



## CONSULTATION FROM THE EUROPEAN COMMISSION ON THE INTERNALISATION OF EXTERNAL COSTS

### Position Executive Summary

December 2007

- **Transport growth imposes costs on society : external costs should be internalised**  
Rail is the mode of transport which produces the least external costs compared to the other modes of transport. Cars create three times as much external cost as trains. Internalisation will help to attribute external costs to users and to ensure that prices paid by transport users reflect social costs. UNIFE calls on the European Commission to propose a framework for the internalisation of external costs according to the "polluter-pays-principle" and which would remove the current inequalities between the different modes of transport.
- **UNIFE position on the individual external costs:**
  - **Congestion: The internalisation of congestion costs should focus on road transport**  
Road congestion is heavily dependent on time and location. UNIFE supports differentiated charges for road congestion levied on all roads. Charges should at least be set at the level of marginal congestion costs and should not only address Trans-European Networks in order to avoid traffic diversion. UNIFE also considers that it is crucial to tackle road congestion in European cities. Therefore, the railway supply industry supports the introduction of urban road charging schemes in major cities on the model of London.
  - **Accidents: Accidents are mainly a road cost**
  - **Noise: The European Railway Industries addresses widely the issue of noise**
  - **Climate change: Sustainable mobility requires the internalisation of climate change costs**  
Road transport is by far the biggest transport emission source (93% of total greenhouse gas emission in transport). UNIFE supports the new Commission strategy promising to set a binding target for new cars of 130g/km by 2012. UNIFE also backs the proposal of the Commission to encourage Member States to stimulate the purchase of fuel-efficient vehicles via car taxation and a review of labelling rules, to include indications about cars' annual running costs, fuel consumption and possible vehicle CO2 tax levels, in order to raise consumer awareness.
  - **The European Railway Industries are committed to tackling air pollution costs**
- **Infrastructure charges should be regulated at EU level for all transport modes**
- **New technologies should be used to foster road charging**
- **Revenues from the internalisation of external costs are an opportunity to improve the European transport network**

UNIFE calls upon the European Union to take action in order to internalise external costs of transport so as to **create a level-playing field between the different modes** and to **foster a modal shift in favour of rail**.



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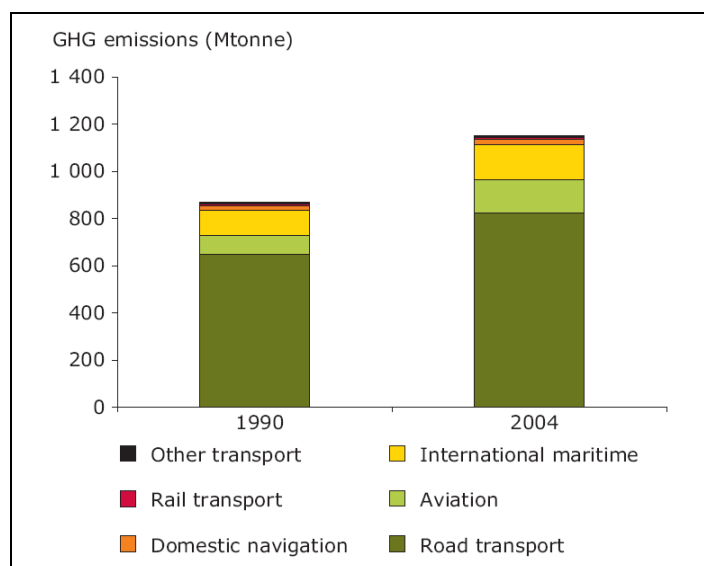
### UNIFE POSITION PAPER

December 2007

#### Introduction

UNIFE, the Association of the European Railway Industries, very much welcomes the opportunity to contribute to the consultation on the internalisation of external costs of transport.

The commitment of the European Railway Industries to more environmentally-friendly products and more sustainable production has been constant in the last decades and will continue in order them to keep their position at the forefront of sustainable mobility. The European Railway Industries provide **transport systems with the least external costs**.



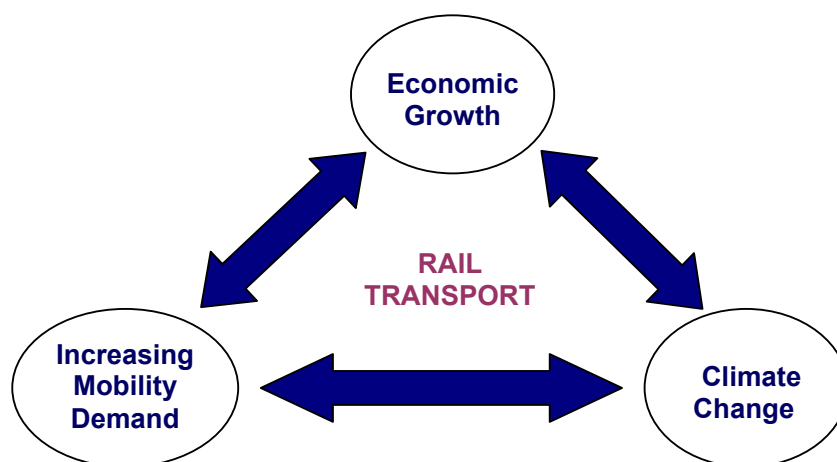
Source: EEA, 2007

Indeed, the European Railway Industries deliver efficient and energy-friendly transport solutions reflecting the mobility needs of the continent and the environmental challenges faced by the EU. According to several independent studies,<sup>1</sup> among the different modes of transport, railways involve the smallest external costs, which are, accidents, air pollution,

<sup>1</sup> IWW/INFRAS, *External Costs of Transport, Update Study, Final Report*, October 2004

noise, impact on nature and landscape, up- and downstream processes, urban effects, congestion and climate change. Moreover, as pointed out in a recent study by the European Environment Agency<sup>2</sup>, the environmental impact of ever-increasing transport volumes can be significantly reduced by shifting to more environmental-friendly modes, in particular rail.

