

**Charging for the railway infrastructure use during the last five years in  
Europe: state of the art and opportunities for revitalising the railways  
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## Abstract

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<b>Title:</b>	Charging for the railway infrastructure use during the last five years: state of the art and opportunities for revitalising the railways
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<b>Supervisor:</b>	Professor Andrés López Pita and Diego Fernández Belmonte

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The railway transport appeared in the first half of the nineteenth century, with the Industrial Revolution, and rose to be the primary mode of transport, stimulating the economy of most European countries. During the first half of the twentieth century, the railways were the monopolist terrestrial transport mode. From the end of the Second World War on, the role played by rail in transport market has been in constant decline.

Given the situation of the rail in the transport market, the European Commission has engaged in a long process of revitalising the railways. It was stated that in order to ensure efficient use of, and non discriminatory access to, the rail infrastructure, it was necessary to establish an appropriate set of charges for infrastructure use. The railway restructuring began in the early nineties with the publishment of Council Directive 91/440 on the development of the Community's railways and it followed a slow evolution until the publishment of the First Railway Package of Directives. One of the Directives composing this Railway Package was Directive 2001/14/EC, focused on the allocation of capacity and development of access charges for infrastructure. This Directive established the legislative framework for the railway infrastructure charging and, in consequence, the European countries have been implementing its conditions into national law during the last five years.

The form in which the implementation of the European Norms has been addressed, widely varies among the European countries. European Governments have been (and still are) implementing the EU Directives depending on their point of view over the failures and successes of the current railways organisation.

This dissertation is aimed at describing the current charging schemes applied in the European countries and assessing them from a qualitative point of view, while evaluating the degree of fulfillment of Directive 2001/14/EC as well as realizing a SWOT analysis.

Then, in this dissertation is given a general overview of the evolution of the railways and of the European Union policy on the rail transport mode. Afterwards, a selection of relevant countries is made in order to be able to describe, in a synthetic way, the charging schemes that they are currently applying.

The main issue treated in this dissertation is the assessment of the national charging scheme. This assessment has carried at two levels: assessment according to legislative framework and assessment according to economic principles. Previously to the assessment, it has been defined the methodology of assessment for each level. On the one hand, the methodology for the assessment according to legislative framework consists on selecting the main objectives and conditions established by Directive 2001/14/EC and on defining how these issues have been interpreted. On the other hand, the methodology for the assessment according to economic principles has been intentionally open and flexible in order to smooth the process of identification of issues that could go beyond the legal framework but which, at the same time, could be considered as strengths or weaknesses of the concerning charging scheme.

The assessment according to legislative framework consists on determining the degree of fulfillment of the main objectives and conditions selected by the national charging schemes. The assessment according to economic principles consists on a SWOT analysis, which is focused on determining the internal (Strengths and Weaknesses) and external (Opportunities and Threats) issues that distinguish each charging practice. After these two levels of assessment, it can be considered that the national charging schemes selected are totally characterized.



## Resumen

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<b>Título:</b>	5 años de tarifas por uso de infraestructura ferroviaria en Europa: estado del arte y oportunidades para la revitalización del ferrocarril
<b>Autor:</b>	Patricia Chica Herranz
<b>Tutor:</b>	Profesor Andrés López Pita y Diego Fernández Belmonte

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El transporte ferroviario apareció en la primera mitad del siglo XIX, con la Revolución Industrial, y se convirtió en el principal modo de transporte, potenciando la economía de muchos países Europeos. Durante la primera mitad del siglo XX, el ferrocarril fue el modo de transporte terrestre monopolista. Desde el final de la Segunda Guerra Mundial en adelante, el papel del ferrocarril en el mercado del transporte ha estado en constante declive.

Dada la situación del ferrocarril en el mercado del transporte, la Comisión Europea ha emprendido un largo proceso de revitalización del modo ferroviario. Se declaró que para garantizar un uso eficiente de, y un acceso no discriminatorio a, la infraestructura ferroviaria era necesario establecer un conjunto apropiado de tarifas por el uso de la infraestructura. La restructuración del ferrocarril empezó a principios de los noventa con la publicación de la Directiva 91/440 del Consejo sobre el desarrollo de los ferrocarriles comunitarios y continuó con una lenta evolución hasta la publicación del Primer Paquete Ferroviario de Directivas. Una de las Directivas que componían este Paquete Ferroviario fue la Directiva 2001/14/EC, enfocada en la adjudicación de capacidad y en la aplicación de cánones por el uso de la infraestructura ferroviaria. Esta Directiva establece el marco legislativo para la tarificación del ferrocarril y, en consecuencia, los países Europeos han estado implementando sus requerimientos en la legislación nacional durante los últimos cinco años.

La forma en que la Normativa Europea se ha implementado, varía ampliamente entre los países Europeos. Los gobiernos Europeos han estado (y aún están) implementando las Directivas de la Unión Europea en función de su particular punto de vista sobre los fracasos y éxitos de la actual organización de sus ferrocarriles.

Esta tesina tiene como objetivo la descripción de los diferentes sistemas tarifarios actualmente vigentes en los países Europeos y su evaluación cualitativa, considerando el grado de cumplimiento de la Directiva 2001/14/EC y realizando un análisis DAFO.

Como punto de partida, en esta tesina se da una descripción general de la evolución del ferrocarril y de la política de la Unión Europea sobre el modo ferroviario. A continuación, se realiza una selección de países significativos para poder describir, sintéticamente, los esquemas tarifarios que actualmente están aplicando.

La cuestión principal de esta tesina reside en la evaluación de los diferentes esquemas tarifarios. Esta evaluación se ha realizado a dos niveles: evaluación de acuerdo con el marco legislativo y evaluación de acuerdo con los principios económicos. Antes de la evaluación, se ha definido la metodología de evaluación para cada nivel. Por una parte, la metodología para la evaluación de acuerdo con el marco legislativo consiste en realizar una selección de objetivos y condiciones principales establecidos por la Directiva 2001/14/EC y en definir cómo han sido interpretados estos aspectos. Por otra parte, la metodología para la evaluación de acuerdo con los principios económicos se ha dejado abierta y flexible intencionadamente para facilitar el proceso de identificación de cuestiones que pueden incumplir el marco legal pero que, a la vez, se puedan considerar como fortalezas o debilidades del correspondiente esquema tarifario.

La evaluación de acuerdo con el marco legislativo consiste en determinar el grado de cumplimiento de los objetivos y condiciones principales por los esquemas tarifarios nacionales. La evaluación de acuerdo con los principios económicos consiste en un análisis DAFO, que se basa en determinar las cuestiones internas (Debilidades y Fortalezas) y externas (Amenazas y Oportunidades) que distinguen cada práctica de tarificación. Después de estos dos niveles de evaluación, se puede considerar que los esquemas tarifarios nacionales de los países significativos están totalmente caracterizados.





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## List of abbreviations

### Countries

AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
NL	The Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

### Infrastructure Managers

ADIF	Administrador de Infraestructuras Ferroviarias (ES)
AZP	Agencija za Železnice Promet Republike Slovenije (SI)
BD	Banedanmark (DK)
BLS	BLS AG (CH)
BV	Banverket (SE)
CFL	Société Nationale des Chemins de Fer Luxembourgeois (LU)
CFR	Compania Nationala de Cai Ferate (RO)
DB	Deutsche Bahn (DE)
EDISY	Ethnikos Diacheiristis Sidirodromikis Ypodomis (EL)
EVR	AS Eesti Raudte (EE)
GySEV	Győr-Sopron-Ebenfurti Vasút (HU)
HSZ	Holding Slovenske Železnice (SK)
IE	Iarnród Eireann (IE)
LDZ	Latvijas Dzelzceļš (LV)
LG	Lietuvos geležinkeliai (LT)
MAV	Vasúti Pályakapacitás-Elosztó Kft (HU)
NR	Network Rail (UK)
NRIC	National Railway Infrastructure Company (BG)
ÖBB	Österreichische Bundesbahnen (AT)
PLK	Polskie Linie Kolejowe, S.A. (PL)
REFER	Rede Ferroviaria Nacional (PT)
RFF	Réseau Ferré de France (FR)
RFI	Rete Ferroviaria Italiana (IT)
RHK	Ratahallintokeskus (FI)
SBB	Schweizerische Bundesbahn (CH)
SZDC	Správa Železniční Dopravní Cesty (CZ)
ZSR	Železnice Slovenskej Republiky (SK)





## 1. Introduction

The railway transport appeared in the first half of the nineteenth century, with the Industrial Revolution, and rose to be the primary mode of transport, stimulating the economy of most European countries. During the first half of the twentieth century, the railways were the monopolist terrestrial transport mode. From the end of the Second World War on, the role played by rail in transport market has been in constant decline.

Given the situation of the rail in the transport market, the European Commission has engaged in a long process of revitalising the railways. It was stated that in order to ensure efficient use of and non discriminatory access to the rail infrastructure, it was necessary to establish an appropriate set of charges for infrastructure use. The railway restructuring began in the early nineties with the publishment of Council Directive 91/440 and it followed a slow evolution until the publishment of the First Railway Package of Directives.

One of the Directives composing this First Railway Package was Directive 2001/14/EC, focused on the allocation of capacity and development of access charges for infrastructure. This Directive established the legislative framework for the railway infrastructure charging and, in consequence, the European countries have been implementing its conditions into national law during the last five years.

The form in which the implementation of the European Norms has been addressed widely varies among the European countries. European Governments have been (and still are) implementing the EU Directives depending on their point of view over the failures and successes of the current railways organisation. Therefore, there are countries that follow the conditions established by the directives but not the objectives of the Community's policy.

This dissertation is aimed at describing the current charging schemes applied in the European countries and assessing them from a qualitative point of view, while evaluating the degree of fulfillment of Directive 2001/14/EC.

In order to achieve this objective, this dissertation has been structured in the following chapters:

- General framework
- Description of national charging schemes
- Assessment methodology
- National charging schemes' assessment
- Conclusions

The first chapter, General Framework, seeks to show a general overview of the evolution of the railways and of the European Union policy on the rail transport mode. Then, it is described the development of the Community's Norms since the beginning of the nineties.

In the following chapter, Description of national charging schemes, the basis for charging are established while defining the main economic principles. Afterwards, it has been

necessary to choose a set of relevant countries which supposed a totally representative sample and their charging schemes have been described in a synthetic way.

The third chapter, Assessment methodology, is aimed at defining the methodology for the assessment of the current charging practices. Given that the assessment has carried at two levels, the methodology has been defined for each level. On the one hand, the methodology for the assessment according to legislative framework consists on selecting the main objectives and conditions established by Directive 2001/14/EC and on defining how these issues have been interpreted. On the other hand, the methodology for the assessment according to economic principles has been intentionally open and flexible in order to smooth the process of identification of issues that could go beyond the legal framework but which, at the same time, could be considered as strengths or weaknesses of the concerning charging scheme.

The following chapter, National charging schemes' assessment, is carried at the two mentioned levels. The assessment according to legislative framework consists on determining the degree of fulfillment of the main objectives and conditions selected by the national charging schemes. The assessment according to economic principles consists on a SWOT analysis, which is focused on determining the internal (Strengths and Weaknesses) and external (Opportunities and Threats) issues that distinguish each charging practice.

The final chapter, Conclusions, consists on describing the findings attained after the assessment of the actual national charging schemes. These findings are oriented on analysing the role of the railway infrastructure charging in the European rail reform, considering the degree of coherence of the charging schemes assessed and referring to the possible evolution of the current situation and the national charging schemes that could be taken as a reference.

## 2. General Framework

### 2.1. Introduction

This chapter seeks to establish the general framework where the rail sector is currently situated, so as to be able, in further chapters, to support and understand the different charging schemes adopted among the countries.

Then, it is important to emphasize the main causes that have led to the long process of the railway reform. Furthermore, the objectives of the EU policy on the revitalisation of the railways are summarized in order to understand the main concerns of the Community.

Moreover, the development of the Community's norms is described in a chronological order. This is helpful to understand the evolution experienced by these norms from the 1990's to the present time and, in parallel, also to be aware of the evolution of the railways in the same years.

Finally, a brief description of the implications of the Community's norms is done in order to evidence the wide variety of charging schemes that appeared since its implementation.

### 2.2. Background

As a starting point, it is important to understand the motivations of the European Community's railway reform. Over the years, rail has experienced an important loss of market shares relative to the road mode. This fact is due to external factors but especially is derived from the organisation of the rail sector in natural monopolies. (Transport & Mobility Leuven (2005))

Indeed, rail has characteristics which could make it an increasingly attractive form of transport in Europe: it is a reliable, safe, cheap and fast transport as well as an environmental friendly mode. However, there are some actions required to revitalise the rail sector so that it performs better and fully satisfies the society's demands. The railways need to become more efficient, customer oriented and attractive to users but less expensive and requiring fewer subsidies.

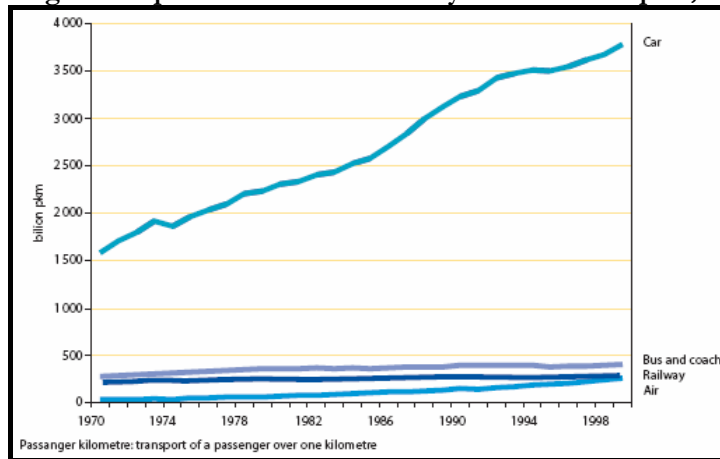
During the second half of the twentieth century, the railways have suffered a constant decline in its market share. There are several causes (White Paper, 1996):

- Increase of other transport modes offering a more flexible and less expensive transport.
- Decrease of production of traditional heavy industries whose products were transported by rail.
- Road transport has become more efficient and cheaper. Although external costs in road are higher, they are not sufficiently reflected in the prices paid by users so road is favoured in the competition with other modes.

- Given the national organisation of rail, the long distance freight transport has moved to road transport. The variety of physical characteristics (wide of gauge, signalling, electrification,...) of the national infrastructures leads important problems of interoperability.
- Incorrect management of the railways, as traditionally States have denied railways enterprises to carry out a commercial business. Thus, the infrastructure investments have been usually inadequate and this has led to infrastructure backwardness.
- The low flexibility of the railway sector. This implies that in the rail sector, in order to adapt the infrastructure to market changes, a very high investment is needed.

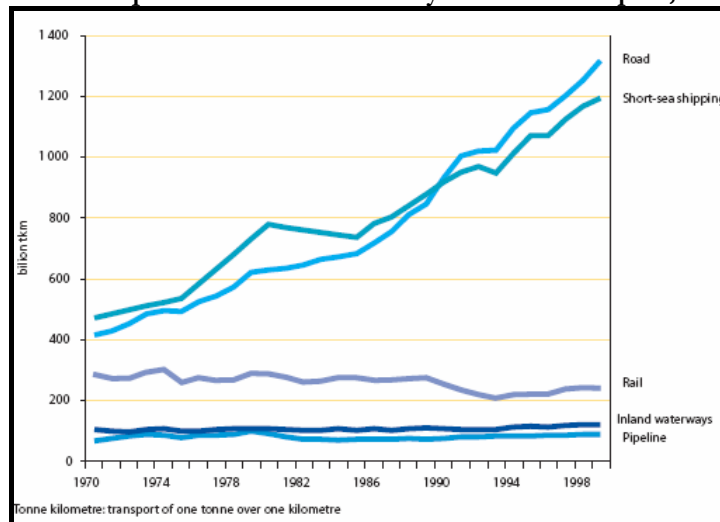
The decline of the railways over the last years is shown in Figure 1 and Figure 2. It is to notice the great growth of the road transport which is one of the main causes of the railways decline.

Figure 1 – Passenger transport. Growth of traffic by mode of transport, EU-15: 1970-1999



Source: White Paper 2001

Figure 2 – Goods transport. Growth of traffic by mode of transport, EU-15: 1970-1999



Source: White Paper 2001

The conclusion is that a new kind of railways is needed (White Paper, 1996). The main fact is that the railways should be a business carried out by railway enterprises sufficiently independent from the State and with enough resources to compete with other transport modes. Then, the different national systems should be integrated in order to reduce the barriers that make the railways less competitive.

Finally, in order to meet these challenges the European Commission has carried out a long process of railway reform with the main objective of revitalising this sector.

### **2.3. Objectives of the railway reform**

The main objective of the transport European policy is the free circulation of passengers and goods, guaranteeing the security. In the nineteen's, the European Commission perceived that the best way of revitalising the railways was to drive a sole market composed by a European rail network. Thus, it was necessary the correct integration of the different national systems and networks in order to develop a modern and efficient infrastructure.

According to ECMT (2005a), the policies adopted by the European Union were based on a few main objectives that can be summarized as follows:

- Increase of the economic efficiency of the transport sector, particularly of the railways.
- Reflecting social costs of transport in the Government budgetary decisions, in the business decisions of the railway enterprises and in the charging schemes for the services provided.
- Promotion of competition in the railway sector, opening access to railway infrastructure and privatizing the operation.
- Clarifying government role on the support of railways and the promotion of competition. This leads to the separation of accounts related to operation and infrastructure management.
- Increase of transparency of public contributions in order to prevent cross-subsidies.
- Financial stability of the infrastructure provider.
- The infrastructure management and the railways' operation must be seen as a business.
- Attraction of private investment in order to increase competition towards road.

### **2.4. Development of the Community's Norms**

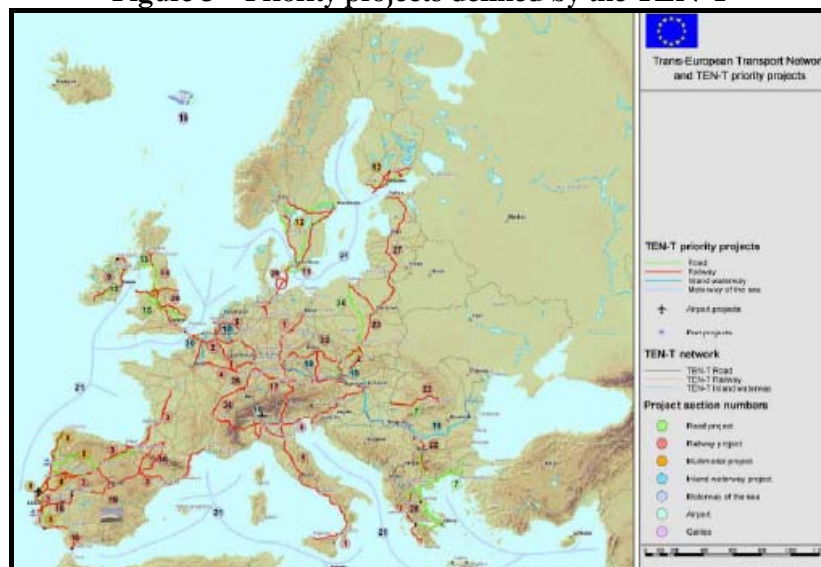
The process of introducing competition into the rail sector started in the 1990s. The first step consisted on the publishment of the Council Directive 91/440/CEE of 29<sup>th</sup> July 1991 on the development of the Community's railways. This directive established the basic framework for the separation of accounts between infrastructure management and

operation in order to obtain a clear transparency of the management. It required the infrastructure manager to charge a fee for access to infrastructure. However, it did not require the creation of separate institutions to carry out these two activities.

The second step of the railway reform was the publication of first White Paper, in 1992, on the future development of the common transport policy focusing on the opening of the rail market, the sustainable balance of the sector and the increase of mobility.

In 1994, the European governments met in Essen in order to elaborate a list composed of the 30 priority transport projects (see Figure 3). Two years later, the European Parliament and Council adopted the Decision 1692/96/EC on the development of the Trans-European Rail Network based on the 30 projects determined in Essen. This common Network was more precisely described in 1997 in the “Trans-European Rail Freight Freeways”.

**Figure 3 – Priority projects defined by the TEN-T**



*Source: European Commission*

In 1995, the European Parliament and the Council authorized the entry of the private sector in the railways through Directive 95/18/EC. This Directive permitted the private finance of new infrastructures and the private operation of services. Moreover, it was published Directive 95/19/EC on the allocation of railway infrastructure and the charging of infrastructure fees. This Directive introduced the concept of financial stability of the infrastructure manager and required governments to lay down rules for establishing fees for the use of the infrastructure, to publish the capacity allocation procedures and to appoint an independent body for appeals on capacity allocation decisions.

One year later, in July 1996, was published another White Paper namely “A strategy for revitalising the Community’s railways” which proposed a series of measures related to pricing as well as to revitalising other modes of transport rather than road. Moreover, this White Paper provided measures to reduce the railway enterprises’ debt so in the future they can assume an independent finance management. Mainly, this White Paper argued for stronger actions to open up the railways to market forces.

In 1998, was published the third White Paper “Fair Payment for Infrastructure Use: A phased approach to a common transport infrastructure charging framework in the EU”. This paper analysed the problems resulting from existing charging systems and proposed a Community approach to infrastructure charging. As well, it was proposed a step-by-step approach in order to implement this Community approach through three phases: in the first phase (1998-2000), should be established charging framework; in the second phase (2001-2004), the Commission and the Member States should begin to adapt the charging schemes in order to implement the framework; and in the third phase (beyond 2004), the transition would be completed.

Since the experience of the Trans-European Rail Network, were stated the real differences between the Member states with respect to the infrastructure, the legislation, the customs and the exploitation of the European railway lines. Thus, in order to increase the railways’ competitiveness it was concluded the necessity of reducing the institutional barriers of the frontier services, given that the road mode has open access.

In consequence, the 15<sup>th</sup> March 2001, was published the First Railway Package consisting on four community directives aimed at the consolidation of Directives 91/440/CEE, 95/18/EC, 95/19/EC and 96/48/EC abovementioned. These directives were substituted by Directives 2001/12/EC, 2001/13/EC, 2001/14/EC and 2001/16/EC, respectively (First Railway Package), which main objective was the improvement of the efficiency of the current legislation.

Directive 2001/12/EC was aimed at determining some main aspects: increase the independence of the railway undertakings and the infrastructure manager from the budgetary accounting of the Government; required the separation of accounts between passenger services and freight in order to avoid cross-subsidies from a socially significant service to another service operated in competition with unsupported suppliers; defined the New Trans-European Rail Freight Network, on which railway freight undertakings were to be granted open access after March 2008.

Directive 2001/13/EC was focused on the provision of operating licences valid across the European Union.

Directive 2001/14/EC focused on the allocation of infrastructure capacity and development of access charges for infrastructure. This directive set the framework for the levying of charges establishing that charges must be based on “costs directly incurred as a result of operating the train service”. It was based on some clear main objectives such as non-discriminatory access to rail infrastructure, fair intermodal competition between rail and road, fair intramodal competition in the provision of services and incentives to cost and operational efficiency. Moreover, it established that the charges for the infrastructure use may include a charge which reflects the scarcity of capacity, the costs of the environmental effects caused by the operation of a train, a certain mark-up in order to recover full costs, discounts, compensation for unpaid costs on other modes and a performance scheme that encourages railway undertakings and the infrastructure manager to minimise disruption and improve performance of the railway network.

Directive 2001/16/EC set out new procedures for making technical standards in order to promote interoperability of national networks, making governments responsible for standards rather than the rail industry.

At the end of year 2001, was published a new White Paper namely “European transport policy for 2010: time to decide” were the European Commission proposed approximately sixty measures in order to create a transport system which is capable to balance the modal distribution of transport, revitalise the railways, foster the maritime and fluvial transport and to control the air transport rise.

This White Paper aimed the intermodality, especially of the railways, in order to reduce the congestion and the contamination of the environment and maintain the mobility. Another important objective was the equitable charging of the different modes of transport, reflecting the externals costs inherent in each mode, in order to obtain a higher economic and environmental efficiency.

In 2004, the European Parliament and the Council adopted the Second Railway Package, based on the measures established in the last White Paper. This infrastructure package proposed the complete opening of the rail freight markets, including cabotage, and focused on railway safety and on the establishment of a European Railway Agency which provides technical support for the interoperability and safety work.

Finally, in March 2004, the European Commission presented the Third Railway Package in order to complete some aspects of the previous Railway Packages. These directives continue the railways reform focusing on the opening of the international passenger services to the European Union, the integration of the European railways and the revival of this mode of transport. However, this Railway Package of directives is still under discussion, since it has already been approved by the Commission but not by the Parliament.

## **2.5. Implications of the Community’s Norms**

As a result of the related process of revitalising the railways, the form in which the implementation of the European Norms has been addressed varies among countries. According to ECMT (2002), European Governments are implementing the EU Directives depending on their point of view over the failures and successes of the current railways organisation. Therefore, all the European Union Member Governments, and many other Governments, are implementing the EU Directives but each in its own way and in forms that complement national priorities, respecting the letter of the European law but not always the spirit of the Commission’s policy papers. The results are far from uniform.

The cornerstone of the rail reform in all European countries has been the conferred freedom to management to run railways as commercial business. This was based on the separation of the political decisions of Governments from the commercial management of railways. Then, this management was limited by several conditions such as charging regulation and control of borrowing.



At that time, freedom to set prices has led to the arising of a wide variety of charging schemes among all the European countries. These charging schemes vary since the costs taken into consideration (maintenance, renewals, investments, operation costs, general costs,...), to the pricing principles adopted (marginal cost or full cost recovery) or to the charging structure (simple or two-part tariff). The analysis of several national charging schemes will be carried out in next chapter.



## 3. Description of national charging schemes

### 3.1. Introduction

The definition of charging schemes is a crucial fact for an efficient use of the infrastructure, for guaranteeing competition on the network and for ensuring fair and non-discriminatory access to it. Given that most national rail networks are operated under monopoly conditions, public authorities have to regulate infrastructure charging in order to ensure that these monopolists don't abuse his position and to provide them with clear signals as the way to develop the network to accommodate demand for capacity.

The calculation procedure is also a key fact, given that undercharging trains threatens the long-term financial sustainability of the network and postponing renewals can increase costs to crisis point in the long run.

Therefore, it is important to analyse the different elements acting on the determination of a charging scheme in order to improve economic and operational efficiency in the network as well as revitalising the railway market in its competition with other modes.

Then, this chapter is aimed at describing the charging schemes applied by a set of relevant countries. In order to carry this description, it has been necessary to define the main charging parameters considered and to make a justified selection of significant countries.

### 3.2. Definition of charging parameters

#### 3.2.1. Pricing principles

Depending on the criteria used to recover financial costs, there are two principles to set rail infrastructure access charges. Thus it is possible, on the one hand, to fix the charge and afterwards compensate the gap between the operating incomes and the total expenses by means of government support. On the other hand, the charge can be established as from the difference between full financial costs and the government support. According to these two principles, appear to be four basic approaches used by the different countries in order to determine their charging scheme.

#### *Marginal cost (MC)*

The marginal cost (MC) is defined as the "directly related cost" which is the additional cost that each user imposes on the infrastructure provider as a result of operating the infrastructure. When considering the external costs, the addition of marginal cost and external cost are social marginal costs. The external costs are those costs that each user generates by the use of the infrastructure such as air pollution caused by diesel emissions, the annoyance of the noise emissions of a passing train, accidents, congestion, etc.

The provisions on charging in Directive 2001/14/EC reflects in its recommendations that short run marginal cost pricing is mandatory, although the Directive do not use the phrase “marginal cost” but the expression “directly related cost”. Charging for external costs is left to the discretion of the Member States.

Charging MC consists on the fact that users are solely charged the marginal cost of the use of the infrastructure that they impose and the government contribution covers the difference between these operating incomes and the full financial costs experienced by the Infrastructure Manager (IM). Consequently, this approach requires full and reliable government funding and, in case that the government cannot make up the gap between MC and FC, then the following approaches must be chosen.

In principle, the MC approach, if implemented correctly, will result in the most efficient use of the infrastructure but it puts the most pressure on the government. In addition, it requires an accurate calculation of the marginal costs and, nowadays, there is neither an agreed method for measuring these costs nor adequate data in a common format for quantifying them. Finally, if external costs are taken into account, it is also necessary to determine them and this calculation should be carried out by the government.

### *Marginal cost plus mark-ups (MC+)*

This approach is based on the same principles as the MC approach but applies a mark-up to marginal costs in order to reduce the necessary government contribution. It is important to determine the objectives and impacts of the mark-ups as well as the way of allocate them.

There are several ways of allocating the mark-ups among the different users but the most efficient way consists on considering the demand’s elasticities for different segments of the market. This principle of allocation is considered by the Ramsey’s-pricing.

The aim of Ramsey-pricing is to maximize social welfare under the constraint of deficit coverage. It applies the inverse elasticity rule, which determines that the mark-up (as a percentage) on the marginal costs is reciprocally proportional to the price elasticity of the operator’s demand. According to this principle, the mark-up is determined in an efficient way and it must be ensured that the charge is not higher than the price that the market can bear. On the other hand, the theoretical Ramsey-pricing is very difficult to implement given that operators are usually averse to reveal their willingness to pay so demand curves are not easy to estimate and, in consequence, the elasticities are difficult to be determined.

### *Full cost minus government support (FC-)*

This approach consists on the determination of the infrastructure charge from the knowledge of two variables: full financial costs and the government support, so the access charge will be the difference between these two variables.

Although the marginal cost is not used in the determination of the charge, is important for the infrastructure manager to know the MC and the usage elasticities of the operators in order to prevent irrationally low charges and to recover costs in the most efficient way.

From the characteristics of this approach, it can be deduced that if the costs experienced by the infrastructure manager increase, the level of charges will increase proportionally. As a result, there are no incentives for cost-reduction while the approaches MC and MC+ are “bottom-up” and they do give incentives to the infrastructure manager to reduce its costs.

### *Full cost (FC)*

This approach is based on charging the full costs experienced by the infrastructure manager to the railway undertakings without receiving any government contribution. This is not very extended but it should be accepted that it could be an appropriate approach where rail transport is the dominant use of the network and its market position is strong (as for rail freight in the Baltic States).

Finally, it is remarkable that each pricing principle is determined by specific characteristics and there is not a “best approach”. Therefore, the adequate approach for each country will depend on the specific circumstances of each country (i.e. the case of the Baltic States where the FC approach could be appropriate for freight traffic while in other countries it is not).

### **3.2.2. Types of tariffs**

In general, charging schemes are differentiated by using either simple or two-part tariffs. On the one hand, a simple tariff consists on a charge that varies directly with the use of the network and usually is expressed per gross tonne-kilometre or train-kilometre. On the other hand, a two-part tariff consists on a variable component, which varies with volume, and a fixed component. This variable part is frequently expressed per train-path or train path-kilometre.

According to ECMT (2005a), the simple tariff charging schemes are easier to implement and, consequently, are more appropriate for less complex networks where the mix of uses is not important and the network capacity is not approached by traffic. Probably, these charging schemes are more efficient in allocating direct marginal costs but distort the allocation of fixed costs.

Two-part tariff schemes are considered more efficient for networks with complex and mix uses given that these schemes are more likely to reflect the long term costs of the incremental capacity conditions of a particular user. Generally, the difference is that the variable part tends to be related to the actual wear and tear of the infrastructure and the fixed part is usually related to the planned use of capacity.

However, two-part tariffs can reduce competition between operators in the same market depending on the level of the fixed component of the charge since is probable that the access charge would be insignificant for operators running a high volume of traffic but so high for other smaller operators that they cannot bear it. Moreover, this kind of tariff can be a great disincentive to international operators facing this fixed charge in more than one country.

### 3.2.3. Charging components

Every charging scheme is composed by different elements, according to Directive 2001/14/EC. Each of these elements tries to reflect a different type of cost among all the incurred costs due to a train running. The significant concepts that compose the charge in order to recover these incurred costs are: basic charge related to the wear and tear of the infrastructure, the mark-ups levied depending on the charging principle, the performance regime considered in the charging scheme in order to give incentives, the environmental charges, the congestion and scarcity charges and, finally, the applicable discounts.

#### *Basic charge*

The basic charge is the component of the charge that takes into account the infrastructure costs and, in particular, the wear and tear of the infrastructure, i.e. the costs directly related to the use of the infrastructure, in order to provide adequate incentives to trains running in the network.

This charge is usually intended to recover marginal costs due to operation, maintenance or renewal or a given percentage of total infrastructure costs. There are a great variety of charging schemes with a different definition of the wear and tear charge. It tends to depend on the type of service, the type of line, the type of network, the vehicle or train characteristics, vehicle variables like speed and weight,...

As mentioned, the basic charge is related to the deterioration of the infrastructure produced by the running of a train and, in consequence, it should be a variable tariff expressed per gross tonne-kilometre or per train path-kilometre.

#### *Mark-ups*

Those practices based on a MC+ pricing principle levy mark-ups in order to obtain full recovery of the costs. As mentioned in Directive 2001/14/EC, the invoicing of these mark-ups must be on the basis of efficient, transparent and non-discriminatory principles and only in the case the market can bear them.

In the theory, the most efficient way of determining the mark-up is on the basis of the Ramsey principle but this is extremely difficult to implement and, in consequence, the most part of charging schemes determine the mark-up in order to recover a specific cost (i.e. investment costs) or a given percentage of the total costs according to other criteria. The mark-up is then applied according to the type of service, the type of line, the time band, ...

#### *Reservation charges*

Reservation charges are those charges that are levied anyway, either the capacity requested is used or not. There are two types: reservation charges levied before the use of the infrastructure and cancellation charges levied only in case of misuse of capacity.

According to Directive 2001/14/EC, reservation charges should recover the administrative costs due to the allocation procedure. Actually, reservation charges are expressed in a wide range of forms, some are levied per train-path and others per train-km and some are

intended to recover the administrative costs while others intend to recover part of the infrastructure costs.

Cancellation charges are only levied in case of failure to use requested capacity. The level of this charge is levied according to different variables such as the anteriority of the cancellation to the circulation date, the percentage of volume of traffic requested which is misused, the time period, the number of train-paths, ...

### *Congestion charges and Scarcity charges*

In accordance with Directive 2001/14/EC, the charging and capacity allocation schemes must take account of the effects of increasing saturation of infrastructure capacity and ultimately the scarcity of capacity.

It is important to distinguish between scarcity and congestion: congestion arises from delays caused by trains running close to each other while scarcity costs arise where the presence of a train prevents another train from operating, or requires it to take an inferior path. It may not generally be appropriate to charge a particular train for both scarcity and congestion, since if a particular train can only be run by displacing another train from the system, it will not be causing additional congestion. According to Nach Cris and Johnson Daniel (2005), when capacity is optimally adjusted to demand, the scarcity price is exactly equal to the incremental cost of additional capacity

### *Performance regimes*

According to Directive 2001/14/EC, a performance regime is a charging scheme whose aim is encouraging railway undertakings and infrastructure managers to minimise disruption and improve the performance of the railway network. This performance scheme may include penalties for actions which disrupt the operation of the network, compensation for undertakings which suffer from disruption and bonuses that reward better than planned performance.

In 2000, a first step towards a European Performance Regime (EPR) was initiated by UIC (Union International des Chemins de Fer) with the EPR project. This project was started with the first phase EPR I which was aimed at establishing a common understanding of the targets to be reached, i.e. improvement of punctuality and “minutes of delay” as the basis of disruptions. Given that this first phase did not outlined a model for practical implementation, a second phase EPR II was carried out. It was focused on analysing the feasibility of the performance scheme by monitoring a random selection of trains of which operational data was available. Finally, a simplified model, taking into account the results of EPR I and EPR II, was developed and tested in reality on a certain corridor.

According to UIC, the main principles in which the EPR is based are:

- Based on delay minutes
- Corridor based approach
- Applied on the whole train path
- Monitoring is made per train
- Use of Europtirail IT tool
- Penalties are limited to a warning function

- Implementation Handbook describes the processes

The ultimate UIC's objective is to start the full commercial application on international traffic in January 2009.

### *Environmental charges / Subsidies*

According to Directive 2001/14/EC, the infrastructure charge may be modified to take account of the cost of the environmental effects caused by the operation of the train and such modification shall be differentiated according to the magnitude of the effect caused. As well, the Directive establishes that Member States may put in place a time-limited compensation scheme for the use of the railway infrastructure for the demonstrably unpaid environmental, accident and infrastructure costs of competing transport modes in so far as these costs exceed the equivalent costs of rail.

The different subsidies considered on the current practices are related to the improvement of environmental conditions and to the global compensation for other modes unpaid environmental effects. On the other hand, the environmental charges levied by certain charging schemes are aimed at recovering air pollution costs and accident costs.

