

## **Internalisation of External Costs within Road-Charging**

### **Go-ahead for a sustainable development of HGV-traffic in the European Union**

Jan Liepe<sup>\*</sup>, Nina Malaviya<sup>\*\*</sup>, Sébastien Pinot<sup>\*\*\*</sup>

#### **Abstract**

On 12 September 2011 the European Council adopted a far-reaching legislative proposal amending the so called Eurovignette-Directive, which will most likely form a vital centre-piece of the future European Union's transport policy dedicated to a sustainable development of transport as a whole.

Being its core element, the Amendment allows for an inclusion of an external-cost charge into the calculation of tolls on Member States' motorways. In line with the polluter pays-principle, external costs caused by HGV traffic-based air and noise pollution may be internalised and charged to the operators. Different from the hitherto system under the former Eurovignette-Directive, tolls levied by the Member States for the use of road infrastructure are no longer limited to the recovery of infrastructure costs only.

Following a thematic placement of road charging within the European Union's policies, the elaborations provide for an overview of the previous legal situation describing the key elements as well as the shortcomings of the former Eurovignette-Directive. Subsequently, the main objectives behind and the most striking conceptual changes brought about by the Amendment are illustrated in

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<sup>\*</sup> Corresponding author, Waldeck Rechtsanwälte Partnerschaftsgesellschaft, Beethovenstraße 12-16, 60325 Frankfurt am Main / Germany, Tel. +49.69.90747-225, Fax +49.69.90747-228, jan.liepe@waldeck.eu.

<sup>\*\*</sup> Waldeck Rechtsanwälte Partnerschaftsgesellschaft, Frankfurt am Main / Germany.

<sup>\*\*\*</sup> Bignon Lebray Avocats, Paris / France.

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detail. The paper is completed by future prospects for road charging and internalisation of external costs in the Union under the light of the Commission's 2011 Transport White Paper.

**Keywords:** Road charging, tolls, internalisation of external costs, infrastructure charge, Eurovignette-Directive.

**JEL codes:** K23 and K33

### Introduction

Transport plays a crucial role in every economy and society in general and for the realisation of the internal market and the territorial cohesion of the European Union in particular. Notably road transport has, at the same time, negative impacts on the environment as well as the population, namely due to air and noise pollution, accidents and congestion. Given the steady growth of road freight transport, in particular international road freight transport, these impacts are very likely to further increase. To optimise European logistic chains on the one hand, to make all forms of transport greener and more efficient and to ultimately ensure more sustainable transport on the other hand, in the view of the European Commission a right policy mix is needed, which not only acts on the supply of transport, but which “gets the prices right”.<sup>1</sup> One of the core means to achieve this objective is the internalisation of external costs caused by the harmful impacts of transport, which are until now mostly borne by the population and the governments of the areas where transport is affected.

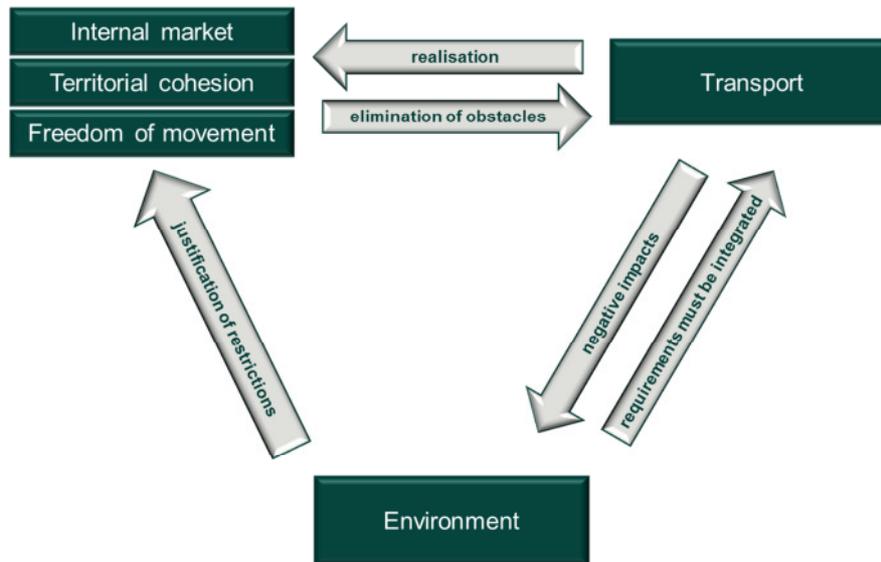
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<sup>1</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, COM(2008) 436 final, p. 2 et. seq.