Indeed, the increase in mobility demand across Europe, the challenge of environmental protection in the context of climate change and the necessity to support economic growth set the frame for the future development of transport in the European Union.



Therefore, **UNIFE calls upon the European Union to take action in order to internalise external costs mainly for road transport so as to create a level-playing field between the different modes and to foster a modal shift in favour of rail.**

This position paper provides an elaborate opinion on the background paper published by the European Commission and when possible, directly answers the relevant questions listed in the consultation.

#### **a. External costs of transport should definitely be internalised**

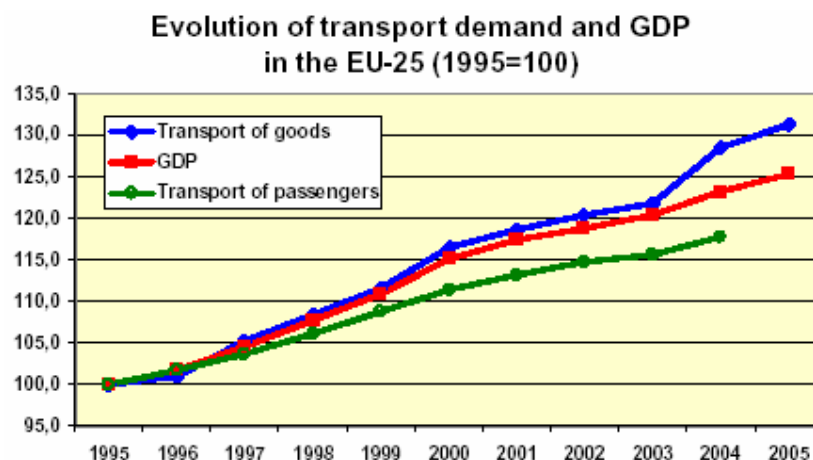
##### **Transport growth imposes costs on society**

Transport services play a central role in modern society and in the economy. Transport services account for 4.3% of EU25 value added and employ about 8.2 million persons. Over the past decade, transport has increased even quicker than economic growth. For example, freight transport has grown by 2.8% per year over the period 1995-2005 while real GDP has risen by 2.3% annually on the same span of time.

However, the ever-increasing transport demand in passengers and goods has led to an unsustainable rise in external costs putting growing pressure on the economic competitiveness of the EU and on our environment. As external costs are not included in the market price, they are not incurred by those who generate it. This means that when engaging

<sup>2</sup> European Environment Agency, *Transport and environment : on the way to a new common transport policy*, Report 1/2007, p.16

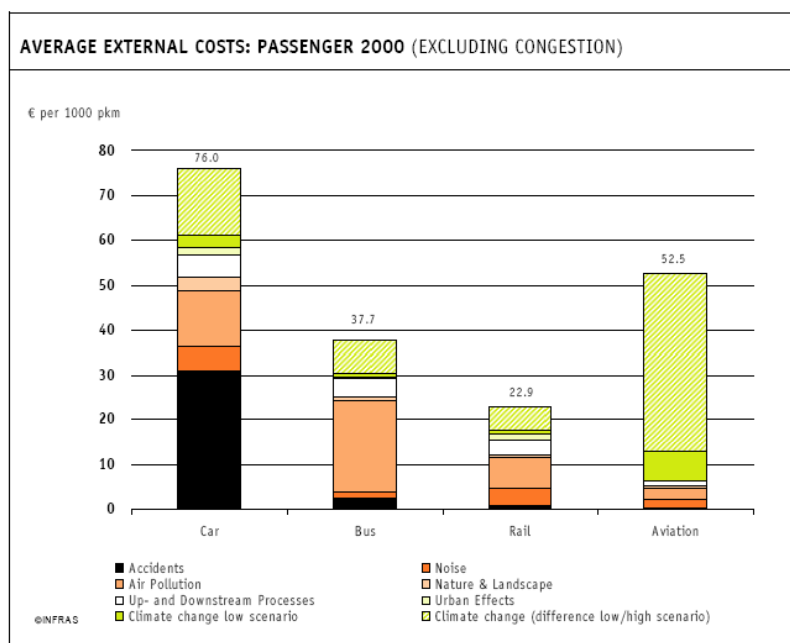
in a transport activity, an individual will incur private costs linked to the use of a mode of transport (tolls or fuel use for instance), but will not be taking into account nuisances imposed on others such as congestion, accidents, noise, pollution and emissions of CO<sub>2</sub>. However, the growing proportion of external costs linked to the increase in mobility demand endangers the sustainability of transport.



Source: DG TREN

### **Road and air transport impose the most external costs on society**

As it is proved that road and air transport produce the most external costs, UNIFE believes that and that internalisation policy options should primarily focus on them.



