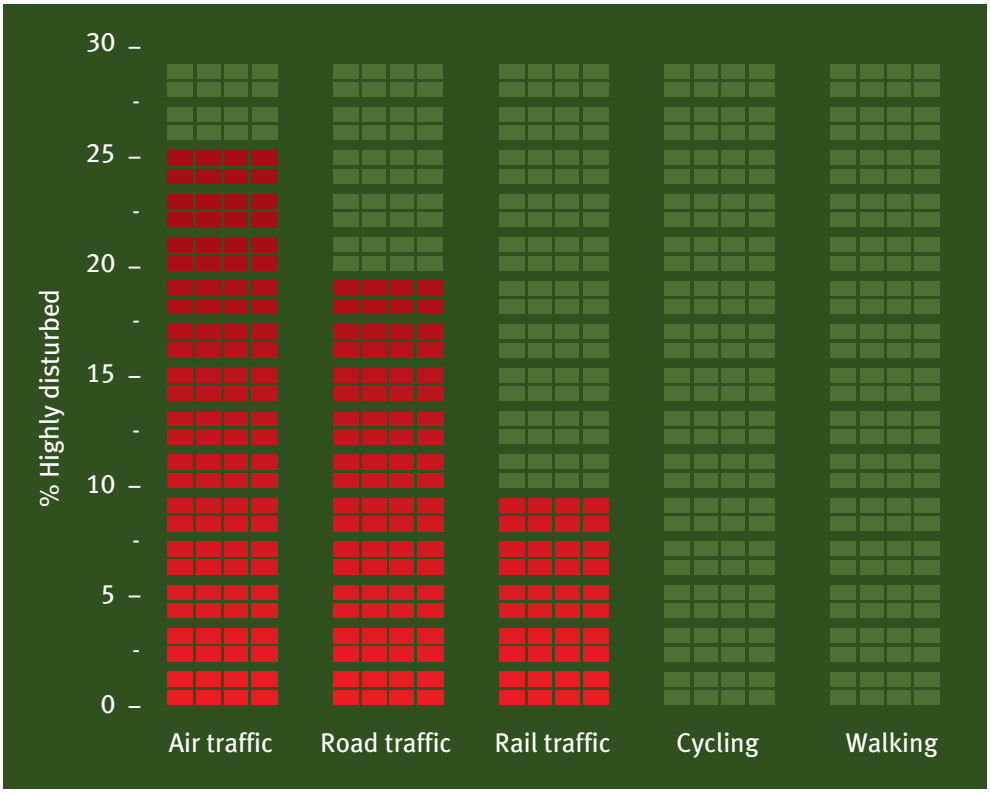
Noise: reducing the impact on communities

Noise is a key concern for people living near transport infrastructure, and can be damaging to both health and general well-being. Although train noise is already much less intrusive than noise from air and road traffic (see Figure 5), the railway sector wants to reduce noise even further, especially that caused by freight trains. Many of these trains still use loud cast-iron brake blocks, unlike passenger trains, most of which use disc brakes.

Insulation against sound

The traditional solution has been to erect noise barriers and install sound insulation in nearby buildings, but tackling the problem at the source is a more efficient strategy, lowering the noise produced across the whole network rather than 'treating the symptom' locally of noise perceived.

Figure 5: Percentage of citizens who are 'highly disturbed' when exposed to night-time noise emissions from transport



Source: European Commission 2004

Better solutions

One technology being employed to significantly reduce noise made by freight trains is composite brake blocks. ‘K-blocks’, also known as ‘whispering brakes’, are now being fitted to all new freight wagons in accordance with the ‘Noise TSI’ (Technical Specifications for Interoperability). K-blocks reduce noise at source by 8-10 decibels (dB) which, to human ears, sounds like cutting the noise by half.

Rolling stock has a high life expectancy of up to 40 years, so the retrofitting of the existing fleet is crucial in order to meet EU noise targets. The industry is currently developing new composite brake blocks, called LL-blocks, that will not only reduce noise further, but also lower the cost of retrofitting.

Best practice: Swiss incentive for lower-noise vehicles

According to legislation introduced in 2001, Switzerland is already paying to install low-noise systems in its national railway vehicles.

