

A GENERAL INFORMATION		
A 1	Category	Pricing
A 2	Subcategory	Infrastructure Charging / Access Restrictions Schemes
A 3	Transport policy measure (TPM)	Railway infrastructure charges directive (2001/14/EC)
A 4	Description of TPM	The European Union (EU) encourages the establishment of fair and efficient charging systems for the use of infrastructure. These charging systems must allow for fair competition between different transport modes. Investment in railway infrastructure is desirable. Infrastructure charging schemes will provide incentives for infrastructure managers to make appropriate investments where economically attractive. Charging schemes send economic signals. It is therefore important that those signals to railway undertakings are consistent and lead to rational decisions [4].
A 5	Implementation examples	The Directive 2001/14/EC clearly states [4] that charges must be based on costs directly incurred as a result of operating the train service. This leaves room for interpretation, resulting in great diversity in the implementation of the directive. A wide variety of both structure and level of charges is found. Most countries have implemented a simple charge per train kilometer, differentiated by traction type, weight, speed and axle load of the train. Some countries (ie. Switzerland) also charge for train planning and operations, and even add a congestion charge (ie. Italy). In addition, Switzerland also has a surcharge for dangerous goods. Added to the basic track access charges, some countries have also charges for supplementary services (ie. Sweden) like passenger information, the use of stations, depots, marshalling yards, etc. [6]
A 6	Objectives of TPM	Paving the way for optimal use of existing rail infrastructure. Encouragement of investment in railway infrastructure. Provide incentives for infrastructure managers to make appropriate investments. This transport policy measure adopts, as far as possible, the "user pays" principle. Thus allowing private investors to charge the full cost of construction and maintenance. This creates acceptable revenue streams, which in turn will make railway infrastructure investments more attractive to private capital.
A 7	Key changes concerning:	
A 7.1	- Choice of transport mode / Multimodality:	Undetermined. Due to higher costs, it seems likely that the modal share of rail will be under pressure from road and inland water transport. However in other transport modes similar measures regarding the "user pays principle" will come in action, making it difficult to provide modality trends. Plans are to adopt the "user/polluter pays principle" in all transport modes [10]. That is beneficial to railways as it generates a relatively small amount of additional costs (like pollution, climate change, health hazards, etc) compared to other modes. In that situation, railways become more competitive.
A 7.2	- Origin and/or destination of trip:	Undetermined
A 7.3	- Trip frequency:	Undetermined
A 7.4	- Choice of route:	Undetermined
A 7.5	- Timing (day, hour):	Undetermined
A 7.6	- Occupancy rate / Loading factor:	Undetermined. However, when transport costs increase it is likely that operators will try to cut their costs, in order to stay competitive. Due to the variety in the type of national charges (like weight charges, axle load charges, track scarcity, etc) it is difficult to provide a trend.
A 7.7	- Energy efficiency / Energy usage:	Undetermined
A 8	Main source	Sorted numerically: [4] [5] [6] [7]

B IMPACTS																																																																						
B 1	OVERVIEW ON IMPACTS	<table border="1"> <thead> <tr> <th colspan="15">AFFECTED SEGMENTS</th> <th colspan="2">Geographical level</th> <th colspan="2">Source</th> </tr> <tr> <th colspan="5">Passengers</th> <th colspan="5">Transport operators</th> <th rowspan="2">Employees in transport</th> <th rowspan="2">Residents</th> <th rowspan="2">Economy</th> <th rowspan="2">Public bodies</th> <th rowspan="2">Society</th> <th rowspan="2">1st level</th> <th rowspan="2">2nd level</th> <th rowspan="2">Source of assessment</th> <th rowspan="2">Spatial level of source</th> </tr> <tr> <th>Road</th> <th>Rail</th> <th>Air</th> <th>Public transport</th> <th>Slow modes</th> <th>Road</th> <th>Rail</th> <th>IWW</th> <th>Air</th> <th>Maritime</th> <th>Public transport</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	AFFECTED SEGMENTS															Geographical level		Source		Passengers					Transport operators					Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport																			
AFFECTED SEGMENTS															Geographical level		Source																																																					
Passengers					Transport operators					Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source																																																				
Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime										Public transport																																																			
B 1.1	Summary	No impact in general. However, charges per train kilometer show a great variety when countries are compared. From less than 1 euro per train kilometer in Scandinavia to charges of up to 11 euros per train kilometer for freight in Eastern Europe [2] [6] [8]. Some of these differences may be due to genuine differences in cost because of ground conditions, average train weight, age levels, etc. However, it is likely that much of the difference is due to differences in the degree to which governments are willing and able to bear the costs of infrastructure. Some countries aim at near full cost recovery, simply because of a shortage of government resources.																																																																				
B 1.2	Summary: Income groups	No impact																																																																				
B 1.3	Summary: Age groups	No impact																																																																				
B 1.4	Summary: Disabled people	No impact																																																																				
B 1.5	Summary: Gender groups	No impact																																																																				
B 1.6	Summary: Ethnic groups	No impact																																																																				