Source: IWW / INFRAS, 2004

As this graph shows, rail is the mode of transport which produces the least external costs compared to the other modes of transport. Cars create three times as much external cost as trains, aviation more than twice as much. For example, in Germany alone, more than 90% of the total reported external costs in 2005, representing about 76 billion euros, were allocated to road transport (private cars, buses and trucks)<sup>3</sup>. However, external costs such as congestion, accidents, noise, global warming and air pollution, are not incorporated into the price for mobility. Current charging systems do not represent the impact of the different modes of transport, especially road transport, on the environment and society.

Internalisation is a way to attribute external costs to users and to ensure that prices paid by transport users reflect social costs, namely private and external costs. Indeed, the costs of transport can be split into private/internal costs (those directly borne by the person engaged in transport activity) and external costs (i.e. those that are imposed on others but not supported by the user). **UNIFE calls on the European Commission to propose a framework for the internalisation of external road costs according to the “polluter-pays-principle” and which would remove the current inequalities between the different modes of transport.**

**The internalisation of external costs of transport is highly beneficial for the economy.** It is strongly needed so as to ensure sustainability in transport. For example, the Swiss distance-based toll system has the highest km-charge in Europe and covers all roads in the country. This has not prevented Switzerland to raise in the global competitiveness rankings to become the most competitive economy in the world in 2006-2007 according to the World Economic Forum<sup>4</sup>. Whilst the ranking is based on a large number of factors, Switzerland is also ranked best in the world in terms of overall infrastructure quality and railway infrastructure development, which contribute to the overall competitiveness rating. Therefore, the argument that internalisation would act as a brake against economic growth does not rely on sound economic reasoning.

Rail transport has a lot to gain from the internalisation of external costs of transport. Indeed high-speed inter-city passenger services are increasingly drawing the attention of transportation planners and policy makers throughout the world. Europe is investing heavily in expanding its high-speed network. By 2020 it will stretch from Portugal to Poland. London and Paris are within day-tripping distance of each other, a little more than two hours apart. Also, travelling by train is far more convenient than by plane when considering the long and strict security checks at European airports. There are also fewer concerns for trains, which are not beholden to delays caused by bad weather, slow baggage handling, crowded runways and air traffic. These two elements, fast development of high-speed lines and the gain of time achieved, strongly play in favour of rail transport against other modes. Moreover, according to a received survey<sup>5</sup>, high-speed lines in the UK are capable of delivering substantial economic benefits, covering costs by a ratio of between 1.9 and 2.8 to 1. Also the British high-speed line network is improving the economic performance of regions in the Midlands the North, and Scotland that are currently lagging behind. **UNIFE therefore calls upon the European Commission to consider the benefits of high speed rail lines on the whole society in its internalisation exercise.**

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<sup>3</sup> INFRAS 2007, *Externe Kosten des Verkehrs in Deutschland*, Aufdatierung 2005 im Auftrag der Allianz pro Schiene, Berlin

<sup>4</sup> World Economic Forum 2007, *Global Competitiveness Report*

<sup>5</sup> Atkins, *High Speed Line Study*, Summary Report

## **b. UNIFE contribution to the policy options debate**

### **The internalisation of congestion costs should focus on road transport**

There are numerous kinds and causes of congestion:

- Changes in road capacity due to unplanned events such as accidents
- Changes in road capacity due to planned events such as road works
- Demand exceeding design capacity

In general, the focus lies on the last cause. Marginal external congestion costs are present whenever an additional vehicle reduces the speed of other transport users thus leading to time losses.

#### **UNIFE considers the proposal to introduce scarcity charges in rail transport unfair.**

Indeed, the infrastructure manager is in charge of allocating the use of tracks to the different railway operators. Rail transport is currently the only mode to be regulated at EU level for charging of infrastructure and allocation of path (Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification). This directive provides that: "Charges for the use of railway infrastructure shall be paid to the infrastructure manager and used to fund his business", "the charges for the minimum access package and track access to service facilities shall be set at the cost that is directly incurred as a result of operating the train service". Moreover, Directive 2001/14 already allows charging external costs and congestion (article 7.4). To introduce a scarcity charge on top of what railways are already paying to be granted access to tracks would amount to double charging railway operators for the use of existing capacity.

UNIFE agrees that road congestion is heavily dependent on time and location. More specifically, congestion will be different between urban and non-urban areas. Therefore, **UNIFE supports differentiated charges for road congestion levied on all roads.** Charges should at least be set at the level of marginal congestion costs and should not only address Trans-European Networks in order to avoid traffic diversion. There is indeed clear evidence that traffic is diverted on parallel roads and this is not only the case within the countries concerned. In order to prevent vehicles from avoiding payment of tolls by using secondary road network, Germany decided to include also 3 federal highways ("Bundesstrassen") in the LKW-Maut scheme. There was indeed clear evidence that a part of the German traffic was reported on the motorways of the neighbouring French region Alsace, which have seen an increase of 20% in heavy goods traffic.

UNIFE considers it crucial to tackle road congestion in European cities. Therefore, **the European Railway Industries support the introduction of urban road charging schemes in major cities based on the model of London.** The London central access toll system was introduced in 2003. Before this date, the average speed of traffic moving through central London had fallen to below three miles per hour. Today traffic flow has increased to ten miles per hour. In this system, the revenues from congestion charging are mainly used to support the public transport system. A considerable improvement in the scale of the public transport network and of its use as well as a clear reduction of GHG emissions (-19%), energy consumption (-20%), NOx and PM10 emissions (-16%) in the Greater London area have already been reached. According to the Congestion Charging Office, road safety has also improved, with up to 70 fewer personal road injuries per year as a direct result of congestion charging. Since 2003, the toll has been raised and the cordon has been expanded to the west of the British capital to cover parts of Westminster, one of the most congested areas in the UK.