Vehicles fitted with noise-reducing technologies are refunded 0.01 CHF per axle kilometre travelled in Switzerland. This translates into a €7.50 bonus for a typical four-axle wagon on the 300 km Basel-Chiasso line, an important link in the Germany-Italy transit route.

A complete freight train with composite brake blocks gets a €93 refund, which is 5% of the total track access charge. Swiss taxes cover the resulting reduced income to infrastructure operators. The Dutch infrastructure manager 'ProRail' has recently implemented a similar bonus scheme.

Tackling air pollution

Around 80% of rail traffic in Europe is powered by electricity, meaning the vast majority of trains emit no local air pollutants where they operate. The remaining 20% is diesel-powered, producing about 1-2% of Europe's particulate (PM10) emissions, and only 1-3% of transport-related nitrogen oxides (NO_x).

The EU adopted new limits on air pollutants for new or upgraded locomotives in 2004, following the 1997 Non-Road Mobile Machinery (NRMM) Directive.

Best practice: 'GREEN' diesel locomotive

The EU-funded GREEN project (GREen heavy duty ENgine) is carrying out research on new near-zero emissions technologies for heavy-duty rail engine subsystems.

The future GREEN engine incorporates a new combustion process for maximum fuel conversion efficiency of 45%, with closed-loop emission control, high-power density, and an integrated exhaust after-treatment system.

GREEN project partners include UIC, UNIFE and the engine manufacturer MTU.

How low can rail emissions go?

'Stage IIIA' limits of the NRMM Directive took effect in 2006. 'Stage IIIB' levels will come into effect in 2012, reducing NO_x emissions by a further 50%, and PM10 by nearly 90%, compared to Stage IIIA. These limits will apply to new railcar engines, as well as to locomotives.

The International Union of Railways (UIC) and the Association of the European Rail Industry (UNIFE) are running a joint project under the EU's Seventh Research Framework Programme (FP7), aimed at developing engines that are compliant with these limits.

Japanese rail company JR East is developing fuel-cell systems for railway applications. In 2006, it began test runs of the world's first fuel-cell hybrid railcar, which entered service in 2007.

Best practice: the world's first diesel hybrid railcar

In July 2007, the world's first diesel hybrid railcars entered service on the Koumi line in Japan.

The Kiha E200 is about 20% more efficient than a standard railcar operating on level ground, and it is 30dB quieter when idling in a station. Hazardous NO_x and graphite emissions are reduced by an impressive 60%.

The new railcar uses both a diesel engine and regenerative brakes to charge an electric battery.

3 Rail's future role

- A research-based renaissance for rail
- Railways improving their efficiency
- Reduced weight to improve environmental performance

Research for rail and the environment

Today's 'renaissance' of the railways has only been possible thanks to a multitude of powerful research initiatives aimed at making fundamental improvements in the system as a whole. Now, keeping rail at the forefront as the most environmentally friendly major transport mode requires an even more rapid adoption of new technologies for clean and efficient energy.

The European Rail Research Advisory Council (ERRAC), set up in 2001 by industrial stakeholders, national governments and the European Commission, has been a key mover, paving the way towards new and innovative forms of collaboration and improving synergies between EU, national and private research.

In its 2007 'Strategic Rail Research Agenda 2020', ERRAC highlighted 'green' concerns, calling for increased environmental protection while safeguarding commercial competitiveness.

European rail research topics include some key environmental aims:

- Reduction of train weight per passenger in passenger trains;
- Lightweight and low-noise freight wagons;
- Finding alternatives for hazardous materials;
- Better traffic management and train control for improved traffic flow;
- Introducing standardised technologies;
- Modular systems for more efficient construction and maintenance;
- Dealing with the direct effects of climate change on the railways themselves.

Best practice: advanced trains reduce CO_2 by 56%

The new state-of-the-art class 423 metro train set is the latest result of advanced European rail research, producing 56% less CO_2 than the 35-year-old vehicle it replaces.

Procured by Deutsche Bahn, the new train is a lightweight compared to its predecessor, weighing only 105 tonnes instead of 140.

Reduced dead weight saves some 25% of specific energy consumption, while regenerative braking accounts for further savings of up to 31%.

Compare this with developments in the automobile industry, where vehicles are getting heavier and little improvement is being seen in their efficiency. For instance, the new version of the Volkswagen Beetle car boasts fuel performance similar to the original model, released over 50 years ago.

