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INITIAL REVIEW OF CHARGING PRACTICES IN EUROPE

October 2012

Introductory remark

This initial review covers the following countries, members of IRG-Rail: ***Austria, France, Germany, Great Britain, Greece, Hungary, Latvia, Luxemburg, Netherlands, Slovenia, Spain and Sweden.***

The IRG-Rail charging working group intends to review this document as and when appropriate as further information becomes available from other members or other regulatory bodies. In addition the working group would like to underline that this document is an ***interpretation of the common charging principles as they stand rather than stating what the charging principles 'should' consist of****. In other words, the document only provides a description on the charging system designed by national infrastructure managers.*

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1. Purpose of the document and methodology

1.1 Context and objectives of the document

The 2001/14/EC Directive is considered to be the cornerstone for establishing the principles governing rail charging systems in Europe. This Directive requires Member States to establish charging frameworks that meets the management independence laid down in Directive 91/440/EC, and sets out in particular the principles of accounting, legal, organisation and decision making separation between railway companies and the state, and between infrastructure managers and railway undertakings. A regulatory body, independent from the infrastructure manager, should also be implemented in order to guarantee fairness and transparency.

This framework is crucial for a successful liberalisation of the European railway market. As a result, Member States are now moving towards more transparent capacity allocation and charging systems.

Whilst the primary purpose of charging systems is to finance the rail infrastructure manager, they can also be used to incentivise the optimal use of the infrastructure and its maintenance.

The purpose of this document is to present an overview of the charging approaches implemented in the Member States which are part of the IRG-Rail charging working group.

IRG-Rail intends to expand this initial overview report and would like to invite other IRG-Rail members and European rail regulatory bodies to participate and submit information on their charging systems when available. The IRG-Rail charging working group will update the report as necessary.

The review of charging systems should allow the IRG-Rail charging working group to:

1. Provide a common understanding of charging principles in rail in Europe;

2. Explore a common framework for the review of charging principles given by directive 2001/14/EC;

3. Refine and/or expand activities considered in the working programme of the working group.

1.2 Methodology

The present document is the result of the analysis and the synthesis by the IRG-Rail Group of:

- Information submitted by the IRG-Rail working group members;
- A review of existing and recent reports on charging, in particular:
    - "*Rail Charging and Accounting Schemes in Europe*", CER, 2008;
    - *"Best Practice Guide for Railway Network Statement"*, DG-TREN, 2010.

2. Charging characteristics: Review of charging principles in IRG-Rail members

2.1. General aspects

The main charging principles laid down in Directive 2001/14/EC provide that:

- Charges for the use of rail infrastructure must be paid to the infrastructure manager and be used to fund its business;
- Charges must be set at the "*cost that is directly incurred as a result of operating the train service"*. This principle applies to track access charges to the network (the minimum access package) and track access charges to services facilities;
- There are exceptions to these charging principles and infrastructure managers are allowed to levy a mark-up if the market can bear it;
- Charges can also be levied to reflect scarcity of capacity of an identifiable segment of the infrastructure during periods of congestion or take account of environmental effects;
- The level of charges must not exclude the use of infrastructure by market segments which can pay at least the cost that is directly incurred as a result of operating a railway service, plus a rate of return that the market can bear.

Presentations and discussions within the IRG-Rail charging working group have highlighted the following common trends:

- In most countries, the charging models are based (at least partly) on the principle of **marginal cost pricing**, although the methods by which marginal cost is estimated varies between countries;
- Most countries have a **multi-part charging structure**;
- There is a trend to take into account external effects. **Sweden**, for instance, incorporates accident costs into its charging regime. Similar approaches are considered in other countries such as **Switzerland,** which expects to adopt a new rail charging structure for 2013, and **Germany**, which plans to introduce a noise differentiated charge for freight trains in 2013.

In contrast to these areas where a broad commonality of approach exists, there are several important differences in approach when regulating infrastructure managers in IRG-Rail countries. These include:

- **Mark-ups** and **market segmentation** by type of traffic are not applied in all countries and, when applied, it appears to differ across countries;

- There are also key differences in the **periodicity of access charges reviews**. In the UK charges are reviewed every five years, whereas in France this is done on an annual basis.