UNIFE also believes that a major part of congestion problems in European cities could be tackled through the **enlargement of the scope of the Eurovignette directive by introducing an urban dimension** to the current text. Indeed, the current state of the Directive 2006/38 sets rules for Member States that are willing to introduce user charges or tolls on roads belonging to the Trans-European Road network (TERN). The text leaves Member States free to decide on any road pricing scheme outside the scope of the Directive.

### **Accidents are mainly a road cost**

Accident costs refer to material damages, administrative costs, medical costs, production losses, pain and suffering caused by traffic accidents in monetary values.

**UNIFE believes that total road accident costs should be allocated to road transport and be fully internalised.** According to the CARE database (European Road Accident Database), road traffic accidents in the Member States of the European Union annually claim about 43,000 lives and leave more than 1.8 million people injured, representing estimated costs of 160 billion euros. Far fewer deaths are caused by rail: there were 105 killed in rail accidents in 2005. In those countries for which data are available, most fatalities are registered in accidents occurring at railway level crossings. Indeed, approximately 85% of the fatalities and 65% of injuries in rail accidents are non-rail users, mainly road users not respecting stops at crossings. Road is the least safe mode of transport (road accidents represent the main cause of death for people under the age of 40) therefore it should pay the price of it. Today, accident costs are only partially internalised by drivers through risk oriented insurance premiums.

Therefore **UNIFE supports the expansion of insurance liabilities so as to cover total costs of road accidents.** Insurance companies currently own most information on cost drivers and are able to pass them on vehicle's drivers through differentiated premiums according to their accident risk profile.

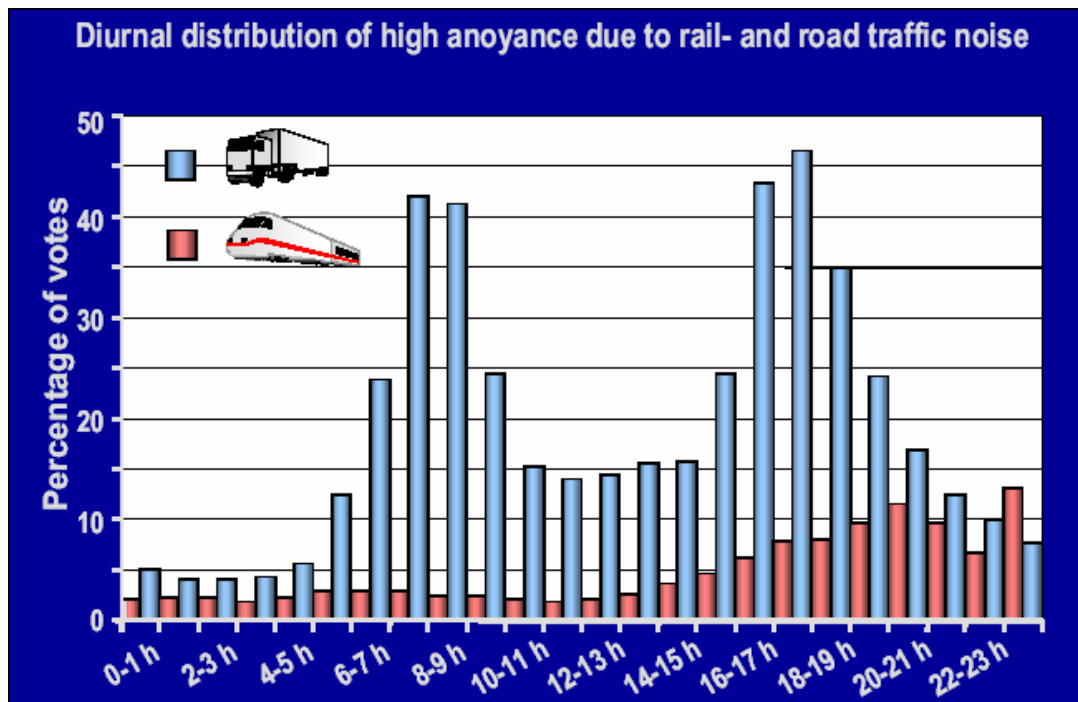
### **The Rail Supply Industry addresses widely the issue of noise**

Noise emissions of transport activities affect individuals mainly in two ways:

- negative physiological effects such as for example the change in heart rate, blood pressure, inducing measurable increases in heart attack risk;
- negative psychological effects such as annoyance, disturbance of communication, insomnia, loss of mental productivity.

The number of annoyed citizens in the European Union caused by noise pollution is increasing. The European Commission Green Paper on the Future Noise Policy (1996) pointed out that *"around 20 percent of the Union's population or close on 80 million people suffer from noise levels that scientists and health experts consider to be unacceptable, where most people become annoyed,... an additional 170 million citizens are living in so-called grey areas where the noise levels are such to cause serious annoyance during the daytime..."*. Transportation is considered as one of the major elements of noise pollution. Permanent noise situations have many consequences on people's health such as sleep disorders or cardiovascular diseases. Therefore, UNIFE calls for taking into account individual noise perception of the different modes of transport into the level of differentiated charges.