Class 423 Deutsche Bahn (right)

Procurement processes to favour more eco-friendly trains

'Eco-procurement' is already a key concept for operators, manufacturers and policy-makers, not least because railway rolling stock is often used for 30 years or more.

Adherence to strict environmental performance specifications, including energy efficiency, noise, diesel-exhaust emissions and recycling, must be considered when rail suppliers submit tenders.

Eco-procurement was highlighted in the UIC's leaflet 'Environmental specifications for new rolling stock', published in 2006 after a wide-ranging consultation with the supply industry and rolling-stock manufacturers. This is in line with the Commission's proposal to ensure that green criteria, including life-time costs for energy consumption, and CO_2 and pollutant emissions, are taken into account in addition to vehicle price during procurement for public transport in urban areas.

Raising public awareness

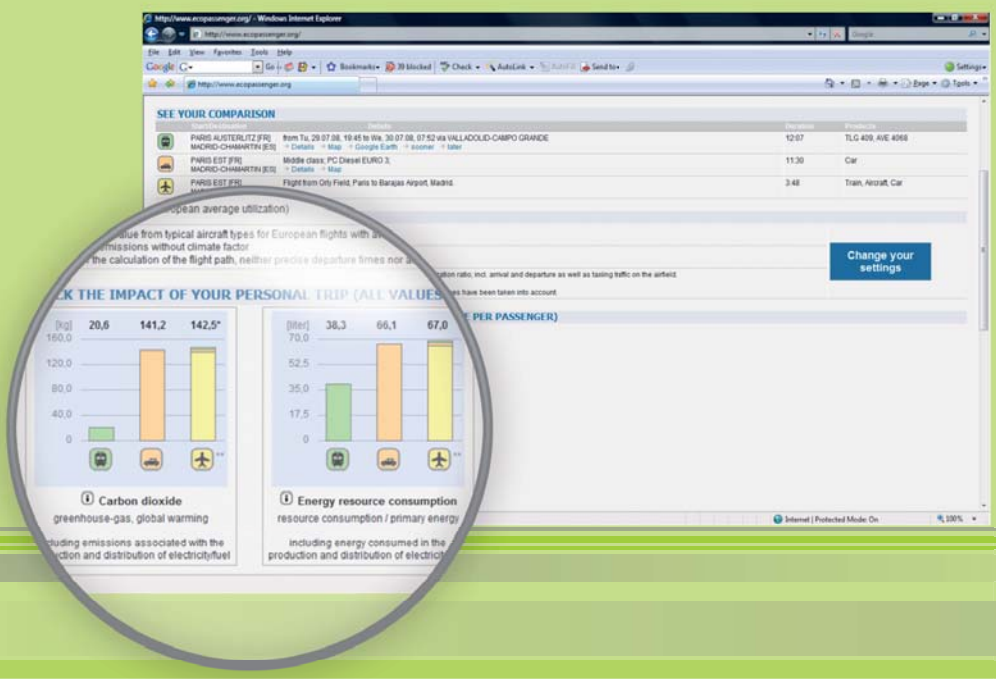
Communicating environment and transport

While most consumers still base their travel decisions largely on price, value for money, service and availability, more and more people are taking environmental factors into account.

The railway community is therefore working hard to provide customers with comprehensive information on climate change, air pollution and the 'external costs' of transport.

New internet-based tools, such as EcoPassenger and EcoTransIT (see Figure 6), are making a range of data available to customers. These interactive services enable customers to calculate emissions for journeys made using different transport modes.

Figure 6: The EcoPassenger web tool – comparing the effects of different transport modes for the same journey



Best practice:
new tools for the most eco-friendly transport

Choosing the most eco-friendly major modes of transport is now easier than ever, with the launch in June 2008 of two new internet-based tools.

Passengers can use EcoPassenger, while freight operators use the updated version of EcoTransIT to compare energy consumption, CO_2 and pollutant emissions, depending on the mode of transport they choose – rail, road, air or waterborne.

The comparison can be made for any given itinerary within Europe and may even be fine-tuned for combined traffic, using two or more different transport modes.

Both tools are based on sound scientific methodology, taking a complete life-cycle approach to energy consumption. Calculations also include emissions from the cumulative energy consumption, i.e. the energy used to produce electricity.