### *Discounts*

According to Directive 2001/14/EC, infrastructure managers may introduce schemes available to all users of the infrastructure, for specific traffic flows, granting time limited discounts to encourage the development of new rail services, or discounts encouraging the use of considerably underutilised lines. Moreover, discounts shall be limited to the actual saving of the administrative cost to the infrastructure manager.

Since the given description of the main charging parameters it is possible to perform a synthetic analysis of the current charging schemes although is necessary a previous step consisting on the selection of a sample of significant countries that represent the diversity of the existing practices.

## **3.3. Determination of significant countries**

In order to carry out an assessment of the current charging schemes in the following chapters, it has been necessary to choose some significant countries. With this purpose, Table 1 has been elaborated, where the diverse charging practices used by the different countries have been characterized according to the year in which vertical disintegration occurred, the pricing principle considered and the type of charge applied.



Table 1 – List of charging practices used by the different countries

Country code	Country	IM	Year of vertical disintegration	Pricing principle	Charges	
					Simple	Two-part
AT	Austria	ÖBB	2004	MC+	√	
BE	Belgium	Infrabel	2004	FC-	√	
BG	Bulgaria	NRIC	2002	MC+		√
CH	Switzerland	SBB	1999	MC+	√	
CZ	Czech Republic	SZDC	2003	MC+	√	
DE	Germany	DB Netz	1994	FC-	√	
DK	Denmark	Banedanmark	1997	MC+	√	
EE	Estonia	EVR	1999	FC		√
EI	Ireland	IE	-	-	-	-
EL	Greece	EDISY	2005	MC+	√	
ES	Spain	ADIF	2005	MC+		√
FI	Finland	RHK	1995	MC+	√	
FR	France	RFF	1997	MC+		√
HU	Hungary	VPE	2003	FC		√
IT	Italy	RFI	2001	FC <sup>(1)</sup>		√
LT	Lithuania	LG	1996	MC and FC <sup>(2)</sup>		√
LU	Luxembourg	CFL	-	MC	√	
LV	Latvia	LDZ	1996	FC	√	
NL	Netherlands	ProRail	1990	MC	√	
PL	Poland	PLK	2000	FC-	√	
PT	Portugal	REFER	1997	MC	√	
RO	Romania	CFR	1998	FC		√
SE	Sweden	BV	1988	MC+	√	
SI	Slovenia	AZP	2003	FC	√	
SK	Slovakia	ZSR	2002	MC+	√	
UK	United Kingdom	Network Rail	1994	MC and MC+ <sup>(3)</sup>	√ <sup>(4)</sup>	√ <sup>(5)</sup>
<i>Remarks:</i> (1) Only for traffic management (2) MC for passenger services and FC for freight services (3) MC for freight services and MC+ for passenger services (4) Simple charge applies to all operators except franchised passenger train operators (5) Two-part charge applies to franchised passenger train operators						

Source: Own from data of ECMT (2005a)

During the process of choosing the significant countries, the following criteria have been taken into account:

- Those countries that have been pioneers of the vertical disintegration process and on the establishment of charging schemes should be chosen. According to Table 1, the countries that led with this process the soonest and that currently provide public information are Germany, Denmark,

Finland, France, Latvia, the Netherlands, Portugal, Romania, Sweden and United Kingdom.

- In those regions where the charging schemes are very similar (such as Nordic countries, Eastern countries ...), the most complete charging scheme has been chosen for each region.
- Finally, it has been taken into account the fact that all the possible combinations between charging principles and types of charges should be chosen in order to have a totally representative sample.

As a result, the significant countries considered are compiled in Table 2:

**Table 2 – List of the significant countries selected**

Country code	Country	Infrastructure manager
AT	Austria	ÖBB
DE	Germany	DB Netz
EE	Estonia	EVR
EL	Greece	EDISY
ES	Spain	ADIF
FR	France	RFF
IT	Italy	RFI
NL	Netherlands	ProRail
PL	Poland	PLK
PT	Portugal	REFER
SE	Sweden	BV
UK	United Kingdom	Network Rail

*Source: Own*

### 3.4. Charging schemes' description per countries

This chapter is aimed at describing the current situation of the railways in each country as well as describing the different charging schemes applied by them. It is remarkable that every charging scheme is characterized by a basic charging principle which determines the cost allocation through the charges for the use of the infrastructure. However, this information is not always clearly detailed.

The following description of the charging schemes applied by the countries considered is composed of:

- General overview of the current situation of the railways
- Brief description of the national legal framework concerning charging
- Description of the user charge applied in each country

### 3.4.1. Austria (AT) – ÖBB-Infrastruktur Betrieb AG

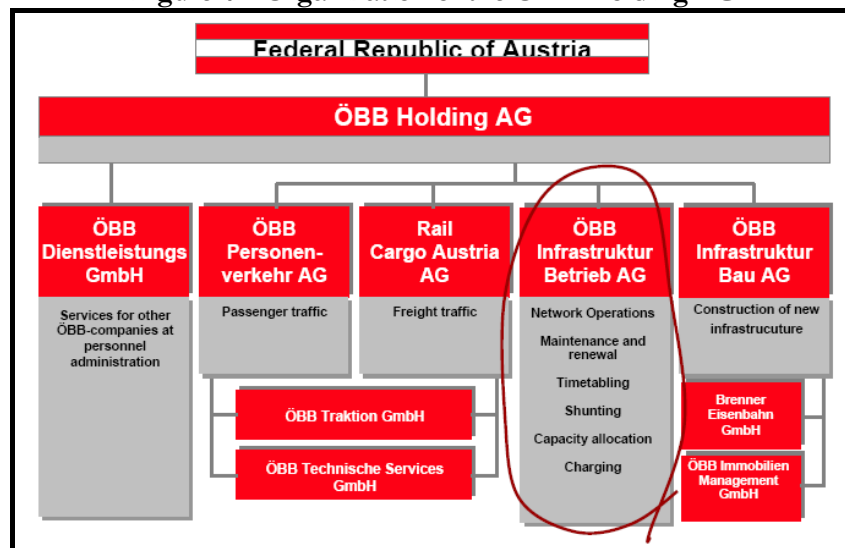
#### *General overview*

ÖBB-Holding AG, the holding company responsible for aligning the strategies of the Group companies, was established on 31 March 2004. By mid-2004 were established several companies forming part of the ÖBB Group, among which ÖBB-Infrastruktur Betrieb AG should be stand out.

On 1 January 2005, the previous ÖBB Company was replaced by the ÖBB Group of companies and its workforce, assets and tasks were transferred to its corporate companies. Eisenbahn-Hochleistungsstrecken AG (HL-AG) and the financing function of Schieneninfrastrukturfinanzierungs GmbH (SCHIG) were merged with ÖBB-Infrastruktur Bau AG as absorbing company and the Federal Republic's shares in Brenner Eisenbahn GmbH, a subsidiary of ÖBB Infrastruktur Bau AG, were contributed to ÖBB-Infrastruktur Bau AG.

This organisation can be seen in Figure 4.

**Figure 4 – Organization of the ÖBB Holding AG**



*Source: ECMT. Workshop in Geneva, October 2004*

According to ÖBB's web page, the new Group structure allows the individual corporate companies and the Group as a whole to better meet market and customer needs in an ever increasing competitive environment thus increasing their competitiveness and earning power. Last but not least, the new structure also aims at reducing the need for monetary contributions from the State.

The regulation of the market has been allocated to Schienen-Control GmbH, a regulatory body under the Ministry of Transport, Innovation and Technology.

## *National legal framework concerning charging*

Austria implemented the First Railway Package through the Schienenverkehrsmarkt-Regulierungsgesetz from 1999, the Bundesbahnstrukturgesetz from 2003 and the amendment in 2004 of “Eisenbahngesetz 1957”.

### *User charge*

#### *Charging principles*

The Austrian charging scheme is based on MC+ approach, composed by short run marginal costs plus mark-ups in order to increase cost recovery. The short run marginal cost only include the costs due to track maintenance and the mark-ups levied are intended to cover costs of renewals, investment costs and external costs.

#### *Calculation procedure*

According to ECMT (2005a), short run marginal costs are estimated through an econometric model taking into account only maintenance costs and taken as a function of gross tonne-kilometre. In 2004, 27% of total infrastructure expenditure (including loans and grants) were covered by charges.

#### *Charging structure*

The Track Access Product Catalogue divides the charge for the use of the railway infrastructure in several components: Train movement, Stop in stations, Shunting, Stabling and Use of other facilities.

The charge for the Standard Package Train Movement (construction of Train Path and Train Movement) is intended to levy the train kilometres covered by a train with a specific total gross weight in tons per line category, modulated by a factor depending on the market segment and by a factor depending on the traction unit category. As well, this charge is increased by a performance regime based element. The charges considered are:

- Usage charge: it is composed by a “charge in the amount of the directly incurred costs”, which is levied per gross ton kilometres, and a “line-related usage charge”, which is a basic price per kilometre depending on the line category.
- Quality and line-related mark-ups and mark-downs: it is composed by “wear on tracks by traction units” depending on the traction unit category and a “performance regime” which is a unit rate per delay minute in scheduled stopping stations.
- Traffic-type related usage charges: it is composed by a factor levied per train-km varying with the type of service.

The infrastructure charge for the Stop in stations depends on the number of stops and the category station. This charge is only applied to passenger services.

As mentioned, it is also charged the Shunting and Stabling of rolling stock. As well, ÖBB provides other services such as the operation of extraordinary trains or monitoring hazardous goods transports.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Performance regimes:

According to the ÖBB Track Access Product Catalogue 2006, for high-quality passenger trains, the Standard Package prices will be increased in the event of late arrival in the scheduled stopping stations, including departure and train terminal stations, if the delay per stopping station exceeds a threshold of five minutes.

The delay in minutes per station exceeding the fixed threshold will be allocated to the party causing it (the railway undertaking or the infrastructure manager) and multiplied by the factor given in the Product Catalogue (3 €/delay minute). Reasons for delay are coded pursuant to UIC Leaflet 450-2.

*Charging level*

The level of charges for the Standard Package Train Movement depends on several variables, such as the line category, the traction unit category, the time band,... The range of values for the components of the charge for the Standard Package Train Movement can be seen in Table 3.

**Table 3 – Range of values for the Standard Package Train Movement in Austria**

Charge for the Standard Package Train Movement		
Service	Type of service	
Train movement	Minimum access package	
Charging formula		
SPTM + QM + TtUC + Tmout		
SPTM = (GBtkm * a) + (Tain-kmlc * b)		
QM = (Train-kmtuc * c) + (Train-kmbn * d) + (CM * e)		
Price components	Variables considered	Charging values
Usage charge Standard Package Train Movement (SPTM)		
Charge in the amount of the directly incurred costs (a)		0,001 €/gross ton-km
Total gross ton kilometres (GBtkm)		
Line-related usage charges - basic price per train kilometre (b)	Line category	0,90 - 2,73 €/train-km
Total train kilometres (Tain-kmlc)		
Quality and line-related mark-ups and markdowns on the basic price per train kilometre under the Standard Package Train Movement (QM)		
Wear on tracks by traction units affecting charges (c)	Traction unit category	-0,04 - 0,01 €/train-km
Train kilometres traction unit category (Train-kmtuc)		
Mark-ups for time and local capacity bottlenecks (Mark-up for bottleneck)	Line section Time band	1,00 €/train-km in bottleneck

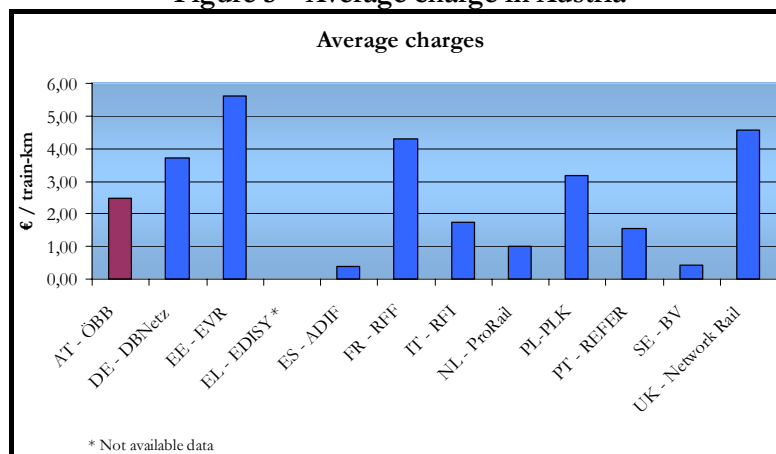
**Charging for the railway infrastructure use during the last five years in Europe:  
state of the art and opportunities for revitalising the railways**

(d)		
Train kilometres in bottlenecks (Train-kmbn)		
Performance regime dependent charges (e)	Delay Stop at station	3,00 €/minute
Delay per minute in scheduled stopping station (DM)		
Traffic-type related usage charges under the Standard Package Train Movement (TtUC)	Type of traffic	-0,66 - 0,29 €/train-km
Prices charged for train movements outside line opening times (TMout)	Station category Line section	The charges are calculated by the Track Access unit (Netzugang) on an individual basis and quoted as part of the train path offer

Source: Own from Track Access Product Catalogue 2006

As well, it has been carried the calculation of an average charge. According to ÖBB's 2005 Annual Report, the total income for the use of the infrastructure reached 358,9 million euros. In accordance with EUROSTAT, the volume of traffic in 2005 in Austria was 143.917.000 train-kilometres. In conclusion, the average charge is 2,49 €/train-km. In Figure 5, it is shown the average charge in Austria compared with the rest of countries.

**Figure 5 – Average charge in Austria**



Source: Own from data of EUROSTAT and ÖBB's 2005 Annual Report

As it can be seen in the diagram above, the level of the average charge in Austria is practically in the average of the level in the rest of countries, given that the average of average charge of all the countries is 2,63 €/train-km.

### 3.4.2. Germany (DE) – Deutsche Bahn Netz AG (DB Netz)

#### *General overview*

According to its web page, in 1994, Deutsche Bahn AG was founded, being the first successful conclusion of the serious discussions on rail reform relating to the privatisation and merger of the Bundesbahn and Reichsbahn that have been conducted since 1989. The second phase of the rail reform arrived in 1999, when the former business sectors of long-

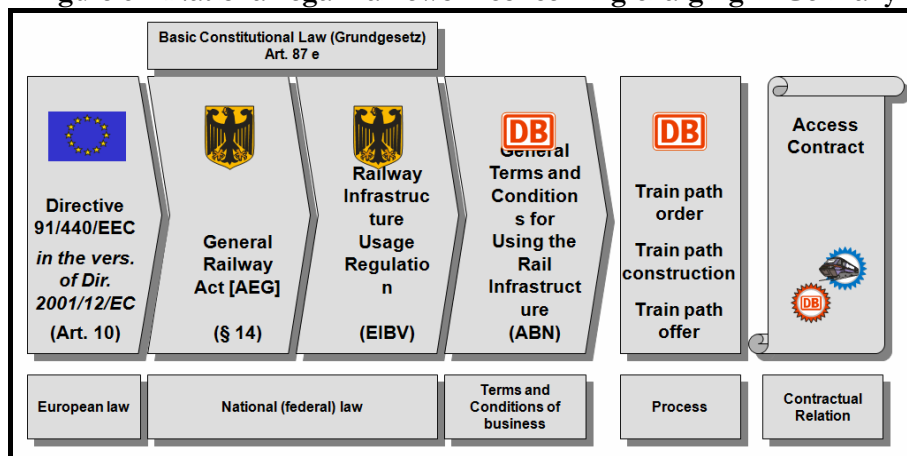
distance, local and freight transport, plus track infrastructure and the passenger stations business sector that was not planned by statute, were set up as joint-stock companies.

Then, Deutsche Bahn, in accordance with the terms of company law, is currently run as a multi-level group of companies by Deutsche Bahn AG as the holding company. The share capital of the new companies is held by DB AG, whose shares are owned by the Federal Government.

### *National legal framework concerning charging*

Germany transposed Directive 2001/14/EC in June 2005 through the General Railway Act (AEG) and the Railway Infrastructure Usage Regulation (EIBV). Actually, Germany has not only completely fulfilled the EU legal conditions but also has published additional federal legislation. Figure 6 summarizes the German legal framework concerning charging.

**Figure 6 – National legal framework concerning charging in Germany**



Source: ECMT. Workshop in Rome, July 2004

### *User charge*

#### *Charging principles*

The first Train Path System was introduced in 1994 by DB Netz AG as a two-part tariff and intended to recover full costs. This system has evolved during the years and in 2001 it was reverted into a single differentiated charge per train kilometre.

According to DB Netz AG, the current train path pricing system (TPS) must meet various market conditions. On the one hand, it must reflect the operational cost structure, i.e. the operating and investment expenditure associated with the various available services. On the other hand, TPs must be in line with the current demand, so the factors depending on demand that determine the price should include the price elasticity of the individual user groups.

As well, the TPS must also meet the DB Netz AG's strategic corporate goals, which include achieving a balanced operating income and a continuous improvement in costs and operational efficiency.

According to ECMT (2005a), the basic approach taken to charging is to allocate total cost (excluding those investment and renewal costs borne directly by Government) to market segments and then to price at average costs. Thus, the approach is clearly FC-. According to Railimplement (2005), it is estimated that public investment funds cover 45-50% of total costs.

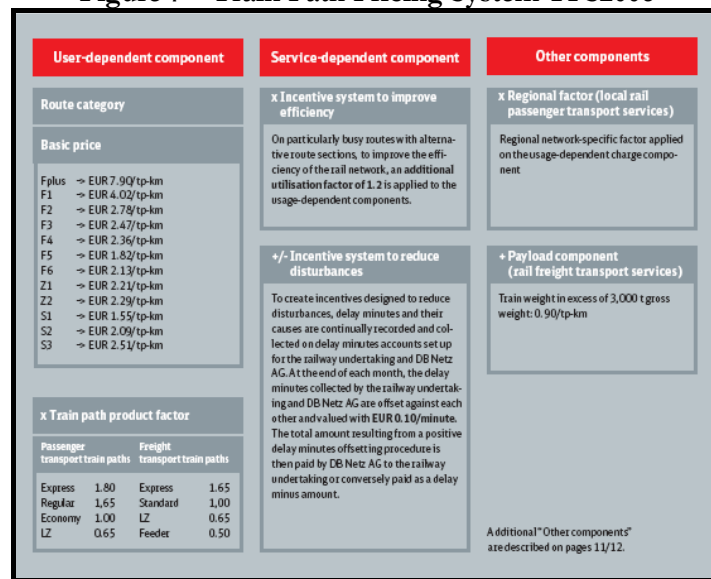
### Calculation procedure

The calculation of the charge is made on the basis of an average price for the whole of the network and the charge is intended to recover the maintenance and management costs.

### Charging structure

As it can be seen in Figure 7, the single-stage Train Path Pricing System contains three modular pricing components: user dependent component, service-dependent component and other components.

Figure 7 – Train Path Pricing System TPS2006



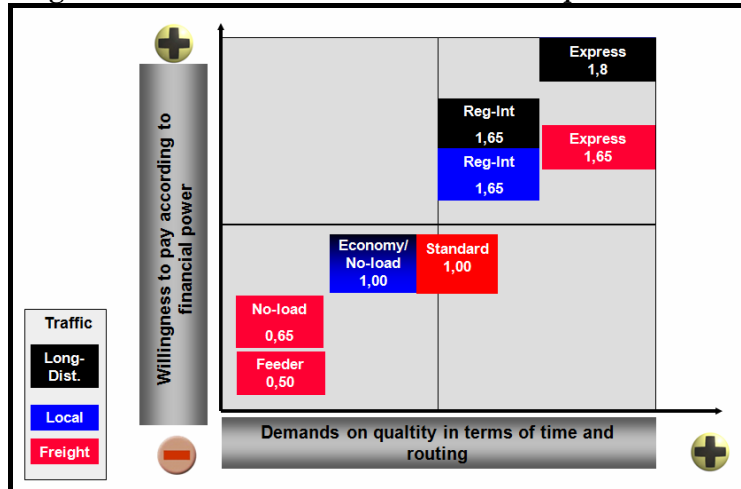
Source: DB Netz AG's Train Path Pricing System, 2006

The user-dependent component depends on the route category and a train path product factor. The variety of train path products available makes it possible to adapt the train path pricing system to meet the individual needs of the market, given that this is usually difficult to be reflected in a basic price which tends to be more cost-based.

The product factor varies according to train path products, i.e. groups of identical services. As it is shown in Figure 8, the level of the product factor is determined according to the quality and the willingness to pay.



Figure 8 – Determination of the level of the product factor



Source: ECMT. Workshop in Rome, July 2004

The service-dependent component is composed by additive and multiplicative factors. The multiplicative factor is an utilisation factor applied on particularly busy routes with alternative route sections and its main objective is to provide incentives to improve efficiency. The additive factor is aimed at providing incentives to reduce disturbances. Then, delay minutes and their causes are continually recorded for the railway undertaking and DB Netz AG. At the end of each month, the delay minutes collected by both parties are offset against each other and valued.

Finally, other components are considered in the Train Path Pricing System. These components are:

- Regional factors: these factors are applied on routes that do not yet have a viable cost/revenue structure. They differ locally depending on the regional network concerned and they are only applied to local passenger services.
- Payload component: is a weight-based component intended to reflect the additional costs caused by the use of heavy trains, due to the increase in wear and capacity utilisation. It is applied for train weights of 3.000 tonnes and above and is levied per gross tonne-km.
- Fee for preparing an offer: this component is intended to reflect the costs for processing the applications for train paths allocation. Then a fee per train path is levied in case that the railway undertaking does not accept a train path offer. This fee cannot exceed the equivalent of access charge for train paths that are not accepted.
- Cancellation fee: in case of withdrawal of one or more train running days on a train path a cancellation fee is levied. It is composed by a minimum cancellation fee which corresponds to the amount of the fee required for preparing the offer and a percentage based cancellation fee depending on when the cancellation was made and the standard train path price. The cancellation fee cannot exceed the access charge for the cancelled train path.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Reservation charges:

As a reservation charge, the Train Path Pricing System of DB Netz AG includes the “fee for preparing an offer” and the “cancellation fee”.

➤ Congestion and scarcity charges:

The utilisation factor applied to the base price can be considered a congestion charge given that is only levied in very busy routes, for which alternatives actually exist.

➤ Performance regimes:

The additive factor considered in the service-dependent component is a clear performance regime intended to reduce disruptions. It consists on a compulsory delay minutes accountancy system based on control points in every section. The “delay minutes” accounted are allocated to DB Netz or to the railway undertakings according to specific responsibility rules and levied monthly through a unitary charge (0,10 €/ key delay minute). There is a delay allowance of 1 minute per section.

*Charging level*

The train path price depends on several variables such as the route category, the service offered, the region or the gross weight of the hauled load. Table 4 shows a range of values for each component of the total charge.

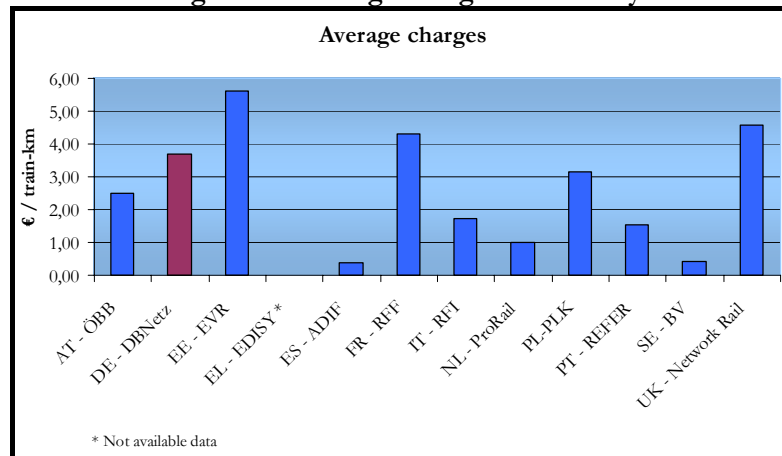
**Table 4 – Range of values for the Train path price in Germany**

Train path pricing		
Service	Type of service	
Train path	Minimum access package	
Charging formula		
BP x SI x PF x RF + LC		
Price components	Variables considered	Charging values
Basic price (BP)	Route category	1,55 – 7,90 €/train-km
System of incentives to raise efficiency (SI)	Traffic	1 or 1,2
Product factor (PF)	Train path product	0,65 – 1,80 (passenger traffic) 0,50 – 1,65 (freight traffic)
Regional factors (RF)	Region (only for local passenger rail traffic)	1,05 – 2,45
Load constituent (LC)	Gross weight of the hauled load	0,90 €/train-km

*Source: Own from Network Statement 2007*

A part from the dispersion of values given in Table 4, it can be calculated the average charge. According to Annual Report, the revenues from track access charges in 2005 amounted to a total of 3.649 million euros. As well, from EUROSTAT it has obtained that the volume of traffic in 2005 was 986.686.000 train-kilometres. As a result, the average charge is 3,70 €/train-km. Figure 9 shows the average charge in Germany compared to the rest of countries.

Figure 9 – Average charge in Germany



Source: Own from data of EUROSTAT and DB Netz's 2005 Annual Report

It is to be noticed that the charges in Germany are relatively lower given that their charging philosophy is FC- and the level of the average charge is near to the average of the average charge of all the countries, which corresponds to 2,63 €/train-km.

### 3.4.3. Estonia (EE) – AS Eesti Raudte (EVR)

#### *General overview*

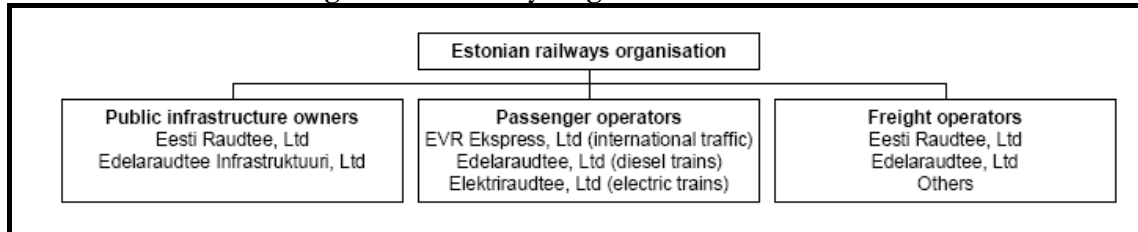
The state-owned company Eesti Raudtee was founded on 1 January 1992, with the main task of managing the Estonian railways. In August 1997, the state-owned company was transformed into a public limited company and was further transformed pursuant to the privatisation scheme approved by the Government.

In 1999 the Government introduced a significant change in the privatisation plans of Eesti Raudtee namely deciding to surrender the signing of concession and instead sell 66% of majority shares. Then, in April 2000, the Estonian Privatisation Agency announced the privatisation of 66% of the shares of Eesti Raudtee by way of international tender with preliminary negotiations.

On 2 March 2001, the General Director of the Estonian Privatisation Agency invited the Baltic Rail Services (BRS) to sign the agreement on the privatisation of 66% of AS Eesti Raudtee shares and the privatisation and shareholder agreement. Therefore, since 2001, 66% of EVR is privately owned by BRS and the remaining 34% belongs to the Estonian State. EVR is the first vertically integrated, privately owned and managed railway in Europe.

As it is shown in Figure 10, the railways in Estonia are composed by two public infrastructure owners namely Eesti Raudtee and Ederraudtee Infrastruktuuri.

Figure 10 – Railways organisation in Estonia



Source: ECMT. Workshop in Paris, February 2005

According to the Railways Act, there is an independent body, the Railway Inspectorate, who allocates capacity in order to ensure a non-discriminated access to public railways.

### *National legal framework concerning charging*

Directive 2001/14/EC was transposed by the Estonian parliament in March 2004 through the New Railways Act. Article 59 of this Railways Act defines the contract for the use of the railway infrastructure and user fees.

According to the Network Statement 2007, the bases and procedures for calculation of railway infrastructure access fee shall be imperatively determined by the methodology for the use of railway infrastructure approved by the regulation No. 144nof of the Minister of Economic Affairs and Communications in June 2004.

### *User charge*

#### *Charging principles*

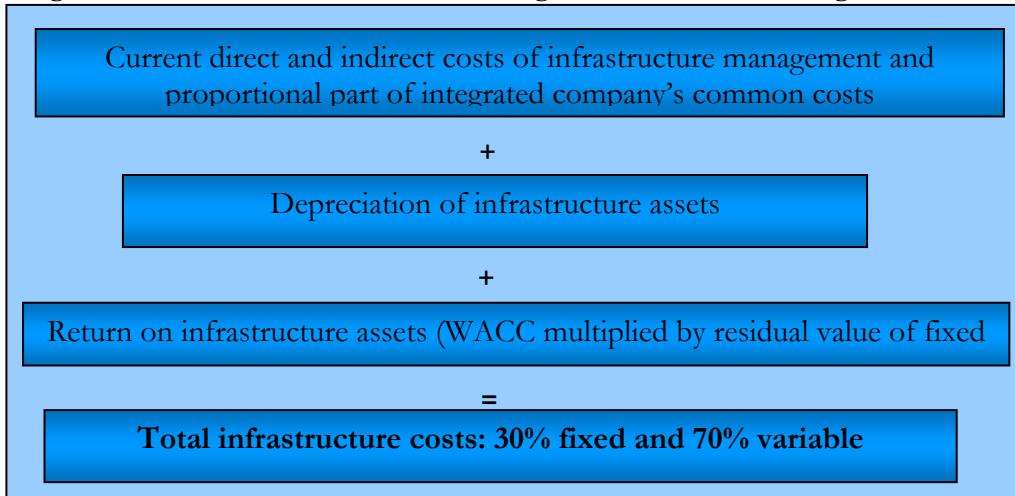
According to ECMT (2005a), the basic approach taken to charging in Estonia is based on average cost principles. In calculating average costs the total costs of borrowing, the total maintenance and management costs, the total costs of renewals and the total investment costs are included. Thus, the approach is FC.

#### *Calculation procedure*

According to the Network Statement 2007, fees for the use of the infrastructure in the part of basic and extra services consist of the costs for grant of use of railway infrastructure and a reasonable business profit. The objective of the railway infrastructure access fee shall be to guarantee safety, stable development and efficient management of railway infrastructure.

According to Ott Koppel (2005), the infrastructure access charge is calculated as the sum of the current direct costs (interpreted as short-term variable costs) and indirect costs of the infrastructure management and proportional part of integrated company's common costs (depreciation of infrastructure costs and return on infrastructure assets defined as the product of the residual value of fixed assets and the weighted average cost of capital (WACC)). This calculation procedure can be seen in Figure 11.

**Figure 11 – General method for calculating the infrastructure charges in Estonia**



*Source: Own from data of Ott Koppel (2005)*

As it is shown in Figure 11, the total costs are divided into two parts, assuming that 30% of them are fixed and 70% variable. According to the Network Statement 2005, fixed costs are costs that do not vary depending on the volume of provided service while variable costs are those which depend on the volume of service provided. Therefore, given that the infrastructure access fee is a two-part tariff (a fixed part plus a variable part depending on volume of traffic), it can be deduced that each part of the costs are directly related to each part of the access charge.

#### *Charging structure*

As mentioned, the access charge applied in Estonia is a two-part tariff:

- The fix part of the charge is based on the requested train-kilometres and is paid whether the capacity allocated is used or not. This charge is not applied to international and local passenger trains.
- The variable part of the charge is based on the actual gross tonne-kilometres.

According to the Estonian Railway Inspectorate's web page, on the basis of the methodology in force and the accountancy data of the railway infrastructure manager, the Railway Inspectorate determines prognosis for the usage fee. Then the Railway Inspectorate shall monthly determine specific access fees on the basis of the data presented by EVR regarding the volume of actually transported goods on a monthly basis.

In consequence, Eesti Raudtee shall charge the railway undertakings on the basis of the prognosis for the usage fee and railway undertakings shall pay in full such invoices. In case that monthly specified access fee exceeds the access fee paid by the rail transport undertaking then AS Eesti Raudtee shall issue a supplementary invoice every month to the rail transport undertaking. If, on the contrary, the monthly specified access fee is lower than the access fee paid by the rail transport undertaking then AS Eesti Raudtee shall perform settlement of accounts with rail transport undertakings according to the procedure provided by the railway infrastructure user contract.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Reservation charges:

Although it is not explicitly mentioned in the Network Statement 2007, the fixed part of the access fee is a reservation charge given that it is paid whether the allocated train paths are used or not.

➤ Congestion and scarcity charges:

Network Statement 2007 defines, in case of railway infrastructure depletion, an additional access fee resulting from an auction procedure is invoiced. The bid made by each railway undertaking should include a separate access fee bid for each part of the requested capacity. The Committee for Capacity Allocation allocates the capacity to the maker of the highest bid for each part of the requested capacity and then, if the capacity on offer enables it, to the maker of the second highest bid for each part of the requested capacity and so on. This is clearly a scarcity charge given that is a charge which is only applied in case of scarcity of capacity.

*Charging level*

The Railway infrastructure access fee is composed by a part related to fixed costs and a part related to variable costs. A unit rate for each of these components is shown in Table 5.

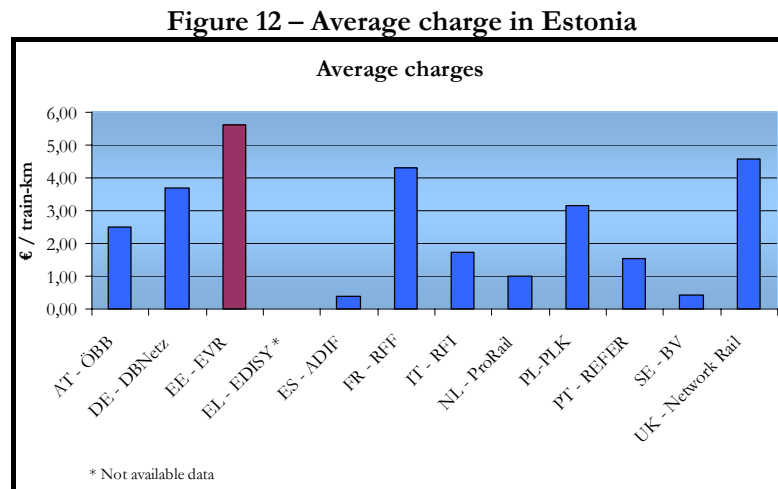
**Table 5 – Unit rates for the Railway infrastructure access fee in Estonia**

Railway infrastructure access fee		
Service	Type of service	
Access	Minimum access package	
Charging formula		
---		
Price components	Variables considered	Charging values
Part related to fixed costs	Type of service	International and local passenger trains: 0 EEK/train-km Other services: 74.9 EEK/train-km
Part related to variable costs		0.06 EEK/gross tonne-km

*Source: Own from Network Statement 2007*

A part from the unit rates applied in the Estonian charging scheme, it has been calculated the average charge. From EUROSTAT, it has been obtained a volume of traffic corresponding to year 2005 of 8.901.000 train-kilometres. However, the EVR's web page only provides its Annual Report until year 2003. As an approximation, it has been considered that the income from infrastructure charges in 2005 was 50 million euros, given that according to Ott Koppel (2005) "While setting the infrastructure access fee for the 2005-2006 timetable period, the Railway Inspectorate used the cost base of less than 50 million euros". As a result, the average charge is 5,62 €/train-km.

The following diagram shows this average charge in comparison with the level of the average charges of the rest of countries.



Source: Own from data of EUROSTAT and Ott Koppel (2005)

As it can be seen in the diagram above the level of the average charge in Estonia is the highest one. This is due to the fact that Estonia follows a full cost recovery approach and, in consequence, all its costs must be covered by the infrastructure charges.

It should be noticed that in the Estonian case, the difference among the charge paid by the freight services and by the international and local passenger services is very high. This is due to the fact that the international and local passenger trains do not pay the fix part of the charge.

#### 3.4.4. Greece (EL) – Ethnikos Diacheiristis Sidirodromikis Ypodomis (EDISY)

##### *General overview*

In 2005, two subsidiary companies of OSE were set up: EDISY S.A. as infrastructure manager and TRENNOSE S.A. as railway undertaking.

According to OSE's web page, EDISY exercises exclusively the administration and the exploitation of the National Railway Infrastructure, assuming the following tasks:

- Responsible for its maintenance
- The care of its improvements and expansions assuming responsibility for the management of the associated investments
- Evaluates, establishes and collects rates from the railway companies which use the infrastructure.
- Responsible for the capacity allocation

According to the 2007 Network Statement, in an initial phase, the regulatory body is planned to be a specific service of the Ministry of Transports and Communications.