B 2 TRAFFIC IMPACTS																			
B 2.1	Travel or transport time																		
B 2.2	Risk of congestion																		
B 2.3	Vehicle mileage																		
B 2.4	Service and comfort																		
B 2.I	Overall impacts on social groups	No impact																	
B 2.II	Implementation phase	No impact																	
B 2.III	Operation phase	No impact																	
B 2.IV	Summary / comments concerning the main impacts	With respect to travel or transport time and risk of congestion: there is a positive effect. This is because aspects like trip planning is scheduled (with scarcity in mind) and reservations have been made for the use of ancillary services (such as station use, marshalling yards, etc). With respect to service and comfort: in the case of fixed charges per passing, there is a tendency to run the longest possible trains to reduce costs. An example is new infrastructure facilities (ie. bridges) where an additional charge is levied, like the Oresund Bridge and Storebelt Bridge connecting Sweden-Denmark-Germany. Freight trains are charged about 1.500 euro extra [6] for passing these bridges. In this way Denmark and Sweden are recovering the building costs. However, this furnishes a powerful incentive to run the longest possible freight trains, in order to reduce bridges charges. But this is at the expense of a reduced service frequency for freight shippers. By comparison, a simple charge per gross tonne-kilometer would have had no effect on the length of freight trains, and would not affect service levels.																	
B 2.V	Quantification of impacts	Due to the diversity of the Directive's implementation, a quantification of impacts can not be provided.																	

B 3	ECONOMIC IMPACTS	AFFECTED SEGMENTS														Geographical level		Source			
		Passengers					Transport operators					Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime										Public transport
B 3.1	Transport costs		↗															R	N	S	I
B 3.2	Private income / commercial turn over																				
B 3.3	Revenues in the transport sector																				
B 3.4	Sectoral competitiveness		↗																		
B 3.5	Spatial competitiveness		↗																		
B 3.6	Housing expenditures																				
B 3.7	Insurance costs																				
B 3.8	Health service costs																				
B 3.9	Public authorities & adm. burdens on businesses																				
B 3.10	Public income (e.g.: taxes, charges)																				
B 3.11	Third countries and international relations																				
B 3.I	Overall impacts on social groups	No impact																			
B 3.II	Implementation phase	No impact																			
B 3.III	Operation phase	No impact																			
B 3.IV	Summary / comments concerning the main impacts	<p>In the case of fixed charges per passing, there is a tendency to run the longest possible trains to reduce costs (ie. train route between Sweden and Germany over the Oresund Bridge Storebelt Bridge). However, this leads to a reduced service frequency. A simple charge per gross tone-kilometer would have been better.</p> <p>The policy measure [4] leaves much room for interpretation. The implementation of the directive show great diversity [2] [6] [8] with results ranging from less than 1 euro per train kilometer (Scandinavia) to charges of up to 11 euros per train kilometer for freight (Eastern Europe). It is likely that some countries simply aim at near full cost recovery. Such differences in charges will continue to feed spatial competitiveness. Applying the "user pays principle" always results in higher transport costs. However, this principle will also be applied in other modes. Changes in costs, will keep competitiveness going.</p> <p>It is important to minimise distortions of competition which may arise from significant differences in charging principles: either between railway infrastructures or between transport modes. To ensure this, the EU made up financial principles [7] on behalf of free access to railway paths and to preclude cross-financing. These principle are:</p> <ul style="list-style-type: none"> * the principle of transparency * the prohibition of cross financing * the principle of cost bearing * the accountancy separation of passenger and freight transport * the principle of open access to tracks 																			
B 3.V	Quantification of impacts	Due to the diversity of the Directive's implementation a qualification of impacts can not be provided.																			