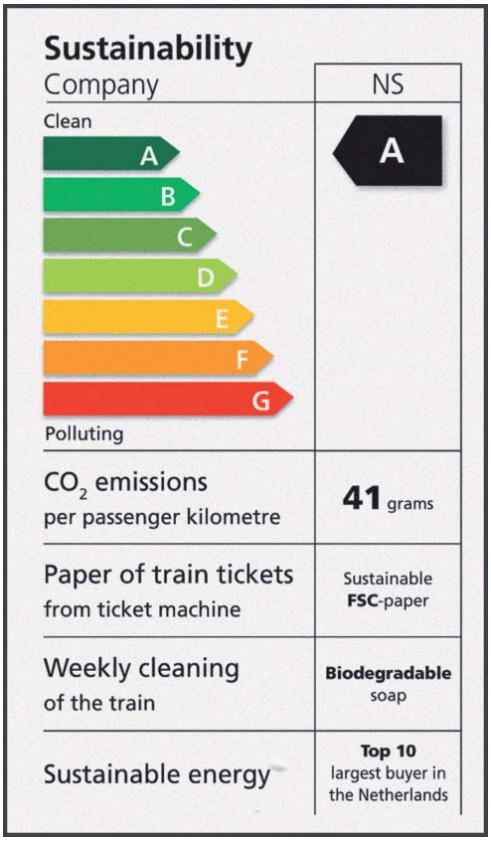
The tools are available at **www.ecopassenger.org** and **www.ecotransit.org**

Advertising sound behaviour

Raising awareness and stimulating demand (and modal shift) is a new and promising area for railway operators in Europe and all over the world. Other examples include:

- A Dutch railways' (NS) advertising campaign applied the widely known energy labelling system for washing machines and refrigerators to rail travel (see Figure 7);
- Belgian railways (SNCB Group) conducted a successful campaign targeting its own 38,000 employees to reduce energy and act as 'good citizens';
- Finnish Railways (VR) developed 12 environmental pledges and donated €70,000 to the Finnish Association for Nature Conservation to restore traditional landscapes located near railway lines and stations and along busy routes (see **www.vr.fi**).

Figure 7: Awareness-raising: promotional advert used by NS Rail



4 Achieving sustainable transport

- Transport pricing needs to reflect the real cost of transport
- Combined road-rail transport can make a huge difference
- The public needs (and wants) to know

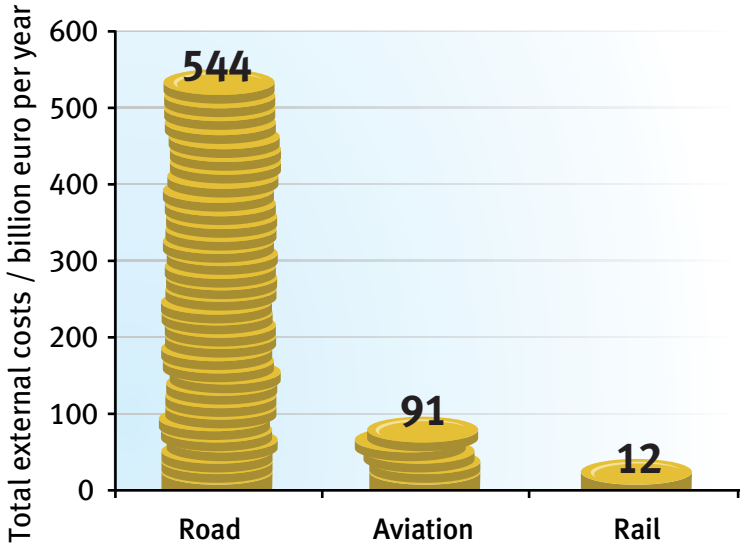
Pricing: paying the real cost for transport

Honest price, honest service

The prices of transport in general – and road transport in particular – are artificially low. Transport prices do not cover air pollution and climate change, noise annoyance, the human toll of accidents, emergency and medical services, and higher insurance costs.

The real 'marginal social costs' of all transport in 2000 in the then EU-15 plus Switzerland and Norway amounted to €650 billion, not including losses due to congestion. This is nearly 7.3% of the EU-15 gross domestic product. And more than 80% of the costs are attributable to road traffic (see Figure 8).