## **1. Thematic triangle of road charging**

Besides serving its fundamental role for the economy and society, today, the transport sector needs to contribute to the European Union's key priorities of sustainable development and the maintenance of competitiveness in Europe. As a result, the charging of heavy goods vehicles and the internalisation of external costs caused by transport are mainly related to three of the Union policies laid down in the Treaty of the functioning of the European Union (TFEU): the internal market, Articles 26 et. seq., the transport policy pursuant to Articles 90 et. seq. and the Union policy on the environment as laid down in Articles 191 et. seq. Thereby, a lot of interferences and interactions exist as, on the one hand, the Union's transport policy is aimed at realising the internal market and, on the other hand, important environmental policy aspects need to be integrated. As regards, in particular, the Union's objective to promote sustainable development (Article 11 TFEU), the transport policy needs to seek for the minimisation of the influences of transport detrimental to the environment, notably in terms of air and noise pollution and traffic congestion.

The transport related secondary law of the Union reflects this relationship of partly diverging, partly parallel policy objectives: an array of legislative acts aims on realising the internal market by liberalisation and harmonisation of the transport sector in order to remove remaining obstacles which are detrimental to the free movement of goods and transport services; other legislative acts related to transport primarily serve to combat the negative environmental effects of transport. These interferences inhibit a strict and clear thematic distinction of the legislation; instead, the thematic field in which road charging is to be settled can be described as a triangle:



Within the field of transport legislation, the so called Road-Charging- or Eurovignette-Directive 1999/62/EC and its recently adopted amendment<sup>2</sup> are of utmost relevance for road charging within the European Union. At the same time, these legislative acts are striking examples for the interaction between the Union's policies, as they include environmental protection requirements as stipulated by Article 11 TFEU. Notably, the directives are specifically aimed on the reduction of transport based harmful environmental effects and, thus, on the provision of sustainable transport. In this respect, the Directive 2011 provides for the internalisation of external costs of heavy goods vehicle road freight transport, its substantial change put forth by the recent amendment.

## 2. Key features of the Eurovignette-Directive 1999

The scope of application of Directive 1999/62/EC covered vehicle taxes, tolls and user charges imposed on heavy goods vehicles (intended or used exclusively for the carriage by road of goods and having a maximum permissible laden weight of over 3,5 tonnes). To avoid an adoption of unaligned measures by the Member States, the Directive 1999 established common rules on the charging of

<sup>2</sup> In the following, the former Directive is referred to as (Eurovignette-)Directive 1999, whereas the new Directive resulting from the recently adopted Amendment is referred to as (Eurovignette-)Directive 2011.

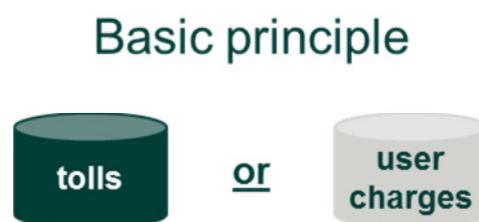
HGV-traffic for the use of certain infrastructures and implemented a coherent system of vehicle taxation within the Union providing, subject to certain exemptions, for a joint regime on minimum tax rates to be applied to heavy goods vehicles. Thus, the main objectives of the Eurovignette-Directive 1999 were to harmonise levy systems and to establish fair mechanisms for charging infrastructure costs to hauliers in order to eliminate distortions of competition between transport undertakings in the Member States adversely affecting the functioning of the internal market.