Depending on the number of infrastructure managers in each country, charging practices may also differ within an individual IRG-Rail Member state. Our analysis has only focused on general trends for the main line network within each Member state and does not address charging systems of local passenger or freight networks or separate high speed lines.

2.2 Minimum access package

According to the Directive 2001/14/EC, the charges specified in the Network Statements should cover the items included in the minimum access package which are:

- Right to utilise capacity which is granted;
- Train control including signalling, regulation, dispatching and the communication and provision of information;
- Use of running track points and junctions;
- Handling of requests for infrastructure capacity;
- All other information required to implement or operate the service for which capacity has been granted.

The table below (compiled by the group) provides an overview of application of charges for the minimum access package in IRG-Rail members. The table is based on the assessment of charging practices in countries detailed in annex (p.15)[1].

All infrastructure managers in the countries reviewed by IRG-Rail charging working group appear to charge track access/operating charges. These charges are supposed to cover mainly direct costs. Indeed, Article 7 (3) from Directive 2011/14/EC states that "*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*".

Nevertheless the directive 2001/14/EC in article 8 (1) states that "[i]*n 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".* Therefore, the directive 2001/14/EC allows, under conditions, for a surcharge on the costs directly incurred even for the minimum access package.

The legend used in the tables of this document is the following:

✓	*Implemented*
✗	*Not implemented*
Tbc	*To be checked*

[1] Note: this table only refers to the mainline network of the incumbent. In some countries, this excludes high-speed lines where high speed trains (generally speed ≥200 km/h) are the only ones allowed. Other countries have a mixed usage of their whole network.

Country	Access and/or operating	Variable	
		Km	*Metric Ton*
Austria (SCG)	✓	✓	✓
France (RFF, 2013)	✓	✓ *€/train.km and €/path.km, differentiated according to rate category of elementary sections*	✗
Germany (DB Netz AG, 2012)	✓ *€/train path km*	✓	✓ *If the freight train is heavier than 3.000 tons, an additive surcharge is levied for each train path km.*
Great Britain (Network Rail)	✓	✓	✓
Greece (RAS)	✓	✓	✗
Hungary (MAV Co.)	✓	✓	✓
Latvia (LDz)	✓ *LVL/train.km*	✗	
Luxemburg (Administration des Chemins de fer)	✓	✓	✓
Netherlands (NMa)	✓ *€/train.km*	✓	✓
Slovenia (APEK) (current model)	✓ *€/train.km*	✓	✓ *Weight doesn't impact the fee, but the track wear coefficient does*
Spain (CRF)	✓	✓ *€/ year*	
Sweden	✓	✓	✓

The analysis provided by IRG-Rail charging working group (see summary tables in section 4, p.15), confirms that the required charging principles for the minimum access package have been implemented in all IRG-Rail members. However, slight differences appear regarding, for example, the billing unit.

2.3 Other characteristics of the charging methodologies

In addition to the minimum access charging package and the structure of charges detailed above, some other characteristics should be considered with respect to directive 2001/14/EC. IRG-Rail's common understanding of these is outlined below.

- **Marginal cost prices.** They represent the change in variable cost that results from an increase in output in one unit. In rail transport (for the use of the tracks), the unit could be the train.km or the tone.km. Directive 2001/14/EC refers to marginal cost pricing in which the difference between marginal and average cost can be subsidized.

- **Long term pricing (long run incremental cost).** This kind of pricing approach limits the annual variations of total cost and therefore decreases the uncertainty faced by railway undertakings over the evolution of charges. Long term pricing usually relies on a long-run investment program defined by the infrastructure manager. As a consequence, there are potentially significant risks of disconnection between the level of charges and the actual costs.

- **Annual prices (if cost revised annually or periodically).** The short run marginal cost approach may be preferred, as it is based on a short term investment program that is more easily verifiable. Average marginal cost over a reasonable period can however be chosen in order to avoid "spikes" (due to massive investments over a short period of time).

- **Market segmentation.** This refers to the different markets in rail transportation, such as (for example) high speed trains, international or regional trains, freight transport.

- **Mark-ups.** Directive 2001/14 states that "[i]*n order to obtain full cost coverage* […] *a Member state may, if the market can bear this, levy mark-ups*". However, these mark-ups should only be applied where they do not distort the competitiveness of the market segment that they are applied to.