Figure 8: Total external costs in 2000 by mode in the EU-15 plus Switzerland and Norway



Source: INFRAS/Institute for Economic Policy Research 2004

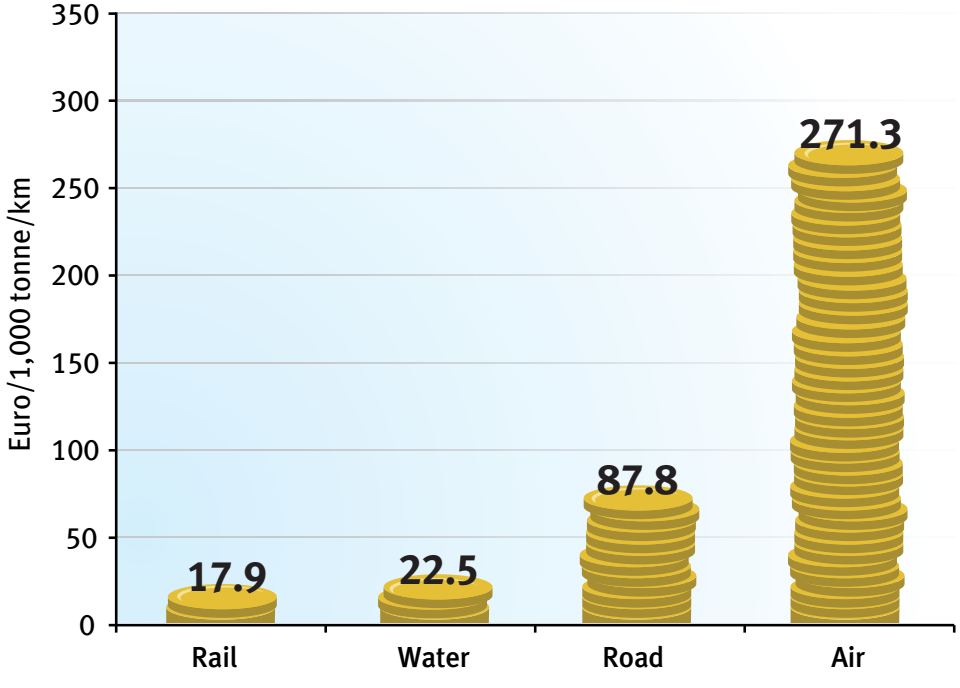
These artificially low transport prices trigger additional demand for transport services, which in turn requires more infrastructure. This cannot be financed from the revenues generated, so governments are asked repeatedly for money for new and bigger roads, leading to more road transport, more CO_2 emissions, more air pollution, more accidents, and higher public deficits – a vicious circle of loss on all sides.

A better way to go

More realistic transport pricing, with external costs borne by actual users, and not by society as a whole, would result in fairer competition between transport modes, ensuring that the benefits of more efficient transport options go directly to the users. The real costs of less efficient transport would then apply only to those who choose to use them.

Rail transport, with a lower average external cost than any other transport mode, would benefit greatly from this fairer pricing system (see Figure 9).

Figure 9: Average external costs for freight, not including congestion



Source: INFRAS/Institute for Economic Policy Research 2004

Revision of the Eurovignette Directive?

The 1999 Eurovignette Directive is a unique piece of European legislation that forbids market economy prices from reflecting real costs.

The Eurovignette Directive provides guidelines on charging heavy goods vehicles (HGVs) for road use. Apart from some minor exceptions, it does not allow for the internalisation of external costs for road transport, making this the only mode of transport where this is expressly forbidden by law.

As part of its 'Greening Transport' package, in July 2008 the European Commission proposed that an enabling, non-mandatory framework should be established which allows Member States to impose an external cost charge on HGVs. The revenues from these charges would be earmarked for use on projects to promote sustainable transport.

However, charges would only cover air pollution, noise, and congestion costs, and not the costs of accidents or CO_2 emissions, which the Commission still believes are better tackled through taxation.

More information can be found on the CER website at: **www.cer.be**

Promoting intermodal transport

‘Combined transport’ can cut emissions immediately

Taking a container or mega-trailer off the road and putting it on a long-distance freight train, using trucks only for short pre- and post-carriage links, cuts specific energy consumption by almost half.