A survey by the German Ministry for Economics and Technology shows that 70% of the total noise disturbed German population suffers from noise caused by road transport, 40% by air traffic, merely 20% by rail. The nuisance caused by waterborne traffic is considered to be negligible. This study also proves that the diurnal distribution of irritation due to rail and road traffic noise is significantly different. Road traffic noise is radically higher during the whole duration of the day.



Source: German Ministry for Economics and Technology

UNIFE agrees that the perception of noise varies according to the noise class of the vehicle/ train/ plane and according to the location and time (day/night). Therefore, it encourages and indirectly supports, through the Quiet City project, the requirement for EU Member States to establish noise maps by the end of 2007 and action plans for the critical areas by 2008.

**UNIFE encourages the Member States to submit noise mapping to the European Commission as foreseen by the end of 2007** so as to analyse the possibility to impose differentiated charges in noisy areas. However, a study by the German Environment Department<sup>6</sup> shows that wheel rail noise is perceived as imposing fewer nuisances on people than road traffic and neighbourhood disturbances.

**UNIFE took part in the European Commission consultation on rail noise abatement** measures addressing the existing fleet earlier this year. It is important to note that rail manufacturers are currently fully complying with the existing European Commission Decision on rolling stock noise (2006/66/EC). However, the European Railway Industries would like to emphasise the need to expand the scope of releasing funds for noise abatement measures to the entire railway system (all rolling stock and infrastructure). UNIFE agrees that financial support for the retrofitting at national as well as at European level could be a positive measure in achieving an overall noise reduction.

<sup>6</sup> Umweltbundesamt 2006, Ökonomische Bewertung von Umweltschäden, Methodenkonvention zur Schätzung externer Umweltkosten



UNIFE would like to outline that **rail transport noise is already addressed through a wide range of instruments**. Moreover, major EU-funded projects in the framework of the Sixth Framework Programme (FP6) are currently dealing with noise reduction. UNIFE and its members are actively taking part in the Silence and Quiet City projects. Additionally, UNIFE started to set up a new research project on rail noise reduction taking into account the European Commission priorities and the urgency of developing composite brake blocks. However, research is not only needed to “place regulation into service”. Initial research is needed to adapt reasonable regulation. Research and policy form an interactive loop. UNIFE has a close cooperation with the European Rail Research Advisory Council (ERRAC). ERRAC aims at revitalising the European rail sector and making it more competitive by fostering increased innovation at European level. The Strategic Rail Research Agenda of ERRAC was published in June 2007, where 7 priority topics were stated. Environment is listed as one of the priorities that also covers noise with high preference. Research on noise and vibration must take into account the contribution of FP6 and the NOEMIE project to the delivery of the revision of the CR NOISE TSI (2006).

### **Sustainable mobility requires the internalisation of climate change costs**

Among the different transport modes, road transport is by far the largest emission source (93% of total greenhouse gas emission of transport). Emissions have increased continuously both for passenger transport (27% increase between 1990 and 2004) and for freight transport (51% increase between 1990 and 2003). The current state of automotive technology is not solving all the damage road transport currently causes. Moreover, the will of the car industry to implement CO<sub>2</sub> reduction efficient measures is obviously lacking. Indeed, the 1998 voluntary agreement between ACEA (the EU's Automobile Manufacturers Association) and the Commission included a commitment by carmakers to achieve a target of 140g/km by 2008. However, between 1995 and 2004, average CO<sub>2</sub> emissions fell only from 186g/km to 161g/km. The Commission therefore noticed that voluntary commitments would not achieve their target. Therefore, **UNIFE supports the Commission stated intention to set a binding target for new cars of 130g/km by 2012**. UNIFE also backs the proposal of the Commission to encourage Member States to stimulate the purchase of fuel-efficient vehicles via car taxation and a review of labelling rules, to include indications about cars' annual running costs, fuel consumption and possible vehicle CO<sub>2</sub> tax levels, in order to raise consumer awareness.

As for air transport, its CO<sub>2</sub> emissions are growing faster than emissions from any other transport modes. Between 1990 and 2004, an emission increase of 86% was witnessed in international aviation (EEA, 2007). As a first step, **UNIFE welcomes the decision of the EP Environment Committee to include all flights in the carbon trading scheme as of 2010**. This is one year earlier than the Commission had initially proposed (Directive amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community). The EU Emissions Trading Scheme targets the biggest CO<sub>2</sub> emitters, notably large stationary installations such as power stations. As a consequence, unlike road or air transport, rail transport is already affected by the ETS through the inclusion of the energy power industry in it. Therefore up to now, railways are the only mode of transport to be affected by the EU-ETS. UNIFE also welcomes the statement of the airline sector to go for zero carbon-dioxide emissions by 2050.

In order to allow the establishment of a level-playing field, the European Commission should take urgent action on aviation, the most under-taxed of all modes of transport. More

specifically, it should launch a discussion on (the exemption of) VAT on air tickets, and try to achieve this through the system of ticket taxation that a number of member states have already introduced (the Dutch tax, as high as 45 euros for extra-EU trips, is presented at bringing environmental benefits by reducing the impact of aviation on climate change). UNIFE is also calling upon the Commission to review the Energy and Fuel Taxation Directive (Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity) so as to end the kerosene exemption regime air transport is currently benefiting from.