IRG-Rail believes that **marginal cost represents the theoretically 'economically efficient' level of charges**. In reality, this would mean that the fixed costs in a capital intensive industry would be unfunded. Whilst most governments support infrastructure managers through a subsidy, most of them require the infrastructure manager to recover some of its fixed costs through the charging framework in the form of a mark-up or a fixed charge.

	Marginal cost based	Long term pricing	Annual prices	Market segmentation	Mark-ups *"if the market can bear this"*
Austria (SCG)	✓	✗	✓	✓	✓
France (RFF, 2013)	✓	✗	✓	✓	✓
Germany (DB Netz AG 2012)	✓ *The German law foresees that on basis of the MC a surcharge for full cost recovery is levied (A part of the costs can be born by subsidies).*	✗ *(but legally possible for specific investments)*	✓	*Currently under examination by the BNetzA*	*Currently under examination by the BNetzA*
Great Britain (Network Rail)	✓	✗	✗ *Periodic review, 5 years*	✓ *For HS1, freight only lines and coal spillage*	✓
Greece (RAS)	✗	✗	✓	✗	✗
Hungary (MAV Co.)	✓	✗	✓	✓	✓
Latvia (LDz)	✓	✗	✓ *(based on a current year cost analysis and a forecast of future costs)*	✓	✓
Luxemburg (Administration des Chemins de fer)	✓	✗	✓	✗	✗
Netherlands (Nma)	✓	✗	✓	✓	✓ *Only on lines designated by Transport Ministry (currently: high speed and freight-only)*
Slovenia (APEK) (current model)	✓	✓	✗	✓	✗
Slovenia (APEK) (proposed model)	✓	✓	✗	✓	✓
Spain (CRF)	✓	✓ *(For HS Network)*	✓	✓	✓ *(For HS Network)*
Sweden (TS)	✓	✓	✓		✓

It appears that most IRG-Rail members apply a short-run marginal cost pricing approach. It also interesting to note that, in almost 2/3 of IRG-Rail members, Infrastructure Managers levy mark-ups as provided under article 8 (1) of Directive 2001/14/EC.

2.4 Additional charges

In addition to the access charge reflecting direct costs incurred for the use of the network targeted by article 7 (3) of the directive 2001/14/EC, most of national charging systems include other charges. In order to avoid misunderstandings, common understandings of those additional charges are given hereafter:

- **Congestion and scarcity charges**

The issue of scarcity and congestion is addressed in Art. 7 (4) of the Directive 2001/14/EC. It states that "*the infrastructure charge may include a charge which reflects the scarcity of capacity of the identifiable segment of the infrastructure during periods of congestion."*

IRG-Rail working group charges is working on a position paper that will include a common understanding of the aspects of scarcity and congestion and the legal prerequisites of such mark-ups in the setting of pricing the use of infrastructure in a network. This paper has not been finished yet, so that this overview document will be updated upon the finalization of the position paper.

For now, the IRG-Rail members have been asked if the national infrastructure managers differentiate between the aspects of scarcity and congestion within their pricing schemes. The table displays their answers concerning the subject.

- **Performance regime charge**

The specific issue with these charges is that they are double edged: penalty charges for delays are assigned to the party causing the delay (the railway undertaking and/or the infrastructure manager). If the infrastructure manager aims to improve network performance, it has to accept that it may be penalised for under-performance. If performance improves or declines, this can have serious impact on the infrastructure manager's or the railway undertaking's finances.

- **Environmental issues**

Directive 2001/14/CE states, under Article 7 (5), that "*[t]he infrastructure charge may be modified to take account of the cost of the environmental effects caused by the operation of the train.*" It as well stresses that "*[s]uch a modification shall be differentiated according to the magnitude of the effect caused.*"

As a result, some countries have decided to put more emphasis on environmental externalities and promote clean transport modes like rail. Sweden uses mark-ups, whereas Switzerland and Austria both use discounts. Such charges are used to create a level-playing field across all modes based on impacts on the environment. Nevertheless, IRG-Rail considers that all modes should be charged in a way that prevents one mode from being at a disadvantage compared to others.