Using ‘combined’ or ‘intermodal’ transport that links road and rail, greenhouse gas emissions can be reduced by even more than 50%, as electric trains allow use of CO_2-free energy sources such as water, wind or solar power.

Today, trucks account for around 75% of inland freight journeys within the EU. That means there is a huge potential, using existing technologies and systems, to integrate the railways into these logistic chains and reduce massively the negative environmental effects of transport.

Best practice: modal shift in Switzerland

In 2006, over 25 million tonnes of freight crossed the Swiss Alps by rail, a modal share of 66%. This is by far the largest share for railways in any European transport corridor, reflecting the country's move towards environmentally sustainable transport in the vulnerable Alpine ecosystem.

The Swiss people enshrined modal shift into their Constitution in 1994, voting for the 'Alpine Initiative'. Measures include:

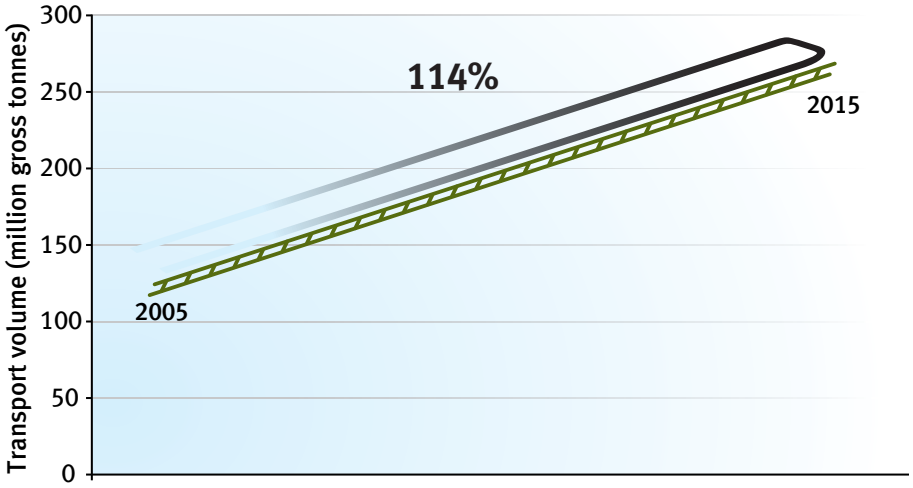
- Two new transalpine rail links: the Lötschberg tunnel, operating since December 2007, and the Gotthard tunnel which is due to be finished by 2017;
- The 'Land Transport Agreement' with the EU and other bilateral treaties for mutual market access;
- Open access to the Swiss rail network for cargo traffic;
- Increasing countrywide mileage-related heavy vehicle fees, generating €900 million in 2007;
- Subsidies and incentives for combined traffic.

Revenues from the heavy vehicle fee are spent on improvements and extensions to rail infrastructure, and the Swiss corridors have seen a 16% decrease in trucks crossing the Alps since 2000. The current figure of 1.2 million trucks annually still falls short of the ambitious goal, which is a reduction to 650,000 trucks per year.

Combined transport will double by 2015

Combined transport has already produced remarkable growth rates, and open access for railways within the EU – in effect since 2007 – is contributing to this trend. Total combined road-rail traffic in Europe is expected to increase to 268 million gross tonnes by 2015, a 114% increase over 2005 (Figure 10). This is an average annual growth rate of 7.9%, significantly higher than expectations for conventional road or rail growth.

Figure 10: Goods moved using combined rail-road transport in Europe 2005-2015



Source: International Union of Railways 2008

For this reason, combined road-rail transport is now being actively promoted by public authorities through measures such as exemption from traffic prohibitions. The EU has also authorised its Member States to provide financial support for railway transport, and especially for combined road-rail transport.

The European railway industry is still waiting for more genuinely fair market conditions as well as determined legislation to further promote this rapidly growing market segment. Reliable funding is urgently needed to enable rail infrastructure to cope with rising transport volumes.

Best practice: 10,000 fewer lorry trips in Paris

French chain Monoprix wants to be the supermarket of choice for 'ethical consumption'. By shifting 120,000 tonnes of goods from lorry to freight train per year, it will cut CO_2 emissions by 280 tonnes and 19 tonnes of NO_x. And 10,000 lorry trips into the heart of Paris will be eliminated.