## *National legal framework concerning charging*

On 7 March 2005, under Presidential Decree 41/2005, Greece implemented the EU Directives into national Legislation. Chapter VI of the Presidential Decree sets the legal framework for the charging of the use of railway infrastructure and related services.

### *User charge*

#### *Charging principles*

According to Article 13 of the Presidential Decree 41/2005, the infrastructure manager is responsible for setting the rules and criteria for determining the fee for the use of the National Railway Infrastructure although the Minister of Transport and Communications shall approve them. The calculation of the fee owed by each railway undertaking and the collection of this fee shall be performed by the infrastructure manager.

In accordance with Article 14 of the Presidential Decree, the accounts of the infrastructure manager shall at least balance income from infrastructure charges, surpluses from other commercial activities and State funding on the one hand, and infrastructure expenditure on the other. Thus, the approach is MC+.

#### *Calculation procedure*

According to the 2007 Network Statement, in order to calculate the charge for the use of railway infrastructure, account is taken of the base prices for the cost of track maintenance and traffic management, which derive from the division of the total cost for the respective service by the total number of train-kilometres.

#### *Charging structure*

The basic fee for the use of the infrastructure is composed by the basic prices corresponding to the track maintenance and to the traffic management services:

- The basic price corresponding to the traffic management depends on a peak period coefficient that varies with the time band and the line station and on a capacity occupation coefficient that takes account of every service's effect on the line's capacity by dividing the running time and the ideal running time in a line section.
- The basic price corresponding to the track maintenance depends on coefficient for the track quality provided in each line section and on a coefficient for the line's burdening by the train which depends on the speed range, the axial load range and on the number of axles.

The special charge is composed by a charge for the consumption of electric power for traction and a charge for the special/dangerous consignments.

The charging elements considered, classified according to Directive 2001/14/EC, are:



➤ Congestion and scarcity charges:

The basic price corresponding to the traffic management depends on two coefficients, the first relating to time deviations and the second relating to time bands and sections. Although it is not explicitly mentioned in the 2007 Network Statement, this charge should be related to the allocation of congestion costs.

*Charging level*

The basic fee depends on several factors. A range of values for each factor is given in Table 6.

**Table 6 – Range of values for the Basic fee in Greece**

Basic fee				
Service		Type of service		
Basic fee for the use of the infrastructure (C)		Minimum access package		
Charging formula				
$C = P * D$ where $P = P_{tm} + P_{lm}$ with $P_{tm} = B_{Ptm} * L1 * L2$ $P_{lm} = B_{Plm} * Kq * Ktrain$				
Price components		Variables considered		Charging values
Traffic management (P <sub>tm</sub> )	Unit price (B <sub>Ptm</sub> )			0,65 €/km
	Capacity occupation coefficient (L1)	Running time		>= 1
		Ideal running time	Line section category	
Peak period coefficient (L2)	Time period		0,7 - 1,2	
	Line stations			
Line's maintenance (P <sub>lm</sub> )	Unit price (B <sub>Plm</sub> )			0,4 €/km
	Coefficient for the track quality provided (K <sub>q</sub> )	Line section category		0,53 - 0,90
	Coefficient for the line's burdening by the train (K <sub>train</sub> )	Train category	Speed range	1,00 - 9,61
			Axle load range	
		Number of axles		
Distance (D)				

*Source: Own from Network Statement 2007*

As it has been done for the rest of countries, in Greece it has not been possible to calculate the average charge given that there is no available data on the incomes of EDISY.

### **3.4.5. Spain (ES) – Administrador de Infraestructuras Ferroviarias (ADIF)**

#### *General overview*

ADIF (Administrador de Infraestructuras Ferroviarias) is a state-owned company since the publication of Law 39/2003 on 17 November 2003 of the Railway Sector, which came into force on the 1<sup>st</sup> of January of 2005. ADIF arose from the combination of the former infrastructure manager for high speed lines (GIF) and the infrastructure management department of RENFE.

#### *National legal framework concerning charging*

The implementation in Spain of the First Railway Package went through Law 39/2003 of 17 November 2003 of the Railway Sector.

As well, other laws and Royal Decrees completed this implementation of the EU Directives: Royal Decree 2387/2004, Royal Decree 2395/2004, Royal Decree 2396/2004 and ORDEN FOM/897/2005.

According to Railimplement it is not expected that passenger services will be liberalised until 2010, given that currently only freight services have been liberalised.

#### *User charge*

##### *Charging principles*

The charging structure is defined in order to reflect the costs incurred by the infrastructure manager. The approach considered in Spain is MC+.

According to Erail (2005), the setting and collection of infrastructure charges is ADIF's responsibility. However, the Ministerio de Fomento is the responsible for the establishment of the level and structure of the track access charges. These prices are stated as public prices and therefore can only be modified by a legislative procedure. On the other side, ADIF fixes the charges related to additional and ancillary services.

##### *Calculation procedure*

Law 39/2003 defines the basic charging structure so as to reflect the costs incurred by the infrastructure manager. In fact, the law introduces different parameters (level of traffic, time period, type of line, type of service, distance covered, type of contract, and type of homologation) as a way to proxy marginal costs.

##### *Charging structure*

The charge for the minimum access package is composed by an access charge, a capacity reservation charge, circulation charge and a traffic charge.

- The Access Charge (Modality A) is a unit rate depending level of traffic estimated by the operator at the start of each Working Timetable.
- The Capacity Reservation Charge (Modality B) depends on the number of kilometres requested considering the type of line, the type of service and the time band. It is levied per train-km.
- The Circulation Charge (Modality C) depends on the actual kilometres considering the type of line and the type of service. It is levied per train-km.
- The Traffic Charge (Modality D) is only applied to passenger railway services offering a maximum speed greater than 260 km. It depends on the time band and is levied according to the capacity of the vehicles.

ADIF also establish a charge for the track access to services facilities and supply of services. In addition, the law states a security tax for the railway transport of passengers.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Mark-ups:

Although it is not explicitly mentioned in 2006 Network Statement, the Traffic Charge can be considered a mark-up since it is allocated to high speed services depending on their capacity (i.e. seats-km) and time band. According to 2006 Network Statement, the Traffic Charge value is established according to the service commercial value measured through the offered capacity. This can be considered a proxy to RU's willingness to pay (and indirectly to demand elasticity), and so, it could be interpreted as a way of applying a mark-up according to Ramsey's principle.

➤ Reservation charges:

The Capacity Reservation Charge is clearly a reservation charge given that it is levied per kilometres requested. As well, the Access charge is considered a reservation charge given that is paid just once at the start of Working Timetable and is levied according to the estimated level of traffic.

*Charging level*

The Minimum Access Package is composed by an Access Charge, a Capacity Reservation Charge, a Running Charge and a Traffic Charge. Table 7 shows a range of values for each of these components of the charge.

**Table 7 – Range of values for the Minimum Access Package in Spain**

Minimum Access Package		
Service	Type of service	
Access (Modality A)	Minimum access package	
Charging formula		
---		
Price components	Variables considered	Charging values
Access charge	Level of traffic	60.000 - 1.410.000 €/year

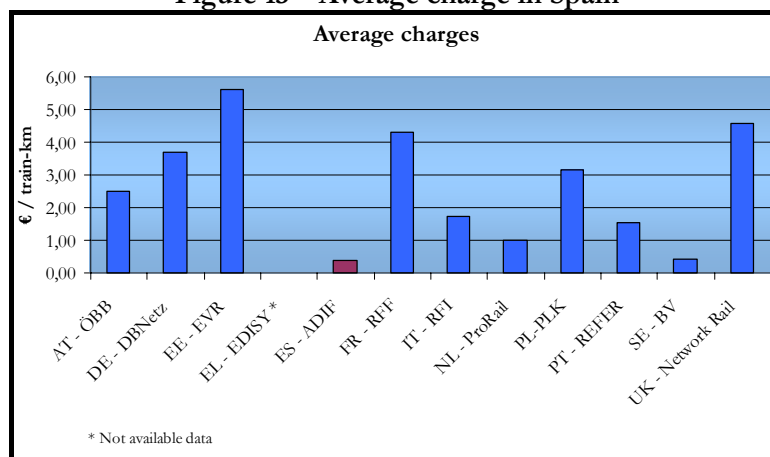
Charging for the railway infrastructure use during the last five years in Europe:  
state of the art and opportunities for revitalising the railways

Service		Type of service	
Capacity reservation (Modality B)		Minimum service package	
<b>Charging formula</b>			
---			
Price components	Variables considered	Charging values	
Capacity reservation charge	Time period	Peak hour	0.06-3.40 €/train-km
	Type of line	Normal hour	0.05-2.20 €/train-km
	Type of service	Off- peak hour	0.05-0.07 €/train-km
Service		Type of service	
Running (Modality C)		Minimum access package	
<b>Charging formula</b>			
---			
Price components	Variables considered	Charging values	
Running charge	Type of line Type of service	0,06 - 2,00 €/train-km used	
Service		Type of service	
Traffic (Modality D)		Minimum access package	
<b>Charging formula</b>			
---			
Price components	Variables considered	Charging values	
Traffic charge	Type of line Time period	0,65 - 1,25 €/100 seats-km	

Source: Own from Network Statement 2006

The level of the average charge has been calculated from data of the ADIF's Annual Report 2005 and the "Anuario del Ministerio de Fomento". From the first source, it has obtained that the income from the charges for the use of the infrastructure amounted in 2005 to 68 million euros. From the second source, it has been obtained that the total volume of traffic in 2005 was 127.700.000 train-kilometres. Then, as a result, the average charge is 0,40 €/train-km. The following diagram shows the comparison of the level of the average charge among all the countries considered.

**Figure 13 – Average charge in Spain**

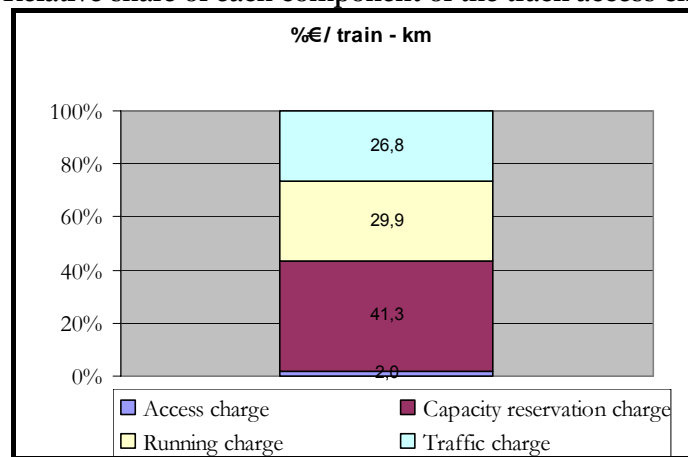


Source: Own from data of "Anuario 2005" and ADIF's 2005 Annual Report

As it can be seen in the diagram above, the level of the average charge in Spain is extremely low. This is due to the fact that in Spain the railways receive a great amount of State subsidies.

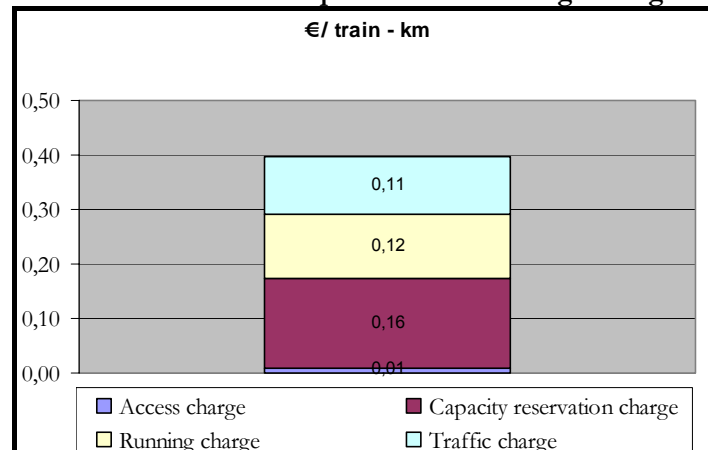
As well, the Annual Report 2005 provides data on the income due to each component of the charge (Access Charge, Capacity reservation charge, Running charge and Traffic charge) it has been possible to represent the share of each component in the total charge. Figure 14 and Figure 15 show the share of each component of the charge in relative and absolute terms.

Figure 14 – Relative share of each component of the track access charge in Spain



Source: Own from ADIF's 2005 Annual Report

Figure 15 – Value of each component of the average charge in Spain



Source: Own from ADIF's 2005 Annual Report

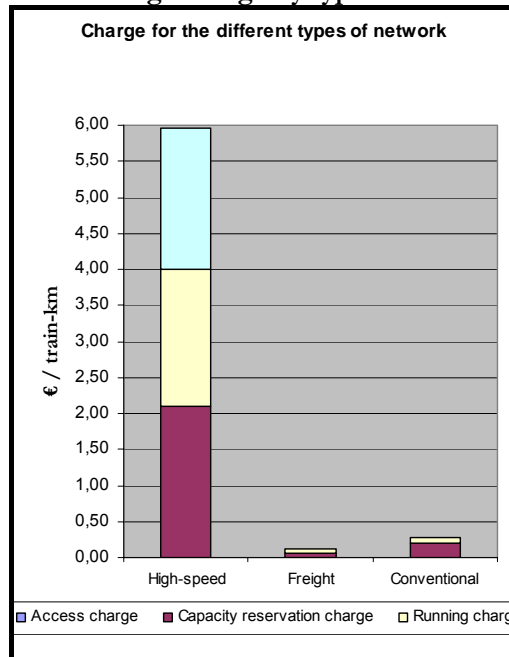
Concerning the type of service, the level of charges varies in a relevant way with this variable. In this case, there is an important difference between the average access charge for high speed services and for conventional passenger services or freight. Then, in order to calculate the charge for each type of services, there has been adopted some hypothesis:

- Normal time band for all the services
- Type of service V1 for high speed, M for freight and V2 for conventional trains

- Type of line A.2 for high speed and C for freight and conventional
- Level of traffic N3.B for all the categories (given that the volume of traffic is 180 millions train km/year)

The absolute level of the average charge for each type of service and for each component of the charge is shown in Figure 16:

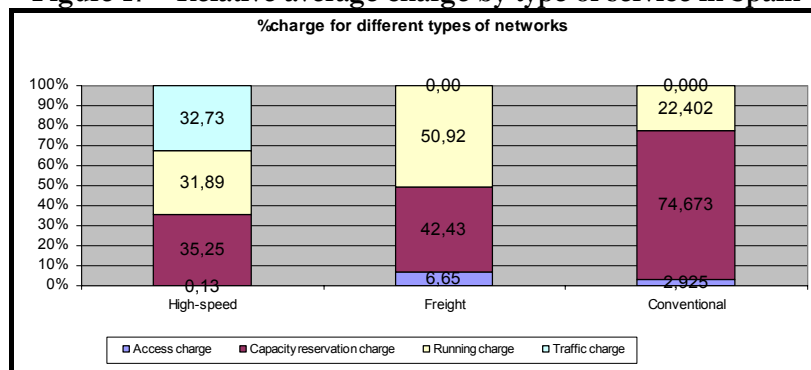
Figure 16 – Average charge by type of service in Spain



Source: Own from data of 2006 Network Statement

Figure 17 shows the relative level of the average charge for each type of service and for each component of the charge:

Figure 17 – Relative average charge by type of service in Spain

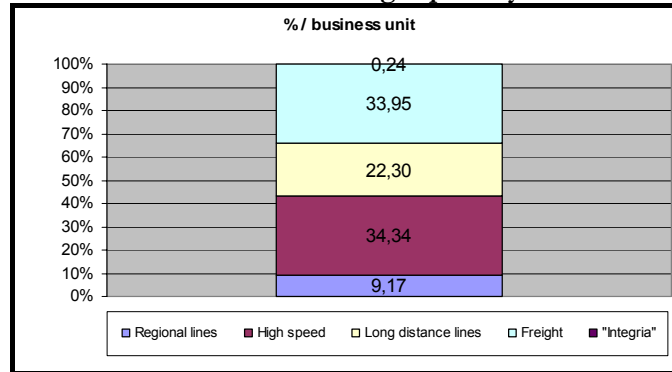


Source: Own from data of 2006 Network Statement

As it can be seen on the comparison of relative values among types of services, the access charge has low importance in every type of service although, in freight services, it reaches its maximum. The capacity reservation charge is moderated for high speed and freight but it is extremely high for conventional services. Finally, it should be noticed that only the high speed services have to pay the traffic charge.

Actually, although the average access charge (€/train·km) is higher for high speed trains than for freight trains, the total amount (€) paid by these two service yearly is very similar. This is reflected in Figure 18.

**Figure 18 – Share of the total amount of charges paid by each business unit in Spain**



Source: Own from Renfe's 2005 Annual Report

### 3.4.6. France (FR) – Réseau Ferré de France (RFF)

#### *General overview*

The creation of Réseau Ferré de France took place in 1997 due to the publication of law 97-135 in the aim of renewing France's rail transport service. On this date, RFF became the owner and manager of France's rail infrastructures, which had previously been managed by SNCF. In exchange, the RFF took over the SNCF's rail-related debts.

In 2003, RFF was put in charge of the capacity allocation, organising rail traffic on the French network.

#### *National legal framework concerning charging*

The implementation of the First Railway Package into national law in France went through Decree n° 2003-194 on the use of the railway national network.

#### *User charge*

##### *Charging principles*

According to ECMT (2005a), RFF follows a MC+ charging philosophy (marginal cost with mark-ups), and the reserve ratio of RFF's infrastructure charges amounts to 63%. The access charges are aimed at recovering maintenance, operation and renewals costs. In 2005, RFF's subsidies comprised subsidies for the infrastructure management costs, investments, debt repayment and investments for the renewal of the infrastructure.

### *Calculation procedure*

According to Erail (2005), the exact prices of charges are fixed in the order (“arrêté”) of 4 August 2003 by the Ministry on a proposal of the RFF. Prices are fixed on a yearly base. The largest payment is for path reservation. The tariffs are mainly determined on the basis of financial considerations (there is strong pressure to increase these tariffs to alleviate RFF’s poor financial position) and are not based on a detailed methodology to determine the marginal cost of the infrastructure.

### *Charging structure*

The charging scheme applied in France consists of the following elements:

- The Access charge depends on the type of line which is defined by a grouping of the network into four categories of elementary sections (suburban lines, main intercity lines, high-speed lines, and other lines) and twelve sub-categories of elementary sections corresponding to the traffic characteristics. It is paid by all railway undertakings making a request and is levied per train-kilometre.
- The Reservation charge is paid by all railway undertakings which have been granted a path by RFF. It is composed by a path reservation charge and a station stop reservation charge. The path reservation charge depends on the time band, the line category and the type of train and it is levied per path-km. Freight trains and light running traffic benefit from a reducing coefficient. The reservation charge for station stop is only levied to passenger trains. It depends on the time band and on the station category and it is charged for departure and each stop.
- The Running charge is levied for the actual kilometres and depends on the type of service. It is levied per train kilometre.

The charging elements considered, classified according to Directive 2001/14/EC, are:

#### ➤ Reservation charges:

The Access charge can be considered a reservation charge given that it is levied to all railway undertakings which make a request of capacity. As well, both the path reservation charge and the station stop reservation charge for passenger services are considered reservation charges.

#### ➤ Performance regimes:

There is a performance scheme put in place by RFF in order to optimise the performance of the rail network and offer a high-quality service to railway undertakings. It consists on a specific rate applied to the rate for the reservation of freight paths of which the total length is at least 300 km and of which the mean speed is greater than or equal to 70 km/h, not counting stops requested by the railway undertaking.



*Charging level*

The charge for the Minimum Access Package is composed by an Access charge, a Charge for Reservation of capacity and a Running charge. Table 8 shows a range of values for each component of the Minimum Access Package.

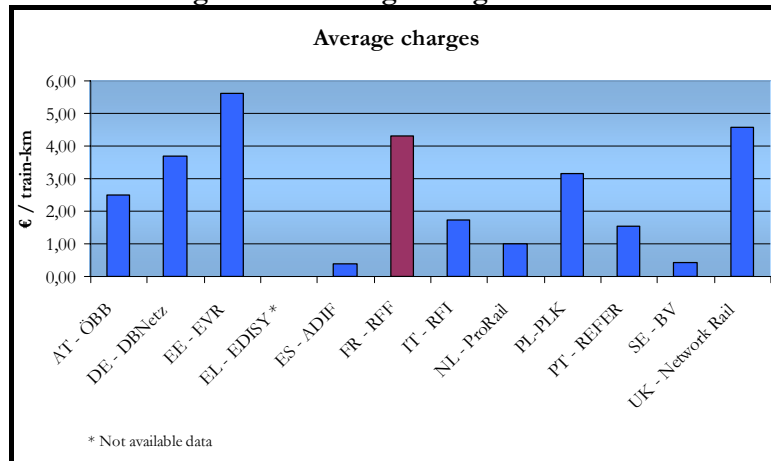
**Table 8 – Range of values for the Minimum Access Package in France**

Minimum Access Package			
Service		Type of service	
Minimum services		Minimum access package	
Charging formula			
DA + DR + DC			
DR = DRS + DRAG			
Price components	Variables considered	Charging values	
Access charge (DA)	Route category Type of traffic	0,000 - 1,030 €/train-km	
Charge for reservation of capacity (DR)			
Path reservation charge (DRS)	Type of period Route category Type of traffic Coefficient of modulation	Off-peak hour	0,000 - 1,850 €/train-km
		Normal hour	0,005 - 11,103 €/train-km
		Peak hour	0,005 - 14,500 €/train-km
		Coefficient of modulation	0,6 or 1
Reservation charge for stations stops of passenger trains (DRAG)	Type of period Route category	Off-peak hour	0,000 €/train departure
		Normal hour	5,500 - 8,000 €/train departure
		Peak hour	10,000 - 25,000 €/train departure
Running charge (DC)	Type of train	0,400 - 1,200 €/train-km	

*Source: Own from Network Statement 2007*

It is also possible to calculate the level of the average charge from data provided by the Annual Report 2005 and EUROSTAT. According to the Annual Report 2005, the total infrastructure fees levied during the year amounted to 2.182,4 million euros. In accordance to EUROSTAT, the total train-kilometres run in the French network in 2005 rose to 505.799.000 train-km. Then, the average charge is 4,31 €/train-km. Figure 19 shows the comparison of the level of the average charge among all the countries considered.

Figure 19 – Average charge in France

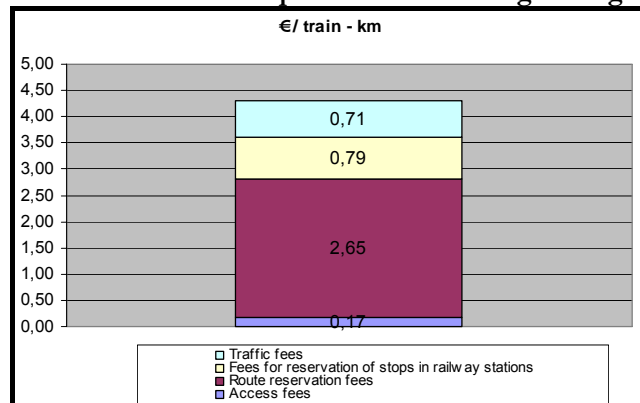


Source: Own from data of EUROSTAT and RFF's 2005 Annual Report

As it can be seen in the diagram above, the level of charges in France is high given that the approach considered is MC+ and the level is higher than other countries whose approach is FC (i.e. Poland).

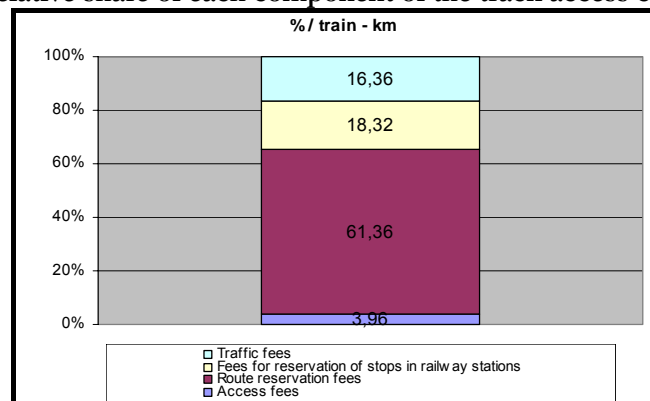
As well, the Annual Report 2005 provides data on the income due to each component of the charge (Access fees, Route reservation fees, Fees for reservation of stops in railway stations and Traffic fees) it has been possible to represent the share of each component in the total charge. Figure 20 and Figure 21 show the share of each component of the charge in relative and absolute terms.

Figure 20 – Value of each component of the average charge in France



Source: Own from RFF's 2005 Annual Report

Figure 21 – Relative share of each component of the track access charge in France



Source: Own from RFF's 2005 Annual Report

### 3.4.7. Italy (IT) – Rete Ferroviaria Italiana (RFI)

#### *General overview*

RFI was constituted in 1 July 2001, as a conclusion of the reorganization of Gruppo Ferrovie dello Stato initiated, in order to fulfil the Community Directive, while separating the infrastructure management and the operation, which was assumed by TRENITALIA in 1 June 2000. RFI is a daughter company of the Holding FS.

#### *National legal framework concerning charging*

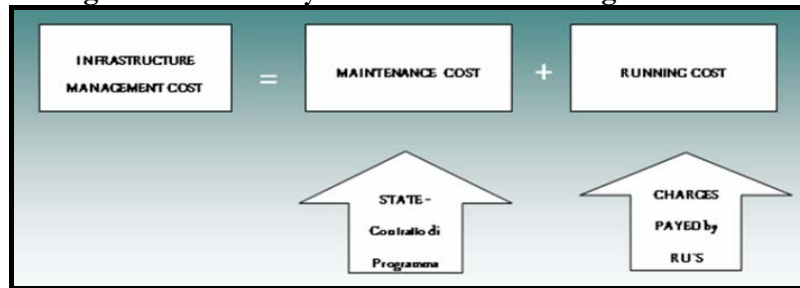
In 1998, Italy initiated the rail liberalisation by implementing Directive 91/440 through Presidential Decree n° 277/1998. Afterwards, the First Railway Package was implemented through Legislative Decree n° 188 of 8 July 2003. This Decree covers all the main aspects of the three Directives touching on the licensing, the safety aspects and the more detailed conditions set out in 2001/14/EC relating to charging, services and performance regimes.

#### *User charge*

##### *Charging principles*

The basic approach taken to charging in Italy is described by RFI as being based on full cost recovery for the running costs while the maintenance costs are paid by the State through the Contratto di Programma. This approach is shown in Figure 22.

Figure 22 – Recovery of infrastructure management costs



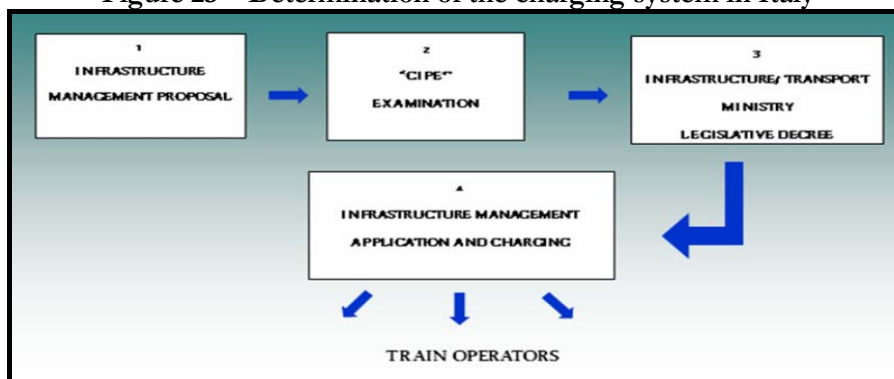
Source: ECMT. Workshop in Rome, July 2004

The charging framework that has been adopted has attempted to disaggregate the costs of operating, maintaining and renewing the network not only according to the wear and tear caused by the different types of rolling stock and their characteristics but also according to three different types of railway infrastructure (the fundamental network, the complementary network, and the key nodes around major conurbations).

#### Calculation procedure

The process of setting the access charges is carried by the infrastructure manager and the CIPE (“Comitato Interministeriale per la Programmazione Economica”), as it can be seen in Figure 23.

Figure 23 – Determination of the charging system in Italy



Source: ECMT. Workshop in Rome, July 2004

The main factors determining the average level of charges are compiled in Table 9. As well, it shows the cost categories that charges are designed to cover:

Table 9 – Cost categories considered by RFI

Costs covered by charges	Wholly	Partly	No
Traffic management	X		
Maintenance			X
Renewals			X
Investments			X
IM's salaries and pensions		X	
Accidents			X
Pollution			X

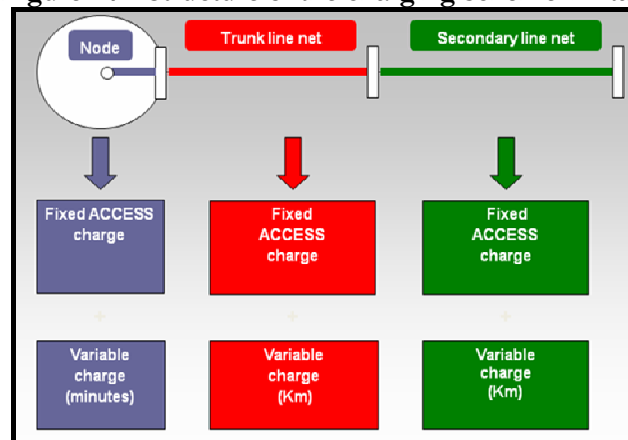
Source: Own from ECMT. Workshop in Rome, July 2004

Those cost categories that are not covered or partly covered by charges are paid by the State budget.

### *Charging structure*

The type of charge applied by RFI is a two-part tariff consisting on a fixed access charge and a variable charge. The fixed access charge is the 40 % of the RFI's revenues and, the variable charge, is the remainder 60%. The charge value is determined according to the type of infrastructure: node, the trunk line net and the secondary line net. This structure is shown in Figure 24.

**Figure 24 – Structure of the charging scheme in Italy**



Source: ECMT. Workshop in Rome, July 2004

The parameters considered in the calculation of charge for the Minimum Access Package are the following ones:

- The quality of the railway infrastructure, related to the maximum speed and the technical layout of the line.
- The congestion of the piece of the network charged.
- The wear and tear of the rail and the electric wire, related to the weight of the rolling stock used.
- The speed of the train, as well as the deviation of the speed in relation to the optimal commercial speed.
- The power consumption.

The charge for each train path includes:

- Fixed part per section/node related to the access cost for each section or node varying with the quality of the railway infrastructure.
- Variable part per kilometre/minute, related to the cost of use of the infrastructure depending on the actual kilometres travelled and the minutes staying inside a node. It varies with the type of line and, within it, depends on the relative density, speed and deterioration (calculated from vehicle variables like speed and weight).

This charging scheme is reflected in Figure 25.

Figure 25 – Variables considered in the charging scheme

CHARGE =		F	+	V* km/min.(nodes)
		Fixed		Variable
What RU's pay for	Which part			
	FIXED ACCESS	VARIABLE		
		Quality of line (number of tracks, speed and technological equipment) (Reservation fee)	Inefficient use of capacity (speed of train)	
			Usure (weight)	
	Traffic demands (density)			
		Use of section (km)		
	F is payed for each node and each trunk line F <sub>max</sub> is payed only one time for all secondary lines	Variation is based on number of km (trunk or secondary line) and minutes (nodes)		

Source: ECMT. Workshop in Rome, July 2004

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Reservation charges:

The reservation is set at the minimum value between the charge to access the section and the 50% of the whole track access charge.

The fixed part of the charge can also be considered as a reservation charge as it is levied in order to access to a section or a node.

➤ Performance regimes:

The Performance Regime applied in Italy consists on a delay minutes accountancy system. The delays are measured at destination stations. It is based on allowed delay threshold which depends on the type of service: 5 minutes for regional passenger trains, 15 minutes for mid-long distance passenger trains and 30 minutes for freight trains. There is allocation of responsibilities between the infrastructure manager and the railway undertaking. The charge for disruption is cap to a maximum of 20% of the total usage charge or of 1,5% of the total yearly usage charge.

➤ Discounts:

The discount applied in Italy is due to the backwardness of the infrastructure. It is composed by two parts: the first part of the discount is applied to network segments where no conditions stand for a single agent driving and it considers different unitary rates depending on the type of line and the time band; the second part corresponds to the total volume of traffic in train-kilometres during a year depending on the type of traffic (short distance passenger, long distance passenger, freight) and it cannot exceed the 80% of the total usage charge of the year.

*Charging level*

The charge for each train path is composed by a part related to the access, a part related to the use of the infrastructure and a part related to the consumption of power. A range of values for each component of the charge is given in Table 10.

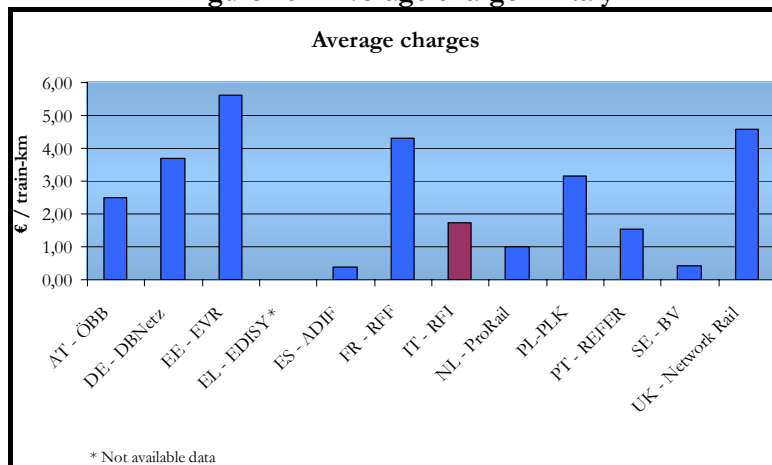
**Table 10 – Range of values for the Basic charge in Italy**

Basic charge		
Service	Type of service	
Access	Minimum access package	
Charging formula		
R <sub>section/node</sub> + R <sub>km/min</sub> + R <sub>power consumption</sub>		
Price components	Variables considered	Charging values
Access to the infrastructure (R <sub>section/node</sub> )	Type of section in the main network	49,06 - 64,56 €/section
	Type of section in the complementary network	23,24 – 46,48 €/section
	Type of node	51,65 €/node
Use of the infrastructure (R <sub>km/min</sub> )	Velocity deviation	
	Time period	
	Type of section	
	Interval	
	Use of main station	
Power consumption (R <sub>power consumption</sub> )	Distance run with electric traction	0,332 €/km
	Time band	

Source: Own from Network Statement 2007

A part from the range of values shown in the table above, it has been calculated the average charge. According to the RFI's Annual Report 2005, the total income from the levy of tolls amounted to 647,142 million euros. As well, according to EUROSTAT, it is known that the total volume of traffic in 2005 rose to 373.334.000 train-kilometres. As a result, the average charge is 1,73 €/train-km. In Figure 26 it can be seen the level of the average charge in Italy compared to the rest of the countries.

**Figure 26 – Average charge in Italy**



Source: Own

As it is shown in the diagram, the average charge in Italy is low in comparison with the rest of countries. This result could be expected given that the State pays a high share of the total costs, as it can be seen in Table 9.

### **3.4.8. Netherlands (NL) – ProRail**

#### *General overview*

In 1995, three NS divisions became responsible for the management of the Dutch railway network: Railinfrabeheer, responsible for maintenance and construction, Railned, allocating capacity and Railverkeersleiding, that monitored daily traffic, provided travelling information and dealt with recovery after disruptions. Although they worked by the order of the Ministry of Transport, Public Works and Water Management, these divisions remained part of the NS Holding until 2002.

In 2002, the separation of management and exploitation became effective through a new Railways Act. Since 1 January 2003, the three divisions of NS are united in ProRail.

The Inspection Service of Transport (IVW) is responsible for the safety and the Office of Transport Regulation of the Netherlands Competition Authority (NMa) is the national competition authority and the regulatory body, including appeals for infrastructure charges.

#### *National legal framework concerning charging*

The implementation of the First Railway Package went through the Railways Act 2005 (Spoorwegwet 2005), in particular Articles 62 and 63 implement Directive 2001/14/EC.

#### *User charge*

##### *Charging principles*

The approach taken to charging in the Netherlands is MC. The Dutch Ministry of Transport reported that charges will, from year 2005, cover traffic management and maintenance costs in full. The costs of renewal, investment, salaries, accidents, air pollution or noise are not covered by charges.

##### *Calculation procedure*

According to Network Statement 2007, tariffs for the use of the railway infrastructure are based on the variable operating costs of the train service. The point of departure in determining these variable costs is the train service at the current transport volume plus or less 5%. No additional market surcharges are applied to increase the coverage of costs on the part of ProRail.