**a) Main scope and core principles of the Eurovignette-Directive 1999**

The spatial scope of the Eurovignette-Directive 1999 was limited to the trans-European road network as defined in Section 2 of Annex I to Decision No 1692/96/EC of the European Parliament and of the Council of 23 July 1996 on Community guidelines for the development of the trans-European transport network. This network includes the main routes of land communication within the Union, which are of main importance for the functioning of the internal market.

To prevent any distortions for the market that may result from an overcharging of hauliers for the use of those terrestrial arteries, the Eurovignette-Directive 1999 prohibited, in general, a concurrent imposition of tolls and user charges at the same time on any given category of vehicle for the use of a single road section.



As an exemption to this principle, Member States may have also imposed tolls on networks where user charges are applied for the use of bridges, tunnels and mountain passes. Beyond this, under certain conditions laid down in Article 7 paragraph 11 Directive 1999, in exceptional cases concerning infrastructure in mountainous regions a mark-up may be added to the tolls of specific road sections (1) which suffer from acute congestion or (2) the use of which by vehicles is the cause of significant environmental damage (the “mark-up exception”).

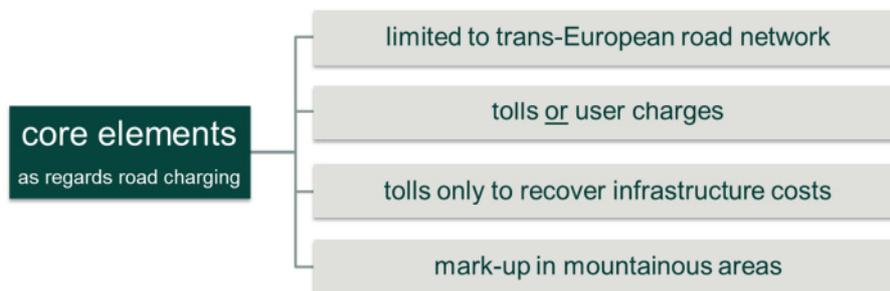
### Exceptions



Concretising the Union’s general principle of non-discrimination to the levying of road charges, the Eurovignette-Directive 1999 provided that tolls and user charges may not discriminate, directly or indirectly, on the grounds of nationality of the haulier, the country or place of establishment of the haulier or of registration of the vehicle, or the origin or destination of the transport operation.

Furthermore, the Directive 1999 provided for a harmonisation of distance-based tolls and time-based user charges likely to be applied by Member States to hauliers on such main routes of international HGV road transport by setting out conditions for the application of any such charge in its Article 7 paragraphs 2 to 12. As regards user charges for all vehicle categories, the Eurovignette-Directive 1999 provided, for example, that they shall be set by the Member State concerned at a level which was not higher than the maximum rates laid down in Annex II of the Directive (Article 7 paragraphs 7 and 8). Furthermore, rates shall be proportionate to the duration of the use of the infrastructure. As regards the calculation of tolls, the Directive 1999 provided that tolls had to be based on the principle of the recovery of infrastructure costs only (Article 7 paragraph 9). Specifically, the weighted average tolls

shall have been related to the construction costs and the costs of operating, maintaining and developing the concerned infrastructure network. In addition, weighted average tolls may have also included a return on capital or a profit margin based on market conditions. This so-called “infrastructure cost cap” was one of the core principles (and at the same time shortcomings) of the Eurovignette-Directive 1999.



To ensure consistent and uniform application of the infrastructure cost cap, and to prevent undue overcharging of hauliers causing unwelcome distortions of competition, Annex III of the Directive established common core principles for the allocation of costs and calculation of tolls.