VAT rates on passenger tickets (in %)											
	BE	DK	DE	ES	FR	IT	NL	UK	CZ	HU	PL
<b>Domestic transport</b>											
Air	6	ex	19	7	5,5	10	19	0	5	20	7
Maritime	6	ex	19	7	5,5	10	6	0	5	N/A	7
Inland waterways	6	ex	19	7	5,5	10	6	0	5	20	7
Rail	6	ex	19	7	5,5	10	6	0	5	20	7
Road	6	ex	19	7	5,5	10	6	0	5	20	7
<b>Intra- and extra-EU transport</b>											
Air	0	0	0	0	0	0	0	0	0	0	0
Maritime	0	0	0	0	0	0	0	0	0	0	0
Inland waterways	0	N/A	7	7	5,5	0	6	N/A	0	N/A	0
Rail	0	0	19	7	0	0	6	0	0	0	0
Road	0	0	19	7	0	0	6	0	0	0	7

Source: DG TAXUD, 2007

**UNIFE calls for action in order to acknowledge rail as the cleanest mode of transport compared to road and air.** To take a simple example: every journey made by train instead of by car in Germany reduces CO2 emissions by two thirds; for a train journey instead of a flight, CO2 emissions are as much as 70% lower per passenger. Rail is the only means of transport capable of challenging the effect of climate change without hindering economic growth. The United Nation's Intergovernmental Panel on Climate Change<sup>7</sup> declared that shifting transport from road to rail is one of the key measures in fighting the negative effects of transport on the environment. Indeed, according to the Panel, there is a 90% likelihood that greenhouse gas emissions are altering the climate and such emissions must peak by 2020.

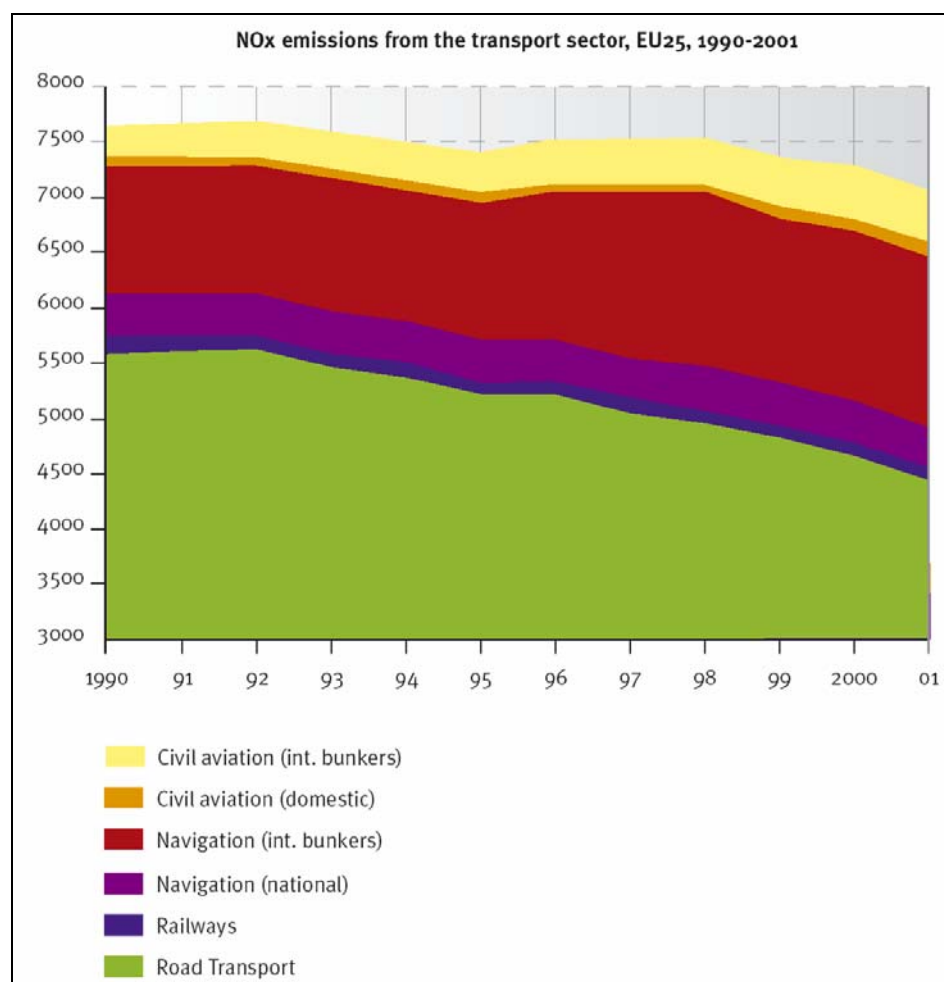
As far as the internalisation of climate change costs are concerned, pricing of CO2 emissions is crucial. Unfortunately, UNIFE sees here the EC consultation document as very disappointing since it does not provide the stakeholders of the transport sector with a shadow price range for the ton of CO2 emitted. However, the document quotes the Stern Report (2006) as a reference for warning against potential impacts from climate change. In the climate change debate, the Stern Report is becoming a benchmark applied across the board. UNIFE considers that the pricing of the ton of CO2 should be set at its most reasonable level taking into account the impact of global warming on transport sustainability requirements.