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- **Reservation charge (Directive 2001/14/EC)**

Infrastructure managers may levy an appropriate charge for capacity that is requested but not used where they are competing alternative uses for this capacity. This charge is meant to provide incentives for an efficient use of capacity. Infrastructure managers must always be able to inform any interested party of the infrastructure capacity which has been allocated to user railway undertakings. For instance, this charge can be calculated according to the category rate of the route and time period, or by making an assessment of the revenue foregone by the infrastructure manager (other methods of calculation also exist).

In some countries this charge is introduced as a cancellation charge that applies, when one or several train running days on a train path or part of a train path are withdrawn by the ordering railway undertaking.

A summary of how these various charges are applied in IRG-Rail members is given in the table below.

Country	Congestion / Scarcity	Performance	Environmental	Reservation or Cancellation charge
Austria (SCG)	✓	✓	✗	✓ *(only for passenger services)*
France (RFF, 2013)	✓	✗	✗	✓ *€/path.km*
Germany (DB Netz AG, 2012)	✓ *Note: Highly used routes are 20% (x1.2) more expensive in Germany, until end 2012. Legally foreseen component relates to congestion.*	✓	✗ *(Differentiated charges for freight transport's noise to be introduced in 2013)*	✓ *Cancellation fee referring to the withdrawal of one or several train running days on a train path or part of a train path.*
Great Britain (Network Rail)	✓	✓	✗	✓ *There is a reservation charge on HS line*
Greece (RAS)	✗	✗	✗	✗
Hungary (MAV Co.)	✗	✓	✗	✓
Latvia (LDz)	✗	✗	✗	✗
Luxemburg (Administration des Chemins de Fer)	✓ *(Set to 0 in 2012)*	*Tbc* ✓	✗	✓ *A reservation fee is invoiced to avoid abusive reservations.*
Netherlands (Nma)	✓	✓ *noise only, in*	✗	*From 2013*

		performance regime		
Slovenia (APEK) (current model)	✗	✗	✗	✓
Slovenia (APEK) (proposed model)	✓	✓	✓	✓ *€/path.km*
Spain (CRF)	✓	✗	✗	✓
Sweden (TS)	✗	✓ *(Quality charge)*	✓	✗ *According to the Swedish Railway Act IM can levy reservation charges. However the Swedish Transport Administration (SNRA) do not levy charges for reservation today*

Our review of charging approaches highlights that Member states apply different pricing components to address additional charging possibilities. This may be a consequence of different political preferences, structural differences, different traffic patterns as well as different approaches to regulating the broader transportation sector. It is worth noting that the environmental charge is applied in only two countries (Sweden and Switzerland, to be followed in a near future by Slovenia and Germany).

3. Conclusion

This initial overview sheds some light on the fact that in all IRG-Rail members, charges for the minimum access package are based on the principal of a marginal cost pricing. Nevertheless, implementation of charging principles tends to be significantly different in other areas, regarding market segmentation, for example, or additional charging components being applied.

4. Annex: Summary of charging systems by IRG-Rail member

4.1 Austria

In Austria there are two charges for the minimum access package: The basic charge 1 is based on train-km and is different between three different market segments and between five different route categories. The basic charge 2 is charged on gross-ton km and this shall cover the cost for repair and renewal. Incentives and mark-ups are added to the basic charges.

Charge	Unit	Market segmentation	Cost covered
Basic Charge 1	€/train-km	Route category (5) Market segmentation (traffic) (3)	Marginal cost and part of fixed costs
Basic Charge 2	€/gross-ton km	No market segmentation	Cost for repair and renewal
Incentives and Mark-ups	€/train-km	Incentive for capacity optimisation (1) Corridor-specific Freight Traffic Incentive (2) High speed mark-up (1) (starts 2014) Engine classification (3) Congestion charge (1)	
Performance regime	€/min delay	To reduce disturbance in the rail network, a charge will be levied for each additional minute of delay on selected trains if the delays are attributable to causes which can be influenced. Unit is by delay in minute, capped attributable to IM or RU.	

4.2 France

In France, the charging system is based on a three-part tariff regime for regional services and a two-part tariff for the other activities.

Minimum access charging package is based on path and train-kilometres and includes operating charges, reservation charges and access charges (only for the regional services).