**b) Consideration of environmental protection requirements within the Eurovignette-Directive 1999**

As already mentioned, the Eurovignette-Directive 1999 already recognised, to a certain extent, the aim to reflect environmental policy requirements within the calculation of user charges and tolls and to pursue the objectives of environmental protection thereby. This is explicitly illustrated by its Recital 18: “Member States should be able to attribute to environmental protection and the balanced development of transport networks a percentage of the amount of the user charge or of the toll, provided that this amount is calculated in accordance with the provisions of this Directive”.

Concerning more specifically tolls, after a previous amendment of the Eurovignette-Directive 1999 in 2006<sup>3</sup> the Member States were allowed, under certain conditions, to vary the toll rates for purposes such as combating environmental damage, tackling congestion, minimising infrastructure damage,

<sup>3</sup> Council Directive 2006/103/EC of 20 November 2006.

optimising the use of the infrastructure concerned or promoting road safety. However, such variation based on vehicle's environmental characteristics had to provide that, in general, toll revenues do not exceed the infrastructure costs (Article 7 paragraph 10). Further, any such toll variation had to respect the maximum flexibility thresholds set forth in Article 7 paragraph 10 (b) in respect of variations according to EURO emission classes or the specific time of day, type of day or season.

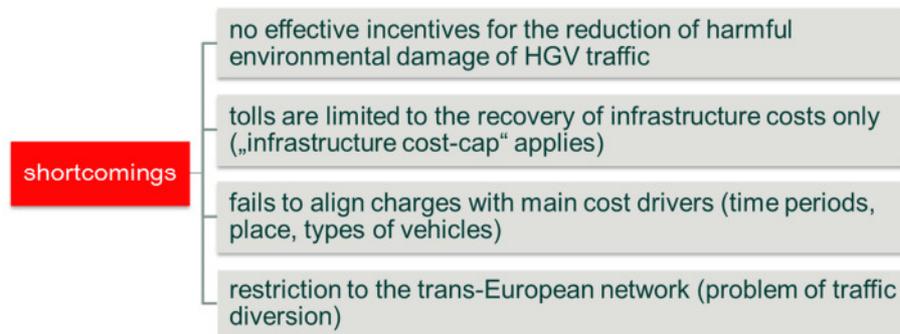
### **c) Shortcomings of the Eurovignette-Directive 1999**

As mentioned above, the core principle of the Eurovignette-Directive 1999 related to the calculation of tolls – the principle of the recovery of infrastructure costs – is at the same time one of its most severe shortcomings as regards environmental aspects. The infrastructure cost cap recognises the “user pays” principle, but it fails to recognise the “polluter pays” principle because road users are all treated alike, irrespective of the congestion or pollution they cause. Thereby, the Directive 1999 precluded the incorporation of any external costs when calculating tolls. Instead, by limiting tolls to an infrastructure charge it is left to the population and the local or national governments of the territory where the transport operation is effected to bear the external costs, notably the costs of traffic-based air and noise pollution and of congestion.

As regards price signals, the Eurovignette-Directive 1999 was considered as a step in the right direction, but it still did not enable Member States to apply optimal pricing reflecting the true costs involved. The Directive's provisions failed to impose all actual costs caused by the individual transport operation on the respective user. Thus, they failed to provide effective incentives for the road users to reduce these costs by the use of cleaner vehicles, by adapting their choice of route and their mobility behaviour, all of which is considered necessary to reduce transport related environmental damage. Beyond this, the spatial limitation to the trans-European network bears the risk of inconsistent pricing structures between the liable corridors and other inter-urban roads used by international transport, which itself may lead to unwanted traffic detours.<sup>4</sup>

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<sup>4</sup> Proposal of the Commission, COM(2008) 436 final, pp. 3, 5.