In summer 2008, Monoprix announced a two-year plan to shift its Paris freight from road to rail. Sixty of the company's stores will be served by combined traffic, using SNCF freight trains running from the suburban Monoprix depot to a distribution centre in Paris Bercy.

Goods will then be loaded on to natural-gas-powered vehicles to shops, the first such delivery fleet to be used in France. Goods shifted from road to rail range from non-alcoholic beverages to non-food items such as textiles, cosmetics and various household items.

Best practice: optimising the 'travel chain'

Travellers in several countries can already make use of the multi-modal 'travel chain':

- Passengers can obtain door-to-door travel information on DB, SBB or ÖBB websites. On-line timetables include all modes of public transport and maps for those who prefer to walk the final section of their journey;
- Holders of the German 'BahnCard' can change from long-distance trains to regional public transport at their final destination for no extra charge and without an additional ticket, 'City-Ticket' automatically included;
- In Switzerland, hundreds of railway stations offer seamless transfer to car-sharing. SBB's 'Halbtax-Abo' (half fare travelcard) and other public transport pass holders may use the nationwide car-sharing service at reduced fees;
- In Karlsruhe, Kassel, and some other German cities, the so-called Regio Tram can switch from its own urban infrastructure to regular suburban lines, combining the strengths of both networks.

Annex I

Fighting climate change: railway community aspiration (June 2007)

1 **The evidence of climate change is ever clearer**, as is the risk of substantial environmental damage for future generations. The need for urgent action has been recognised in the Commission's Communication where global climate change is to be limited to 2 degrees Celsius, seeking a 20% reduction of CO_2 emissions by 2020.

The railway community welcomes the European Union's 'call for action' and outlines below how the railways could assist global society and the transport sector as a whole to reduce its CO_2 emissions – a sector which is responsible for a quarter of Europe's total CO_2 emissions.

2 The railway system is currently the transport mode with the lowest specific CO_2 emissions on average. Consequently, **the most significant contribution to the EU climate change policy for the transport sector would be a modal shift from the roads and air to the railways**. To take a simple example: every journey made by train instead of by car in Germany reduces CO_2 emissions by two thirds; for a train journey instead of a flight, CO_2 emissions are as much as 70% lower (per passenger).

The railways offer significant environmental advantages in general but are looking towards capturing more traffic from the roads and air in three segments in particular:

- Passenger traffic in agglomerations and city centres.
- High speed passenger services – up to 1000 km.
- Freight traffic over medium and long distances, as part of intermodal traffic/logistic chains.

3 **Despite its obvious CO_2 advantage, the railway sector is not complacent and seeks on the contrary to improve its position as the lowest CO_2 emitter**. This involves implementing continuous improvement programmes, ranging from operational to technological solutions. Over the last few years a number of European railways have launched energy-saving programmes showing specific CO_2 emission reductions of up to 25%.

Moreover, the European railway community is committed to setting joint targets by the end of 2007 for improving the environmental and energy performance of railway services in Europe for the period to 2020.

4 **The railways have made considerable progress in terms of transport performance and reliability in recent years.**

The passenger sector is stable, the high-speed rail system is growing rapidly and innovative metro and light rail systems have significantly improved the image, use and modal share of rail in many cities. The rail freight business has started to grow again and in some countries the rail freight market share is increasing after years of decline.

5 **The railways have improved despite the unfavourable and unbalanced competitive framework conditions prevalent in Europe**. In a normal market economy, supply and demand are balanced by market-driven prices.

However, this basic mechanism does not work in the European transport sector, as prices are distorted by the political framework relating to taxation, subsidies, etc. **The "polluter pays" principle with the inclusion of externalities is widely supported – but still does not apply in practice in the transport sector.**

At present, European legislation does not allow for price adjustments in the transport sector reflecting real market conditions; environmental cost factors can only be taken into account in specific situations, not as a principle. Perhaps this distortion is the main reason why the transport sector is the fastest growing 'polluter'.