Charge	Unit	Market segmentation	Cost covered
Operating charge	€/train-km	Type of service/train (6) The charge is issued only if the reserved path is run	Variable cost for operating, maintenance and renewal
Access charge	€/year	Only for regional trains (TER, Transilien and TET) (22)	Fixed cost for operating, maintenance and renewal
Reservation Charge	€/ path.km	Period of the day (4) Route category (18) Crossing Paris area or not on high speed lines Regional routes on high speed lines Speed (freight)	0-100% of the cost of capital Mark-ups "*if the market can bear this*" Congestion costs

4.3 Germany

The charging system is based on a single-part tariff. The minimum access package includes the charge for use of allocated paths and the facility for the supply of traction current (overhead contact line), the operation of the train command and control systems, the coordination of the train movement and the provision of information on train movements, arranging pilot/route-familiarisation services and further information required to run allocated traffic.

Charge[2]	Unit	Market segmentation	Cost covered
Basic price	€ / train-path km	12 route categories	Sum of revenues should cover the costs of the IM (FC-, meaning total cost minus public payments and plus return on investment)
Train path product factor	Factor (x 0.5 up to x 1.8)	8 product factors (4 for freight trains, 4 for passenger trains)	
Utilization factor	Factor (x 1.2)	Applies on particularly busy routes, in 2012 only on two lines, in 2013 not applied any more.	
Minimum speed	Factor (x 1.5)	Where a minimum speed of 50 km/h is not achieved on long distance routes and urban rapid transit routes	
Performance regime	10 ct / delay minute, capped attribu-table to IM or RU	To reduce disturbance in the rail network, a charge of 10 cents will be levied for each additional minute of delay on selected trains if the delays are attributable to causes which can be influenced. Passenger Transport ≥ 6 min, freight Transport ≥ 31 min.	
Load component	€ / train-path km	For trains > 3000 tons	
Charge for preparing an offer	€ / offer	Charge in case a train path ordered is not taken up (a processing fee per train path is charged for not accepting a train path offer)	
Cancellation charge	€ / train path (offer)	A minimum cancellation fee is to be paid for a cancellation amounting to the fee required for preparing the offer. In addition, a percentage-based cancellation fee will be levied depending on when the cancellation was made and the standard fee for the cancelled train path or cancelled part of the train path. The cancellation fee will not exceed the equivalent of the foregone access charge for the cancelled train path.	

[2] *Figures are copied from DB Netz AG (2011), The Train Path Pricing System of DB Netz AG.*

Further components		*e.g.* diminution of track charges due to bad infrastructure quality. (Reduced charge if the condition of the track infrastructure does not comply with the terms of the contract: If the condition of the track infrastructure, the related command and control technology and/or the facilities for the supply of traction current do not comply with the terms of the contract, DB Netz AG will reduce the infrastructure usage charges upon own initiative or upon advice). Regional factors (banned in 2011) On-demand train path (last minute request): Railway Undertakings can register a maximum of 15% (calculated on the basis of the train path kilometres) of their total number of registered train paths as on-demand train paths. If the on-demand train path is used, the corresponding train path price is to be paid. If the on-demand train path is not or only partly used, a reservation charge for the unused part of the train path will be levied. The reservation charge amounts to 10 % of the cost of the unused on-demand train path. Pre-designed train path: for the promotion of the use of lines with a low level of utilisation, the IM offer free capacity on such lines in the form of pre-designed paths after the drafting of the working timetable. Pre-designed train paths are offered at a discount of 10 % on the regular usage charge. The discount is only granted if train paths are ordered in unaltered and complete form; no entitlement to the provision of pre-designed train paths. Alternative Routes: On lines with a low level of utilisation, the IM grants limited-period discount. These are designed to act as an incentive to use alternative routes with a low level of utilisation. (Actually one line and discount of 40%). Discounts for new services: As a means of promotion for new train services, the IM grants all Access Parties limited period discounts in the form of a percentage discount on the regular usage charge on certain line sections (10% on train path charge).	

4.4 Great Britain

On the GB national network[3], the charging regime has been developed to cover the short-run marginal costs of running on the network and thus to provide the correct incentives to operators at the margin. In addition to the charges that vary with output, most passenger operators also pay a fixed charge and other asset usage charges on top of this in order to cover a proportion of the IM's fixed costs. Freight and open access operators do not incur the fixed charge, although they are exposed to some the IM's fixed costs where they are able to bear the cost of these, for instance for the fixed costs of freight only lines.