### 3. The amendment of the Eurovignette-Directive 1999

#### a) Background

The internalisation of external costs is part of a package of initiatives for more sustainable transport. The issue itself has not just recently shown up as an issue of the European Union’s transport policy; instead it has long since been a matter of initiatives and discussions along with the call for a more efficient transport pricing system which better reflects the true costs involved. In 1995 already, the Commission presented a Green Paper called *“Towards fair and efficient pricing in transport. Policy options for internalising the external cost of transport in the European Union“* in which it discussed the fact that the infrastructure users only bear some of the costs arising and the uneven distribution of that burden. The demand for appropriate pricing was also brought up in the following two White Papers *“Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU“* (1998) and *“European Transport Policy for 2010: time to decide“* (2001) and the mid-term review of the latter.

In 2006, on the occasion of the above mentioned previous amendment of the Eurovignette-Directive 1999, the EU legislator called on the Commission to present a generally applicable, transparent and comprehensible model for the assessment of all external costs of transport to serve as the basis for future calculations of infrastructure charges no later than June 2008. To be accompanied by an impact

analysis of the internalisation of external costs for all modes of transport, the Commission was further instructed to devise a strategy for a stepwise implementation of the model for all modes of transport and to submit, if appropriate, a proposal for the revision of the Eurovignette-Directive. Executing this mandate, the Commission carried out an in-depth impact assessment and submitted its proposed strategy for a stepwise internalisation of external costs across transport modes to the EU legislature in June 2008.

#### **b) Strategy and proposal of the European Commission of 2008**

In essence, the goal of the Commission's strategy was to provide for a correct setting of transport prices better reflecting the costs of the actual use of vehicles, trains, planes and ships in terms of pollution, congestion and climate change.

However, the Commission decided against a general principle for internalising external costs for all modes of transport because of specific characteristics of the different transport modes, different technologies used, diverging numbers of operators and varying legal and regulatory frameworks in place in the respective sectors.

As regards the choice of the right economic instrument to internalise external costs, the Commission examined the three instruments already applied for this purpose to varying extents: taxation, tolls and emission trading. Since each external cost has specific characteristics, it requires the use of the appropriate instruments. Congestion, air pollution, noise and accidents, for example, relate to the use of infrastructure and vary depending on the time, place and type of network. On the basis of its impact analysis, the Commission recommended a system of differentiated charging to internalise such external costs in the road haulage sector. The Commission's decision for a toll system is, notably, based on the following assessment:

“With the exception of climate change, most of the external costs are borne by the population and the local or national governments of the territory where transport takes place and not where the vehicle is registered, nor where the vehicle is refuelled. These costs vary according to the travelled distance, the environmental performance of vehicle (e. g. Euro emission standards) and

different points in time (peak or off peak) and space (densely populated area or not). This is especially the case for the costs of air pollution, of noise and of congestion.

The best pricing instruments for assigning these costs to users in a fair and efficient way are tolls. The main reason is that tolls can vary according to the main cost drivers of pollution and congestion. Unlike fuel taxes, they can vary according to the emission standards of vehicles; contrary to vehicle taxes or time-based user charges (vignettes), they can vary according to the intensity, location and time of use. This allows the tolls to be set at a level which better reflects the real use of vehicles and therefore the external costs that users actually cause.”<sup>5</sup>

Contrarily, climate change has a global dimension, which is why costs of CO<sub>2</sub>-emissions do not depend on the time and place where the vehicle is used, but on fuel consumption. Hence, in the view of the Commission, taxes provide a simple and efficient way of internalising these costs.

The decision to impose the true costs of HGV transport on the hauliers by differentiated tolls implies the “polluter pays”-principle into HGV road charging. By enabling the implementation of differentiated charging systems by the Member States, the proposal seeks to improve the efficiency and environmental performance of road freight transport. The price signals sent by providing financial incentives for a reduction of external costs shall encourage the transport operators to use cleaner vehicles, choose less congested routes, optimise the loading of their vehicles, and ultimately make more efficient use of infrastructure. Thereby, however, any overcharging and discrimination must be avoided to safeguard the internal market as one of the European Union’s basic principles.