6 In summary, the European Railway Community is fully committed to improving its own environmental credentials, but **the only way to achieve significant reductions in CO_2 emissions in the European transport sector is to actively support modal shift.**

The European railway community therefore calls upon EU Member States, European Parliament and European Commission to take the following decisions:

- **Policy measures should make environmental advantages and improvements price effective**
- **Define a fair infrastructure-charging mechanism in the framework of the "Eurovignette Directive"** by:
  - **Putting an end to the current unbalanced legal provisions prohibiting the inclusion of climate change and pollution costs in road infrastructure charging policies in the EU;**
  - **Including appropriate taxation and tolls for car traffic in agglomerations and city centres and earmarking these funds for improving regional and local public transportation;**

- Internalising external costs in pricing policies for road sector freight traffic and earmarking these funds for rail-related infrastructure/TEN projects;
- Speeding up the Eurovignette timetable i.e. presenting the Commission impact studies announced previously and the necessary legislative proposals by the end of 2007 (instead of June 2008).

- Discontinuing unsustainable political treatment, such as aviation fuel tax exemptions.
- Creating legal instruments to move a significant proportion of hazardous goods from road to rail.
- Correcting the European Emission Trading Scheme which at present penalises the (electrified and) environmentally friendly railways; instead make it an effective system of "cap and trade" for pollution-intensive transport modes.
- Using campaigns to raise awareness regarding the impact of transport on the environment.
- Creating economic incentives for shippers who shift to environmentally friendly modes.

7 Echoing the title of the Commission's White Paper on European Transport Policy for 2010: It is "time to decide" – to decide and to act now. The European Railway Community stands united in signing this aspiration and is represented by the following railway associations:

Signed in Brussels, 26 June 2007, by:

Johannes Ludewig, Executive Director – Community of European Railway and Infrastructure Companies (CER)

Michael Robson, Secretary General – European Rail Infrastructure Managers (EIM)

Luc Aliadière, Chief Executive – International Union of Railways (UIC)

Brigitte Ollier, Director – International Association of Public Transport – Euroteam (UITP)

Michael Clausecker, General Director – The Association of European Railway Industries (UNIFE)

Annex II

30% CO_2 emissions reduction commitment

At the CER General Assembly in Brussels in May 2008, members agreed to voluntarily set a sector-wide target on reducing the specific levels (emissions per passenger kilometre or tonne kilometre) of carbon dioxide (CO_2) from rail traction.

Under the terms of the agreement:

- Members backed a sector-wide target on reducing the specific emissions of CO_2 from rail traction **by 30% from 1990 to 2020;**
- Members committed to realise their own individual commitments in order to ensure that the overall sector-wide target was reached.

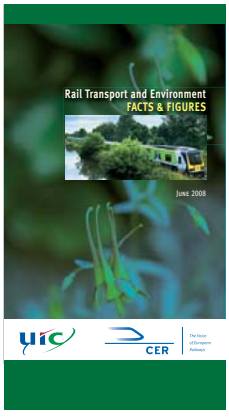
Each company has agreed to draw up a plan outlining the measures they will take to help meet the 2020 target. They will also supply data annually to allow for the monitoring of progress towards the overall target.

Further CER and UIC publications on railways and the environment:

Rail transport and the environment: meeting the challenge

Placing environmental criteria at the forefront of transport policy has never been more important than today. Cutting emissions of greenhouse gases is one of the biggest European political issues, yet transport is proving the most intractable area to change, with emissions continuing to rise. As the most efficient mode of major transport, rail has a key role to play in reducing the impact of transport. This book puts the railways' environmental strengths into context. The first part gives an overview on the different aspects of the rail sector's environmental performance in comparison to other modes of transport. The second part examines how policy measures can support the railways' role in a sustainable transport system. It considers how taxes and subsidies can be used to encourage changes in travel and whether the external costs can be properly internalised.

Rail transport and environment: facts & figures



Transport presents real challenges as society tries to ensure a more environmentally sustainable future. It is the only sector in the EU in which greenhouse gas emissions have consistently risen since 1990, and current transport patterns are clearly unsustainable. As well as contributing to climate change, the growth in congestion on our roads, accidents, air pollution, and noise pollution of transport all lead to substantial costs.

In order to make long-term decisions on the future of transport, accurate data to be consulted is important. This booklet has been compiled jointly by CER and UIC to present the statistical and factual evidence on the impact of the different transport modes.

For more information on both publications please contact **matthew.ledbury@cer.be** or see **www.cer.be**

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