Charge	Unit	Market segmentation	Cost covered
Access Variable Usage Charge	£ per train km	Separable by vehicle and load characteristics	Covers the incremental cost of operating a train on the network in terms of the incremental damage the train does to the track and associated infrastructure
Traction electricity charge	£ modelled /metered rate per train km	Operators have option of using modelled consumption rates or metering their use of electricity	Network Rail pass through their electricity consumption costs, minus an adjustment for NR usage.
Electrification asset usage charge	£ per train km	Applied to trains using the AC and DC electrified networks	Recovery of Network Rail's electrification asset maintenance costs
Coal spillage charge	£ per train km	Only applicable to trains servicing the coal industry	Recovers cost of performance impact relating to coal spillage at junctions
Operating: Capacity charge	£ per train km	Applied to congested areas of the network, but at quite a disaggregate level Charge varies with time of the day	Intended to allow Network Rail to recover the performance regime costs that it incurs by allowing additional traffic onto the network
Freight only line charge	£ per train km	Applies to freight services carrying coal for electricity generators and nuclear fuel, and which are able to bear a mark-up	Recovers some (or all) of the fixed costs associated with using freight-only lines.
Passenger fixed charge	£ per train km	Applies to passenger services under public service contracts (franchises) only	Reflects IM efficient revenue requirement – set for five years

[3] HS 1 not included.

Network Rail (the mainline infrastructure manager) models the rail infrastructure costs in order to adjust costs by section. Its aim is to better understand the impacts of different types of rolling stock on the infrastructure in order to set variable charges.

4.5 Greece

The infrastructure management charging system is based on fixed cost. Its basic cost includes the cost of track maintenance and operational services. Where appropriate, it also includes additional charges such us electrification and special costs.

Specifically, there are two basic charges, each per train.km, one concerning operation services (0.65 euros per train.km) and the other concerning track maintenance (0.40 euros per train.km). Each one of these charges is to be multiplied with two factors. The first factor for the operation services (for the first quantity) has to do with the relation of the day time period of the route with the peak one and ranges between 0.7 and 1.2 and the second factor for the operation services (for the first quantity) has to do with the relation of the whole time of the route in the timetable in relation with the ideal minimum time that a typical fast train can operate this route without intermediate stops and ranges roughly between 1 and 1.5. The first factor for the track maintenance (for the second quantity) is related to the quality of the track and ranges between 0.53 and 0.90, while the second factor for the track maintenance (for the second quantity) is related to the axial load, the total load and the speed of the train and ranges between 1.0 and 9.61 . The sum of the two quantities gives the charge per train.km.

Charge		Unit	Market segmentation	Cost covered
Basic cost	**Operation**	€ / train-km	Categorization of routes based on peak periods Burdening line capacity	≤ 30% of the actual cost (accrued expenditure) of maintenance and operating
	Maintenance		Maximum speed The train's composition (number of axes) The mean axial load Quality of infrastructure provided	
Additional costs	**Electrification**	€ / train-km	Whenever using a route which operates under electrification	
	Additional charges depending on the case	No charge per unit. Charging by case.	Special- dangerous consignments	

4.6 Hungary

The Hungarian State Railway (MAV Co.) was established in 1992. In 2000, an internal separation of accounts occurred. Different entities were created in order to manage the main activities. In 2003 the first Hungarian Network Statement was released and opened the way to foreign RUs on the network in 2004 (4 freight companies at the end of the year). The same year, the independent Rail Capacity Allocation Body was created. In 2006, the Hungarian Railway Authority was set up.
The Hungarian network has a total length of 7700km. It is managed by the Infrastructure Management Business Units of MÁV Co. and GYSEV Co. The main principles of the access charge are the following:

- no discrimination between RUs should take place
- prices set by the Rail Capacity Allocation Body are based on the costs that directly incurred and together with mark-ups they must cover the total justifiable costs
- differentiation of the pricing system
- bottom-up (engineering) approach
- long term orders are preferred