<sup>7</sup> Working Group III contribution to the Intergovernmental Panel on Climate Change, Fourth Assessment Report, Climate Change 2007: Mitigation of Climate Change, Summary for Policymakers, p. 14 (available at: <http://www.ipcc.ch/SPM040507.pdf>)

The current price of 20 Euros per ton of CO<sub>2</sub> emitted, following the Kyoto rules, is definitely too low, especially in the light of recent studies which provide arguments for much higher values of CO<sub>2</sub>, up to 200 Euro.

### **The European Railway Industries are committed to tackling air pollution costs**

Air pollution costs refer to the costs of emissions of particulate matter, carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>) and sulphur dioxides (SO<sub>2</sub>). However, air pollution costs depend on the characteristics of the engine, speed, operating practice and fuel type. Among surface transport modes, road transport and international waterway navigation have the highest pollutant emissions (NO<sub>x</sub>, PM). Waterway navigation emissions increased between 1990 and 2001, whilst road transport emissions decreased. Rail's share of emissions is comparably small (1-3%).



Source : EEA, Term 2003 03 EEA 31

Although road transport is considered to be the main polluter, air pollutant emissions from diesel-powered locomotives and railcars, despite their small numbers, are increasingly attracting the attention of public authorities. **UNIFE would like to stress that the European Railway sector is working hard on the electrification of the remaining diesel lines.**

UNIFE however calls upon the European Commission not to produce additional regulation as far as rail air pollution costs are concerned. **Air pollution costs in rail transport are already tackled in the Non-Road Mobile Machinery (NRMM) Directive 97/68/EC.** The scope of the Directive has been extended to cover all new diesel engines for railway vehicles. Stage IIIA limit values for NOx and PM10 emissions came into force at the beginning of 2006 for railcars and will come into force by 2009 for all types of locomotives. Stage IIIB limit values will come into force in 2012 for railcars and locomotives and particularly tightens PM10 limits by around 90% relative to Stage IIIA. A technical review of the Stage IIIB limit values will be carried out by the end of 2007. In particular this review will examine the progress made in developing reliable technology to meet the Stage IIIB limits on all NRMM applications, and if necessary propose exemptions or derogations.

In addition to the new limits provided for in the NRMM Directive, **UNIFE is participating in the “Rail Diesel Study”** in collaboration with the International Union of Railways (UIC), the Community of European Railways (CER) and the European Association of Internal Combustion Engine Manufacturers (Euromot). This study provides a detailed assessment of technical and operational measures and strategies that could be used to reduce NOx and PM10 emissions from diesel traction units across Europe.

### **Infrastructure charges should be regulated at EU level for all transport modes**

There are three categories of infrastructure costs which can vary with the use of the infrastructure:

- operation costs which are undertaken to keep infrastructure open to traffic
- maintenance costs which are the preventive measures to avoid degradation
- renewal costs which are expenses to bring infrastructure back in original condition.

**Rail transport is currently the only mode to be regulated at EU level for charging of infrastructure.** Indeed, Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification provides that the charges for the minimum access package and track access shall be set at the cost that is directly incurred as a result of operating the train service. These charges are to be paid to an infrastructure manager which uses these revenues for financing its own business. On the other hand, infrastructure charges for road transport are optional. Indeed, the current Eurovignette only allows EU member states to levy charges on heavy goods transportation vehicles of more than 3.5 tonnes, therefore the implementation is left to the good will of member states governments. As for aviation, airport charges are levied in order to cover the cost of providing facilities and services to airlines and are a source of revenue for the airport. But no European rule is currently regulating the level and the composition of these charges. These systems are still in many instances imposed and governed by the national authorities.

UNIFE is therefore calling on the European Commission to use its competences to regulate road infrastructure charges at EU level. This implies notably to oblige Member States to introduce road pricing on all roads for all vehicles (not only lorries over 3.5 tonnes).

Rail infrastructure renewal and maintenance are often described as being more expensive than road. However, the current state of the economic research now allows comparing in a consistent way the costs of creating additional capacity using means across both road and rail.

**Average infrastructure costs for road and rail  
(Euro/tonkm)**

	Road	Rail
<b>Renewal costs</b>	0.036-1.59	
<b>Renewal and maintenance</b>	0.059	0.0028-0.0036
<b>Maintenance</b>		0.0021-0.0052

Source: GRACE, 2007

The table above (intermediary results of the GRACE project) shows very well that renewal and maintenance costs of rail infrastructures are on average 20 times lower than those required for road infrastructure. Also, it can then be derived from the Invensys Rail study “Transport Capacity Economics” that **train fleet renewal and improvement, such as train lengthening, are more cost effective in comparison to road new build or widening scheme.**

#### **c. New technologies to foster electronic road charging**

Electronic charging allows for differentiation and can lead to the concrete implementation of marginal cost pricing in transport. Furthermore, electronic charging also allows having an integrated approach of external costs, namely it can include a charge for all external costs for freight and passenger transport.

Many European countries have already introduced electronic charging on their road network. **UNIFE supports notably the German electronic system** introduced for the LKW-Maut. This system is based on the GPS/GSM technology. Satellite navigation locates the vehicle via an on-board unit, namely checks whether it is driving on a charged motorway or on another road. A cellular network communicates the fees to be paid to a central office, which then invoices the users. The technology is real innovation and has never been used for tolling. The system is working well and requires only limited roadside equipment.