### **c) Milestones of the legislative procedure**

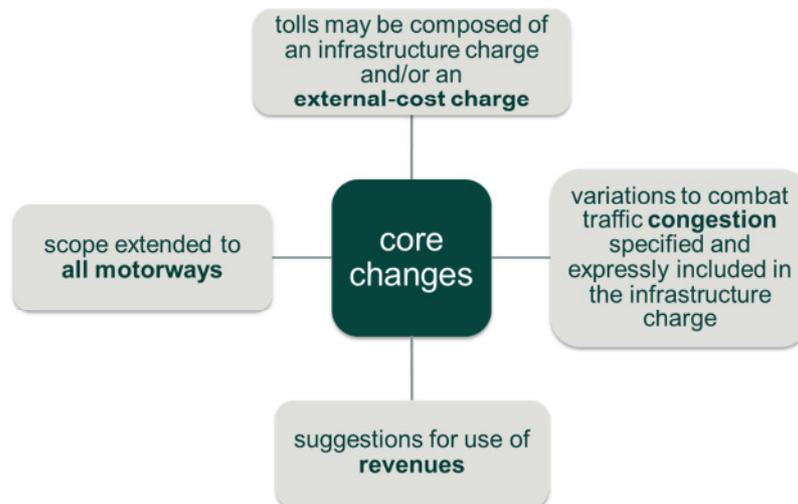
After the European Parliament had adopted its first-reading opinion on the Commission’s proposal in March 2009 already, inter-institutional negotiations became necessary which successfully ended with a compromise reached in May 2011. On 12 September 2011 the Council approved the amendments voted by the European Parliament at second reading on 7 June 2011. The Council’s approval means that the new Eurovignette-Directive has now been adopted.

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<sup>5</sup> Proposal of the Commission, COM(2008) 436 final, pp. 3 et seq.

#### 4. The recently adopted Eurovignette-Directive 2011

##### a) Overview of the core changes effected by the amendment



First, as regards the covered roads, the amendment has extended the scope from the trans-European road network to any additional sections of the Member States' respective network of motorways.

As explicitly provided for in Article 7 paragraph 1, this does not derogate the right of Member States to apply tolls and/or user charges on other roads, provided that the imposition is non-discriminatory against international traffic and does not result in the distortion of competition between operators.

More importance, however, shall be attached to the alteration that Member States may henceforth opt to include a specific "external-cost charge" into toll levying for the purpose of recovering external costs related to traffic-based air pollution and traffic-based noise pollution. This most striking conceptual change brought about by the amendment will be dealt with in detail below.

External costs caused by detrimental effects of traffic congestion may, instead, only be reflected as variations within the infrastructure cost regime already known from the Eurovignette-Directive 1999 and remain, thus, subject to the principle of revenue neutrality and the application of the infrastructure cost cap. Given these limits, the Eurovignette-Directive 2011 expressly provides in its Article 7g paragraph 1 that the infrastructure charge shall be varied according to the EURO emission class of the

vehicle, but leaves the possibility to derogate from this provision under certain conditions. Additionally, pursuant to Article 7g paragraph 3 the infrastructure charge may be varied for the purposes of reducing congestion, minimising infrastructure damage and optimising the use of the infrastructure concerned or promoting road safety if it respects the following conditions for a variation set forth in the Directive: (a) the variation must be transparent, made public and available to all users on equal terms; (b) it must be applied according to the time of day, type of day or season; (c) no infrastructure charge may be more than 175 % above the maximum level of the weighted average infrastructure charge as referred to in Article 7b and (d) the peak periods during which the higher infrastructure charges are levied for the purpose of reducing congestion may not exceed five hours per day.

Different from what was envisaged by the Commission, who proposed a mandatory earmarking of revenue generated by internalisation for the transport sector and the reduction of external costs, Article 9b paragraph 2 Directive 2011 only contains suggestions for the use of revenues generated from infrastructure and external-cost charges without imposing binding obligations (see below).