### *Charging structure*

The Basic Access Package applied by ProRail is composed by a tariff per train-kilometre and a tariff per ton-kilometre. The first one allocates marginal operation costs and the second one, marginal maintenance costs. Both tariffs are applied to all services.

As well, there is a charge for access to facilities invoicing use of the contact line, use of refuelling systems, passenger access and transfer facilities at stations and stabling and shunting of rail vehicles. Finally, ProRail also offers additional and ancillary services.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Discounts:

To promote use of the Port Railway Line, ProRail is therefore to grant a discount on the ton-kilometre charge applicable on the Combined Network on the access and exit routes of the Port Railway Line. Then, the discount is applied for the portion of the train weight over and above 750 tons.

### *Charging level*

The Basic Access Package is composed by a tariff per train kilometre and a tariff per ton kilometre. In Table 11 are shown the unit rates applied for each part of the charge.

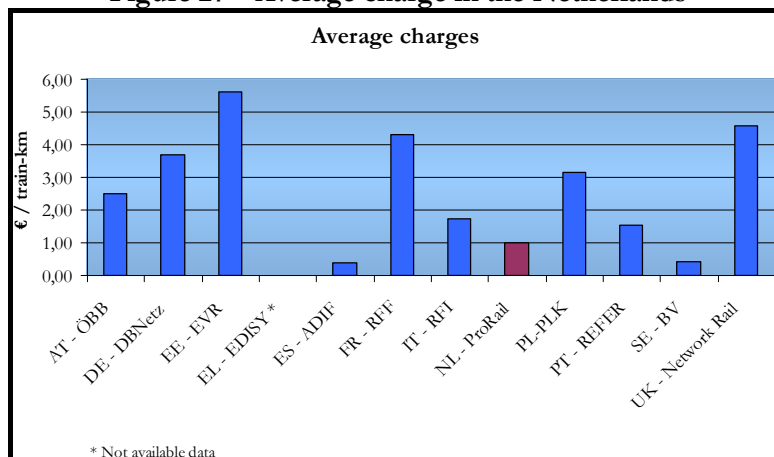
**Table 11 – Unit rates applied in the Basic Access Package in the Netherlands**

Basic Access Package		
Service	Type of service	
Basic access package (BAP)	Minimum access package	
Charging formula		
BAP = TTr + Tto		
Price components	Variables considered	Charging values
Tariff per train-kilometre (TTr)		0,5059 €/train-km
Tariff per ton-kilometre (TTo)		0,001715 €/ton-km

*Source: Own from Network Statement 2007*

As for the other countries, it has been calculated the average charge resulting from the quotient between the total income from charges and the total volume of traffic in 2005. From the 2005 Annual Report, it is known that the total revenue from the user charge corresponds to 125 million euros and, according to EUROSTAT, in 2005 the total traffic was 125.250.000 train-kilometres. As a result, the average charge is 1,00 €/train-km. The level of the average charge in the Netherlands compared among the rest of countries is reflected in Figure 27.

Figure 27 – Average charge in the Netherlands



Source: Own from data of EUROSTAT and ProRail's 2005 Annual Report

The level of the charge is one of the lowest. This result makes sense as the approach taken to charging in the Netherlands is MC.

### 3.4.9. Poland (PL) – Polskie Linie Kolejowe S.A. (PLK)

#### *General overview*

In 2001, the state-owned company PKP was transferred into a capital holding company namely PKP Group. In June 2003, the Railway Transport Office was created and PKP PLK was designated as infrastructure manager, jointly owned by PKP S.A. and the Ministry of Finance.

#### *National legal framework concerning charging:*

In March 2003, with the Act on Railway Transport, Poland implemented the First Railway Package of Directives. According to Railimplement, this Act had some variations that introduce some disconformities with European Directives.

As well, the legal framework for charging is established by the Decree of Minister of Infrastructure of 7 April 2004 on conditions concerning access and use of railway infrastructure.

#### *User charge*

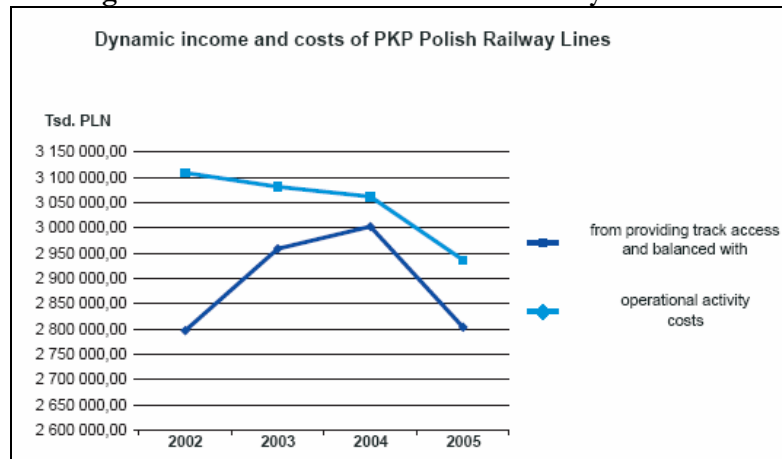
##### *Charging principles*

According to Erail, Infrastructure manager (PLK) is the responsible for the setting of charges with the supervision of the Railway Transport Office (RTO). The President of the RTO is responsible for the approval and coordination of charges for the use of granted train routes in respect of compatibility with rules of setting charges (Art. 13 of the Law on Railway Transport). Furthermore must handle the complaints of railway operators related to the charges for the use of railway infrastructure.

The general aim of the charging system is to cover the total and justified infrastructure manager's costs connected with the process of making infrastructure available to the users. However, according to the Act of 28 March 2003 certain costs as investments are financed from the national budget. Thus, the charging philosophy adopted by PKP is FC-

The relation between the incomes and costs incurred by PKP PLK can be seen at Figure 28.

**Figure 28 – Incomes and costs incurred by PKP PLK**



Source: Infrastructure Manager's 2005 Annual Report

### *Calculation procedure*

According to ECMT (2005a), the unit rates are calculated on the basis of maintenance costs, traffic operation costs and cost of administration in connection with providing access, investment expenditures on managed lines and additional costs. Unit rates of basic charges for using infrastructure are determined for individual line sections and depend on historical costs and on the level of operating performance on each section.

### *Charging structure*

The basic charge applied in the Polish charging scheme is composed by a realisation charge for the use of the railway lines and by a reservation charge, which is part of the realisation part. The basic charge is calculated as a total of products of unit rates assigned to individual sections of railway lines and the length of these sections.

The unit rates specified for train parameters (weight and speed) are defined by timetable for qualified passenger trains (average technical vehicle speed) and for other trains (gross weight of a train).

PKP can apply average rates in the whole network for those railway undertakings that have ordered train paths on at least 60% of railway lines managed by PKP or that will utilise (on a daily average) at least 70% of all trains paths prepared for them in the Annual Timetable.

As well, PKP sets additional charges for the additional services such as hazardous transports, extra information about the train route, preparation of a Timetable Study, ...

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Reservation charges:

The reservation charge included in the basic charge is agreed with each RU within the track access agreement.

➤ Performance regimes:

There is a performance regime regulated in the contracts signed between PKP PLK and some of the railway undertakings.

➤ Discounts:

On separate request of RU, justified by increase of performance volume resulting from transferring goods from other modes of transport into railways, PLK has a right to give discount (for certain period of time). Discount level cannot be higher than 50% of fixed part of average unit rates given in the price list.

As well, on separate request of railway undertaking PLK has a right to give discount (for a certain period of time) to exceptional trains (not included in Annual Timetable) serving celebrations concerning national and religious holidays or promoting railway industry. The level of discount is 60% of unit rates.

*Charging level*

The Basic charge depends on several variables such as the type of train, the maximum speed of the section,... A range of values and an average value are given in Table 12.

**Table 12 – Range of values for the Basic charge in Poland**

Basic charge				
Service		Type of service		
Basic charge		Minimum access package		
Charging formula				
UR x L				
Price components	Variables considered	Charging values		
Unit rate assigned to individual sections of railway line (UR)	Type of train	Qualified passenger trains	Specific values	4,61 - 16,84 zl/train-km
			Average	9,26 zl/train-km
	Maximum speed of the section	Other passenger trains	Specific values	3,69 - 15,01 zl/train-km
			Average	6,80 zl/train-km
	Average technical vehicle speed (for qualified passenger trains)	Rail buses	Specific values	2,08 - 6,04 zl/train-km
			Average	2,62 zl/train-km
Gross weight of a train	Freight trains	Specific values	11,26 - 53,86 zl/train-km	

**Charging for the railway infrastructure use during the last five years in Europe:  
state of the art and opportunities for revitalising the railways**

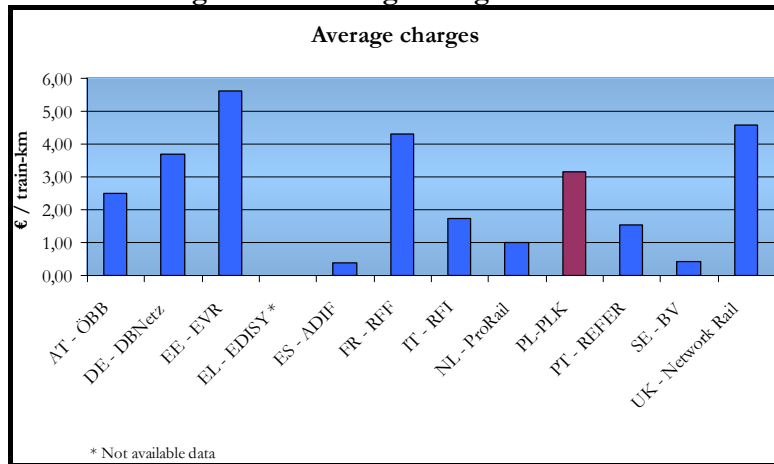
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	(for other trains)		Average	20,61 zl/train-km
		Locomotives	Specific values	2,99 - 9,96 zl/train-km
			Average	4,38 zl/train-km
		Combined block trains	Specific values	6,07 - 16,47 zl/train-km
			Average	10,59 zl/train-km
		"Pociagi sluzbowe "	Specific values	2,71 - 10,85 zl/train-km
			Average	4,62 zl/train-km
Length of the section (L)				

Source: Own from Network Statement 2007

A part from the range of values provided in the table above, it has calculated the average charge, by dividing the total revenue from charges by the total train-kilometres. According to the Annual Report, the total income from access charges amounted, in 2005, to 2.501,8 million PLN which corresponds to 655,9 million euros. As well, in accordance with EUROSTAT, the total volume of traffic in the Polish railways in 2005 rose to 207.173.000 train-kilometres. Then, the average charge resulting is 3,17 €/train-km. Figure 29 shows the average charge resulting in Poland compared to the average charge resulting in the rest of countries.

**Figure 29 – Average charge in Poland**



Source: Own from data of EUROSTAT and PKP PLK's 2005 Annual Report

The level of the average charge exposed in the diagram above is near to the average of the average charges (2,63 €/train-km). This means that the level of the charge is not extremely high given that the charging scheme applied by PLK is intended to recover full costs less subsidies.

### 3.4.10. Portugal (PT) – Rede Ferroviaria Nacional (REFER)

#### *General overview*

In accordance with the government Decree n° 104/97, REFER, Rede Ferroviária Nacional, E.P, was legally incorporated on 29 April 1997 and is responsible for managing the infrastructure of the Portuguese Railway System.

In compliance with the criteria of independence from Rail Transportation management companies, REFER reports to the Instituto Nacional do Transporte Ferroviário (INTF), the state railway regulator. In partnership with the existing railways operators, CP and Fertagus, the regulator defines access rights, grants access licences to operators, approves access charges and regulates railway activities taking into account development, safety, quality and environment.

REFER's mission is to manage the rail network in terms of construction, conservation, maintenance, management of property assets and capacity management in order to provide the market with a competitive, efficient, safe and environmentally sound transport infrastructure.

#### *National legal framework concerning charging*

The implementation of the First Railway Package went through Decree-Law 270/2003 approved the 28<sup>th</sup> October 2003 which defines the conditions for the rendering of rail-related services and for the management of the railway infrastructure.

#### *User charge*

##### *Charging principles*

Tariffs are calculated in order to partly cover transport service provision costs. The parameters used relate to the maintenance of the infrastructure, the type of traffic (freight/passenger/empty), the type of route (electrified/non-electrified) and the line used. The charges partly cover management costs and maintenance costs but do not cover renewals, investments, accident costs, ... Thus, the approach taken to charging in Portugal is MC.

##### *Calculation procedure*

Tariffs for the use of essential services are calculated for 9 different homogenous groups by dividing the costs that are directly related to each essential service by the useable capacities in every part of the network where the services are offered.

The procedure followed to the establishment of the prices consists of:

- The infrastructure manager publishes the prices in the Network Statement two years in advance, based on provisional data for those costs. It should provide additional specific data to the rail regulator supporting the set of prices published.

- The regulator analyses the information which supports the prices according to the methodology, the principles established by Decree-Law 270/2003 and the data supporting the prices and its evaluation through time.
- The operators may disagree with the prices and ask the regulator to interfere.
- The regulator may issue a recommendation or an instruction pointing changes on the published prices.
- Finally, the infrastructure manager has to look over for the corrections pointed by the regulator and publish them again in the Network Statement.

### *Charging structure*

According to the 2006 Network Statement, the infrastructure manager offers as essential services all those needed for the effective access to infrastructure. The basic tariff for the essential services depends on the type of service, the type of traction and the line or section. Tariffs for the use of essential services are intended to recover marginal operation, maintenance and renewal costs and are allocated to train km according to the type of line and the type of service.

As well, additional and ancillary services are provided at the price based on the costs incurred on the basis of the actual level of use.

The charging elements considered, classified according to Directive 2001/14/EC, are:

#### ➤ Reservation charges:

There is a tariff for unused requested capacity which varies from 10% to 100% of the applicable tariff depending on the anteriority of the cancellation in relation to the date of the requested capacity.

#### ➤ Performance regimes:

The performance regime aims at reducing disturbances to a minimum and to promote efficiency in the services, allowing for a better operating performance. Railways undertakings are free to accept it or not.

This performance regime consists on a delay minutes accountancy system based on control points at destination stations (only considering arrival times). It establishes certain performance standards depending on the type of service: 3 minutes for suburban passenger trains, 5 minutes for medium and long distance passenger trains and 30 minutes for freight trains. It is remarkable that in case the train is partially or totally cancelled, or there is a failure service at a station, the delay time is calculated as being the difference between the original arrival time at the destination and the best alternative for the final customer. For each train, the maximum penalty is 20% of the tariffs for essential services.

*Charging level*

The Basic tariff depends on the type of route, the type of traffic and the line. In Table 13 a range of values for this charge are shown for different types of lines and traffic.

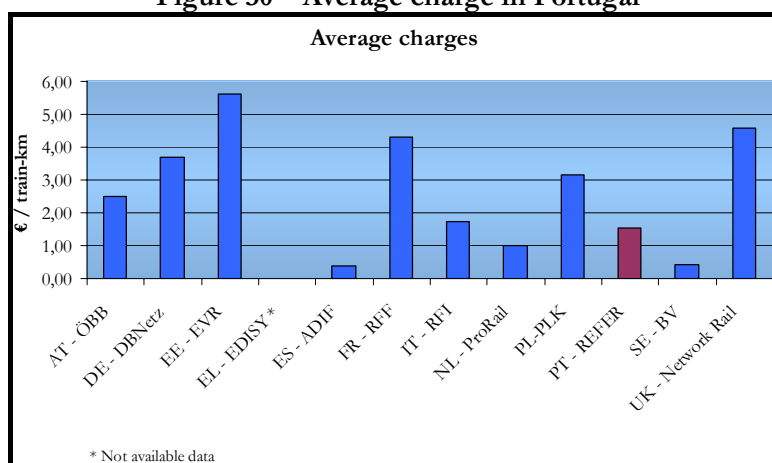
**Table 13 – Range of values for the Train Path Charge in Portugal**

Train Path Pricing		
Service	Type of service	
Essential train services	Minimum access package	
Charging formula		
---		
Price components	Variables considered	Charging values
Basic tariffs	Type of route Type of traffic Line	Suburban lines: Passengers and empty trains: 1,30 - 2,31 €/train-km Freight trains: 1,31 - 2,37 €/train-km Non suburban lines Passengers and empty trains: 1,68 - 2,82 €/train-km Freight trains: 1,75 - 2,87 €/train-km

Source: Own from Network Statement 2006

It has been calculated the average charge by dividing the total revenue from charges and the total volume in traffic in 2005. According to REFER's 2005 Annual Report, the revenues from the user's charge amounted to 57,8 million euros. In addition, from EUROSTAT, it is known that the volume of traffic in 2005 was 37.675.000 train-kilometres. Then, the resulting average charge is 1,53 €/train-km. In Figure 30, it is shown the level of the average charge for each country, standing out the average charge corresponding to Portugal.

**Figure 30 – Average charge in Portugal**



Source: Own from data of EUROSTAT and REFER's 2005 Annual Report

As it can be seen, the level of the average charge in Portugal is relatively high, especially if considering that the approach taken to charging is MC.



### 3.4.11. Sweden (SE) – Banverket (BV)

#### *General overview*

In 1988, Sweden managed the separation between operation and infrastructure management, being the first country in the world. Then, the Transport Politics Law designed Banverket as the infrastructure manager and Statens Järnvägar (SJ), became a public railway operator.

Järnvägsstyrelsen is the railway regulator and was established on 1 July 2004 according to Directive 2000/14/EC. It is in charge of the supervision of infrastructure charges and the capacity allocation procedure.

#### *National legal framework concerning charging*

The First Railway Package was implemented in Sweden through the Järnvägslag (Railway act, 2004:519) of 1 July 2004 on the levying of charges.

#### *User charge*

##### *Charging principles*

According to ECMT (2005a), the cost recovery target for infrastructure charges is 5% of total costs. Charges are based on a distributed average of short run marginal maintenance costs plus a mark-up to recover the Öresund Bridge costs that is applied to passenger trains across the whole network. Freight trains pay a specific toll for use of the bridge.

Charges are intended to partly cover traffic management costs and maintenance costs with the remainder being covered with the State budget. Costs not covered by charges are renewals, investments and other costs.

Thus, the approach taken to charging in Sweden is MC+, although the fact that renewal costs are not covered by charges means that probably charges are below marginal costs.

##### *Calculation procedure*

As mentioned, charges are intended to recover maintenance costs and part of management costs. The marginal costs are estimated through an econometric model. The calculated marginal costs are then compared with average costs to establish cost recovery rates from the model.

##### *Charging structure*

The current Swedish charging scheme is composed Marginal-cost based charge, and a Special charge, including a train path charge and other special charge for passenger traffic.

The Marginal-cost-based charges corresponds to the cost incurred as a directly consequence of the movement of rail vehicles. It includes a track charge, and accident charge and emission charge:

- The Track charge reflects those costs of maintaining the railway infrastructure to which an additional train movement gives rise. It varies with the number of gross tonne-kilometres. According to the Network Statement 2007, the level of the charge has been determined by studies of the change in Banverket's costs for maintenance when traffic volumes change.
- The Accident charge reflects the socio-economic costs of accidents involving injury to which an additional train movement gives rise. It varies with the number of train-kilometres. According to the Network Statement 2007, the level of the charge has been determined by studies of the change of the socio-economic costs associated with accidents when traffic volumes change.
- The Emission charge reflects the socio-economic costs in terms of environmental and health effects to which an additional train movement gives rise. It varies with the number of litres of diesel fuel and varies with the type of traction unit.

The special charge Train path charge consists on a charge for a contribution to covering the fixed costs of the infrastructure. It is applied to freight traffic passing over the Öresund Link. As well, there is another special charge only for passenger services which is levied per gross tonne-kilometre.

Banverket offers also establishes charges for the track access to service facilities, the ancillary services, known as Extra services, and Additional services, for instance the supply of traction motor current.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ Mark-ups:

The part of the train path charge levied to freight traffic crossing the Öresund Link should be considered a mark-up given that is charged per train crossing and that it is stated at a high value.

As well, the special charge levied to passenger services per gross tonne-kilometre is also considered a mark-up.

➤ Environmental charges:

Both the Emission charge and the Accident charge are environmental charges given that are intended to recover the socio-economic costs of environmental and health effects and of accidents.

*Charging level*

The Minimum Access Package charged by Banverket is composed by a Train path charge, a Special charge for passenger traffic and a Marginal-cost based charge incurred by the operation of the traffic. The unit rates levied for each component are compiled in Table 14.

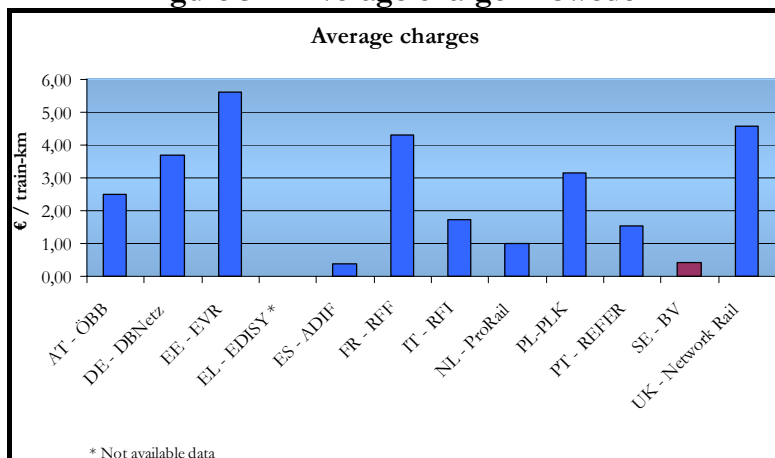
**Table 14 – Unit rates applied in the Minimum Access Package in Sweden**

Minimum Access Package		
Service	Type of service	
Minimum access package (MAP)	Minimum access package	
Charging formula		
MAP = TPC + OSC + MCB where MCB = TC+AC+EC+DPL+DMU		
Price components	Variables considered	Charging values
Train path charges (TPC)	Type of service	0,25 SEK/gross tonne-km 23,25 SEK/gross tonne-km for freight traffic over the Öresund Link
Other special charge for passenger traffic (OSC)		0,0078 SEK/gross tonne-km
Marginal-cost- based charges incurred by the operation of the traffic (MCB)	Track charge (TC)	0,0029 SEK/gross tonne-km
	Accident charge (AC)	0,65 SEK/train-km
	Emission charge (EC)	---
	Trains hauled by diesel-powered locomotives (DPL)	0,39 SEK/litre of diesel fuel
	DMU power cars (DMU)	0,22 SEK/litre of diesel fuel

*Source: Own from Network Statement 2007*

As for the rest of countries, it has been calculated the average charge. According to 2005 Annual Report, the income due to the track charges available to Banverket amounted to 479,2 million SEK, which corresponds to 52,8 million euros. From EUROSTAT, it is recognized that the volume of traffic in 2005 was 127.411.000 train-kilometres. As a result, the average charge is 0,41 €/train-km. Figure 31 shows the level of the average charge calculated for Sweden in comparison with the average charges calculated for the rest of countries.

**Figure 31 – Average charge in Sweden**



Source: Own from data of EUROSTAT and Banverket's 2005 Annual Report

It is logical that the average charge in Sweden is as low as it can be seen in Figure 31, given that only the short-run marginal costs are charged plus a mark-up in order to recover the investment costs of the Öresund Link.

### 3.4.12. United Kingdom (UK) – Network Rail

#### *General overview*

In the United Kingdom, during the mid-nineties, the rail system was completely broken up into approximately a hundred of companies and privatised. Then, Railtrack PLC became the owner and operator of the national railway network.

The fatal accidents at Southall in 1997 and Ladbroke Grove in 1999 called into question the effect that the fragmentation of the railway network had on both safety and maintenance procedures. It was the Hatfield crash on October 17, 2000 that proved to be the defining moment in Railtrack's collapse.

In March 2002, Network Rail was created specifically to acquire Railtrack. It is a British “not for dividend” private company limited by guarantee, whose principal asset is Network Rail Infrastructure Limited, a company limited by shares. Network Rail owns the national rail network infrastructure and it is subject to regulation by the independent Office of Rail Regulation (ORR).

The Office of Rail Regulation (ORR) was established on 5 July 2004 under the Railways and Transport Safety Act 2003. ORR is an independent statutory body led by a Board. ORR sets the contractual and financial framework within which Network Rail operates the network.

#### *National legal framework concerning charging*

The privatisation of the rail sector was carried during the mid-nineties, so it was ten years before the publication of the First Railway Package.

The legal framework for charging in the United Kingdom is established by the Statutory Instrument 2005, n° 3049. As well, it is important to mention the Railways Act 1993 and the Transport Act 2000, which amended the Railways Act 1993.

### *User charge*

#### *Charging principles*

The Office of Rail Regulation has a statutory duty to ensure that Network Rail has an adequate income to meet all its costs including a return on capital in case it operates efficiently. ORR, through the Access Charges Review, establishes the revenues and the associated financial framework required for Network Rail in order to operate, maintain and renew its infrastructure. Thus, the structure and the amount of charging elements are fixed by the ORR.

Given that the charges must cover whatever costs that are not met directly by government grant, the charging principle may be labelled as full cost recovery. However, the variable element of the tariff is based on short run marginal costs and the fixed element is only applied to passenger franchisees. Thus the charging principle must be labelled as marginal cost pricing.

According to ECMT (2005a), Network Rail follows a MC charging philosophy for freight and a MC+ charging philosophy for passengers. The amount of access charges is such that Network Rail's income from such charges together with surpluses from other commercial activities and any public funds shall at least balance with infrastructure expenditure.

#### *Calculation procedure*

The current charging scheme applied by Network Rail is composed by a fixed charge and by a variable charge. The variable charge consists on a Track variable usage charge, a Capacity charge, a Traction electricity charge and an Electrification access charge. Each of these charges is calculated through a specific procedure.

Since 2001, in Britain is used a usage charge model to derive variable costs. This is a top-down model which estimates total renewals and maintenance expenditure multiplied by a percentage variability which depends on the infrastructure type (i.e. track, signalling, etc.). Then, variable costs are allocated to vehicles on the network using basic operating (vehicle) characteristics (i.e. speed, axle load, unstrung mass, suspension type). Thus, the usage charges are not disaggregated in geographic areas or asset types but there is type of vehicle disaggregation.

The capacity charge covers the marginal congestion cost (revenue effect on operators). These marginal costs have been calculated for more than 2700 route sections and 13 time bands. Then, service groups, i.e. groups of similar unitary costs, have been defined. Finally, costs are allocated for every service group according to mileage.

The traction electricity charge consists on the electricity supply tariffs and is recovered per kWh consumed.

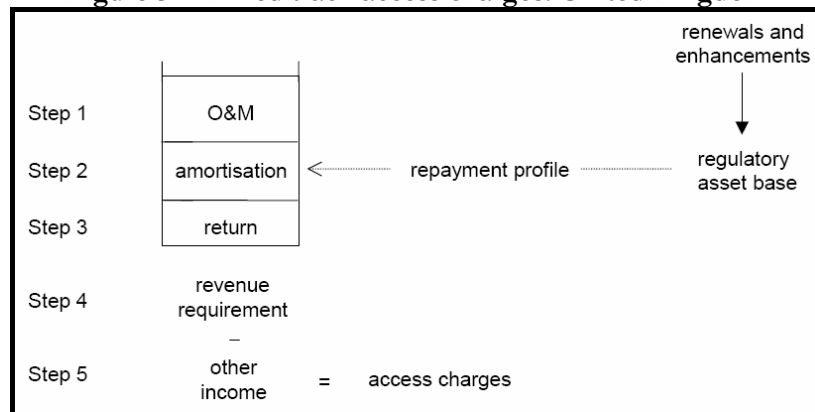
The electrification asset usage charge covers the marginal wear and tear costs on electrification assets. The variability of electrification costs is established by a top-down approach and, then, these costs are allocated per kWh consumed.

A large proportion of Network Rail's costs are fixed. The Fixed charge is a mark-up to ensure Network Rail recovers all its costs. Fixed charges are calculated by allocating costs to routes and then dividing them between franchised train operators on the basis of vehicle miles operated.

Then, the allocation of fixed costs is based implicitly on the railway undertaking's ability to pay, through the franchising process. On the other hand, freight and open access operators only pay the marginal costs of operation.

This Fixed charge is calculated by the ORR for a five-year period following a standard "building block" methodology (see Figure 32). This methodology calculates the total amount of money that Network Rail should receive, as the sum of allowed expenditure on operation and maintenance of the network, the allowed return and amortisation of the regulatory asset base (RAB), less projected income from other sources. The charge is calculated by allocating the total amount that Network Rail should recover to routes and then dividing it among franchised passenger train operators on the basis of vehicle miles operated.

**Figure 32 – Fixed track access charges. United Kingdom**



Source: ORR (2003).

As a final step in the calculations, the Regulator checks that the level of access charges he is proposing does not make it excessively difficult for Network Rail to finance its relevant activities.

### *Charging structure*

Currently, the charging structure is composed by fixed track access charges (applied to franchised passenger train operators), variable usage charges (applied to all train operators), and supplementary access charges (which directly or indirectly can affect all train operators). Therefore, the tariff applied to franchised train operators is a two-part tariff while the tariff applied to non – franchised train operators and to freight operators is a linear tariff. This charging structure depending on the type of operator is reflected in Table 15.

**Table 15 – Charging structure applied in Great Britain depending on the type of operator**

	Franchised passenger operators	Non – franchised passenger operators	Freight operators
Variable charge	√	√	√
Fixed charge	√	-	-
Access charge supplements	√	√	√

Source: Own from SEETO 4<sup>th</sup> Working group on Railways and Intermodal transport

The fixed track access charges constitute a mark-up to ensure Network Rail recovers all its costs.

Variable usage charges, which allow Network Rail to recover costs which vary with the volume of traffic and to provide appropriate incentives, are composed by:

- The Track variable usage charge reflects the wear and tear to track and non-track asset associated with the volume and type of traffic (assuming current network capability). It is expressed in pence per vehicle mile. Different values are established for different type of vehicles, but it is independent from the area or region.
- The Capacity charge is intended to reflect the performance regime (Schedule 8) costs of congestion. An average capacity charge rate for each service group for franchised passenger train operators is calculated. For passenger train operators other than franchised passenger train operators, is taken into account the time of day and whether running is weekday or weekend. For freight train operators the charge is similar to the passenger charge, i.e. it is billed on an average rate per service group. Freight train operators receive a 10% discount for the capacity charge amount payable, to reflect the greater flexibility, in pathing their services.
- The Traction electricity charge covers the cost of electricity procurement and supply (Network rail purchases traction electricity on behalf of all train operators).
- The Electrification asset usage charge covers the incremental wear and tear costs on electrification assets. Different values are established for different geographical areas, season and time of day bands.

The supplementary access charges are composed by a performance regime and a possessions regime. The first one constitutes an incentive to Network Rail and train operators to improve efficiency. The second one is aimed at incentivising Network Rail to improve engineering access efficiency and to make appropriate trade-off between engineering efficiency and passenger and freight disruption from possessions.

The charging elements considered, classified according to Directive 2001/14/EC, are:

➤ **Mark-ups:**

Fixed charges applied to franchised passenger operators are a mark-up aimed at recovering the future estimated revenue needs of the infrastructure manager.

➤ **Congestion and scarcity charges:**

The Capacity charge reflects marginal congestion costs calculated for different sections and time bands.

➤ **Performance regimes:**

The GB rail industry operates a performance incentive scheme, details of which are incorporated into the Track Access Agreement (Schedule 8 of the model form) of each train operator. In most cases, a standard template arrangement applies, though bespoke arrangements are also possible.

Schedule 8 sets out a framework by which penalties are paid by either party if train performance fails to meet set contractual targets, and bonuses are paid if these targets are exceeded. Schedule 8 incentivises Network Rail to improve train performance by minimising lateness and cancellations. It is a liquidated sums regime, and compensates train operators for the marginal effect on future revenues of changes in performance caused by Network Rail. While franchised passenger train operators are also incentivised to improve performance generally through their franchise agreement, under Schedule 8 of the Track Access Agreement (TAA), train operators pay directly for delays they cause their own trains. They do not pay directly for the impact of one train operator's performance on others' (namely 'TOC on TOC delay'). This is attributed to Network Rail, but payments by train operators are established at levels such that, over time and on a national basis, Network Rail can expect to be compensated for the effect of TOC on TOC delay.

➤ **Discounts:**

As mentioned in the Capacity charge description, freight train operators receive a 10% discount for the capacity charge amount payable, to reflect the greater flexibility, in pathing their services.

*Charging level*

The Track Access Charge depends on several variables such as the type of traffic or the type of vehicle. Then, a range of values for this charge is shown in Table 16.

**Table 16 – Range of values for the Minimum Access Charge in the United Kingdom**

Track access charge		
Service	Type of service	
Track access	Minimum access package	
Charging formula		
---		
Price components	Variables considered	Charging values



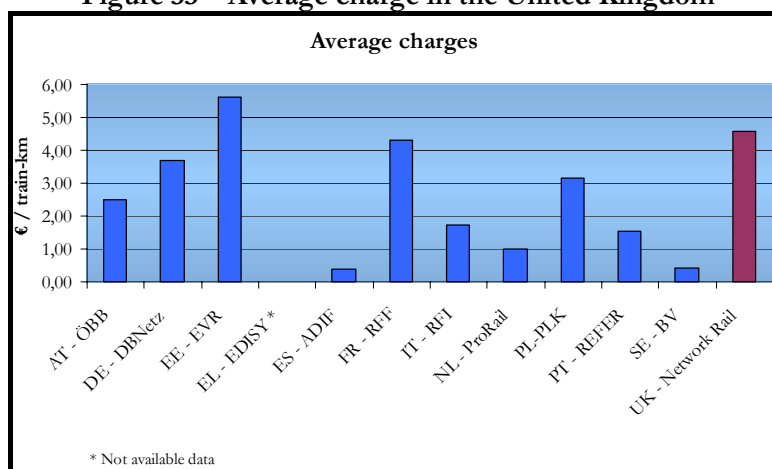
**Charging for the railway infrastructure use during the last five years in Europe:  
state of the art and opportunities for revitalising the railways**

Variable Usage Charge	Type of traffic	2,82 - 69,35 p/veh-mile
	Type of vehicle	
	Vehicle class	
Capacity Charge	Service group for franchised passenger trains and freight trains	0,0003 – 2,6349 £/veh-mile
	Section for passenger train operator other than franchised passenger train operator	
	Direction for passenger train operator other than franchised passenger train operator	
	Time band during one week for passenger train operator other than franchised passenger train operator	
Fixed Track Access Charge	Train operator	---

Source: Own from Network Statement 2008

A part from the range of values shown in the table above, it has been calculated the average charge. According to the 2005 Annual Report, the total operation income amounted to 1.610 million £, which corresponds to 2.379,6 million euros. As well, according to EUROSTAT, it is known that the total volume of traffic in 2005 rose up to 519.378.000 train-kilometres. As a result, the average charge is 4,58 €/train-km. In Figure 33 it can be seen the level of the average charge in the United Kingdom compared to the rest of the countries.

**Figure 33 – Average charge in the United Kingdom**



Source: Own from data of EUROSTAT and Network Rail's 2005 Annual Report

As it can be seen, the level of the average charge resulting in the United Kingdom is one of the highest compared with the rest of countries. This seems coherent given that the majority of charges are paid by the franchised operators which pay the fixed and the variable charge.

### 3.5. Summary of charging practices

The description of the national charging schemes has been summarised per countries by identifying the basic charge applied and the different components of the charge classified according to Directive 2001/14/EC. These charging components are: Basic charge, Mark-ups, Reservation charges, Congestion charges, Scarcity charges, Performance regimes, Environmental charges and Discounts.

Those practices applied in the different national charging schemes are summarised from Table 17 to Table 28, in order to smooth the process of assessment that will be carried in chapter 5.

Table 17 – Summary of charging components applied in Austria

Charging component	Description
<b>Basic charge</b>	Usage charge composed by a “charge in the amount of the directly incurred costs”, which is levied per gross ton kilometres, and a “line-related usage charge”, which is a basic price per kilometre depending on the line category.
	Quality and line-related mark-ups and mark-downs composed by “wear on tracks by traction units” depending on the traction unit category.
	Traffic-type related usage charges composed by a factor levied per train-km varying with the type of service.
<b>Performance regime</b>	For high-quality passenger trains, the Standard Package prices will be increased in the event of late arrival in the scheduled stopping stations, including departure and train terminal stations, if the delay per stopping station exceeds a threshold of five minutes. The delay in minutes per station exceeding the fixed threshold will be allocated to the party causing it (the railway undertaking or the infrastructure manager) and multiplied by the factor given in the Product Catalogue (3 €/delay minute). Reasons for delay are coded pursuant to UIC Leaflet 450-2.