#### **d. Revenues from the internalisation of external costs : an opportunity to improve the European transport network**

Until now, distance-related vehicle charges have been implemented by only a handful of countries in Europe. France, Italy, Portugal and Spain are applying tolls on parts of their motorway networks. Austria and Germany have more recently introduced charging systems on a wider scale, on all motorways. However, only Switzerland has been levying tolls, differentiated according to the vehicle laden weight and emission class, on all roads since 2001.

**UNIFE is calling upon the European Commission to consider the Swiss road charging example as a model for the revision of the Eurovignette Directive.** This system has indeed had many positive impacts. After a steady increase in vehicle kilometres for over 30 years, the trend has been clearly broken by the introduction of the Swiss heavy vehicle fee. In the first two years after the introduction of the scheme, vehicle kilometres fell by 5% per

year<sup>8</sup>. The total number of trucks crossing the Alps also continues to fall and the proportion of empty trips in long-distance commercial freight transport decreased dramatically. The Swiss targeted transport policy aims at reducing road freight traffic and promoting the transfer of goods to railways.

The Swiss emission-dependent charging scheme also has had a clear effect on the composition of the national vehicle fleet. Truck sales in Switzerland have increased steadily since 2000 mainly because emissions differentiation in the fee rate has led to a preference for new vehicles meeting Euro-IV and Euro-V pollution standards. Moreover, it should be stressed that all roads are subject to charges thus avoiding traffic diversion to occur on secondary road network.

**UNIFE is taking a stand in favour of the Swiss system because its revenues are used for financing rail developments.** The population even voted twice at referenda to support this scheme. In Switzerland, the main goal of transport policy, namely the transfer of transport from road to rail, has even been anchored in the Federal Constitution in 1994 under the «Alpine Protection Article». Indeed the Swiss Parliament and the electorate decided to use the revenues from the heavy vehicle fee to increase the impact of transport policy. Today, two-thirds of the charging scheme income, which reaches about 1.3 billion Swiss francs annually, is flowing into the financing of large public transport projects. For instance, the Swiss toll is the most important means of funding the New Alpine Rail Transversal. According to the Department of Environment and Transport, *“by strengthening the competitiveness of railways, the fee ensures that the capacity of the rail infrastructure are used optimally and in a way that covers costs”*. However, the heavy vehicle fee is only one of the components of the measures’ package to strengthen the position of rail in the country. Switzerland has been making fundamental modifications to update its rail system.

Measure	Content	Period
AlpTransit	New transalpine rail tunnel through the Gotthard and Lötschberg	Under construction
Transfer Law	Additional funds to promote rail freight traffic form part of the complementary measures. Intermodal transport is the future market to be seriously considered and an important pillar in the modal shift policy supported by the State.	These measures are planned for the period 2000-2010.
Rail Reform	The rail reform has increased inter-modal competition. The SBB has been refinanced.	In force since 1999

Source: ARE, 2004

<sup>8</sup> ARE 2004, Swiss Federal Office for Spatial Development, Department of the Environment, Transport, Energy and Communications : *Fair and efficient : The distance-related heavy vehicle fee in Switzerland*

## Conclusion

Today, the rail sector suffers from an unfair position vis-à-vis other transport modes such as road and air traffic. Railway operating companies are faced with infrastructure charges and numerous taxes, which are not charged evenly to other modes of transport. This impedes the normal process of competition between them and distorts consumer choice.

UNIFE calls for a reform of the high tax burden that rail transport is suffering from, especially when compared to road and air transport. The removal of the strong taxation inequalities will contribute to building a level-playing field between the different modes of transport.

	<b>Railway transport</b>	<b>Road Transport</b>	<b>Air Transport</b>	<b>Maritime and Inland waterways transport</b>
<b>VAT on International Passenger Tickets</b>	YES	YES	NO	YES
<b>Energy and Fuel Tax</b>	YES *	YES	NO ** (De jure total exemption)	NO (De jure total exemption)
<b>Emissions trading scheme</b>	NO	NO	Under discussion	NO
<b>Infrastructure charges</b>	YES	Optional	Only for airports	Only for ports

Source: UNIFE, 2007

\* Energy and Fuel Tax on electricity and diesel traction with reductions or exemptions in certain Member States

\*\* Optional reduced tax for domestic flights (Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity)

UNIFE supports the idea of promoting environmental tax reforms at a national level, including the introduction of hypothecated taxation on motor vehicles (both ownership and usage) with the additional resources rose being used to support more sustainable modes, particularly rail transport.

UNIFE supports the concept of intermodality and a level-playing field between the different modes of transport. Therefore, there is a strong need for a framework directive to establish the principles of infrastructure charging and a pricing structure, including a common methodology to incorporate internal and external costs and one aiming to create the right conditions for fair competition. In the case of road transport, charges should vary according to the vehicle's environmental performance (exhaust gas emissions and noise), the type of infrastructure (motorways, trunk and urban roads), distance covered, axle weight and degree of congestion. Therefore UNIFE calls for a reform of the Eurovignette Directive that would set a framework for the internalisation of external road costs according to the "polluter-pays-principle" and which would remove the current inequalities.

*UNIFE, the European Railway Industries, is based in Brussels. Its members cover a wide range of companies including system integrators, infrastructure, subsystem and component suppliers.*

*The industry generates around €60 billion in revenue per year and directly employs 130,000 people. UNIFE members manufacture 70% of the world-wide production of rail equipment. UNIFE has 19 National Organisations as associated members representing another 900 railway companies.*

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