Referring to the collection of tolls, pursuant to Article 7j paragraph 3 the total amount of the toll, the amount of the infrastructure charge, and/or the amount of the external-cost charges shall be indicated separately in a receipt provided to the haulier to enhance transparency and user awareness of the damaging external costs of heavy goods vehicle traffic. Furthermore, where economically feasible, Member States shall levy and collect external cost charges by means of an electronic system which complies with the requirements of Article 2 (1) of Directive 2004/52/EC. To go ahead on this matter, the Commission is asked to promote cooperation between Member States that may prove necessary to ensure the interoperability of electronic toll collection systems at European level.

#### **b) Specific provisions relating to the external-cost charge**

Article 2 (bb) of the Eurovignette-Directive 2011 defines the external-cost charge as

“a charge levied for the purpose of recovering the costs incurred in a Member State related to traffic-based air pollution and/or traffic-based noise pollution”.

In this respect, according to Article 2 (bc) the “cost of traffic-based air pollution” comprise

“the cost of the damage caused by the release of particulate matter and of ozone precursors (such as nitrogen oxide and volatile organic compounds) in the course of the operation of a vehicle”.

“Cost of traffic-based noise pollution” means

“the cost of the damage caused by the noise emitted by the vehicles or created by their interaction with the road surface”, Article 2 (bd).

The fundamental choice whether or not to levy tolls based on external-cost charges on the road network covered by the Directive is left to the discretion of the Member States. However, any implementation of an external-cost charge on only a part or parts of that network requires further justification. In this event, it needs to be established based on an impact assessment that:

- vehicles' use of the roads where the external-cost charge is applied generates environmental damage higher than that generated on average on other parts of the road network falling within the scope of this Directive that are not subject to an external-cost charge, or
- the imposition of an external-cost charge on other parts of the road network falling within the scope of this Directive might have adverse effects on the environment or road safety, or levying and collecting an external-cost charge on them would entail disproportionate cost.

Concerning the calculation of the external-cost charge the following general provisions apply:

- The external-cost charge related to the cost of traffic-based air pollution and traffic-based noise-pollution (in the latter case restricted to road sections crossing areas with population exposed to traffic-based noise pollution) shall vary and be set in accordance with the minimum requirements

and the methods as specified in Annex IIIa and shall respect the maximum costs set out in Annex IIIb of the Directive 2011.

- The costs taken into account shall relate to the network or the part of the network on which external-cost charges are levied and the vehicles that are subject thereto.
- The external-cost charge related to traffic-based air pollution shall not apply to vehicles which comply with the most stringent EURO emission standards (less polluting than EURO VI). Vehicles complying with Euro V and VI emission standards are temporarily exempted from the charge.
- The amount of the external-cost charges shall be set by the Member State concerned. If a Member State designates an authority for this purpose, the authority shall be legally and financially independent from the organisation in charge of managing or collecting part or all of that charge (such as concessionaries or private toll operators).
- In qualifying mountainous regions, an external cost charge may not be levied unless a mark-up is applied, Article 7f paragraph 4.

In case an external-cost charge and the mark-up exception in mountainous areas are applied at the same time, the amount of the mark-up shall, basically, be deducted from the amount of the external-cost charge to avoid undue overcharging of hauliers. However, this does not apply to vehicles of EURO classes 0, I, II and (from 2015 onwards) of EURO class III in order to induce road-friendly and less polluting fleet renewal by hauliers. As further provided by the Eurovignette-Directive 2011, any such revenues generated by the simultaneous application must be invested in financing the construction of priority projects of European interest identified in Annex III to Decision No 661/2010/EU of the European Parliament and of the Council.