Source: Own from data of ÖBB’s Track Access Product Catalogue

Table 18 – Summary of charging components applied in Germany

Charging component	Description
<b>Basic charge</b>	The user-dependent component depends on the route category and a train path product factor.
	Payload component which is a weight-based component intended to reflect the additional costs caused by the use of heavy trains, due to the increase in wear and capacity utilisation. It is applied for train weights of 3.000 tonnes and above and is levied per gross tonne-km
<b>Reservation charge</b>	Fee for preparing an offer which is intended to reflect the costs for processing the applications for train paths allocation. Then a fee per train path is levied in case that the railway undertaking does not accept a train path offer. This fee cannot exceed the equivalent of access charge for

	<p>train paths that are not accepted.</p> <p>Cancellation fee which is levied in case of withdrawal of one or more train running days on a train path a cancellation fee is levied. It is composed by a minimum cancellation fee which corresponds to the amount of the fee required for preparing the offer and a percentage based cancellation fee depending on when the cancellation was made and the standard train path price. The cancellation fee cannot exceed the access charge for the cancelled train path.</p>
<b>Congestion charge</b>	The utilisation factor multiplied to the service-dependent component is applied on particularly busy routes with alternative route sections and its main objective is to provide incentives to improve efficiency.
<b>Performance regime</b>	The additive factor considered in the service-dependent component is a clear performance regime intended to reduce disruptions. It consists on a compulsory delay minutes accountancy system based on control points in every section. The “delay minutes” accounted are allocated to DB Netz or to the railway undertakings according to specific responsibility rules and levied monthly through a unitary charge (0,10 €/ key delay minute). There is a delay allowance of 1 minute per section.

Source: Own from data of DB Netz's Network Statement

**Table 19 – Summary of charging components applied in Estonia**

<b>Charging component</b>	<b>Description</b>
<b>Basic charge</b>	Variable part of the charge based on the actual gross tonne-kilometres
<b>Reservation charge</b>	Fix part of the charge is based on the requested train-kilometres and is paid whether the capacity allocated is used or not. This charge is not applied to international and local passenger trains.
<b>Scarcity charge</b>	In case of railway infrastructure depletion, an additional access fee resulting from an auction procedure is invoiced. The bid made by each railway undertaking should include a separate access fee bid for each part of the requested capacity. The Committee for Capacity Allocation allocates the capacity to the maker of the highest bid for each part of the requested capacity and then, if the capacity on offer enables it, to the maker of the second highest bid for each part of the requested capacity and so on.

Source: Own from data of EVR's Network Statement

**Table 20 – Summary of charging components applied in Greece**

<b>Charging component</b>	<b>Description</b>
<b>Basic charge</b>	Basic price corresponding to the track maintenance which depends on coefficient for the track quality provided in each line section and on a coefficient for the line's burdening by the train which depends on the speed range, the axial load range and on the number of axles.
<b>Congestion charge</b>	Basic price corresponding to the traffic management which depends on a peak period coefficient that varies with the time band and the line station and on a capacity occupation coefficient that takes account of every

	service's effect on the line's capacity by dividing the running time and the ideal running time in a line section.
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Source: Own from data of EDISY's Network Statement

Table 21 – Summary of charging components applied in Spain

Charging component	Description
<b>Basic charge</b>	Circulation Charge which depends on the actual kilometres considering the type of line and the type of service. It is levied per train-km.
<b>Mark-up</b>	Traffic Charge is only applied to passenger railway services offering a maximum speed greater than 260 km. It depends on the time band and is levied according to the capacity of the vehicles. Its value is established according to the service commercial value measured through the offered capacity. This can be considered a proxy to RU's willingness to pay.
<b>Reservation charges</b>	Capacity Reservation Charge which depends on the number of kilometres requested considering the type of line, the type of service and the time band. It is levied per train-km.
	Access charge depending on the level of traffic estimated by the operator at the start of each Working Timetable.

Source: Own from data of ADIF's Network Statement

Table 22 – Summary of charging components applied in France

Charging component	Description
<b>Basic charge</b>	Running charge levied for the actual kilometres and depending on the type of service. It is levied per train-kilometre.
<b>Reservation charges</b>	Access charge depending on the type of line which is defined by a grouping of the network into four categories of elementary sections (suburban lines, main intercity lines, high-speed lines, and other lines) and twelve sub-categories of elementary sections corresponding to the traffic characteristics. It is paid by all railway undertakings making a request and is levied per train-kilometre.
	Path reservation charge paid by all railway undertakings which have been granted a path by RFF depending on the time band, the line category and the type of train. It is levied per path-km. Freight trains and light running traffic benefit from a reducing coefficient.
	The reservation charge for station stop is only levied to passenger trains. It depends on the time band and on the station category and it is charged for departure and each stop.
<b>Performance regime</b>	Performance scheme put in place by RFF in order to optimise the performance of the rail network and offer a high-quality service to railway undertakings. It consists on a specific rate applied to the rate for the reservation of freight paths of which the total length is at least 300 km and of which the mean speed is greater than or equal to 70 km/h, not counting stops requested by the railway undertaking.

Source: Own from data of RFF's Network Statement

**Table 23 – Summary of charging components applied in Italy**

Charging component	Description
<b>Basic charge</b>	Variable part per kilometre/minute, related to the cost of use of the infrastructure depending on the actual kilometres travelled and the minutes staying inside a node. It varies with the type of line and, within it, depends on the relative density, speed and deterioration (calculated from vehicle variables like speed and weight).
<b>Reservation charges</b>	Fixed part per section/node related to the access cost for each section or node varying with the quality of the railway infrastructure. The reservation is set at the minimum value between the charge to access the section and the 50% of the whole track access charge.
<b>Performance regime</b>	The Performance Regime applied in Italy consists on a delay minutes accountancy system. The delays are measured at destination stations. It is based on allowed delay threshold which depends on the type of service: 5 minutes for regional passenger trains, 15 minutes for mid-long distance passenger trains and 30 minutes for freight trains. There is allocation of responsibilities between the infrastructure manager and the railway undertaking. The charge for disruption is cap to a maximum of 20% of the total usage charge or of 1,5% of the total yearly usage charge.
<b>Discount</b>	Discount applied to network segments where no conditions stand for a single agent driving and it considers different unitary rates depending on the type of line and the time band. Discount to the total volume of traffic in train-kilometres during a year depending on the type of traffic (short distance passenger, long distance passenger, freight) and it cannot exceed the 80% of the total usage charge of the year.

Source: Own from data of RFI's Network Statement

**Table 24 – Summary of charging components applied in the Netherlands**

Charging component	Description
<b>Basic charges</b>	Tariff per train-kilometre allocating marginal operational costs applied to all services. Tariff per ton-kilometre allocating marginal maintenance costs applied to all services.
<b>Discount</b>	To promote use of the Port Railway Line, ProRail is therefore to grant a discount on the ton-kilometre charge applicable on the Combined Network on the access and exit routes of the Port Railway Line. Then, the discount is applied for the portion of the train weight over and above 750 tons

Source: Own from data of ProRail's Network Statement

Table 25 – Summary of charging components applied in Poland

Charging component	Description
<b>Basic charge</b>	Basic charge calculated on the basis of unit rates specified for train parameters (weight and speed) are defined by timetable for qualified passenger trains (average technical vehicle speed) and for other trains (gross weight of a train).
<b>Reservation charge</b>	The reservation charge included in the basic charge is agreed with each RU within the track access agreement.
<b>Performance regime</b>	There is a performance regime regulated in the contracts signed between PKP PLK and some of the railway undertakings.
<b>Discounts</b>	Justified by increase of performance volume resulting from transferring goods from other modes of transport into railways, PLK has a right to give discount (for certain period of time). Discount level cannot be higher than 50% of fixed part of average unit rates given in the price list.
	Discount (for a certain period of time) to exceptional trains (not included in Annual Timetable) serving celebrations concerning national and religious holidays or promoting railway industry. The level of discount is 60% of unit rates.

Source: Own from data of PKP PLK's Network Statement

Table 26 – Summary of charging components applied in Portugal

Charging component	Description
<b>Basic charge</b>	Basic tariff for the essential services depends on the type of service, the type of traction and the line or section. Tariffs for the use of essential services are intended to recover marginal operation, maintenance and renewal costs and are allocated to train km according to the type of line and the type of service.
<b>Reservation charge</b>	There is a tariff for unused requested capacity which varies from 10% to 100% of the applicable tariff depending on the anteriority of the cancellation in relation to the date of the requested capacity.
<b>Performance regime</b>	Railways undertakings are free to accept or not the performance regime. This performance regime consists on a delay minutes accountancy system based on control points at destination stations (only considering arrival times). It establishes certain performance standards depending on the type of service: 3 minutes for suburban passenger trains, 5 minutes for medium and long distance passenger trains and 30 minutes for freight trains. It is remarkable that in case the train is partially or totally cancelled, or there is a failure service at a station, the delay time is calculated as being the difference between the original arrival time at the destination and the best alternative for the final customer. For each train, the maximum penalty is 20% of the tariffs for essential services.

Source: Own from data of REFER's Network Statement

Table 27 – Summary of charging components applied in Sweden

Charging component	Description
<b>Basic charge</b>	Track charge reflects those costs of maintaining the railway infrastructure to which an additional train movement gives rise. It varies with the number of gross tonne-kilometres.
<b>Mark-ups</b>	Special train path charge levied to freight traffic crossing the Öresund Link is charged per train crossing.
	Special charge levied to passenger services per gross tonne-kilometre
<b>Environmental charges</b>	The Emission charge reflects the socio-economic costs in terms of environmental and health effects to which an additional train movement gives rise. It varies with the number of litres of diesel fuel and varies with the type of traction unit.
	The Accident charge reflects the socio-economic costs of accidents involving injury to which an additional train movement gives rise. It varies with the number of train-kilometres. According to the Network Statement 2007, the level of the charge has been determined by studies of the change of the socio-economic costs associated with accidents when traffic volumes change.

Source: Own from data of Banverket's Network Statement

Table 28 – Summary of charging components applied in the United Kingdom

Charging component	Description
<b>Basic charges</b>	Track variable usage charge reflects the wear and tear to track and non-track asset associated with the volume and type of traffic (assuming current network capability). It is expressed in pence per vehicle mile. Different values are established for different type of vehicles, but it is independent from the area or region.
	Electrification asset usage charge covers the incremental wear and tear costs on electrification assets. Different values are established for different geographical areas, season and time of day bands.
<b>Mark-up</b>	Fixed charges applied to franchised passenger operators are a mark-up aimed at recovering the future estimated revenue needs of the IM. The allocation of fixed costs is based implicitly on the railway undertaking's ability to pay, through the franchising process
<b>Congestion charge</b>	An average capacity charge rate for each service group for franchised passenger train operators is calculated. For passenger train operators other than franchised passenger train operators, is taken into account the time of day and whether running is weekday or weekend. For freight train operators the charge is similar to the passenger charge, i.e. it is billed on an average rate per service group. This charge is intended to reflect marginal congestion costs calculated for different sections and time bands.
<b>Performance regime</b>	Schedule 8 sets out a framework by which penalties are paid by either party if train performance fails to meet set contractual targets, and bonuses are paid if these targets are exceeded. Schedule 8 incentivises Network Rail to improve train performance by minimising lateness and

	cancellations. It is a liquidated sums regime, and compensates train operators for the marginal effect on future revenues of changes in performance caused by Network Rail. While franchised passenger train operators are also incentivised to improve performance generally through their franchise agreement, under Schedule 8 of the Track Access Agreement (TAA), train operators pay directly for delays they cause their own trains. They do not pay directly for the impact of one train operator's performance on others' (namely "TOC on TOC delay"). This is attributed to Network Rail, but payments by train operators are established at levels such that, over time and on a national basis, Network Rail can expect to be compensated for the effect of TOC on TOC delay.
<b>Discount</b>	Freight train operators receive a 10% discount for the capacity charge amount payable, to reflect the greater flexibility, in pathing their services

*Source: Own from data of Network Rail's Network Statement*

It is to be noticed that only one country applies scarcity charges or, at least, they do not express it in their Network Statement. This is probably due to the fact that if an infrastructure manager applies a charge explicitly allocating scarcity costs, it is obliged to invest in new infrastructure in a certain period of time.

It is also remarkable that the only country applying environmental charges is Sweden. The other charging schemes do not consider any element related to external costs.



## 4. Assessment methodology

### 4.1. Introduction

This chapter is aimed at the definition of the methodology which will be considered in order to assess the national charging schemes defined in chapter 3. This assessment will be carried out from two different points of view: assessment according to legislative framework and assessment according to economic principles.

The assessment according to legislative framework is based on 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 assessment consists on determining the degree of compliance of each national charging scheme defined in chapter 3 with the legislative framework established by Directive 2001/14/EC. Therefore, the main objectives and conditions which are set by this directive will be identified while defining the evaluation criteria.

The assessment according to economic principles is aimed at valuating important aspects which are not considered in the current legal framework. It is focused on highlighting strengths and weaknesses of the national charging schemes so this assessment relies in a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).

### 4.2. Assessment criteria according to legislative framework

The assessment according to legislative framework is based on the part of Directive 2001/14/EC related to the levy of charges for the use of railway infrastructure. This directive is composed of two main parts: the first one consists on the definition of the objectives to which the implementation of the Directive should lead and the second one corresponds to the establishment of the necessary conditions that will facilitate the reach of those objectives.

The assessment is carried on the national charging schemes summarised in section 3.5. In order to determine the evaluation criteria, it has been necessary to select the most relevant objectives and conditions.

#### 4.2.1. Identification of objectives

Directive 2001/14/EC is based on a wide variety of objectives but there are several main objectives which remarkable and on which the Directive is specially focused:

- Non-discriminatory access
- Fairness
- Cost-relatedness

- Incentives to operational efficiency
- Incentives to cost efficiency

#### *Non-discriminatory access*

The Directive establishes the objective of providing a non-discriminatory access to the network through the objective (11): “The charging and capacity allocating schemes should permit equal and non-discriminatory access for all undertakings and attempt as far as possible to meet the needs of all users and traffic types in a fair and non-discriminatory manner”.

Charging practices will be positively assessed according to the non-discriminatory access if they are applied in the same way to all railways undertakings.

#### *Fairness*

The provision of fairness in the railway network is treated in the whole Directive but, specially, in objective (16): “Charging and capacity allocation schemes should allow for fair competition in the provision of railways services”.

This statement has been interpreted as charging schemes must be applied to each service in a coherent way. This “coherent” depends on the concrete case considered, so if it is being assessed a basic charge the coherent way of taking into account the wear and tear of the infrastructure is considering the vehicle-related variables or the type of service. As well, if a mark-up is being assessed, it will be positively assessed if the demand’s ability to pay is considered.

#### *Cost-relatedness*

In relation to the establishment of charges, the Directive expresses a clear objective of relating them to costs. This is reflected in objective (36): “To enable the establishment of appropriate and fair levels of infrastructure charges, infrastructure managers need to record and establish the valuation of their assets and develop a clear understanding of cost factors in the operation of the infrastructure”.

According to this statement, the national charging schemes will be positively assessed if they establish a coherent relation between charges and costs. Again, this “coherent” depends on the case considered so a basic charge will be cost-related if it is set at the cost that is directly incurred as a result of operating a train service (as states objective (38)), a reservation charge will be cost-related if it is related to the cost due to the allocation of capacity (as states objective (44)) and discounts will be cost-related if they are set in order to recover the actual administrative cost savings experienced by the infrastructure manager (as states objective (42)).

#### *Incentives to operational efficiency*

Another main objective mentioned by Directive 2001/14/EC is the provision of incentives to improve the operational efficiency to the two parts, the infrastructure manager and the

railway undertaking. This concept is clearly expressed in objective (12): “Within the framework set out by Member States charging and capacity allocation schemes should encourage railway infrastructure managers to optimise use of their infrastructure”.

In the process of assessment it will be considered an incentive to operational efficiency every incentive which main aim is the increase of the existing capacity. In relation to the performance regimes, the Directive reserves a specific objective, number (15), which states: “It is desirable for railway undertakings and the infrastructure manager to be provided with incentives to minimise disruption and improve performance of the network”. Then the performance regimes applied by the different countries, will be positively assessed with respect to the objective of providing incentives to operational efficiency if its main aim is to increase capacity and if the incentives are provided to the two parts, the railway undertaking and the infrastructure manager.

#### *Incentives to cost efficiency*

Finally, it is established in the Directive the objective of providing the infrastructure manager with incentives to cost efficiency. This is stated in objective (40): “A railway infrastructure is a natural monopoly. It is therefore necessary to provide infrastructure managers with incentives to reduce costs and manage their infrastructure efficiently”.

According to this statement, the cost efficiency has been considered as the fact that the charging schemes take into account the costs caused by the running of a train and their tendency to reduce this cost.

#### **4.2.2. Identification of conditions**

When identifying the main conditions established by Directive 2001/14/EC, there are some global conditions applicable to the whole charging scheme and, afterwards, each article is focused in a particular charging component.

In relation to the conditions applicable to the whole charging scheme there are two remarkable statements: article 4 (4) and article 4 (5). The first one is related to the objective of fairness given that says “(...) infrastructure managers shall ensure that the charging scheme in use is based on the same principles over the whole network”. The second one is similar to the non-discriminatory objective as it states “Infrastructure managers shall ensure that the application of the charging scheme results in equivalent and non-discriminatory charges for the different railway undertakings that perform services of equivalent nature in a similar part of the market and that charges actually applied comply with the rules laid down in the network statement”.

When focusing on the different charging components, the Directive establishes the following conditions in relation to:

- Basic charges: the charges shall be set at the cost that is directly incurred as a result of operating the train services (article 7 (3)).
- Mark-ups: In order to obtain full recovery of the costs incurred by the infrastructure manager it may, if the market can bear this, levied mark-ups on the basis of efficient, transparent and non-discriminatory principles. As

well, the level of charges must not exclude the use of the infrastructure by market segment which can pay at least the cost that is directly incurred as a result of operating the railway service, plus a rate of return which the market can bear (article 8 (1)).

- Discounts: They shall be limited to the actual saving of the administrative cost to the infrastructure manager (article 9 (2)). As well, the discounts may be available to all users, for specified traffic flows, limited in time, shall encourage the development of new rail services or the use of considerably underutilised lines (article 9 (3)).
- Environmental charges: The infrastructure charge may be modified to take account of the cost of the environmental effects caused by the operation of the train. Such modification shall be differentiated according to the magnitude of the effect caused (article 7 (5)).
- Performance regimes: They shall encourage railway undertakings and the infrastructure manager to minimise disruption and improve the performance of the railway network. This may include penalties for actions which disrupt the operation of the network, compensation for undertakings which suffer from disruption and bonuses that reward better than planned performance. As well, the basic principles for the performance scheme shall apply throughout the network (article 11).
- Reservation charges: It may be levied an appropriate charge for the capacity that is requested but not used. This charge shall provide incentives for efficient use of capacity (article 12).

### 4.3. Assessment criteria according to economic principles

#### 4.3.1. Basis for charging

According to World Bank (2005), the basis for charging is a compromise among competing goals, including:

- Provide incentives to make optimal use of existing capacity,
- Provide incentives to demand/supply optimal level of capacity,
- Encourage competition,
- Encourage international movement of goods and people,
- Provide infrastructure manager with predictable and adequate revenue,
- Straightforward to administer,
- Prevent discrimination between users,
- ...

Currently, the majority of the European have liberalised their railway markets. However, each country has lead with the implementation of the European railway legislation in a different way, depending on their actual circumstances. In consequence, a wide variety of charging schemes have been adopted by the European countries.

The methodology used to identify the positive and negative aspects related to the national charging schemes defined in section 3.4 consists on a SWOT analysis. This type of analysis is focused on determining the internal (Strengths and Weaknesses) and external (Opportunities and Threats) issues that distinguish each charging practice.

### 4.3.2. Main aspects

Although the SWOT analysis has not been subject to specific criteria, there are some main aspects on which it has been especially focused. These main aspects are:

- Cost-relatedness
- Incentivisation
- Fairness
- Competition
- Transparency
- Complexity / Simplicity

#### *Cost-relatedness*

The main role of a charging scheme consists on recovering the costs incurred by the infrastructure manager and, if possible, to obtain a certain profit. After that, it is important to assess the aspects of charging schemes concerning the costs that have been taken into account, the way in which these costs have been calculated, the way in which these costs are reflected through charges, ...

In general, if a charge is not levied according to detailed cost drivers is subject to produce cross-subsidization between different services or if it is fixed at a high level it would be likely to reduce the market shares of the railways. In consequence, every charging scheme should consider variables reflecting cost causation to guarantee a correct relation between costs and charges, i.e. the basic charge which is related to the wear and tear of the infrastructure it should depend on the rolling stock, infrastructure, type of service, ...

#### *Incentivisation*

Infrastructure charging schemes are instruments to encourage efficient use and development of rail infrastructure and for efficient conduct of the diverse agents. The incentives provided by charging schemes are seen from two points of view: incentives to cost efficiency and incentives to operational efficiency.

The incentives to cost efficiency are those incentives that provide a charging scheme in order to reduce the costs of maintenance or renewal of the railway infrastructure incurred by the infrastructure manager due to the running of the train.

The incentives to operational efficiency are considered as those incentives that intend to optimise the use of the existing capacity or to increase it. This incentives can be provided by applying reservation charges or performance regimes or, as well, by considering

variables such as time band and type of service together in order to group services with the same characteristics in specific times of the day.

### *Fairness*

A fair charging practice is important to the opening of the network to more railway undertakings and to avoid excluding valuable services from the market.

A charging practice will be fair or unfair depending on the variables considered in each case. Then, charging practices might be interested in differentiating charges according to the type of service and the type of line so as to reflect different operating conditions and cost causation patterns.

### *Competition*

The encouragement of competition is a way to explore further the capabilities further the capabilities of the railway for the benefit of society and it can also arise from the fact that different countries deal with pricing problems in different ways.

A common accepted methodology for calculating user charges on European railway infrastructure is potentially an important tool for the facilitation of cross-border operations.

### *Transparency*

Transparency and non-discrimination in procedures for the allocation of infrastructure capacity and for the charging of infrastructure use are pre-requisites for increasing railway traffic and for enhancing the efficiency of rail transport. Then, for instance, those charges with a low relation to specific costs or those practices which are determined through a negotiation between the railway undertaking and the infrastructure manager will be subject to a lack of transparency.

### *Complexity / Simplicity*

The complexity of a charging scheme has advantages and disadvantages. If a charging scheme is very complex, on the one hand, it will provide clearer signals to the market and this market will be better modulated but, on the other hand, it will suppose an increase of the administrative costs to the infrastructure manager derived from its calculation procedure and it will be difficult to the railway undertaking to implement planning strategies.

As well, the complexity of charging schemes will specially harm the international services, which will have to handle with the heterogeneity of charging schemes across its entire journey.

## 5. National charging schemes' assessment

### 5.1. Introduction

The assessment of the national charging schemes defined in chapter 3 has been carried at two levels: assessment according to legislative framework and assessment according to economic principles. This assessment has been realized on the basis of the methodology defined in chapter 4.

The assessment according to legislative framework is based on the main objectives and conditions selected from Directive 2001/14/EC. This assessment consists on determining the degree of compliance of each national charging scheme defined in chapter 3 with the legislative framework established by the Directive.

The assessment according to economic principles is intended to valuate important aspects which are not considered in the current legal framework. It is focused on highlighting strengths and weaknesses of the national charging schemes and, then, this assessment relies in a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).

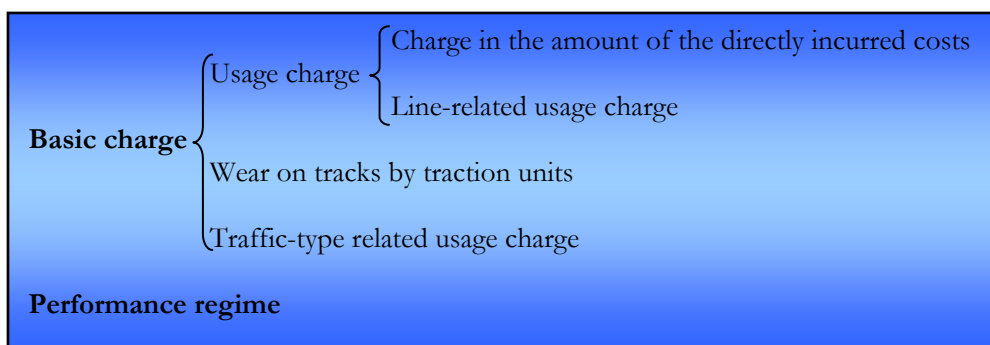
### 5.2. Assessment according to legislative framework

#### 5.2.1. Assessment of each national charging scheme

##### *Austria*

The charging scheme applied in Austria has been synthesized in Basic charge and a Performance regime. These components of the charge have been described in chapter 3 and Figure 34 reflects a remainder schema.

Figure 34 – Synthesis of the charging scheme applied by Austria



Source: Own from data of ÖBB's Track Access Product Catalogue

All the charges considered in the Austrian charging scheme are non-discriminatory, given that none of them are defined according to the railway undertaking. As well, the three basic charges are cost-related given that they are intended to recover marginal maintenance costs.

In relation to fairness, none of the practices fulfil this objective given that they do not take into account the different effects caused by the different services.

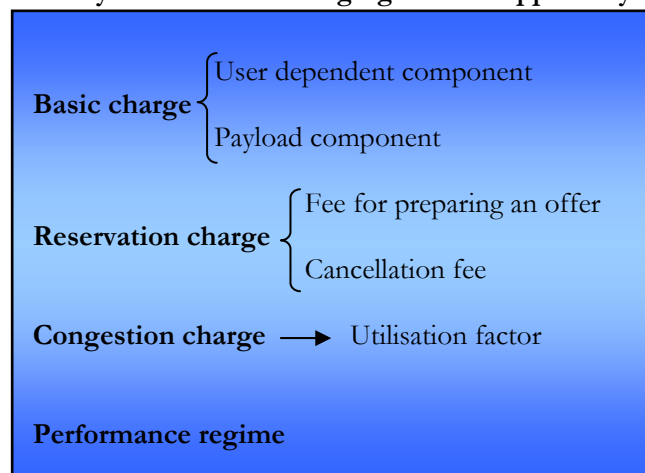
The only charge that provides incentives to cost efficiency is the traffic-related usage charge that varies with the traction unit category and this means that the different damage caused by each type of traction unit is considered.

The performance regime fulfils the objective of providing incentives to operational efficiency because is intended to reduce disruptions caused by the delay in stations. The incentives are provided to both parties given that is a procedure of allocating responsibilities and this accomplish part of the condition established by Directive 2001/14/EC for the performance regimes. However, this condition is not fully accomplished because it considers penalties for disruptions but it does not consider either compensations for the undertakings which suffer from those disruptions nor bonuses for better than planned performance.

### *Germany*

The German charging scheme has been reduced to a Basic charge, a Reservation charge, a Congestion charge and a Performance regime. These components of the charge have been described in chapter 3 and Figure 35 reflects a reminder schema.

**Figure 35 – Synthesis of the charging scheme applied by Germany**



*Source: Own from data of DB Netz's Network Statement*

All the components of the charging scheme applied in Germany are non-discriminatory because they are not differentiated according to the railway undertaking as well as fair, given that all the charges consider the type of service when calculating the final access charge.

In particular, the payload component provides incentives to cost efficiency since it is intended to reflect the additional costs caused by the use of heavy trains due to the increase in wear and capacity utilisation.

On the contrary, none of the basic charges are cost-related so they are not intended to charge the cost directly incurred as a result of the running of a train, they are calculated in



order to recover total costs. However, the fee for preparing an offer is cost-related since it is intended to reflect the costs for processing the applications for train paths allocation.

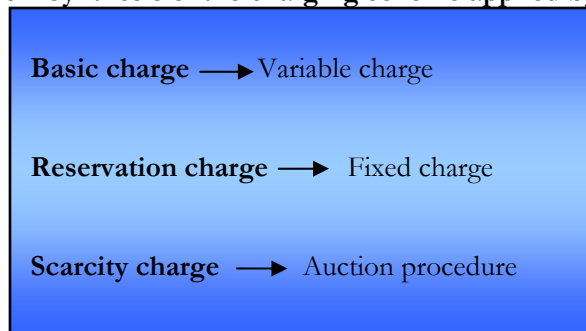
Concerning the operational efficiency, the two reservation charges, the congestion charge and the performance regime provide incentives to improve the operational efficiency. The reservation charges provide incentives to optimise the use of the capacity requested but, in addition, the cancellation fee provides higher incentives because it depends on the anticipation of the cancellation with respect to the running date. The utilisation factor which is considered a congestion charge is only levied on particularly busy routes and its main aim is to provide incentives to improve efficiency. Finally, the performance regime is characterised for providing incentives to reduce disruption to the railway undertaking and to the infrastructure manager.

In relation to the structure of the performance regime, the condition established by Directive 2001/14/EC is not fully accomplished because it considers penalties for disruptions but it does not consider either compensations for the undertakings which suffer from those disruptions nor bonuses for better than planned performance.

### *Estonia*

The charging scheme applied in Estonia has been simplified in a Basic charge plus a Reservation charge and a Congestion charge. These components of the charge have been described in chapter 3 and Figure 36 reflects a reminder schema.

**Figure 36 – Synthesis of the charging scheme applied by Estonia**



*Source: Own from data of EVR's Network Statement*

All the charges applied in Estonia are non-discriminatory since their definition is not dependent on the railway undertaking considered.

On the contrary, all the charges considered are unfair given that they are not differentiated according to the type of service and, then, they are not taking into consideration the different effects caused by the different users.

As well, neither the basic charge nor the reservation charge are cost-related given that the basic charge is not allocating marginal costs and the reservation charge is not related to the costs due to the allocation of capacity.

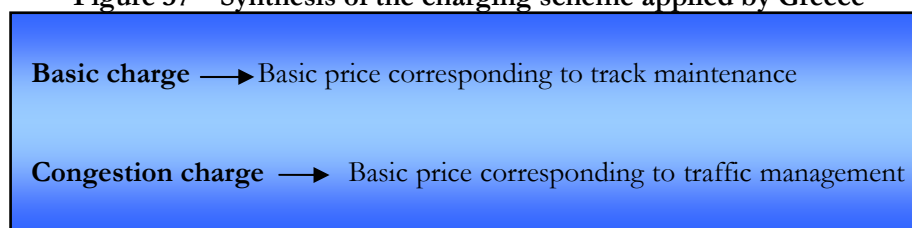
The reservation charge provides incentives to operational efficiency given that it is levied whether the capacity allocated is used or not and, in consequence, railway undertakings will be incentivised to optimise the capacity requested.

In relation to the scarcity charge, it should be mentioned that the auction procedure utilised to allocate capacity will probably optimise the use of the existing capacity given that it takes into account the ability to pay of the railway undertakings and that the capacity allocated will exactly match with the available capacity.

### *Greece*

The charging scheme applied in Greece has been synthesized in a Basic charge plus a Congestion charge. These components of the charge have been described in chapter 3 and Figure 37 reflects a reminder schema.

**Figure 37 – Synthesis of the charging scheme applied by Greece**



*Source: Own from data of EDISY's Network Statement*

The two components considered in the Greek charging scheme fulfil the objectives of non-discriminatory access and fairness throughout the railway network. They are non-discriminatory because they are not defined taking into account each railway undertaking. In relation to fairness, the basic charge is fair given that it depends on a coefficient for the line's burdening which varies with vehicle-related variables such as the speed range, the axial load and the number of axles. The basic tariff corresponding to traffic management takes into account the service's effect on capacity and, in consequence, is fair.

Both charges are cost-relatedness since they are intended to recover marginal costs.

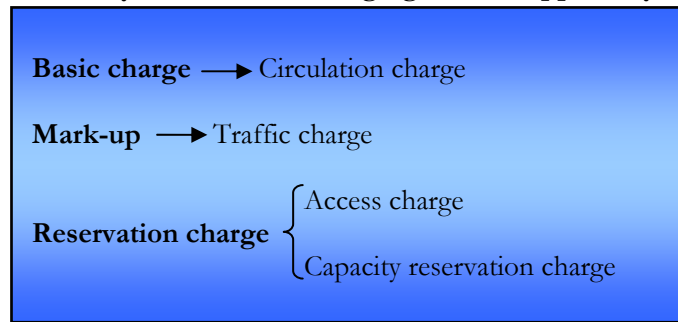
On the one hand, the basic price corresponding to the track maintenance provides incentives to cost efficiency since the consideration of the speed range, the axial load and the number of axles in order to reflect the line's burdening is a clear differentiation of the effect caused by the different users on the railway infrastructure.

On the other hand, the basic price corresponding to the traffic management provides incentives to operational efficiency given that is calculated on the basis of the ideal running time in each section. Then railway undertakings will be incentivised to accomplish this ideal running time so as to pay less.

### *Spain*

The charging scheme applied in Spain has been synthesized in a Basic charge plus a Mark-up and a Reservation charge. These components of the charge have been described in chapter 3 and Figure 38 reflects a reminder schema.

Figure 38 – Synthesis of the charging scheme applied by Spain



Source: Own from data of ADIF's Network Statement

All the charges applied in Spain are non-discriminatory since their definition is not dependent on the railway undertaking considered.

In relation to fairness, the circulation charge is fair since it varies with the type of line and the type of service and so it is possible that it is intended to take into account the different effects caused by the different services. The traffic charge it could be also assessed positively according to the fairness objective because it is levied according to the capacity offered by the railway undertaking (i.e. €/100 seats-km) and this can be interpreted as it is taking into account the willingness to pay of each service. However, there is a risk of unfairness because it is only levied to passenger services.

According to the objective of cost-relatedness, none of the charges fulfil this objective given that the circulation charge is not explicitly related to marginal costs and the reservation charges are not intended to recover the costs due to the allocation procedure.

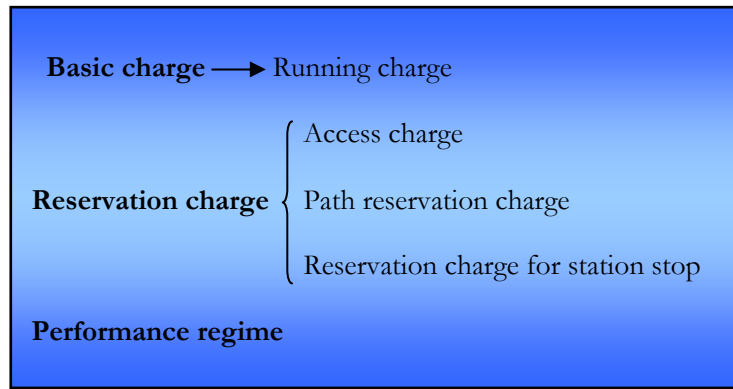
The only component of the charge providing incentives is the capacity reservation charge which provides incentives to operational efficiency since it is levied per kilometres requested and varies with the type of line, the type of service and the time band. Thus, this charge will lead to an efficient allocation of capacity as well as an efficient use of the capacity requested.

The mark-up levied through the Traffic charge may accomplish the condition established by Directive 2001/14/EC on the not exclusion of market segments which can pay at least the cost that is directly incurred given that its value is established according to the service commercial value which is measured through the offered capacity and that is not applied to freight service whose ability to pay is lower.

### *France*

The charging scheme applied in France has been simplified in a Basic charge, a Reservation charge and a Performance regime. These components of the charge have been described in chapter 3 and Figure 39 reflects a reminder schema.

Figure 39 – Synthesis of the charging scheme applied by France



Source: Own from data of RFF's Network Statement

All the charges applied in France are non-discriminatory since their definition is not dependent on the railway undertaking considered.

The basic charge varies with the type of service and, in consequence, fulfils the fairness objective established by Directive 2001/14/EC.

The charges considered are not cost-related given that the Running charge is not explicitly recovering marginal costs and that the reservation charges are not intended to recover the administrative costs due to the allocation of capacity.

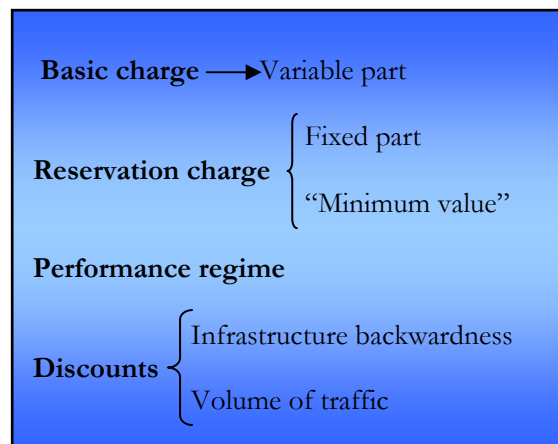
Concerning incentives to operational efficiency, only the reservation charges are intended to provide them since they are defined in order to optimise the capacity allocated. The access charge will ensure that railway undertakings only make those requests that they are sure will use and the path reservation charge depends on the time band, on the line category and on the type of train so the traffic will be modulated through this component.