Charge	Unit	Market segmentation	Cost covered
Minimum access package	Number of paths	Path allocation	MAV Co. is seeking a full cost recovery without profit
	Train-km	Train running	
	Ton-km	Train running	
Access to service facilities	Electric train/km	Use of overhead catenaries	Shall relate to the cost of providing it, calculated on the basis of the actual level of use
	Number of stops	Passenger train stops	
	Train departures/ destination	Passenger train departures/destinations	
	Number of cases	Freight train start/interim/destination usage	
		Rail vehicle storage	
	Number of wagons/days	Access to weighting facilities	
	Number of wagons	Additional personnel	
	Person/hours		
Additional services	kWh	Traction current	
	Liters	Traction fuel	
	m^3	Supply of water (for passenger trains)	
	Person/hour	Staff for , shunting of freight wagons	

	Number of permissions	Issuing of permissions for forwarding exceptional consignments	
	Person/hour	Staff for train acceptance	
	Vehicle/hour	Ensuring traction unit	
	Number of wagons	Staff for weighting	
	Number of wagons	Change of axles	
	Hours/bogies	Usage of normal gauge bogies	
	kWh	Electric current for preheating and precooling (of passenger trains)	

4.7 Latvia

The main principles of the access charges are developed hereafter:

- the full cost of infrastructure should be covered by accumulated charges
- all expenses are traced to particular train category
- Train-kilometers and gross ton-kilometers are used as cost drivers

Charge	Unit	Market segmentation	Cost covered
Operating	LVL per train km	Differentiation among: - Freight trains - Passenger trains (electric) - Passenger trains (diesel) - Passenger trains with locomotive - Narrow-gauge trains	1) Costs of maintenance of railway infrastructure objects made by infrastructure manager; 2) Costs of railway infrastructure objects development (renewals, reconstruction, building) consists of capital depreciations costs (excluding capital depreciations costs of government, EU funds assets) and premium costs. 3) Duties and taxes paid by infrastructure manager

4.8 Luxemburg

Charge	Unit	Market segmentation	Cost covered
Minimum service			Equals the cost that can be allocated directly to running the railway service and include a fee for rarety of access infrastructure capabilities
Access and request of path	Train path km	Regular train path Pre-arranged extraordinary train path Tailor made extraordinary train path	
Operation of path (track wear)	Train path km	Freight train Combined transport freight train Motor-driven passenger train Passenger train Running locomotive	
Capacity rarity fee – congestion charge	Train path km		No scarcity declared for 2012
Access to service infrastructure			Equals the cost that can be imputed directly to running the service and includes fee for rarity
Use of electricity supply	Train path km		
Fuel supply infrastructures	Per operation		
Passenger stations	Daily charge in full days		
Goods terminal	Daily charge in full days		
Access to marshalling yard		Included in the pricing of train paths and use of electric traction installation	
Access formation tracks		Included in the pricing of train paths and use of electric traction installation	
Acess storage tracks		Included in the pricing of train paths and use of electric traction installation	
Access to maintenance centers		Included in the pricing of train paths and use of electric traction installation	
Services supplied at service infrastructures			
Fuel supply	Per operation		
Maintenance	Per body	External washing	
Complementary services			Cost of service according to the real degree of use
Traction current	Unit cost and factor linked to weight		

	and number of bogies		
Fuel supply		Daily price	
Preheating	Per car element		
Special assistance	Per hour	For special consignment	

Note: A performance regime is applied with penalties and compensations

4.9 Netherlands

Access charges for minimum access package.

Charge	Unit	Market segmentation	Cost covered
Access Variable Usage Charge	€ per train km / ton km	Differentiation between freight and passengers Freight: train km and ton km by graduated weight category Passengers: train km and ton km by actual train weight	Covers the incremental cost of operating a train on the network. measured by a percentage of wear and tear cost in total maintenance costs.
Electrification: use of electrical wire	€ per KwH	No segmentation, defined by km per actual weight, train type and speed	Covers cost of transport of electricity only, wear and tear of wire not included
Access via rail to railway stations	€ per stop per train category	Six categories of stations (by size/number of passengers). Three train categories defined by percentage of stops on their total route. Category A: stops at max. 15% of stations on route Category B: stops at max. 50% of stations on route Category C: stops at 51-100% of stations on route	Recovery of ProRail's part of station maintenance; ProRail does not own the stations, but has a right of use of the tracks and passenger corridors to and from platforms. Charge covers only the costs involved with corridors (cleaning and maintenance)
Shunting and parking	€ per meter of track / day / month year	Two categories: service areas controlled centrally/ decentrally. (switch points controlled locally or centrally)	Covers incremental cost of track wear and tear measured by a percentage of maintenance cost