B 4	SOCIAL IMPACTS	AFFECTED SEGMENTS														Geographical level		Source			
		Passengers					Transport operators					Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime										Public transport
B 4.1	Health (incl. well-being)																				
B 4.2	Safety		↗																		
B 4.3	Crime, terrorism and security																				
B 4.4	Accessibility of transport systems		↗																		
B 4.5	Social inclusion, equality & opportunities																				
B 4.6	Standards and rights (related to job quality)																				
B 4.7	Employment and labour markets																				
B 4.8	Cultural heritage / culture																				
B 4.I	Overall impacts on social groups	No impact																			
B 4.II	Implementation phase	No impact																			
B 4.III	Operation phase	No impact																			
B 4.IV	Summary / comments concerning the main impacts	<p>Directive 2001/14/EC [4] concerns a charging system for the use of rail infrastructure. It is important to note that charging and capacity allocation schemes permit for equal and non-discriminatory access to all infrastructure users in a fair and non-discriminatory manner. Capacity allocation and planning/allocation of ancillary services (such as marshalling yards), are likely to have a positive effect on safety. However, this is not yet quantified.</p>																			
B 4.V	Quantification of impacts	No impacts																			

B 5	ENVIRONMENTAL IMPACTS	AFFECTED SEGMENTS														Geographical level		Source			
		Passengers					Transport operators					Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime										Public transport
B 5.1	Air pollutants																				
B 5.2	Noise emissions																				
B 5.3	Visual quality of the landscape																				
B 5.4	Land use																				
B 5.5	Climate																				
B 5.6	Renewable or non-renewable resources																				
B 5.I	Overall impacts on social groups	No impact																			
B 5.II	Implementation phase	No impact																			
B 5.III	Operation phase	No impact																			
B 5.IV	Summary / comments concerning the main impacts	<p>Inclusion of for example a noise component in rail infrastructure charges, raises some problems. Noise is a non-marketed-good, the monetary value of noise abatement is therefore hard to calculate. Another difficulty is the estimation of the effect on the noise level that one extra train will create. The advantage of such infrastructure charges is that it provides operators with an incentive to reduce their noise emissions, pollutant emissions, etc. [1] [3] [12]</p>																			
B 5.V	Quantification of impacts	<p>A qualification of impacts can not be provided, because environmental aspects are difficult to formulate as monetary value in a unique and consistent manner. Various studies concerning the transforming of air emissions and noise emissions into monetary values are available [11]. However, such transforming and their results do not show full consistency as they depend on a variety of assumptions and/or situations. In general it can be said that environmental charges will eventually push operators towards reducing negative environmental impacts.</p>																			

C REFERENCES	
C 1	Other TPMs of this subcategory
	Area charging / cordon pricing (these concern urban road traffic)
C 2	References
	<p>International</p> <p>[1]= Hendik Andersson & Henrik Ogren, 2006: Noise Charges in Railway Infrastructure -- in Transport Policy, nr 14(3)</p> <p>[2]= Federico Antoniazzi, 2010: Infrastructure charging and project financing in the railway sector in France</p> <p>[3]= European Commission, 2007: Calculating Noise Charges in Railway Infrastructures</p> <p>[4]= European Parliament, 2001: Directive 2001/14/EC, on the allocation of railway infrastructure</p> <p>[5]= International Transport Forum / OECD, 2008: Charges For The Use Of RailInfrastructure</p> <p>[6]= Chris Nash, 2005: Rail InfrastructureCharges in Europe -- in Journal of Transport Economics And Policy, nr 39(3)</p> <p>[7]= Katalin Tanczos & Gyula Farkas, 2003: Railway infrastructure charging in Hungary</p> <p>[8]= UNIFE The European Railway Industries, 2008: Internalisation of external costs of transport</p> <p>[9]= European Commission, 2011: Roadmap to a Single European Transport Area, SEC(2011)391final</p> <p>[10]= European Commission, 2008: Strategy for the internalisation of external costs, COM(2008)435final</p> <p>[11]= CE Delft, 2008: Handbook on estimation of external costs in the transport sector</p> <p>National</p> <p>[12] Hendik Andersson & Henrik Ogren, 2006: Bulleravgift för järnvägsoperatörer</p> <p>Regional / Local</p> <p>--</p>