Turning to the list of air pollutants whose damaging effects shall be comprised as part of the costs of traffic-based air pollution within the meaning of the Eurovignette-Directive 2011, it should be

mentioned that CO<sub>2</sub>-emissions are not covered by the Directive because of the global dimension of climate change dealt with above. However, the Commission explicitly announced in its proposal to reassess this position and possibly allow the inclusion of a CO<sub>2</sub>-charging element in tolls at a later date, should progress in defining a common fuel tax element related to climate change in the Energy Taxation Directive 2003/96/EC not be satisfactory. Until then Member States are prevented from including the external costs of CO<sub>2</sub>-emissions into external-cost charges.

**c) Revenue application pursuant to the Eurovignette-Directive 2011**

The question whether or not the revenue generated by internalisation should be earmarked for the transport sector and, more particular, for specific purposes was one of the contentious topics of the legislative procedure of the amendment. The Commission was concerned that Member States might use the revenue generated by internalisation to pursue their own interests without considering the advantages of sustainable mobility at Community level if the revenue was not earmarked for transport. Therefore the Commission's proposal for a directive provided for binding obligations in this respect. In contrary, the adopted Directive confers a wide discretion on Member States as regards the revenue application providing, as a general starting point, that revenues generated by infrastructure and external cost charges, or the equivalent in financial value of these revenues, "should be used to benefit the transport sector". In addition, with a specific view on revenues generated by the external cost charge, the Directive merely draws up an exemplary non-exhaustive list of possible investment purposes to make transport more sustainable, ranging from reducing or mitigating the effects of road transport pollution at source, to developing alternative infrastructure for transport users and/or expanding current capacity to optimising logistics and providing secure parking places.

## **5. Future prospects: Road charging and internalisation of external costs in the context of the Commission's Transport White Paper 2011**

Recently, in March 2011, the European Commission adopted the Transport 2050 roadmap to a Single European Transport Area. This comprehensive strategy is aimed at a competitive transport system increasing mobility and removing major barriers and bottlenecks in key areas such as transport infrastructure and the internal market. The explicit objective is to “create a Single European Transport Area with more competition and a fully integrated transport network which links the different modes and allows for a profound shift in transport patterns for passengers and freight”. The White Paper comprises 40 concrete initiatives for the next decade among which one finds the initiative “Smart pricing and taxation”. As regards road charging in general and internalising external costs in particular, the strategy provides for a restructuring of transport charges and taxes whereby they should underpin transport's role in promoting European competitiveness, while the overall burden for the sector should reflect the total costs of transport in terms of infrastructure and external costs. The strategy concretises two phases which, inter alia, envisage the following:

### Phase I (up to 2016)

- phase in a mandatory infrastructure charge for heavy-duty vehicles; introduce a common tariff structure and cost components such as the recovery of wear and tear, noise and local pollution costs to replace the existing user charges
- evaluate existing car road charging schemes and their compatibility with the EU-Treaties; develop guidelines for the application of internalisation charges to road vehicles, covering the social costs of congestion, CO<sub>2</sub> – if not included in fuel tax – local pollution, noise and accidents
- proceed with the internalisation of external costs for all modes of transport applying common principles while taking into account specificity of each mode
- create a framework for earmarking revenues from transport for the development of an integrated and efficient transport system.

Phase II (2016-2020)

- proceed to the full and mandatory internalisation of external costs (including noise, local pollution and congestion on top of the mandatory recovery of wear and tear costs) for road and rail transport
- internalise costs for local pollution and noise in ports and airports, as well as for air pollution at sea, and examine mandatory application of internalisation charges on all inland waterways on EU territory
- develop market based measures to further reduce GHG emissions.

**Conclusion**

According to the Union's legislator, the recent amendment of the Eurovignette-Directive is one important step towards fair and efficient pricing in the road transport sector. However, the Commission has already indicated in its White Paper that several further steps have to follow in order to achieve sustainable development, and that the internalisation of external costs for all modes of transport will play a crucial role within the future European Union's transport policy.

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