4.10 Slovenia (current model)

The charging system in Slovenia is based on full cost recovery without profit. As the Infrastructure Managers and national freight and passenger carriers were organized in uniform company, the competence for determining, charging and collecting of track access charges has a Public Agency for Railway Transport, which is also an allocation body. The current charging methodology considers number of train kilometers, weighting coefficient for main and regional lines, track wear coefficient and factor of carrier's demand, regarding to the timetable. The methodology considers also late cancellation fees.

As the current methodology is not based on marginal costs, in preparation is a new methodology, which will consider train-kilometers and gross tonne-kilometers, where the train weight will be directly included. It will also consider supplements/deductions regarding type of transport and supplement for running trains in rush hours. The Public Agency for Railway Transport ordered a study from KPMG, which finally gave a clarification on marginal costs. Public Agency for Railway Transport performs a parallel trial calculation of access charges to compare current and proposed methodology. Those calculations demonstrate, that by trains with up to 1500 gross tonnes, (what is the majority of trains, operating on the public railway infrastructure of RS), the access charge, according to the new methodology, will be higher 40 to 60%. That is the most significant obstacle, that the proposed model is not implemented yet.

Charge	Unit	Market segmentation	Cost covered
Access	€/train-km	Route category (2): • main • regional	Full cost recovery without profit
Operating		Track wear coefficient (8): • Cargo trains over 1500 t gross weight • Cargo trains less than 1500 t gross weight • Cargo trains – empty • Cargo trains (circular, collecting, locomotive) • Tilting passenger trains • Motorised and classic passenger trains • Light passenger trains • Empty passenger trains	

Note: A new model is under scrutiny but not yet implemented.

4.11 Spain

In Spain, the chosen charging system is based on a two part tariff (while the fixed part of the fee is very low).
For conventional rail network, minimum access package is based on train-kilometres and includes operating charges and reservation charges. Both are based on the marginal cost concept. Reservation Charge provides incentives for efficient use of capacity, and is applied for every path a reservation if the path is ordered, used or not.

For high speed/ standard gauge network the goal of the charging system is "cost recovery" and de tariff scheme add to the operating charges and reservation charges, a mark-up: "traffic charge", based on the Ramsey-pricing concept.

Traction current supply is considered as an additional service.

Charge	Unit	Market segmentation	Cost covered
Access charge	€/year		Administrative costs related to the relationship of the IM with RUs. E g. the publication of the Network Statement, or the process of network capacity allocation.
Reservation charge	€/ path.km	Period of the day (3) Route category (4) Type of service/train (4)	Fixed cost for operating and maintenance for HS Network. Part of variable cost for operating and maintenance for conventional network
Operating charge	€/train-km	Route category (4) Type of service/train (4)	Variable cost for operating and maintenance for HS Network. Rest of variable cost for operating and maintenance for conventional network
Traffic charge	€/seats-km offered	Period of the day (3) Route category (4) Type of service/train (only HST)	Capital costs if the market can bear this.

4.12 Sweden

The charging system is based on a single tariff. The minimum access package includes access to track and point allocated, access to electric traction installation, traffic control, traffic information, platforms for the exchange of passengers.

Charge	Unit	Market segmentation	Cost covered
Access & Operating Charges (Marginal cost)	€/train –km €/gross tone–km €/litre of diesel fuel	Train type (diesel engine)	Maintenance cost, socio- economical costs of accident and of environmental health effects
Additional (special charges) Train path	€/train –km	Passenger, freight, service traffic Route categories (high, intermediate and base)	Part of fixed cost of infra
Passenger traffic	€/gross tone–km	Passenger traffic only	Part of fixed cost of infra
Passage charge	per crossing	Freight traffic Öresund link	Special project
Passage charge	per passage	Stockholm, Gothenburg and Malmö during peak hours	Part of fixed cost of infra
Quality charges	€/minute of additional delay	Infrastructure manager and railway undertakings	