It is to be noticed that the performance regime considered in France does not fulfil either the objective focused on the incentives to operational efficiency or the condition established by Directive 2001/14/EC for performance regimes. The incentives to operational efficiency are only provided to the freight operator and not for the infrastructure manager, which is the main characteristic of a performance regime. As well, it does not consider penalties for disruptions nor compensations for undertakings which suffer from disruption nor bonuses for better than planned performance.

### *Italy*

The charging scheme applied in Italy has been synthesized in a Basic charge, a Reservation charge, a Performance regime and a Discount. These components of the charge have been described in chapter 3 and Figure 40 reflects a reminder schema.

Figure 40 – Synthesis of the charging scheme applied by Italy



*Source: Own from data of RFI's Network Statement*

All the charges applied in Italy are non-discriminatory since their definition is not dependent on the railway undertaking considered.

The charges considered are not cost-related given that the basic charges are not intended to recover marginal costs and the reservation charges are not related to the costs incurred due to the capacity allocation procedure.

On the contrary, the variable part of the basic charge is fair and provides incentives to cost efficiency as it is established according to the type of line and, within it, depends on the relative density, speed and deterioration.

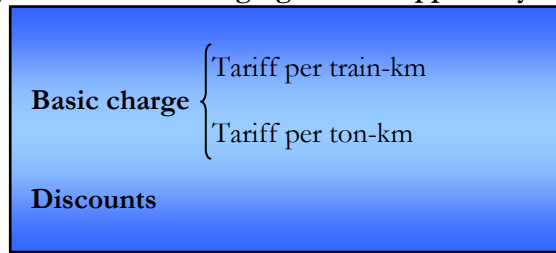
In relation to the discounts applied, they do not fulfil the conditions established by Directive 2001/14/EC since there is no relation between the discount and the actual saving of the administrative costs to the infrastructure manager. As well, they are not limited in time and are not intended to encourage the development of new rail services.

Considering the incentives to operational efficiency, the reservation charges and the performance regime provide them. The reservation charges provide incentives to the railway undertakings in order to optimise the capacity requested. The performance regime provides incentives to operational efficiency to the railway undertakings and to the infrastructure manager, since it is based on a delay minutes accountancy system which allocates responsibilities. Then, this performance regime fulfils part of the condition established in article 11 of Directive 2001/14/EC, but the part part which requires compensations for undertakings which suffer from disruption and bonuses for better than planned performance is not fulfilled.

### *Netherlands*

The charging scheme applied in the Netherlands has been simplified in a Basic charge and a Discount. These components of the charge have been described in chapter 3 and Figure 41 reflects a reminder schema.

Figure 41 – Synthesis of the charging scheme applied by the Netherlands



Source: Own from data of ProRail's Network Statement

All the charges applied in the Netherlands are non-discriminatory since their definition is not dependent on the railway undertaking considered.

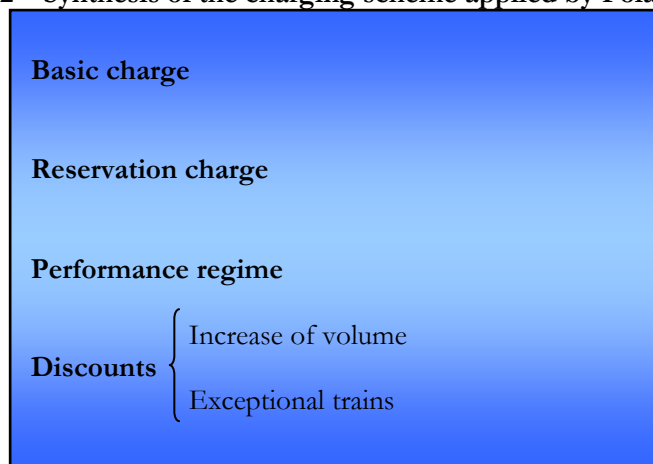
The two tariffs considered as basic charges do not fulfil the objective of fairness since they do not take into consideration the effects caused by the different services operating the network. On the contrary, they are cost-related given that the tariff per train-km allocates marginal operation costs and the tariff per ton-km allocates marginal maintenance costs.

In relation to the discount applied, it accomplishes the part of the condition established in Directive 2001/14/EC where it is said that discounts shall encourage the use of considerably underutilised lines. This discount provides incentives to operational efficiency since it is levied per ton-kilometre for the portion of the train weight over and above 750 tons and so the operators will tend to load more their trains and, then, less capacity will be consumed.

### *Poland*

The charging scheme applied in Poland has been simplified in a Basic charge, a Reservation charge, a Performance regime and a Discount. These components of the charge have been described in chapter 3 and Figure 42 reflects a reminder schema.

Figure 42 – Synthesis of the charging scheme applied by Poland



Source: Own from data of PKP PLK's Network Statement

The reservation charge and the performance regime applied in Poland are assessed as discriminatory given that they are determined through an agreement between each railway undertaking and the infrastructure manager and this can lead to a different treatment for different operators. However, the rest of charges are considered as non-discriminatory.

The basic charge is not cost-related because it is not intended to recover marginal costs. On the contrary, this charge is assessed as fair because varies with the type of service and it provides incentives to cost efficiency since its units rates are specified for train parameters such as weight and speed.

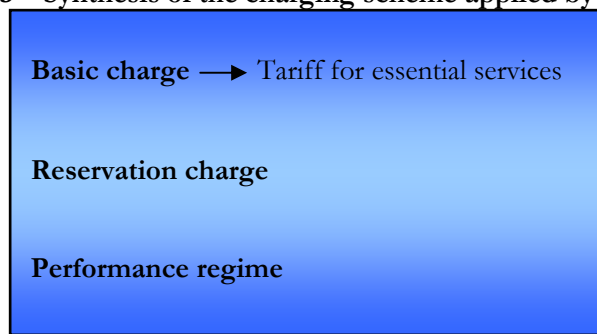
The reservation charge and the performance regime cannot be assessed according to the rest of objectives and conditions established by Directive 2001/14/EC due to its lack of definition.

In relation to discounts, both discounts fulfil the condition of being time limited as is expressed in its definition. However, they are not cost-related because there is no relation to the actual administrative cost savings or it is not explicitated and they do not provide incentives to a most efficient use of the network because there is no relation between their definition and the operational efficiency.

### *Portugal*

The charging scheme applied in Portugal has been synthesized in a Basic charge, a Reservation charge and a Performance regime. These components of the charge have been described in chapter 3 and Figure 43 reflects a reminder schema.

**Figure 43 – Synthesis of the charging scheme applied by Poland**



*Source: Own from data of REFER's Network Statement*

All the charges applied in Portugal are non-discriminatory since their definition is not dependent on the railway undertaking considered.

The basic tariff for essential services fulfils the majority of the objectives established by the Directive. It is fair since it takes into consideration the type of service, it is cost-related because is intended to recover marginal operation, maintenance and renewal costs and, finally, it provides incentives to cost efficiency takes into account the effect caused by the different categories of traction units.

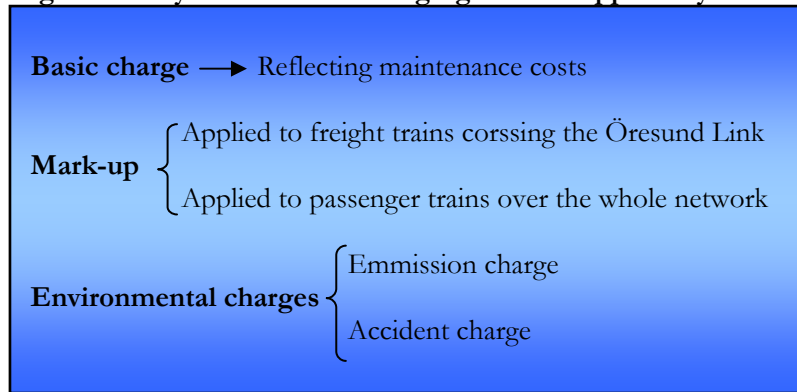
The reservation charge provide high incentives to operational efficiency since its levied for the requested but not used capacity and, in addition, it takes into consideration the anteriority of the cancellation with respect to the date of the requested capacity. This charge will incentivise the railway undertakings to use the capacity requested but, in case of cancellation, they are incentivised to cancel the path as early as possible and, in consequence, the infrastructure manager will have a certain margin to reallocate the cancelled path.

The performance regime provides incentives to operational efficiency to the railway undertakings and to the infrastructure manager, since it is based on a delay minutes accountancy system which allocates responsibilities. Then, this performance regime fulfils part of the condition established in article 11 of Directive 2001/14/EC, but the part part which requires compensations for undertakings which suffer from disruption and bonuses for better than planned performance is not fulfilled.

### *Sweden*

The charging scheme applied in Sweden has been synthesized in a Basic charge, a Mark-up and Environmental charges. These components of the charge have been described in chapter 3 and Figure 44 reflects a reminder schema.

**Figure 44 – Synthesis of the charging scheme applied by Sweden**



*Source: Own from data of Banverket's Network Statement*

All the charges applied in Sweden are non-discriminatory since their definition is not dependent on the railway undertaking considered.

When assessing the basic charge, this is a cost-related charge as far as it allocates marginal maintenance costs. On the contrary, it is not fair because it does not consider the different effects caused by the different types of services operating in the railway network. As well, it does not provide incentives to cost efficiency since it does not vary with vehicle-related variables which reflect the damage caused to the infrastructure.

In relation to mark-ups, both mark-ups considered are not cost related so they are intended to recover part of the infrastructure costs and their value is not stated by considering the ability to pay of the service affected (or at least this relation is not specified by the Banverket's Network Statement).

The environmental charges are cost-related since they are levied according to the magnitude of the effect caused by the train movement, so the accident charge is levied per train-kilometre and the emission charge is levied per litre of diesel fuel, which is directly related to the amount of emission.

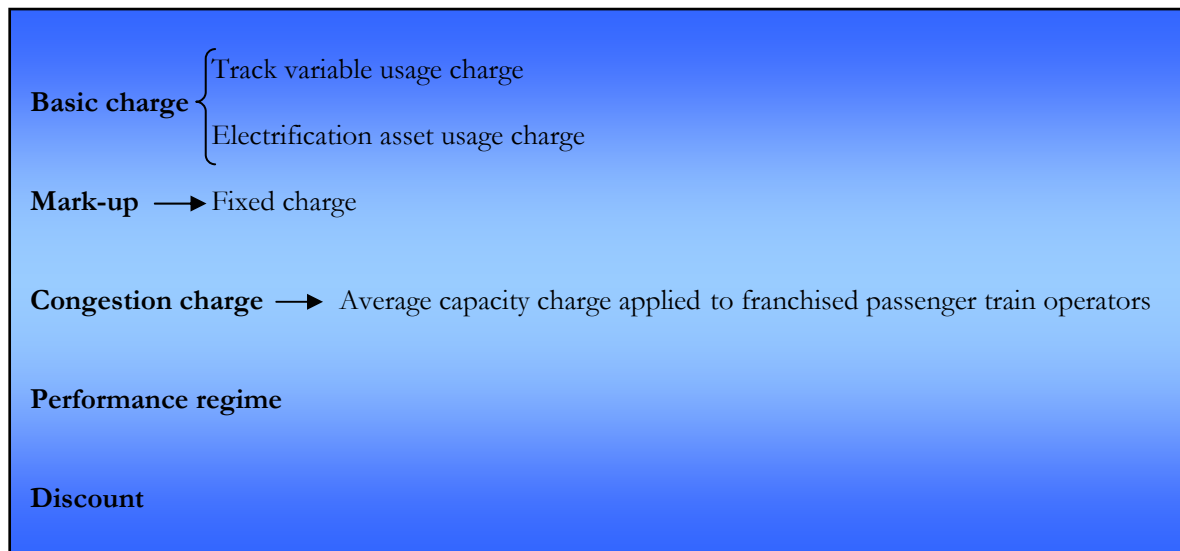
It is remarkable that this charging scheme does not provide either incentives to operational efficiency or incentives to cost efficiency.



## *United Kingdom*

The charging scheme applied in the United Kingdom has been simplified in a Basic charge, a Mark-up, a Congestion charge, a Performance regime and a Discount. These components of the charge have been described in chapter 3 and Figure 45 reflects a reminder schema.

**Figure 45 – Synthesis of the charging scheme applied by the United Kingdom**



*Source: Own from data of Network Rail's Network Statement*

All the charges applied in the United Kingdom are non-discriminatory since their definition is not dependent on the railway undertaking considered.

The basic charges considered in the charging scheme applied in the United Kingdom, should be assessed as fair, because take into consideration the type of service, as cost-related, since they recover the marginal costs of wear and tear on the infrastructure, and as charges providing incentives to cost efficiency, given that variables differentiating the type of service are taken into account.

Mark-ups are recovered through a fixed charge which is only levied to franchised passenger train operators. This charge is fair because through the franchising process it is possibly explored the demand's willingness to pay.

In relation to the congestion charge, it is cost-related since it reflects the marginal congestion costs of different sections and time bands.

Concerning the performance regime, it provides incentives to operational efficiency to the railway undertakings and to the infrastructure manager. This performance regime fulfils the condition established by Directive 2001/14/EC which say that it may be included compensations for undertakings which suffer from disruption but it does not consider the provision of bonuses that reward better than planned performance.

When assessing the discount applied to freight train operators it can be said that it is fulfilled the condition of limiting the discount to the actual saving of the administrative

cost to the infrastructure manager, given the discount is applied to freight train operators in order to reflect the greater flexibility in pathing their services.

### 5.2.2. Conclusions of the assessment

After considering the degree of compliance of each charge applied by each national charging scheme according to the main objectives and conditions established by Directive 2001/14/EC, it can be concluded that, in general, the practices considered fulfil the spirit and the legal requirements of the Directive. However, this assertion must be explained.

In general, each main objectives considered by the Directive are reached through the application of a different charging component so the incentives to operational efficiency are usually provided by reservation charges or by performance regimes or the incentives to cost efficiency are provided by those basic charges considering vehicle-related variables. As it is possible to deduce from the previous section, the charging practices vary on a wide range: there are some practices very strictly defined and others extremely general, some countries apply very few charging components (a basic charge and one or two charging components) and others have decomposed its charging scheme in five or more charging components, ...

Then, those charging schemes composed by several charges which are defined through different variables and in a coherent way, will tend to fulfil the objectives and conditions established in the Directive. On the other hand, for those charging schemes which are extremely simple (i.e. considering only one charging component) it will be more difficult to attain all the objectives although the conditions can be fulfilled anyway.

As a general overview, the incentives to operational efficiency to both parties, railway undertakings and the infrastructure manager, are only provided by performance regimes. These performance regimes tend to accomplish the objectives of the Directive (except in France where incentives are only provided to freight operators) but the condition of considering compensations for undertakings which suffer from disruption is only fulfilled by the United Kingdom, as the rest of countries applying performance regimes are limited to the application of penalties for disruptions.

In relation to the non-discriminatory objective, only the practices that consist of agreements between the railway undertakings and the infrastructure managers, which is the case of Poland, have been negatively assessed given its lack of definition. These kinds of practices are the only ones that have been assessed as discriminatory, given their nature.

Finally, the assessment of the cost-relatedness of charges has been a difficult issue to lead with. This is due to the fact that although some countries take a marginal cost approach to charging, there is not available information on which costs are intended to recover each charge considered. In consequence, it is possible that many charges are cost-related but that it has not been possible to affirm it due to the lack of information given by the infrastructure managers.

### 5.3. SWOT analysis

The evaluation output consists of a table for every national charging scheme in which its strengths (S), weaknesses (W), opportunities (O) and threats (T) are gathered as short statements.

In general, there is an opportunity and a threat related to each strength or weakness, respectively. This is due to the fact that in case a charging scheme is characterised by a specific strength, this strength will probably be likely to lead to a better situation and, then, it appears an opportunity. The same happens for the weaknesses and threats. However, this does not occur in all the cases.

#### 5.3.1. SWOT analysis for each national charging scheme

##### *Austria*

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Usage charge composed by a “charge in the amount of the directly incurred costs” and a “line-related usage charge” (Basic charge)
- Quality and line-related mark-ups and mark-downs composed by a “wear on tracks by traction unit” (Basic charge)
- Traffic-type related usage charge (Basic charge)
- Performance regime

**Table 29 – SWOT Analysis for the charging scheme applied in Austria**

Strengths	Opportunities
<input checked="" type="checkbox"/> Basic charges based on detailed cost knowledge	<input checked="" type="checkbox"/> Sending of consistent economic signals to the railway undertakings <sup>1</sup>
<input checked="" type="checkbox"/> Basic charges established at a low level	<input checked="" type="checkbox"/> Improvement of the market shares for railways <sup>2</sup>
<input checked="" type="checkbox"/> Traffic-type related usage charge depending on the type of service	<input checked="" type="checkbox"/> Balanced distribution of the services in the railway network <sup>3</sup>
<input checked="" type="checkbox"/> Performance regime based on real deviations	<input checked="" type="checkbox"/> Incentives to accomplish planned performance <sup>4</sup>
<input checked="" type="checkbox"/> Performance regime consisting on a delay minutes accountancy system	<input checked="" type="checkbox"/> Incentives to the infrastructure manager to improve the operational efficiency <sup>5</sup>
<input checked="" type="checkbox"/> Performance regime allocating responsibilities	<input checked="" type="checkbox"/> Incentives to railway undertakings to the efficient use of capacity allocated <sup>6</sup>
<input checked="" type="checkbox"/> Simple application of the basic charges and the performance regime (unit rates)	<input checked="" type="checkbox"/> Implementation of planning strategies <sup>7</sup>

Weaknesses	Threats
<ul style="list-style-type: none"> <li>☒ Low recovery rate by the basic charges</li> <li>☒ Independence of part of the basic charges from the type of service</li> <li>☒ Independence of the basic charges from the type of infrastructure</li> <li>☒ Complex calculation procedure of the basic charge</li> <li>☒ Performance regime only applied to high-quality passenger services</li> <li>☒ Performance regime based on a delay threshold</li> <li>☒ Performance regime not considering compensations to railway undertakings which suffer from disruptions</li> </ul>	<ul style="list-style-type: none"> <li>☒ High dependence from State subsidies</li> <li>☒ Possible cross-subsidization among different services<sup>8</sup></li> <li>☒ Low incentives to cost efficiency</li> <li>☒ Increase of the administrative costs to the infrastructure manager</li> <li>☒ Risk of unfairness</li> <li>☒ Possible incentive to disruption (for those services performing below the threshold)<sup>9</sup></li> <li>☒ Unfairness between railway undertakings<sup>10</sup></li> </ul>
<p><i>Remarks:</i></p> <p><sup>1</sup> Since the basic charge is based on a detailed knowledge of costs, the railway undertakings will receive clear and consistent signals on what are they paying for, and probably, they will be paying for the cost the produce.</p> <p><sup>2</sup> If the railways are charged at a low level, transport will tend to use the rail transport mode and its market shares will increase.</p> <p><sup>3</sup> If the charges depend on the type of service, this will lead to a balanced distribution in the network and in time of these services.</p> <p><sup>4</sup> The fact that the performance regime is based on the deviation experienced by an operator with respect to the planned performance provides incentives to accomplish the timetable established when the request was made.</p> <p><sup>5,6</sup> The fact that the performance regime allocates the delay to the party causing it, provides incentives to operational efficiency to the infrastructure manager and to efficient use of the infrastructure to the railway undertakings.</p> <p><sup>7</sup> The simple application of the charge will facilitate the comprehension from railway undertakings and will ease their planification activity.</p> <p><sup>8</sup> The fact that the charge applies in the same way to all services can lead to cross-subsidization, given that is logical to think that some services will incur in higher cost than others although all services pay the same amount.</p> <p><sup>9</sup> When the performance regime considers a certain delay allowance it is possible to be incentivising the operator to produce a disruption just equal to the one that is permitted without being penalised.</p> <p><sup>10</sup> Those railway undertakings which suffer from the disruptions caused by others should be compensated because it leads to unfairness (e.g. if the disruption is caused by the infrastructure manager, the railway undertaking suffering the disruption is compensated but the secondary delays caused by the same disruptions are not compensated).</p>	

*Source: Own from data of ÖBB's Track Access Product Catalogue*

## Germany

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- User-dependent component, including a product factor (Basic charge)
- Payload component (Basic charge)
- Fee for preparing an offer (Reservation charge)
- Cancellation fee (Reservation charge)
- Utilisation factor (Congestion charge)
- Performance Regime

Table 30 – SWOT Analysis for the charging scheme applied in Germany

Strengths	Opportunities
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> User-dependent component varying with the type of service and the type of route</li> <li><input checked="" type="checkbox"/> Product factor considers the demand's willingness to pay</li> <li><input checked="" type="checkbox"/> Product factor depending on the quality in terms of time and routing</li> <li><input checked="" type="checkbox"/> Payload component levied to heavy trains reflecting the increase in wear and capacity utilisation</li> <li><input checked="" type="checkbox"/> Fee for preparing an offer intended to reflect costs for processing the applications</li> <li><input checked="" type="checkbox"/> Fee for preparing an offer only levied if the offer is not accepted</li> <li><input checked="" type="checkbox"/> Cancellation fee only levied in case of "failure to use" capacity</li> <li><input checked="" type="checkbox"/> Percentage based</li> <li><input checked="" type="checkbox"/> Consideration of the anticipation of the cancellation with respect to the running date</li> <li><input checked="" type="checkbox"/> Utilisation factor applied in busy routes</li> <li><input checked="" type="checkbox"/> Performance regime based on real deviations</li> <li><input checked="" type="checkbox"/> Performance regime consisting on a delay minutes accountancy system</li> <li><input checked="" type="checkbox"/> Performance regime allocating responsibilities</li> <li><input checked="" type="checkbox"/> Performance regime applied to all services</li> <li><input checked="" type="checkbox"/> Simple application of the performance regime (unit rates)</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Balanced distribution of the services in the railway network</li> <li><input checked="" type="checkbox"/> Avoiding exclusion of valuable services from the market <sup>1</sup></li> <li><input checked="" type="checkbox"/> Possible optimisation of the capacity allocation procedure <sup>2</sup></li> <li><input checked="" type="checkbox"/> Incentives to cost efficiency</li> <li><input checked="" type="checkbox"/> Incentives to operational efficiency</li> <li><input checked="" type="checkbox"/> Cost-relatedness</li> <li><input checked="" type="checkbox"/> Stability of the capacity allocation procedure</li> <li><input checked="" type="checkbox"/> Incentives to efficient use of the capacity allocated</li> <li><input checked="" type="checkbox"/> No exclusion of valuable services</li> <li><input checked="" type="checkbox"/> Proportionality of the tariff</li> <li><input checked="" type="checkbox"/> Incentive to early notification</li> <li><input checked="" type="checkbox"/> More possibilities to reallocation of capacity</li> <li><input checked="" type="checkbox"/> Incentives to improve efficiency</li> <li><input checked="" type="checkbox"/> Incentives to accomplish planned performance</li> <li><input checked="" type="checkbox"/> Incentives to the infrastructure manager to improve the operational efficiency</li> <li><input checked="" type="checkbox"/> Incentives to railway undertakings to the efficient use of capacity allocated</li> <li><input checked="" type="checkbox"/> Fairness</li> <li><input checked="" type="checkbox"/> Implementation of planning strategies</li> </ul>
Weaknesses	Threats
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low relation of the basic charges to specific infrastructure costs</li> <li><input checked="" type="checkbox"/> Complex application</li> <li><input checked="" type="checkbox"/> Fee for preparing an offer intended to reflect costs for processing the applications but only levied if the offer is not accepted</li> <li><input checked="" type="checkbox"/> Cancellation fee independent of any</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Lack of transparency <sup>3</sup></li> <li><input checked="" type="checkbox"/> Sending of unclear signals to the railway undertakings</li> <li><input checked="" type="checkbox"/> Incorrect cost allocation <sup>4</sup></li> <li><input checked="" type="checkbox"/> Not consideration of cost causation</li> </ul>

<p>variable such as type of service or time band</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Levied per train-path</li> <li><input checked="" type="checkbox"/> Utilisation factor not dependent of the type of service and the time band</li> <li><input checked="" type="checkbox"/> Performance regime based on a delay threshold</li> <li><input checked="" type="checkbox"/> Performance regime not considering compensations to railway undertakings which suffer from disruptions</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Risk of unfairness (each kilometre is not invoiced at the same price)</li> <li><input checked="" type="checkbox"/> Inconsistent cost allocation <sup>5</sup></li> <li><input checked="" type="checkbox"/> Possible incentive to disruption (for those services performing below the threshold)</li> <li><input checked="" type="checkbox"/> Unfairness between railway undertakings</li> </ul>
<p><i>Remarks:</i></p> <p><sup>1</sup> The consideration of the demand's willingness to pay when setting the value of the charge guarantees that no valuable services will be excluded from the market.</p> <p><sup>2</sup> The fact that the product factor applied to different services depends on the route and the time band, clearly implies that the capacity will be allocated in an optimal way.</p> <p><sup>3</sup> The lack of transparency is due to the fact that the charges are not explicitly related to the allocation of specific infrastructure costs incurred by the running of a train</p> <p><sup>4</sup> The fact that the fee for preparing an offer reflects the costs for processing the applications but that are only levied if the offer is rejected supposes an incorrect cost allocation because the infrastructure manager incurs in the costs for preparing the offers whether the railways undertakings accept them or not.</p> <p><sup>5</sup> The utilisation factor should consider the type of service and the time band because these are elements which suppose a great variation of the costs and, then, the congestion costs are not consistently allocated.</p>	

*Source: Own from data of DB Netz's Network Statement*

### *Estonia*

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Variable charge (Basic charge)
- Fixed charge (Reservation charge)
- Scarcity charge

**Table 31 – SWOT Analysis for the charging scheme applied in Estonia**

Strengths	Opportunities
<input checked="" type="checkbox"/> Variable charge recovering a high rate	<input checked="" type="checkbox"/> Low dependence from State subsidies
<input checked="" type="checkbox"/> Fixed charge set at a high value	<input checked="" type="checkbox"/> High incentives to efficient use of capacity
<input checked="" type="checkbox"/> Fixed charge levied per train-km	<input checked="" type="checkbox"/> Fairness (each kilometre is invoiced at the same price)
<input checked="" type="checkbox"/> Simple application of the fixed and variable charges	<input checked="" type="checkbox"/> Implementation of planning strategies
<input checked="" type="checkbox"/> Scarcity charge calculated through an auction procedure	<input checked="" type="checkbox"/> Optimisation of the capacity allocation procedure
Consideration of the demand's willingness to pay	<input checked="" type="checkbox"/> Maximization of revenue <sup>1</sup>

Weaknesses	Threats
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low relation of the variable charge to specific infrastructure costs</li> <li><input checked="" type="checkbox"/> Independence of the charges from the type of service</li> <li><input checked="" type="checkbox"/> Independence of the variable charge from the type of infrastructure</li> <li><input checked="" type="checkbox"/> High level of the fixed charge</li> <li><input checked="" type="checkbox"/> Fixed charge independent of any variable such as the type of service or the time band</li> <li><input checked="" type="checkbox"/> Not consideration of the anticipation of the request with respect to the running date</li> <li><input checked="" type="checkbox"/> Auction procedure to set the scarcity charge</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Lack of transparency</li> <li><input checked="" type="checkbox"/> Possible cross-subsidization among different services</li> <li><input checked="" type="checkbox"/> Low incentives to cost efficiency</li> <li><input checked="" type="checkbox"/> Risk of exclusion of valuable services</li> <li><input checked="" type="checkbox"/> Not consideration of cost-causation</li> <li><input checked="" type="checkbox"/> Less stability of the capacity allocation process</li> <li><input checked="" type="checkbox"/> Possible exclusion of socially valuable services <sup>2</sup></li> <li><input checked="" type="checkbox"/> Increase of the administrative costs to the infrastructure manager</li> </ul>
<p><i>Remarks:</i></p> <p><sup>1</sup> When allocating scarce capacity through an auction procedure, the main variable is the demand's willingness to pay and, given that the capacity is allocated to the maker of the highest bid, the revenue will be maximum.</p> <p><sup>2</sup> If capacity is allocated through an auction procedure, it is possible that socially valuable services, whose ability to pay is lower than others', are excluded from the market.</p>	

*Source: Own from data of EDISYs Network Statement*

## Greece

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Basic price corresponding to the track maintenance (Basic charge)
- Basic price corresponding to the traffic management (Congestion charge)

**Table 32 – SWOT Analysis for the charging scheme applied in Greece**

Strengths	Opportunities
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Basic charge levied according to vehicle-related variables</li> <li><input checked="" type="checkbox"/> Basic charge depending on the type of service</li> <li><input checked="" type="checkbox"/> Congestion charge based on deviations from ideal running time</li> <li><input checked="" type="checkbox"/> Defined per section</li> <li><input checked="" type="checkbox"/> Relation to specific infrastructure costs</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Incentives to cost efficiency</li> <li><input checked="" type="checkbox"/> Incentives to a balanced distribution of services</li> <li><input checked="" type="checkbox"/> Incentives to accomplish ideal performance</li> <li><input checked="" type="checkbox"/> Incentives to the most efficient services to use the congested sections</li> <li><input checked="" type="checkbox"/> Transparency</li> </ul>

Weaknesses	Threats
<input checked="" type="checkbox"/> Complex application	<input checked="" type="checkbox"/> Sending of unclear signals to the railway undertakings
<input checked="" type="checkbox"/> Congestion charge independent of the type of service	<input checked="" type="checkbox"/> Inconsistent cost allocation

Source: Own from data of EDISY's Network Statement

## Spain

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Circulation charge (Basic charge)
- Traffic charge (Mark-up)
- Access charge (Reservation charge)
- Capacity reservation charge (Reservation charge)

Table 33 – SWOT Analysis for the charging scheme applied in Spain

Strengths	Opportunities
<input checked="" type="checkbox"/> Circulation charge depending on the type of service and the type of line	<input checked="" type="checkbox"/> Incentives to a balanced distribution of services
<input checked="" type="checkbox"/> Traffic charge allocated to high value services	<input checked="" type="checkbox"/> Increase of the recovery rate
<input checked="" type="checkbox"/> Traffic charge set according to the demand's willingness to pay measured through the capacity offered (€/100 seats-km)	<input checked="" type="checkbox"/> Avoiding exclusion of valuable services from the market
<input checked="" type="checkbox"/> Traffic charge depending on the time band	<input checked="" type="checkbox"/> Management of demand through time
<input checked="" type="checkbox"/> Access charge applied to all services	<input checked="" type="checkbox"/> Fairness
<input checked="" type="checkbox"/> Access charge depending on the foreseen volume of traffic	<input checked="" type="checkbox"/> Possible consideration of the demand's ability to pay
<input checked="" type="checkbox"/> Capacity reservation charge set at a high level	<input checked="" type="checkbox"/> High incentives to efficient use of capacity allocated
<input checked="" type="checkbox"/> Capacity reservation charge depending on the route category and the type of service	<input checked="" type="checkbox"/> Consideration of cost-causation
<input checked="" type="checkbox"/> Capacity reservation charge depending on the time band	<input checked="" type="checkbox"/> Relation to scarcity costs <sup>1</sup>
<input checked="" type="checkbox"/> Capacity reservation charge levied per path-kilometre	<input checked="" type="checkbox"/> Fairness (each kilometre is invoiced at the same price)
<input checked="" type="checkbox"/> Simple application	<input checked="" type="checkbox"/> Implementation of planning strategies
Weaknesses	Threats
<input checked="" type="checkbox"/> Low relation to specific infrastructure	<input checked="" type="checkbox"/> Lack of transparency



<p>costs</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Traffic charge not depending on vehicle-related variables</li> <li><input checked="" type="checkbox"/> Access charge depends on ranges of volume of traffic</li> <li><input checked="" type="checkbox"/> High level of the capacity reservation charge</li> <li><input checked="" type="checkbox"/> Capacity reservation charge not considering the anticipation of the request with respect to the running date</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low incentives to cost efficiency</li> <li><input checked="" type="checkbox"/> Unfairness (each kilometre is not invoiced at the same price)</li> <li><input checked="" type="checkbox"/> Risk of exclusion of valuable services</li> <li><input checked="" type="checkbox"/> Less stability of the capacity allocation procedure</li> </ul>
<p><i>Remarks:</i></p> <p><sup>1</sup> The fact that the reservation charge is set depending on the time band can be seen as a way of considering scarcity costs.</p>	

Source: Own from data of ADIF's Network Statement

## France

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Running charge (Basic charge)
- Access charge (Reservation charge)
- Path reservation charge (Reservation charge)
- Reservation charge per station stop (Reservation charge)
- Performance regime

**Table 34 – SWOT Analysis for the charging scheme applied in France**

Strengths	Opportunities
<input checked="" type="checkbox"/> Running charge depending on the type of service	<input checked="" type="checkbox"/> Incentives to a balanced distribution of services
<input checked="" type="checkbox"/> Access charge applied to all services	<input checked="" type="checkbox"/> Fairness
<input checked="" type="checkbox"/> Access charge levied for making a request per train-km	<input checked="" type="checkbox"/> Stability of the capacity allocation procedure <sup>1</sup>
<input checked="" type="checkbox"/> Path reservation charge set at a high level	<input checked="" type="checkbox"/> High incentives to efficient use of capacity allocated
<input checked="" type="checkbox"/> Path reservation charge depending on the route category and the type of service	<input checked="" type="checkbox"/> Consideration of cost-causation
<input checked="" type="checkbox"/> Path reservation charge depending on the time band	<input checked="" type="checkbox"/> Relation to scarcity costs
<input checked="" type="checkbox"/> Path reservation charge levied per path-kilometre	<input checked="" type="checkbox"/> Fairness (each kilometre is invoiced at the same price)
<input checked="" type="checkbox"/> Reservation charge per station stop	<input checked="" type="checkbox"/> Incentives to optimal use of the passenger stations

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<ul style="list-style-type: none"> <li>depending on the time band and the station category</li> <li><input checked="" type="checkbox"/> Performance regime focused on most disrupting services</li> <li><input checked="" type="checkbox"/> Performance regime based on a condition on operational performance</li> <li><input checked="" type="checkbox"/> Simple application</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Improvement of the efficiency in the critical part of the market <sup>2</sup></li> <li><input checked="" type="checkbox"/> Incentives to operational efficiency to freight operators</li> <li><input checked="" type="checkbox"/> Implementation of planning strategies</li> </ul>
<b>Weaknesses</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low relation to specific infrastructure costs</li> <li><input checked="" type="checkbox"/> Running charge not depending on vehicle-related variables</li> <li><input checked="" type="checkbox"/> Access charge not depending on the type of service</li> <li><input checked="" type="checkbox"/> High level of the path reservation charge</li> <li><input checked="" type="checkbox"/> Path reservation charge not considering the anticipation of the request with respect to the running date</li> <li><input checked="" type="checkbox"/> Reservation charge per station stop only levied to passenger services</li> <li><input checked="" type="checkbox"/> Performance regime only applied to freight services <sup>3</sup></li>   <li><input checked="" type="checkbox"/> Performance regime based on fix operational standards</li>   <li><input checked="" type="checkbox"/> Performance regime not considering compensations to railway undertakings which suffer from disruptions</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Lack of transparency</li>   <li><input checked="" type="checkbox"/> Low incentives to cost efficiency</li>   <li><input checked="" type="checkbox"/> Not consideration of cost-causation</li>   <li><input checked="" type="checkbox"/> Risk of exclusion of valuable services</li> <li><input checked="" type="checkbox"/> Less stability of the capacity allocation procedure</li>   <li><input checked="" type="checkbox"/> Unbalanced distribution of services</li>   <li><input checked="" type="checkbox"/> Possible unfairness between railway undertakings</li> <li><input checked="" type="checkbox"/> No incentives to the infrastructure manager's operational efficiency</li> <li><input checked="" type="checkbox"/> Low incentives to improve operational efficiency</li> <li><input checked="" type="checkbox"/> Inconsistent valuation of disruptions</li> <li><input checked="" type="checkbox"/> Possible incentive to disruption</li> <li><input checked="" type="checkbox"/> No incentives to overperformance</li> <li><input checked="" type="checkbox"/> Unfairness between railway undertakings</li> </ul>
<p><i>Remarks:</i></p> <p><sup>1</sup> The levying of an access charge will lead to a stability of the capacity allocation procedure given that operators will not make a request unless they are sure that they will accept the offer.</p> <p><sup>2</sup> The application of a performance regime focused on the most disrupting services implies that the improvement of the operational efficiency will be higher than if it was applied to another market segments. However, the improvement of the operational efficiency would be maximum if the performance regime was applied to all the services.</p> <p><sup>3</sup> The fact that the performance regime is based on operational fixed standards implies that there are low incentives to operational efficiency since when the compensation is reached there are no incentives to continue improving performance and, so, to overperformance. As well, the disruptions are inconsistently valued so only performances below fixed operational standards are penalised. Indeed, it is possible that some services performing over the operational standard will be incentivized to disrupt.</p>	

Source: Own from data of RFF's Network Statement

## Italy

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Variable charge (Basic charge)
- Fixed charge (Reservation charge)
- Reservation charge
- Performance regime
- Discount for infrastructure backwardness
- Discount to the total volume of traffic

**Table 35 – SWOT Analysis for the charging scheme applied in Italy**

Strengths	Opportunities
<input checked="" type="checkbox"/> Variable charge depending on the type of service and the type of line <input checked="" type="checkbox"/> Variable charge according to vehicle-related variables <input checked="" type="checkbox"/> Variable charge considering the relative density <input checked="" type="checkbox"/> Fixed charge related to the access of each section or node <input checked="" type="checkbox"/> Reservation charge capped to a maximum charge <input checked="" type="checkbox"/> Performance regime based on real circulations <input checked="" type="checkbox"/> Performance regime based a delay minutes accountancy system <input checked="" type="checkbox"/> Performance regime allocating responsibilities <input checked="" type="checkbox"/> Performance regime applied to all services <input checked="" type="checkbox"/> Performance regime capped to a maximum charge <input checked="" type="checkbox"/> Discount related to infrastructure backwardness <input checked="" type="checkbox"/> Discount capped	<input checked="" type="checkbox"/> Incentives to a balanced distribution of services <input checked="" type="checkbox"/> Incentives to cost efficiency <input checked="" type="checkbox"/> Incentives to operational efficiency <input checked="" type="checkbox"/> Stability of the capacity allocation procedure <input checked="" type="checkbox"/> Avoiding exclusion of valuable services <input checked="" type="checkbox"/> Incentives to accomplish planned performance <input checked="" type="checkbox"/> Incentives to the infrastructure manager to improve the operational efficiency <input checked="" type="checkbox"/> Incentives to railway undertakings to the efficient use of capacity allocated <input checked="" type="checkbox"/> Fairness <input checked="" type="checkbox"/> Avoiding exclusion of valuable services <input checked="" type="checkbox"/> Possible allocation of savings on maintenance costs <input checked="" type="checkbox"/> Stability of the charging system
Weaknesses	Threats
<input checked="" type="checkbox"/> Traffic management costs allocated according to deterioration through the variable charge <input checked="" type="checkbox"/> Reservation charge not related to capacity allocation costs <input checked="" type="checkbox"/> Reservation charge not considering	<input checked="" type="checkbox"/> Distorted incentives to cost efficiency <sup>1</sup> <input checked="" type="checkbox"/> Lack of transparency

<p>the anticipation of the request with respect to the running date</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Performance regime based on a delay threshold</li> <li><input checked="" type="checkbox"/> Delay threshold depending the type of service</li> <li><input checked="" type="checkbox"/> Performance regime not considering compensations to railway undertakings which suffer from disruptions</li> <li><input checked="" type="checkbox"/> Discount applied in sections with infrastructure backwardness</li> <li><input checked="" type="checkbox"/> Discount depending on the type of traffic</li> <li><input checked="" type="checkbox"/> Complex application</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Less stability of the capacity allocation procedure</li> <li><input checked="" type="checkbox"/> Possible incentive to disruption (for those services performing below the threshold)</li> <li><input checked="" type="checkbox"/> Inconsistent valuation of disruptions <sup>2</sup></li> <li><input checked="" type="checkbox"/> Unfairness between railway undertakings</li> <li><input checked="" type="checkbox"/> No incentives to improve the state of the infrastructure</li> <li><input checked="" type="checkbox"/> Risk of unfairness between railway undertakings</li> <li><input checked="" type="checkbox"/> Sending of unclear signals to the railway undertakings</li> </ul>
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Source: Own from data of RFI's Network Statement

## Netherlands

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Tariff per train-kilometre (Basic charge)
- Tariff per ton-kilometre (Basic charge)
- Discount

Table 36 – SWOT Analysis for the charging scheme applied in the Netherlands

Strengths	Opportunities
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Basic charges based on detailed cost knowledge</li> <li><input checked="" type="checkbox"/> Basic charges set at a low</li> <li><input checked="" type="checkbox"/> Discount intended to encourage the use of the Port Railway Line</li> <li><input checked="" type="checkbox"/> Discount applied for the portion of the train weight over and above 750 tons</li> <li><input checked="" type="checkbox"/> Simple application</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Sending of consistent economic signals to the railway undertakings</li> <li><input checked="" type="checkbox"/> Improvement of the market shares for railways</li> <li><input checked="" type="checkbox"/> Possibility of recovering the initial investment</li> <li><input checked="" type="checkbox"/> Incentives to operational efficiency <sup>1</sup></li> <li><input checked="" type="checkbox"/> Implementation of planning strategies</li> </ul>
Weaknesses	Threats
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low recovery rate by the basic charges</li> <li><input checked="" type="checkbox"/> Independence of the basic charges from the type of service</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> High dependence from State subsidies</li> <li><input checked="" type="checkbox"/> Possible cross-subsidization among different services</li> </ul>

<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Independence of the basic charges from the type of infrastructure</li> <li><input checked="" type="checkbox"/> Discount applied only to specific services</li> <li><input checked="" type="checkbox"/> Complex calculation procedure of the basic charge</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low incentives to cost efficiency</li> <li><input checked="" type="checkbox"/> Risk of unfairness</li> <li><input checked="" type="checkbox"/> Increase of the administrative costs to the infrastructure manager</li> </ul>
<p><i>Remarks:</i>  <sup>1</sup> As the discount is applied to the portion of the train weight over and above 750 tons, railway undertakings will be incentivized to carry the maximum possible load and, then, the existing capacity will be increased.</p>	

*Source: Own from data of ProRail's Network Statement*

## *Poland*

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Basic charge
- Reservation charge
- Performance regime
- Discount for increase of volume
- Discount for exceptional trains

**Table 37 – SWOT Analysis for the charging scheme applied in Poland**

Strengths	Opportunities
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Basic charge depending on vehicle-related variables</li> <li><input checked="" type="checkbox"/> Basic charge depending on the type of service and the type of line</li> <li><input checked="" type="checkbox"/> Possible exploration of the demand's willingness to pay through the agreed reservation charge</li> <li><input checked="" type="checkbox"/> Possible optimisation of the existing capacity through the performance regime</li> <li><input checked="" type="checkbox"/> Discount encouraging new services</li> <li><input checked="" type="checkbox"/> Discount capped</li> <li><input checked="" type="checkbox"/> Discount for exceptional trains promoting events related to rail</li> <li><input checked="" type="checkbox"/> Discounts limited in time</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Incentive to cost-efficiency</li> <li><input checked="" type="checkbox"/> Incentives to a balanced distribution of services</li> <li><input checked="" type="checkbox"/> Possible optimisation of the capacity allocation procedure</li> <li><input checked="" type="checkbox"/> Avoiding exclusion of valuable services from the market</li> <li><input checked="" type="checkbox"/> Possible incentives to operational efficiency</li> <li><input checked="" type="checkbox"/> Increase of rail market shares</li> <li><input checked="" type="checkbox"/> Stability of the charging system</li> <li><input checked="" type="checkbox"/> Approximation of the railroad to the society</li> <li><input checked="" type="checkbox"/> Avoiding distorted signals to the market over long periods of time</li> </ul>
Weaknesses	Threats
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low relation to specific infrastructure costs</li> <li><input checked="" type="checkbox"/> Complex application</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Lack of transparency</li> <li><input checked="" type="checkbox"/> Sending of unclear signals to the railway undertakings</li> </ul>

<input checked="" type="checkbox"/> Low transparency of the agreed charges (reservation charge and performance regime) <input checked="" type="checkbox"/> Discount applied to freight services <input checked="" type="checkbox"/> No relation of discounts to savings on administrative costs	<input checked="" type="checkbox"/> Risk of unfairness between railway undertakings <input checked="" type="checkbox"/> Risk of unfairness <input checked="" type="checkbox"/> Possible distortion of the charging scheme
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Source: Own from data of PKP PLK's Network Statement

## Portugal

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Basic tariff for the essential
- Reservation charge
- Performance regime

Table 38 – SWOT Analysis for the charging scheme applied in Portugal

Strengths	Opportunities
<input checked="" type="checkbox"/> Basic tariff based on detailed cost knowledge	<input checked="" type="checkbox"/> Sending of consistent economic signals to the railway undertakings
<input checked="" type="checkbox"/> Basic tariff set at a low level	<input checked="" type="checkbox"/> Improvement of the market shares for railways
<input checked="" type="checkbox"/> Basic tariff depending on the type of service and the type of line	<input checked="" type="checkbox"/> Incentives to a balanced distribution of services
<input checked="" type="checkbox"/> Basic tariff depending on vehicle-related variables	<input checked="" type="checkbox"/> Incentive to cost-efficiency
<input checked="" type="checkbox"/> Reservation charge only levied in case of “failure to use” capacity	<input checked="" type="checkbox"/> Incentives to efficient use of the capacity allocated
<input checked="" type="checkbox"/> Percentage based	<input checked="" type="checkbox"/> No exclusion of valuable services
<input checked="" type="checkbox"/> Consideration of the anticipation of the cancellation with respect to the running date	<input checked="" type="checkbox"/> Proportionality of the tariff
<input checked="" type="checkbox"/> Performance regime based on real circulations	<input checked="" type="checkbox"/> Incentive to early notification
<input checked="" type="checkbox"/> Performance regime based a delay minutes accountancy system	<input checked="" type="checkbox"/> More possibilities to reallocation of capacity
<input checked="" type="checkbox"/> Performance regime allocating responsibilities	<input checked="" type="checkbox"/> Incentives to accomplish planned performance
<input checked="" type="checkbox"/> Performance regime applied to all services	<input checked="" type="checkbox"/> Incentives to the infrastructure manager to improve the operational efficiency
<input checked="" type="checkbox"/> Performance regime capped to a maximum charge	<input checked="" type="checkbox"/> Incentives to railway undertakings to the efficient use of capacity allocated
	<input checked="" type="checkbox"/> Fairness
	<input checked="" type="checkbox"/> Avoiding exclusion of valuable services

Weaknesses	Threats
<input checked="" type="checkbox"/> Low recovery rate by the basic charges	<input checked="" type="checkbox"/> High dependence from State subsidies
<input checked="" type="checkbox"/> Complex calculation procedure of the basic charge	<input checked="" type="checkbox"/> Increase of the administrative costs to the infrastructure manager
<input checked="" type="checkbox"/> Reservation charge independent of any variable such as type of service or time band	<input checked="" type="checkbox"/> Not consideration of cost causation
<input checked="" type="checkbox"/> Performance regime based on a delay threshold	<input checked="" type="checkbox"/> Possible incentive to disruption (for those services performing below the threshold)
<input checked="" type="checkbox"/> Delay threshold depending the type of service	<input checked="" type="checkbox"/> Inconsistent valuation of disruptions <sup>2</sup>
<input checked="" type="checkbox"/> Performance regime not considering compensations to railway undertakings which suffer from disruptions	<input checked="" type="checkbox"/> Unfairness between railway undertakings

Source: Own from data of REFER's Network Statement

### *Sweden*

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Track charge (Basic charge)
- Mark-ups
- Emission charge
- Accident charge

**Table 39 – SWOT Analysis for the charging scheme applied in Sweden**

Strengths	Opportunities
<input checked="" type="checkbox"/> Track charge based on detailed cost knowledge	<input checked="" type="checkbox"/> Sending of consistent economic signals to the railway undertakings
<input checked="" type="checkbox"/> Track charge set at a low level	<input checked="" type="checkbox"/> Improvement of the market shares for railways
<input checked="" type="checkbox"/> Mark-ups linked to a specific investment	<input checked="" type="checkbox"/> Financement of specific investment
<input checked="" type="checkbox"/> Levied per crossing	<input checked="" type="checkbox"/> Incentives to operational efficiency
<input checked="" type="checkbox"/> Emission and accident charges based on marginal costs	<input checked="" type="checkbox"/> Sending of consistent economic signals to the railway undertakings
<input checked="" type="checkbox"/> Emission charge levied per litre of diesel fuel	<input checked="" type="checkbox"/> Optimum cost allocation
<input checked="" type="checkbox"/> Emission charge varies with the type of traction unit	<input checked="" type="checkbox"/> Incentives to the use of environmental friendly traction
<input checked="" type="checkbox"/> Accident charge levied per train-kilometre	<input checked="" type="checkbox"/> Correct cost allocation
<input checked="" type="checkbox"/> Simple application	<input checked="" type="checkbox"/> Implementation of planning strategies

Weaknesses	Threats
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Track charge not depending on the type of service</li> <li><input checked="" type="checkbox"/> Track charge not depending on vehicle-related variables</li> <li><input checked="" type="checkbox"/> Low recovery rate by the basic charges</li> <li><input checked="" type="checkbox"/> Complex calculation procedure of the basic charge</li> <li><input checked="" type="checkbox"/> High level of the mark-up</li> <li><input checked="" type="checkbox"/> Mark-up levied to freight services</li>   <li><input checked="" type="checkbox"/> Mark-up for passenger services applied to the whole network while is intended to recover an specific investment</li> <li><input checked="" type="checkbox"/> No link of the emission and the accident charge to equivalent charges in competing modes</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Possible cross-subsidization among different services</li> <li><input checked="" type="checkbox"/> Low incentives to cost efficiency</li>   <li><input checked="" type="checkbox"/> High dependence from State subsidies</li> <li><input checked="" type="checkbox"/> Increase of the administrative costs to the infrastructure manager</li> <li><input checked="" type="checkbox"/> Possible exclusion of valuable services</li> <li><input checked="" type="checkbox"/> Possible underutilisation of the new built capacity</li> <li><input checked="" type="checkbox"/> Unfairness</li>   <li><input checked="" type="checkbox"/> Possible decrease of the market shares for railways</li> </ul>

Source: Own from data of Banverket's Network Statement

### United Kingdom

The components of the charging scheme considered in the assessment are explained in section 3. However, the charges taken into account are listed below in order to facilitate the comprehension of the SWOT analysis.

- Track variable usage charge (Basic charge)
- Electrification asset usage charge (Basic charge)
- Fixed charge (Mark-up)
- Capacity charge (Congestion charge)
- Performance regime
- Discount

Table 40 – SWOT Analysis for the charging scheme applied in the United Kingdom

Strengths	Opportunities
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Basic charges and capacity charge based on detailed cost knowledge</li> <li><input checked="" type="checkbox"/> Track variable usage charge depending on the type of traffic</li> <li><input checked="" type="checkbox"/> Track variable usage charge depending on vehicle-related variables</li> <li><input checked="" type="checkbox"/> Electrification asset usage charge depending on geographical areas, season and day bands</li> <li><input checked="" type="checkbox"/> Exploration of the demand's willingness to pay through the</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Sending of consistent economic signals to the railway undertakings</li> <li><input checked="" type="checkbox"/> Incentives to a balanced distribution of services</li> <li><input checked="" type="checkbox"/> Incentive to cost-efficiency</li> <li><input checked="" type="checkbox"/> Possible consideration of cost-causation</li> <li><input checked="" type="checkbox"/> Maximization of cost recovery</li> </ul>



<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Capacity charge defined according to service groups</li> <li><input checked="" type="checkbox"/> Performance regime based on real deviations</li> <li><input checked="" type="checkbox"/> Performance regime consisting on a delay minutes accountancy system</li> <li><input checked="" type="checkbox"/> Performance regime allocating responsibilities</li> <li><input checked="" type="checkbox"/> Performance regime applied to all services</li> <li><input checked="" type="checkbox"/> Performance regime considering compensations to railway undertakings which suffer from disruptions</li> <li><input checked="" type="checkbox"/> Discount applied to freight services</li> <li><input checked="" type="checkbox"/> Simple application</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Avoiding exclusion of valuable services</li> <li><input checked="" type="checkbox"/> Incentives to operational efficiency</li> <li><input checked="" type="checkbox"/> Incentives to accomplish planned performance</li> <li><input checked="" type="checkbox"/> Incentives to the infrastructure manager to improve the operational efficiency</li> <li><input checked="" type="checkbox"/> Incentives to railway undertakings to the efficient use of capacity allocated</li> <li><input checked="" type="checkbox"/> Fairness</li> <li><input checked="" type="checkbox"/> Fairness between railway undertakings</li> <li><input checked="" type="checkbox"/> Implementation of planning strategies</li> </ul>
<b>Weaknesses</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Track variable usage charge not depending on vehicle-related variables</li> <li><input checked="" type="checkbox"/> Complex calculation procedure</li> <li><input checked="" type="checkbox"/> Mark-up applied to specific services</li> <li><input checked="" type="checkbox"/> Performance regime based on a delay threshold</li> <li><input checked="" type="checkbox"/> Discount applied only to specific services</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low incentives to cost efficiency</li> <li><input checked="" type="checkbox"/> Increase of the administrative costs to the infrastructure manager</li> <li><input checked="" type="checkbox"/> Unbalanced distribution of services</li> <li><input checked="" type="checkbox"/> Possible incentive to disruption (for those services performing below the threshold)</li> <li><input checked="" type="checkbox"/> Risk of unfairness between railway undertakings</li> </ul>

*Source: Own from data of Network Rail's Network Statement*

### 5.3.2. Conclusions of the SWOT analysis

After assessing every national charging scheme, there are some common opportunities and threats in which the different current strengths and weaknesses can derive, respectively, and which should be remarked.

As a starting point, the lack of transparency is a very common threat among the charging schemes considered as the majority of countries do not specify the relation between the charges levied and the specific costs which are intended to recover. However, it is possible that in some cases this relation between costs and charges actually exists but the infrastructure managers are not likely to publish it. The opposite case is where countries recognise to recover marginal cost, in which case the charges are based on detailed cost knowledge and, in consequence, the economic signals sent to railway undertakings are completely consistent.

Another significant threat is the high dependence from State subsidies of those infrastructure managers that recover a low rate of costs through charges. This is the case of those countries that have taken a marginal cost approach to charging. As well, the adoption of this approach implies a complex calculation procedure which will lead to a substantial increase of the administrative costs incurred by the infrastructure manager. On the contrary, when charging at marginal costs these costs are correctly allocated and the railways undertakings are only charged for the costs that they impose.

When considering the distribution of services in the network, it appears an opportunity of achieving a balanced distribution when the basic charge varies with the type of service, the type of line and the time band. On the other hand, there is a risk of exclusion of valuable services if a reservation charge is set at a high level or in case that a mark-up is not established according to the demand's willingness to pay. As well, if the charges are not varying according to the type of service it is possible that exists cross-subsidization between different services given that it is logical to think that each type of service supposes a determined cost to the infrastructure.

Finally, it should be remarked those performance regimes based on real circulations, which consist on a delay minutes accountancy system applied to all services and considering allocation of responsibilities. These performance regimes imply several opportunities such as incentives to accomplish planned performance, incentives to the infrastructure manager to operational efficiency, incentives to railway undertakings to efficient use of capacity allocated, ... However, there is a main threat related to these performance regimes consisting on being unfair between railways undertakings since they do not consider compensations for secondary delays.

## 6. Conclusions

During the last half of the twentieth century the role played by rail in transport market has been in constant decline due to several causes which have been exposed in this dissertation. Given the situation of the rail in the transport market, the European Commission has engaged in a long process of revitalising the railways. This process began in the early nineties with the publishment of Council Directive 91/440 but the significant changes arrived, in 2001, with the publishment of the First Railway Package of Directives. In particular, one of the Directives composing this First Railway Package was Directive 2001/14/EC, focused on the allocation of capacity and development of access charges for infrastructure.

The design of a charging scheme is a key issue for an efficient use of the infrastructure and for ensuring fair and non-discriminatory access to the network. Given that most national rail networks operate under monopoly conditions, charging schemes must be regulated in order to avoid the abuse of the monopolistic position, to ensure the efficient use of the infrastructure and to prevent the discrimination of certain groups. This is the reason why Directive 2001/14/EC plays such important role in the process of revitalising the railways.

Then, Directive 2001/14/EC encourage infrastructure managers to market instruments such as infrastructure charging to pursue a business oriented approach in order to improve the efficiency of the infrastructure use. However, this Directive allow a considerable degree of freedom in its implementation into national legislation and, in consequence, the European countries have been implementing the charging provisions in a divergent way. Then, as it has been stated in this dissertation, a wide variety of charging schemes have appeared in the different countries. As well, it there is a risk that during the process of implementation of European Directives into national law, the conditions are fulfilled but not the spirit of the EU Commission policy.

Indeed, as it has been concluded in this dissertation, the countries which have been studied, in general, fulfil the objectives and conditions established by Directive 2001/14/EC. As well, several opportunities and threats have been deduced from the SWOT analysis so the European countries could focus their effort in promoting those opportunities and preventing the threats.

It should be standed out that the current lack of harmonisation among the national charging schemes could turn to be a barrier to the overall development of the rail market. This matter especially concerns international services, which must handle with the heterogeneity of charging schemes across its entire journey. This heterogeneity of the railways together with homogeneity of the road mode, impede the improvement of the rail market shares. Then, the simple fact of the diversity of charging system greatly complicates and reduces the transparency of charges for international paths, so anything that can be done to reduce this diversity is likely to be helpful to international rail traffic and, in consequence, to the improvement of the transport market shares for railways.

This problem could be solved by taking a legislative initiative which followed the spirit of Directive 2001/14/EC but which was more focused on regulating the charging schemes applied by infrastructure managers and that was more concrete and strict when defining a common structure for charging.

This common structure of the charging schemes should be oriented to the application of a simple tariff accompanied by a performance regime which provided incentives to both parties, the infrastructure manager and the railway undertakings, in order to improve the operational efficiency. There are several issues that should be treated:

- Concerning the approach taken to charging, the marginal cost approach is the most efficient way of charging from an economic point of view. This is due to the fact that when charges are set at marginal costs, railways undertakings are only paying the actual costs which are directly incurred as a result of operating a train service. This provision is already reflected in Directive 2001/14/EC, where the marginal cost pricing is mandatory. However, it is remarkable that each pricing principle is determined by specific characteristics and there is not a “best approach”. Therefore, the adequate approach for each country will depend on the specific circumstances of each country (i.e. the case of the Baltic States where the full cost approach could be appropriate to freight traffic due to its geographical situation while in other countries it is not).
- In relation to the type of tariff, it should be compulsory that the basic charge was a linear tariff given that the presence of two-part tariffs (specially if the fixed part of the charge is set at a high value) is likely to be a barrier to small size operators as well as an impediment for rail international transport.
- Concerning the charging components differentiated by Directive 2001/14/EC, only performance regimes should be compulsory given that are the elements which provide incentives to both parties, railway undertakings and the infrastructure manager, to improve the operational efficiency. These performance regimes should be applied as currently establishes the Directive by penalising those actions which disrupt the operation of the network, compensating to railway undertakings which suffer from disruption and giving bonuses that reward better than planned performance.
- The rest of charging components (mark-ups, reservation charges, congestion charges, scarcity charges and discounts) should be defined more concretely but they should not be compulsory given that their application depends on the actual situation of the railways in each European country, i.e. charging of congestion or scarcity may be inappropriate in countries where there is little competition or no competition.
- Finally, the consideration of elements of rail infrastructure charging recovering environmental impacts should become mandatory, in line with future obligations in other transport sectors.

There are some countries whose charging scheme could be taken as a reference to establish a common structure of charging schemes. These countries are Portugal and the United Kingdom they use a marginal cost approach to charging, the type of charge is linear (except for franchised passenger operators in the United Kingdom) and they apply performance regimes.

Finally, it should be given a general overview of the Spanish case. The vertical disintegration of the railways in Spain was completed in year 2005. The liberalisation currently affects only freight services and passenger services' liberalisation is foreseen to be

accomplished in 2010. The approach taken to charging is marginal cost plus mark-ups with a very low recovery rate. This is in line with Directive 2001/14/EC but implies that the railways in Spain are subject to a great dependence of the State subsidies.

There are some weaknesses of the Spanish charging scheme that should be considered. It applies an Access charge to all services which corresponds to the fixed part of a two-part tariff and which could have an adverse effect on competitiveness and on the organisation of international rail services. As well, the charging scheme does not consider the application of a performance regime which will lead to an improvement of the operational efficiency in the rail network.

As a conclusion, Spain has made a great effort in the last years to implement into national law the European policy and to organise the railways as this legislation requires. However, it is necessary to continue improving this organisation in order to revitalise the railways and to turn it into a competitive mode of transport.



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## **Annex I : Directive 2001/14/EC**

**DIRECTIVE 2001/14/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL****of 26 February 2001****on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 71 thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the opinion of the Economic and Social Committee <sup>(2)</sup>,

Having regard to the opinion of the Committee of the Regions <sup>(3)</sup>,

Acting in accordance with the procedure laid down in Article 251 of the Treaty <sup>(4)</sup> in the light of the joint text approved on 22 November 2000 by the Conciliation Committee,

Whereas:

- (1) Greater integration of the Community railway sector is an essential element of the completion of the internal market and moving towards achieving sustainable mobility.
- (2) Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways <sup>(5)</sup> provides for certain access rights in international rail transport for railway undertakings, and international groupings of railway undertakings; these rights mean that railway infrastructure can be used by multiple users.
- (3) Council Directive 95/19/EC of 19 June 1995 on the allocation of railway infrastructure capacity and the charging of infrastructure fees <sup>(6)</sup> set out a broad framework for the allocation of railway infrastructure capacity.

<sup>(1)</sup> OJ C 321, 20.10.1998, p. 10, and OJ C 116 E, 26.4.2000, p. 40.

<sup>(2)</sup> OJ C 209, 22.7.1999, p. 22.

<sup>(3)</sup> OJ C 57, 29.2.2000, p. 40.

<sup>(4)</sup> Opinion of the European Parliament of 10 March 1999 (OJ C 175, 21.6.1999, p. 120), confirmed on 27 October 1999 (OJ C 154, 5.6.2000, p. 22), Council Common Position of 28 March 2000 (OJ C 178, 27.6.2000, p. 28) and Decision of the European Parliament of 5 July 2000 (not yet published in the Official Journal), Decision of the European Parliament of 1 February 2001 and Council Decision of 20 December 2000.

<sup>(5)</sup> OJ L 237, 24.8.1991, p. 25. Directive as amended by Directive 2001/12/EC of the European Parliament and of the Council (see page 1 of this Official Journal).

<sup>(6)</sup> OJ L 143, 27.6.1995, p. 75.

(4) Those Directives have not prevented a considerable variation in the structure and level of railway infrastructure charges and the form and duration of capacity allocation processes.

(5) To ensure transparency and non-discriminatory access to rail infrastructure for all railway undertakings all the necessary information required to use access rights are to be published in a network statement.

(6) Appropriate capacity-allocation schemes for rail infrastructure coupled with competitive operators will result in a better balance of transport between modes.

(7) Encouraging optimal use of the railway infrastructure will lead to a reduction in the cost of transport to society.

(8) An efficient freight sector, especially across borders, requires action for the opening up of the market.

(9) It should be possible for Member States to allow purchasers of railway services to enter directly the capacity-allocation process.

(10) The revitalisation of European railways by means of extended access for international freight on the Trans-European Rail Freight Network requires fair intermodal competition between rail and road, particularly by taking appropriate account of the different external effects; appropriate charging schemes for rail infrastructure coupled with appropriate charging schemes for other transport infrastructures and competitive operators will result in an optimal balance of different transport modes.

(11) The charging and capacity allocation schemes should permit equal and non-discriminatory access for all undertakings and attempt as far as possible to meet the needs of all users and traffic types in a fair and non-discriminatory manner.

- (12) Within the framework set out by Member States charging and capacity-allocation schemes should encourage railway infrastructure managers to optimise use of their infrastructure.
- (13) Railway undertakings should receive clear and consistent signals from capacity allocation schemes which lead them to make rational decisions.
- (14) In order to take into account the needs of users, or potential users, of railway infrastructure capacity to plan their business, and to the needs of customers and funders, it is important that the infrastructure manager ensures that infrastructure capacity is allocated in a way which reflects the need to maintain and improve service reliability levels.
- (15) It is desirable for railway undertakings and the infrastructure manager to be provided with incentives to minimise disruption and improve performance of the network.
- (16) Charging and capacity allocation schemes should allow for fair competition in the provision of railway services.
- (17) It is important to have regard to the business requirements of both applicants and the infrastructure manager.
- (18) It is important to maximise the flexibility available to the infrastructure managers with regard to the allocation of infrastructure capacity, but this must be consistent with satisfaction of the applicant's reasonable requirements.
- (19) The capacity allocation process must prevent the imposition of undue constraints on the wishes of other undertakings holding, or intending to hold, rights to use the infrastructure to develop their business.
- (20) It is desirable to grant some degree of flexibility to infrastructure managers to enable a more efficient use to be made of the infrastructure network.
- (21) Capacity allocation and charging schemes may need to take account of the fact that different components of the rail infrastructure network may have been designed with different principal users in mind.
- (22) The requirements for passenger services may often conflict with the requirements for freight; the requirements for passenger services may result in a network which is more costly to build and maintain than one designed solely for freight; the increasing speed differential between freight and passenger rolling stock can lead to an exacerbation of the conflict between these two types of traffic.
- (23) Different users and types of users will frequently have a different impact on infrastructure capacity and the needs of different services need to be properly balanced.
- (24) Services operated under contract to a public authority may require special rules to safeguard their attractiveness to users.
- (25) The charging and capacity allocation schemes must take account of the effects of increasing saturation of infrastructure capacity and ultimately the scarcity of capacity.
- (26) The different time-frames for planning traffic types mean that it is desirable to ensure that requests for infrastructure capacity which are made after the completion of the timetabling process can be satisfied.
- (27) The use of information technology can enhance the speed and responsiveness of the timetabling process and improve the ability of applicants to bid for infrastructure capacity, as well as improving the ability to establish train paths which cross more than one infrastructure manager's network.
- (28) To ensure the optimum outcome for railway undertakings, it is desirable to require an examination of the use of infrastructure capacity when the coordination of requests for capacity is required to meet the needs of users.
- (29) In view of the monopolistic position of the infrastructure managers it is desirable to require an examination of the available infrastructure capacity, and methods of enhancing it when the capacity allocation process is unable to meet the requirements of users.
- (30) A lack of information about other railway undertakings' requests as well as about the constraints within the system may make it difficult for railway undertakings to seek to optimise their infrastructure capacity requests.
- (31) It is important to ensure the better coordination of allocation schemes so as to ensure the improved attractiveness of rail for traffic which uses the network of more than one infrastructure manager, in particular for international traffic.

- (32) It is important to minimise the distortions of competition which may arise, either between railway infrastructures or between transport modes, from significant differences in charging principles.
- (33) It is desirable to define those components of the infrastructure service which are essential to enable an operator to provide a service and which should be provided in return for minimum access charges.
- (34) Investment in railway infrastructure is desirable and infrastructure charging schemes should provide incentives for infrastructure managers to make appropriate investments where they are economically attractive.
- (35) Any charging scheme will send economic signals to users. It is important that those signals to railway undertakings should be consistent and lead them to make rational decisions.
- (36) To enable the establishment of appropriate and fair levels of infrastructure charges, infrastructure managers need to record and establish the valuation of their assets and develop a clear understanding of cost factors in the operation of the infrastructure.
- (37) It is desirable to ensure that account is taken of external costs when making transport decisions.
- (38) It is important to ensure that charges for international traffic are such as to permit rail to meet the needs of the market; consequently infrastructure charging should be set at the cost that is directly incurred as a result of operating the train service.
- (39) The overall level of cost recovery through infrastructure charges affects the necessary level of government contribution; Member States may require different levels of overall cost recovery through charges including mark-ups or a rate of return which the market can bear while balancing cost recovery with intermodal competitiveness of rail freight. However, it is desirable for any infrastructure charging scheme to enable traffic to use the rail network which can at least pay for the additional cost which it imposes.
- (40) A railway infrastructure is a natural monopoly. It is therefore necessary to provide infrastructure managers with incentives to reduce costs and manage their infrastructure efficiently.
- (41) Account should be taken of the fact that for a great many years the level of investment in infrastructure and technology has not made it possible to create the conditions for any real development of railway transport. It is therefore advisable, against this background, for appropriate upgrading to be carried out, in particular in the context of setting up the Trans-European Rail Freight Network, by using *inter alia* the Community instruments available, without prejudice to priorities already established.
- (42) Discounts which are allowed to railway undertakings must relate to actual administrative cost savings experienced; discounts may also be used to promote the efficient use of infrastructure.
- (43) It is desirable for railway undertakings and the infrastructure manager to be provided with incentives to minimise disruption of the network.
- (44) The allocation of capacity is associated with a cost to the infrastructure manager, payment for which should be required.
- (45) Measures are needed to ensure that all railway undertakings licensed under Community law are required to hold an appropriate safety certificate before operating on the territory of a Member State; the granting of safety certificates must comply with Community law.
- (46) The efficient management and fair and non-discriminatory use of rail infrastructure require the establishment of a regulatory body that oversees the application of these Community rules and acts as an appeal body, notwithstanding the possibility of judicial review.
- (47) Specific measures are required to take account of the specific geopolitical and geographical situation of certain Member States as well as a specific organisation of the railway sector in various Member States while ensuring the integrity of the internal market.
- (48) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission<sup>(1)</sup>.
- (49) In accordance with the principles of subsidiarity and proportionality as set out in Article 5 of the Treaty, the objectives of this Directive, namely to coordinate arrangements in the Member States governing the allocation of railway infrastructure capacity and the charges made for the use thereof as well as safety certification, cannot be sufficiently achieved by the Member States in view of the need to ensure fair and non-discriminatory terms for access to the infrastructure as well as to take account of the manifestly international dimensions involved in the operation of significant

<sup>(1)</sup> OJ L 184, 17.7.1999, p. 23.



elements of the railway networks, and can therefore, by reason of the need for coordinated trans-national action, be better achieved by the Community. This Directive does not go beyond what is necessary to achieve those objectives.

- (50) Council Regulation (EEC) No 2830/77 of 12 December 1977 on the measures necessary to achieve comparability between the accounting systems and annual accounts of railway undertakings<sup>(1)</sup>, Council Regulation (EEC) No 2183/78 of 19 September 1978 laying down uniform costing principles for railway undertakings<sup>(2)</sup>, Council Decision 82/529/EEC of 19 July 1982 on the fixing of rates for the international carriage of goods by rail<sup>(3)</sup>, Council Decision 83/418/EEC of 25 July 1983 on the commercial independence of the railways in the management of their international passenger and luggage traffic<sup>(4)</sup>, and Directive 95/19/EC are superseded by this Directive and should therefore be repealed,

HAVE ADOPTED THIS DIRECTIVE:

## CHAPTER I

### INTRODUCTORY PROVISIONS

#### Article 1

##### Scope

1. This Directive concerns the principles and procedures to be applied with regard to the setting and charging of railway infrastructure charges and the allocation of railway infrastructure capacity.

Member States shall ensure that charging and capacity allocation schemes for railway infrastructure follow the principles set down in this Directive and thus allow the infrastructure manager to market and make optimum effective use of the available infrastructure capacity.

<sup>(1)</sup> OJ L 334, 24.12.1977, p. 13. Regulation as last amended by the 1994 Act of Accession.

<sup>(2)</sup> OJ L 258, 21.9.1978, p. 1. Regulation as last amended by the 1994 Act of Accession.

<sup>(3)</sup> OJ L 234, 9.8.1982, p. 5. Regulation as last amended by the 1994 Act of Accession.

<sup>(4)</sup> OJ L 237, 26.8.1983, p. 32. Regulation as last amended by the 1994 Act of Accession.

2. This Directive applies to the use of railway infrastructure for domestic and international rail services.

3. Member States may exclude from the scope of this Directive:

- a) stand-alone local and regional networks for passenger services on railway infrastructure;
- b) networks intended only for the operation of urban or suburban passenger services;
- c) regional networks which are used for regional freight services solely by a railway undertaking that is not covered by the scope of Directive 91/440/EEC until capacity on that network is requested by another applicant;
- d) privately owned railway infrastructure that exists solely for use by the infrastructure owner for its own freight operations.

4. Transport operations in the form of shuttle services for road vehicles through the Channel Tunnel are excluded from the scope of this Directive.

#### Article 2

##### Definitions

For the purpose of this Directive:

- a) 'allocation' means the allocation of railway infrastructure capacity by an infrastructure manager;
- b) 'applicant' means a licensed railway undertaking and/or an international grouping of railway undertakings, and, in Member States which provide for such a possibility, other persons and/or legal entities with public service or commercial interest in procuring infrastructure capacity, such as public authorities under Regulation (EEC) No 1191/69<sup>(5)</sup> and shippers, freight forwarders and combined transport operators, for the operation of railway service on their respective territories;
- c) 'congested infrastructure' means a section of infrastructure for which demand for infrastructure capacity cannot be fully satisfied during certain periods even after coordination of the different requests for capacity;

<sup>(5)</sup> Regulation (EEC) No 1191/69 of the Council of 26 June 1969 on action by Member States concerning the obligations inherent in the concept of a public service in transport by rail, road and inland waterway (OJ L 156, 28.6.1969, p. 1). Regulation as last amended by Regulation (EC) No 1893/91 (OJ L 169, 29.6.1991, p. 1).

- d) 'capacity enhancement plan' means a measure or series of measures with a calendar for their implementation which are proposed to alleviate the capacity constraints leading to the declaration of a section of infrastructure as 'congested infrastructure';
- e) 'coordination' means the process through which the allocation body and applicants will attempt to resolve situations in which there are conflicting applications for infrastructure capacity;
- f) 'framework agreement' means a legally binding general agreement on the basis of public or private law, setting out the rights and obligations of an applicant and the infrastructure manager or the allocation body in relation to the infrastructure capacity to be allocated and the charges to be levied over a period longer than one working timetable period;
- g) 'infrastructure capacity' means the potential to schedule train paths requested for an element of infrastructure for a certain period;
- h) 'infrastructure manager' means any body or undertaking that is responsible in particular for establishing and maintaining railway infrastructure. This may also include the management of infrastructure control and safety systems. The functions of the infrastructure manager on a network or part of a network may be allocated to different bodies or undertakings;
- i) 'network' means the entire railway infrastructure owned and/or managed by an infrastructure manager;
- j) 'network statement' means the statement which sets out in detail the general rules, deadlines, procedures and criteria concerning the charging and capacity allocation schemes. It shall also contain such other information as is required to enable application for infrastructure capacity;
- k) 'railway undertaking' means any public or private undertaking, licensed according to applicable Community legislation, the principal business of which is to provide services for the transport of goods and/or passengers by rail with a requirement that the undertaking must ensure traction; this also includes undertakings which provide traction only;
- l) 'train path' means the infrastructure capacity needed to run a train between two places over a given time-period;
- m) 'working timetable' means the data defining all planned train and rolling-stock movements which will take place on the relevant infrastructure during the period for which it is in force.

### Article 3

#### Network statement

1. The infrastructure manager shall, after consultation with the interested parties, develop and publish a network statement obtainable against payment of a duty which may not exceed the cost of publishing that statement.
2. The network statement shall set out the nature of the infrastructure which is available to railway undertakings. It shall contain information setting out the conditions for access to the relevant railway infrastructure. The content of the network statement is laid down in Annex I.
3. The network statement shall be kept up to date and modified as necessary.
4. The network statement shall be published no less than four months in advance of the deadline for requests for infrastructure capacity.

### CHAPTER II

#### INFRASTRUCTURE CHARGES

### Article 4

#### Establishing, determining and collecting charges

1. Member States shall establish a charging framework while respecting the management independence laid down in Article 4 of Directive 91/440/EEC.

Subject to the said condition of management independence, Member States shall also establish specific charging rules or delegate such powers to the infrastructure manager. The determination of the charge for the use of infrastructure and the collection of this charge shall be performed by the infrastructure manager.

2. Where the infrastructure manager, in its legal form, organisation or decision-making functions, is not independent of any railway undertaking, the functions, described in this chapter, other than collecting the charges shall be performed by a charging body that is independent in its legal form, organisation and decision-making from any railway undertaking.

3. Infrastructure managers shall cooperate to achieve the efficient operation of train services which cross more than one infrastructure network. They shall in particular aim to guarantee the optimum competitiveness of international rail freight and ensure the efficient utilisation of the Trans-European Rail Freight Network. They may establish such joint organisations as are appropriate to enable this to take place. Any cooperation or joint organisation shall be bound by the rules set out in this Directive.

4. Except where specific arrangements are made under Article 8(2), infrastructure managers shall ensure that the charging scheme in use is based on the same principles over the whole of their network.

5. Infrastructure managers shall ensure that the application of the charging scheme results in equivalent and non-discriminatory charges for different railway undertakings that perform services of equivalent nature in a similar part of the market and that the charges actually applied comply with the rules laid down in the network statement.

6. An infrastructure manager or charging body shall respect the commercial confidentiality of information provided to it by applicants.

#### *Article 5*

#### **Services**

1. Railway undertakings shall, on a non-discriminatory basis, be entitled to the minimum access package and track access to service facilities that are described in Annex II. The supply of services referred to in Annex II, point 2 shall be provided in a non-discriminatory manner and requests by railway undertakings may only be rejected if viable alternatives under market conditions exist. If the services are not offered by one infrastructure manager, the provider of the 'main infrastructure' shall use all reasonable endeavours to facilitate the provision of these services.

2. Where the infrastructure manager offers any of the range of services described in Annex II, point 3 as additional services he shall supply them upon request to a railway undertaking.

3. Railway undertakings may request a further range of ancillary services, listed in Annex II, point 4 from the infrastructure manager or from other suppliers. The infrastructure manager is not obliged to supply these services.

#### *Article 6*

#### **Infrastructure cost and accounts**

1. Member States shall lay down conditions, including where appropriate advance payments, to ensure that, under normal business conditions and over a reasonable time period, the accounts of an infrastructure manager shall at least balance income from infrastructure charges, surpluses from other commercial activities and State funding on the one hand, and infrastructure expenditure on the other.

Without prejudice to the possible long-term aim of user cover of infrastructure costs for all modes of transport on the basis

of fair, non-discriminatory competition between the various modes, where rail transport is able to compete with other modes of transport, within the charging framework of Articles 7 and 8, a Member State may require the infrastructure manager to balance his accounts without State funding.

2. Infrastructure managers shall, with due regard to safety and to maintaining and improving the quality of the infrastructure service, be provided with incentives to reduce the costs of provision of infrastructure and the level of access charges.

3. Member States shall ensure that the provision set out in paragraph 2 is implemented, either through a contractual agreement between the competent authority and infrastructure manager covering a period of not less than three years which provides for State funding or through the establishment of appropriate regulatory measures with adequate powers.

4. Where a contractual agreement exists, the terms of the contract and the structure of the payments agreed to provide funding to the infrastructure manager shall be agreed in advance to cover the whole of the contract period.

5. A method for apportioning costs shall be established. Member States may require prior approval. This method should be updated from time to time to the best international practice.

#### *Article 7*

#### **Principles of charging**

1. Charges for the use of railway infrastructure shall be paid to the infrastructure manager and used to fund his business.

2. Member States may require the infrastructure manager to provide all necessary information on the charges imposed. The infrastructure manager must, in this regard, be able to justify that infrastructure charges actually invoiced to each operator, pursuant to Articles 4 to 12, comply with the methodology, rules, and where applicable, scales laid down in the network statement.

3. Without prejudice to paragraphs 4 or 5 or to Article 8, 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.

4. The infrastructure charge may include a charge which reflects the scarcity of capacity of the identifiable segment of the infrastructure during periods of congestion.

5. The infrastructure charge may be modified to take account of the cost of the environmental effects caused by the operation of the train. Such a modification shall be differentiated according to the magnitude of the effect caused.

Charging of environmental costs which results in an increase in the overall revenue accruing to the infrastructure manager shall however be allowed only if such charging is applied at a comparable level to competing modes of transport.

In the absence of any comparable level of charging of environmental costs in other competing modes of transport, such modification shall not result in any overall change in revenue to the infrastructure manager. If a comparable level of charging of environmental costs has been introduced for rail and competing modes of transport and that generates additional revenue, it shall be for Member States to decide how the revenue shall be used.

6. To avoid undesirable disproportionate fluctuations, the charges referred to in paragraphs 3, 4 and 5 may be averaged over a reasonable spread of train services and times. Nevertheless, the relative magnitudes of the infrastructure charges shall be related to the costs attributable to the services.

7. The supply of services referred to in Annex II, point 2, shall not be covered by this Article. Without prejudice to the foregoing, account shall be taken, in setting the prices for the services set out in Annex II, point 2, of the competitive situation of rail transport.

8. Where services listed in Annex II, points 3 and 4 as additional and ancillary services are offered only by one supplier the charge imposed for such a service shall relate to the cost of providing it, calculated on the basis of the actual level of use.

9. Charges may be levied for capacity used for the purpose of infrastructure maintenance. Such charges shall not exceed the net revenue loss to the infrastructure manager caused by the maintenance.

#### Article 8

#### Exceptions to charging principles

1. In order to obtain full recovery of the costs incurred by the infrastructure manager a Member State may, if the market can bear this, levy mark-ups on the basis of efficient, transparent and non-discriminatory principles, while guaranteeing optimum competitiveness in particular of international rail freight. The charging system shall respect the productivity increases achieved by railway undertakings.

The level of charges must not, however, exclude the use of infrastructure by market segments which can pay at least the cost that is directly incurred as a result of operating the railway service, plus a rate of return which the market can bear.

2. For specific investment projects, in the future, or that have been completed not more than 15 years before the entry into force of this Directive, the infrastructure manager may set or continue to set higher charges on the basis of the long-term costs of such projects if they increase efficiency and/or cost-effectiveness and could not otherwise be or have been undertaken. Such a charging arrangement may also incorporate agreements on the sharing of the risk associated with new investments.

3. To prevent discrimination, it shall be ensured that any given infrastructure manager's average and marginal charges for equivalent uses of his infrastructure are comparable and that comparable services in the same market segment are subject to the same charges. The infrastructure manager shall show in the network statement that the charging system meets these requirements in so far as this can be done without disclosing confidential business information.

4. If an infrastructure manager intends to modify the essential elements of the charging system referred to in paragraph 1, it shall make them public at least three months in advance.

#### Article 9

#### Discounts

1. Without prejudice to Articles 81, 82, 86 and 87 of the Treaty and notwithstanding Article 7(3) of this Directive, any discount on the charges levied on a railway undertaking by the infrastructure manager, for any service, shall comply with the criteria set out in this Article.

2. With the exception of paragraph 3, discounts shall be limited to the actual saving of the administrative cost to the infrastructure manager. In determining the level of discount, no account may be taken of cost savings already internalised in the charge levied.

3. Infrastructure managers may introduce schemes available to all users of the infrastructure, for specified traffic flows, granting time limited discounts to encourage the development of new rail services, or discounts encouraging the use of considerably underutilised lines.

4. Discounts may relate only to charges levied for a specified infrastructure section.

5. Similar discount schemes shall apply for similar services.

#### Article 10

##### **Compensation schemes for unpaid environmental, accident and infrastructure costs**

1. Member States may put in place a time-limited compensation scheme for the use of railway infrastructure for the demonstrably unpaid environmental, accident and infrastructure costs of competing transport modes in so far as these costs exceed the equivalent costs of rail.

2. Where an operator receiving compensation enjoys an exclusive right, the compensation must be accompanied by comparable benefits to users.

3. The methodology used and calculations performed must be publicly available. It shall in particular be possible to demonstrate the specific uncharged costs of the competing transport infrastructure that are avoided and to ensure that the scheme is granted on non-discriminatory terms to undertakings.

4. Member States shall ensure that such a scheme is compatible with Articles 73, 87 and 88 of the Treaty.

#### Article 11

##### **Performance scheme**

1. Infrastructure charging schemes shall through a performance scheme encourage railway undertakings and the infrastructure manager to minimise disruption and improve the performance of the railway network. This may include penalties for actions which disrupt the operation of the network, compensation for undertakings which suffer from disruption and bonuses that reward better than planned performance.

2. The basic principles of the performance scheme shall apply throughout the network.

#### Article 12

##### **Reservation charges**

Infrastructure managers may levy an appropriate charge for capacity that is requested but not used. This charge shall provide incentives for efficient use of capacity.

The infrastructure manager shall always be able to inform any interested party of the infrastructure capacity which has been allocated to user railway undertakings.

#### CHAPTER III

##### **ALLOCATION OF INFRASTRUCTURE CAPACITY**

#### Article 13

##### **Capacity rights**

1. Infrastructure capacity shall be allocated by an infrastructure manager, and once allocated to an applicant may not be transferred by the recipient to another undertaking or service.

Any trading in infrastructure capacity shall be prohibited and shall lead to exclusion from the further allocation of capacity.

The use of capacity by a railway undertaking when carrying out the business of an applicant who is not a railway undertaking shall not be considered a transfer.

2. The right to use specific infrastructure capacity in the form of a train path may be granted to applicants for a maximum duration of one working timetable period.

An infrastructure manager and an applicant may enter into a framework agreement as laid down in Article 17 for the use of capacity on the relevant railway infrastructure for a longer term than one working timetable period.

3. The definition of respective rights and obligations between infrastructure managers and applicants in respect of any allocation of capacity shall be laid down in contracts or legislation.

#### Article 14

##### **Capacity allocation**

1. Member States may establish a framework for the allocation of infrastructure capacity while respecting the management independence laid down in Article 4 of Directive 91/440/EEC. Specific capacity allocation rules shall be established. The infrastructure manager shall perform the capacity allocation processes. In particular, the infrastructure manager shall ensure that infrastructure capacity is allocated on a fair and non-discriminatory basis and in accordance with Community law.

2. Where the infrastructure manager, in its legal form, organisation or decision-making functions is not independent of any railway undertaking, the functions referred to in paragraph 1 and described in this chapter shall be performed by an allocation body that is independent in its legal form, organisation and decision-making from any railway undertaking.

3. Infrastructure managers and allocation bodies shall respect the commercial confidentiality of information provided to them.

#### Article 15

### Cooperation in the allocation of infrastructure capacity on more than one network

1. Infrastructure managers shall cooperate to enable the efficient creation and allocation of infrastructure capacity which crosses more than one network. They shall organise international train paths, in particular within the framework of the Trans-European Rail Freight Network. They shall establish such procedures as are appropriate to enable this to take place. These procedures shall be bound by the rules set out in this Directive.

The procedure established in order to coordinate the allocation of infrastructure capacity at an international level shall associate representatives of infrastructure managers for all railway infrastructures whose allocation decisions have an impact on more than one other infrastructure manager. Appropriate representatives of infrastructure managers from outside the Community may be associated with these procedures. The Commission shall be informed and invited to attend as an observer.

2. At any meeting or other activity undertaken to permit the allocation of infrastructure capacity for trans-network train services, decisions shall only be taken by representatives of infrastructure managers.

3. The participants in the cooperation referred to paragraph 1 shall ensure that its membership, methods of operation and all relevant criteria which are used for assessing and allocating infrastructure capacity be made publicly available.

4. Working in cooperation as referred to in paragraph 1, infrastructure managers shall assess the need for, and may where necessary propose and organise international train paths to facilitate the operation of freight trains which are subject to an *ad hoc* request as referred to in Article 23.

Such prearranged international train paths shall be made available to applicants via any of the participating infrastructure managers.

#### Article 16

### Applicants

1. Applications for infrastructure capacity may be made by railway undertakings and their international groupings and, in the territories of those Member States which so allow, by other applicants complying with the definition in Article 2(b). Member States may also allow other applicants to apply for infrastructure capacity on their territories.

2. The infrastructure manager may set requirements with regard to applicants to ensure that its legitimate expectations about future revenues and utilisation of the infrastructure are safeguarded. Such requirements shall be appropriate, transparent and non-discriminatory. The requirements shall be published as part of the allocation principles in the network statement, and the Commission shall be informed.

3. The requirements in paragraph 2 may only include the provision of a financial guarantee that must not exceed an appropriate level which shall be proportional to the contemplated level of activity of the applicant, and assurance of the capability to prepare compliant bids for infrastructure capacity.

#### Article 17

### Framework agreements

1. Without prejudice to Articles 81, 82 and 86 of the Treaty, a framework agreement may be concluded with an applicant. Such a framework agreement specifies the characteristics of the infrastructure capacity required by and offered to the applicant over a period of time exceeding one working timetable period. The framework agreement shall not specify a train path in detail, but should be such as to seek to meet the legitimate commercial needs of the applicant. A Member State may require prior approval of such a framework agreement by the regulatory body referred to in Article 30 of this Directive.

2. Framework agreements shall not be such as to preclude the use of the relevant infrastructure by other applicants or services.

3. A framework agreement shall allow for the amendment or limitation of its terms to enable better use to be made of the railway infrastructure.

4. The framework agreement may contain penalties should it be necessary to modify or terminate the agreement.

5. Framework agreements shall in principle be for a period of five years. The infrastructure manager may agree to a shorter or longer period in specific cases. Any period longer than five years shall be justified by the existence of commercial contracts, specialised investments or risks.

Any period longer than 10 years shall be possible only in exceptional cases, in particular, where there is large-scale, long-term investment, and particularly where such investment is covered by contractual commitments.

6. While respecting commercial confidentiality, the general nature of each framework agreement shall be made available to any interested party.

#### Article 18

##### Schedule for the allocation process

1. The infrastructure manager shall adhere to the schedule for capacity allocation set out in Annex III.

2. Infrastructure managers shall agree with the other relevant infrastructure managers concerned which international train paths are to be included in the working timetable, before commencing consultation on the draft working timetable. Adjustments shall only be made if absolutely necessary.

#### Article 19

##### Application

1. Applicants may apply on the basis of public or private law to the infrastructure manager to request an agreement granting rights to use railway infrastructure against a charge as provided for in chapter II.

2. Requests relating to the regular working timetable must adhere to the deadlines set out in Annex III.

3. An applicant who is a party to a framework agreement shall apply in accordance with that agreement.

4. Applicants may request infrastructure capacity crossing more than one network by applying to one infrastructure manager. That infrastructure manager shall then be permitted to act on behalf of the applicant to seek capacity with the other relevant infrastructure managers.

5. Infrastructure managers shall ensure that, for infrastructure capacity crossing more than one network, applicants may apply direct to any joint body which the infrastructure managers may establish.

#### Article 20

##### Scheduling

1. The infrastructure manager shall as far as is possible meet all requests for infrastructure capacity including requests for train paths crossing more than one network, and shall as

far as possible take account of all constraints on applicants, including the economic effect on their business.

2. The infrastructure manager may give priority to specific services within the scheduling and coordination process but only as set out in Articles 22 and 24.

3. The infrastructure manager shall consult interested parties about the draft working timetable and allow them at least one month to present their views. Interested parties shall include all those who have requested infrastructure capacity as well as other parties who wish to have the opportunity to comment on how the working timetable may affect their ability to procure rail services during the working timetable period.

4. The infrastructure manager shall take appropriate measures to deal with any concerns that are expressed.

#### Article 21

##### Coordination process

1. During the scheduling process referred to in Article 20, when the infrastructure manager encounters conflicts between different requests he shall attempt, through coordination of the requests, to ensure the best possible matching of all requirements.

2. When a situation requiring coordination arises, the infrastructure manager shall have the right, within reasonable limits, to propose infrastructure capacity that differs from that which was requested.

3. The infrastructure manager shall attempt, through consultation with the appropriate applicants, to achieve a resolution of any conflicts.

4. The principles governing the coordination process shall be defined in the network statement. These shall in particular reflect the difficulty of arranging international train paths and the effect that modification may have on other infrastructure managers.

5. When requests for infrastructure capacity cannot be satisfied without coordination, the infrastructure manager shall attempt to accommodate all requests through coordination.

6. Without prejudice to the existing appeal procedures and to the provisions of Article 30, in case of disputes relating to the allocation of infrastructure capacity, a dispute resolution system shall be made available in order to resolve such disputes promptly. If this system is applied, a decision shall be reached within a time limit of 10 working days.

*Article 22***Congested infrastructure**

1. Where after coordination of the requested paths and consultation with applicants it is not possible to satisfy requests for infrastructure capacity adequately then the infrastructure manager must immediately declare that element of infrastructure on which this has occurred to be congested. This shall also be done for infrastructure which it can be foreseen will suffer from insufficient capacity in the near future.

2. When infrastructure has been declared to be congested, the infrastructure manager shall carry out a capacity analysis as described in Article 25, unless a capacity enhancement plan as described in Article 26 is already being implemented.

3. When charges in accordance with Article 7(4) have not been levied or have not achieved a satisfactory result and the infrastructure has been declared to be congested, the infrastructure manager may in addition employ priority criteria to allocate infrastructure capacity.

4. The priority criteria shall take account of the importance of a service to society, relative to any other service which will consequently be excluded.

In order to guarantee within this framework the development of adequate transport services, in particular to comply with public-service requirements or promote the development of rail freight, Member States may take any measures necessary, under non-discriminatory conditions, to ensure that such services are given priority when infrastructure capacity is allocated.

Member States may, where appropriate, grant the infrastructure manager compensation corresponding to any loss of revenue related to the need to allocate a given capacity to certain services pursuant to the previous subparagraph.

This shall include taking account of the effect of this exclusion in other Member States.

5. The importance of freight services and in particular international freight services shall be given adequate consideration in determining priority criteria.

6. The procedures which shall be followed and criteria used where infrastructure is congested shall be set out in the network statement.

*Article 23***Ad hoc requests**

1. The infrastructure manager shall respond to *ad hoc* requests for individual train paths as quickly as possible, and in

any event, within five working days. Information supplied on available spare capacity shall be made available to all applicants who may wish to use this capacity.

2. Infrastructure managers shall where necessary undertake an evaluation of the need for reserve capacity to be kept available within the final scheduled working timetable to enable them to respond rapidly to foreseeable *ad hoc* requests for capacity. This shall also apply in cases of congested infrastructure.

*Article 24***Specialised infrastructure**

1. Without prejudice to paragraph 2, infrastructure capacity shall be considered to be available for the use of all types of service which conform to the characteristics necessary for operation on the train path.

2. Where there are suitable alternative routes, the infrastructure manager may, after consultation with interested parties, designate particular infrastructure for use by specified types of traffic. Without prejudice to Articles 81, 82 and 86 of the Treaty, when such designation has occurred, the infrastructure manager may give priority to this type of traffic when allocating infrastructure capacity.

Such designation shall not prevent the use of such infrastructure by other types of traffic when capacity is available and when the rolling stock conforms to the technical characteristics necessary for operation on the line.

3. When infrastructure has been designated pursuant to paragraph 2, this shall be described in the network statement.

*Article 25***Capacity analysis**

1. The objective of capacity analysis is to determine the restrictions on infrastructure capacity which prevent requests for capacity from being adequately met, and to propose methods of enabling additional requests to be satisfied. This analysis shall identify the reasons for the congestion and what measures might be taken in the short and medium term to ease the congestion.

2. The analysis shall consider the infrastructure, the operating procedures, the nature of the different services operating and the effect of all these factors on infrastructure capacity. Measures to be considered shall include in particular re-routing of services, re-timing services, speed alterations and infrastructure improvements.



3. A capacity analysis shall be completed within six months of the identification of infrastructure as congested.

*Article 27*

*Article 26*

### **Capacity enhancement plan**

1. Within six months of the completion of a capacity analysis, the infrastructure manager shall produce a capacity enhancement plan.

2. A capacity enhancement plan shall be developed after consultation with users of the relevant congested infrastructure.

It shall identify:

- a) the reasons for the congestion;
- b) the likely future development of traffic;
- c) the constraints on infrastructure development;
- d) the options and costs for capacity enhancement, including likely changes to access charges.

It shall also, on the basis of a cost benefit analysis of the possible measures identified, determine what action shall be taken to enhance infrastructure capacity, including a calendar for implementation of the measures.

The plan may be subject to prior approval by the Member State.

3. The infrastructure manager shall cease to levy any fees which are levied for the relevant infrastructure under Article 7(4) in cases where:

- a) he does not produce a capacity enhancement plan; or
- b) he does not make progress with the action plan identified in the capacity enhancement plan.

However, the infrastructure manager may, subject to the approval of the regulatory body referred to in Article 30 continue to levy those fees if:

- a) the capacity enhancement plan cannot be realised for reasons beyond his control; or
- b) the options available are not economically or financially viable.

### **Use of train paths**

1. In particular for congested infrastructure the infrastructure manager shall require the surrender of a train path which, over a period of at least one month, has been used less than a threshold quota to be laid down in the network statement, unless this was due to non-economic reasons beyond the operator's control.

2. An infrastructure manager may specify in the network statement conditions whereby it will take account of previous levels of utilisation of train paths in determining priorities for the allocation process.

*Article 28*

### **Infrastructure capacity for scheduled maintenance**

1. Requests for infrastructure capacity to enable maintenance to be performed shall be submitted during the scheduling process.

2. Adequate account shall be taken by the infrastructure manager of the effect of infrastructure capacity reserved for scheduled track maintenance on applicants.

*Article 29*

### **Special measures to be taken in the event of disturbance**

1. In the event of disturbance to train movements caused by technical failure or accident the infrastructure manager must take all necessary steps to restore the normal situation. To that end he shall draw up a contingency plan listing the various public bodies to be informed in the event of serious incidents or serious disturbance to train movements.

2. In an emergency and where absolutely necessary on account of a breakdown making the infrastructure temporarily unusable, the paths allocated may be withdrawn without warning for as long as is necessary to repair the system.

The infrastructure manager may, if he deems it necessary, require railway undertakings to make available to him the resources which he feels are the most appropriate to restore the normal situation as soon as possible.

3. Member States may require railway undertakings to be involved in assuring the enforcement and monitoring of their own compliance of the safety standards and rules.

## CHAPTER IV

## GENERAL MEASURES

## Article 30

**Regulatory body**

1. Without prejudice to Article 21(6), Member States shall establish a regulatory body. This body, which can be the Ministry responsible for transport matters or any other body, shall be independent in its organisation, funding decisions, legal structure and decision-making from any infrastructure manager, charging body, allocation body or applicant. The body shall function according to the principles outlined in this Article whereby appeal and regulatory functions may be attributed to separate bodies.

2. An applicant shall have a right to appeal to the regulatory body if it believes that it has been unfairly treated, discriminated against or is in any other way aggrieved, and in particular against decisions adopted by the infrastructure manager or where appropriate the railway undertaking concerning:

- a) the network statement;
- b) criteria contained within it;
- c) the allocation process and its result;
- d) the charging scheme;
- e) level or structure of infrastructure fees which it is, or may be, required to pay;
- f) safety certificate, enforcement and monitoring of the safety standards and rules.

3. The regulatory body shall ensure that charges set by the infrastructure manager comply with chapter II and are non-discriminatory. Negotiation between applicants and an infrastructure manager concerning the level of infrastructure charges shall only be permitted if these are carried out under the supervision of the regulatory body. The regulatory body shall intervene if negotiations are likely to contravene the requirements of this Directive.

4. The regulatory body shall have the power to request relevant information from the infrastructure manager, applicants and any third party involved within the Member State concerned, which must be supplied without undue delay.

5. The regulatory body shall be required to decide on any complaints and take action to remedy the situation within a maximum period of two months from receipt of all information.

Notwithstanding paragraph 6, a decision of the regulatory body shall be binding on all parties covered by that decision.

In the event of an appeal against a refusal to grant infrastructure capacity, or against the terms of an offer of capacity, the regulatory body shall either confirm that no modification of the infrastructure manager's decision is required, or it shall require modification of that decision in accordance with directions specified by the regulatory body.

6. Member States shall take the measures necessary to ensure that decisions taken by the regulatory body are subject to judicial review.

## Article 31

**Cooperation of regulatory bodies**

The national regulatory bodies shall exchange information about their work and decision-making principles and practice for the purpose of coordinating their decision-making principles across the Community. The Commission shall support them in this task.

## Article 32

**Safety certification**

1. The arrangements for safety certification for railway undertakings which are or will be established in the Community and the international groupings which they form shall be in accordance with this Article.

2. The Member States shall provide for their respective territories that a safety certificate in which the railway undertakings' safety requirements are set out be submitted in order to ensure safe service on the routes concerned.

3. In order to obtain the safety certificate, the railway undertaking shall comply with the regulations under national law, compatible with Community law and applied in a non-discriminatory manner, laying down the technical and operational requirements specific to rail services and the safety requirements applying to staff, rolling stock and the undertaking's internal organisation.

In particular, it shall provide proof that the staff whom it employs to operate and accompany the trains has the necessary training to comply with the traffic rules applied by the infrastructure manager and to meet the safety requirements imposed on it in the interests of train movement.

The railway undertaking shall also prove that the rolling stock making up the trains has been approved by the public authority or by the infrastructure manager and checked in accordance with the operating rules applicable to the infrastructure used. The safety certificate shall be issued by whichever body is designated for the purpose by the Member State in which the infrastructure used is situated.

*Article 33***Derogations**

1. For a period of five years from 15 March 2003, the following Member States:

- Ireland, as a Member State located on an island, with a rail link to only one other Member State,
- the United Kingdom, in respect of Northern Ireland, on the same basis, and
- Greece, as a Member State that does not have any direct rail link to any other Member State,

do not need to apply the requirements set out in:

- a) Articles 3, 4(2), 13, 14, 17, 21(4), 21(6), 22, 24(3), 25 to 28 and 30 on the condition that decisions on the allocation of infrastructure capacity or the charging of fees are open to appeal, when so requested in writing by a railway undertaking, before an independent body which shall take its decision within two months of the submission of all relevant information and whose decision shall be subject to judicial review, and
- b) Article 32 in so far as rail transport services falling outside the scope of Article 10 of Directive 91/440/EEC are concerned.

2. However, where:

- a) more than one railway undertaking licensed in accordance with Article 4 of Directive 95/18/EC, or, in the case of Ireland and Northern Ireland, a railway company so licensed elsewhere submits an official application to operate competing railway services in, to or from Ireland, Northern Ireland or Greece, the continued applicability of this derogation will be decided upon in accordance with the advisory procedure referred to in Article 35(2); or
- b) a railway undertaking operating railway services in Ireland, Northern Ireland or Greece submits an official application to operate railway services on, to or from the territory of another Member State (in the case of Ireland, or the United Kingdom, in respect of Northern Ireland, or both, another Member State outside their territories), the derogations referred to in paragraph 1 shall not apply.

Within one year from the receipt of either the decision referred to in point (a) adopted in accordance with the advisory procedure referred to in Article 35(2), or notification of the official application referred to in point (b), the Member State or States concerned (Ireland, the United Kingdom with

respect to Northern Ireland, or Greece) shall put in place legislation to implement the Articles referred to in paragraph 1.

3. A derogation referred to in paragraph 1 may be renewed for periods not longer than five years. Not later than 12 months before the expiry date of the derogation a Member State availing itself of such derogation may address a request to the Commission for a renewed derogation. Any such request must be substantiated. The Commission shall examine such a request and adopt a decision in accordance with the advisory procedure referred to in Article 35(2). The said advisory procedure shall apply to any decision related to the request.

When adopting its decision the Commission shall take into account any development in the geopolitical situation and the development of the rail market in, from and to the Member State having requested the renewed derogation.

4. Luxembourg as a Member State with a relatively small rail network does not need to apply until 31 August 2004 the requirement to award to an independent body the functions determining equitable and non-discriminatory access to infrastructure, as provided for in Articles 4 and 14 in so far as they oblige Member States to establish independent bodies performing the tasks referred to in those Articles.

## CHAPTER V

**FINAL PROVISIONS***Article 34***Implementing measures**

1. Member States may bring any question concerning the implementation of this Directive to the attention of the Commission. Appropriate decisions shall be adopted in accordance with the advisory procedure referred to in Article 35(2).

2. At the request of a Member State or on its own initiative the Commission shall, in a specific case, examine the application and enforcement of provisions concerning charging, capacity allocation and safety certification, and within two months of receipt of such a request decide in accordance with the advisory procedure referred to in Article 35(2) whether the related measure may continue to be applied. The Commission shall communicate its decision to the European Parliament, the Council and to the Member States.

Without prejudice to Article 226 of the Treaty, any Member State may refer the Commission's decision to the Council within a time limit of one month. The Council, acting by a qualified majority, may in exceptional circumstances take a different decision within a period of one month.

3. The amendments necessary to adapt the Annexes shall be adopted in accordance with the regulatory procedure referred to in Article 35(3).

*Article 35*

**Committee procedures**

1. The Commission shall be assisted by a Committee.
2. Where reference is made to this paragraph, Articles 3 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.
3. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

4. The Committee shall adopt its rules of procedure.

*Article 36*

**Report**

The Commission shall by 15 March 2005 submit to the European Parliament and to the Council a report on the implementation of this Directive, accompanied if necessary by proposals for further Community action.

*Article 37*

**Repeals**

Regulation (EEC) No 2830/77, Regulation (EEC) No 2183/78, Decision 82/529/EEC, Decision 83/418/EEC and Directive 95/19/EC are hereby repealed.

*Article 38*

**Implementation**

The Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 15 March 2003. They shall forthwith inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

*Article 39*

**Entry into force**

This Directive shall enter into force on the date of its publication in the *Official Journal of the European Communities*.

*Article 40*

**Addressees**

This Directive is addressed to the Member States.

Done at Brussels, 26 February 2001.

*For the European Parliament*

*The President*

N. FONTAINE

*For the Council*

*The President*

A. LINDH

## ANNEX I

**Contents of the network statement**

The network statement referred to in Article 3 shall contain the following information:

1. A section setting out the nature of the infrastructure which is available to railway undertakings and the conditions of access to it.
2. A section on charging principles and tariffs. This shall contain appropriate details of the charging scheme as well as sufficient information on charges that apply to the services listed in Annex II which are provided by only one supplier. It shall detail the methodology, rules and, where applicable, scales used for the application of Article 7(4) and (5) and Articles 8 and 9. It shall contain information on changes in charges already decided upon or foreseen.
3. A section on the principles and criteria for capacity allocation. This shall set out the general capacity characteristics of the infrastructure which is available to railway undertakings and any restrictions relating to its use, including likely capacity requirements for maintenance. It shall also specify the procedures and deadlines which relate to the capacity allocation process. It shall contain specific criteria which are employed during that process, in particular:
  - a) the procedures according to which applicants may request capacity from the infrastructure manager;
  - b) the requirements governing applicants;
  - c) the schedule for the application and allocation processes;
  - d) the principles governing the coordination process;
  - e) the procedures which shall be followed and criteria used where infrastructure is congested;
  - f) details of restrictions on the use of infrastructure;
  - g) any conditions by which account is taken of previous levels of utilisation of capacity in determining priorities for the allocation process.

It shall detail the measures taken to ensure the adequate treatment of freight services, international services and requests subject to the *ad hoc* procedure.

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## ANNEX II

**Services to be supplied to the railway undertakings**

1. The minimum access package shall comprise:
    - a) handling of requests for infrastructure capacity;
    - b) the right to utilise capacity which is granted;
    - c) use of running track points and junctions;
    - d) train control including signalling, regulation, dispatching and the communication and provision of information on train movement;
    - e) all other information required to implement or operate the service for which capacity has been granted.
  2. Track access to services facilities and supply of services shall comprise:
    - a) use of electrical supply equipment for traction current, where available;
    - b) refuelling facilities;
    - c) passenger stations, their buildings and other facilities;
    - d) freight terminals;
    - e) marshalling yards;
    - f) train formation facilities;
    - g) storage sidings;
    - h) maintenance and other technical facilities.
  3. Additional services may comprise:
    - a) traction current;
    - b) pre-heating of passenger trains;
    - c) supply of fuel, shunting, and all other services provided at the access services facilities mentioned above;
    - d) tailor-made contracts for:
      - control of transport of dangerous goods,
      - assistance in running abnormal trains.
  4. Ancillary services may comprise:
    - a) access to telecommunication network;
    - b) provision of supplementary information;
    - c) technical inspection of rolling stock.
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## ANNEX III

**Schedule for the allocation process**

1. The working timetable shall be established once per calendar year.
  2. The change of working timetable shall take place at midnight on the last Saturday in May. Where a change or adjustment is carried out after the summer it shall take place at midnight on the last Saturday in September each year and at such other intervals between these dates as are required. Infrastructure managers may agree on different dates and in this case they shall inform the Commission thereof.
  3. The final date for receipt of requests for capacity to be incorporated into the working timetable shall be no more than 12 months in advance of the entry into force of the working timetable.
  4. No later than 11 months before the working timetable comes into force, the infrastructure managers shall ensure that provisional international train paths have been established in cooperation with other relevant allocation bodies as set out in Article 15. Infrastructure managers shall ensure that as far as possible these are adhered to during the subsequent processes.
  5. No later than four months after the deadline for submission of bids by applicants, the infrastructure manager shall prepare a draft timetable.
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