

# Evaluation and future of road toll concessions



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*“ The Concession Model represents the most flexible tool to finance, build and manage road infrastructure ”*

# Key figures<sup>\*</sup>



187  
Companies



48.265,01  
Km in operation



26.660.884  
ETC subscribers



27.346  
ETC lanes



26 billion  
Toll revenues

\*Source: ASECAP 2014 Statistical Bulletin

# 1. Introduction

## 1.1 Aim of the Study

In a fragmented context characterized by a large number of EU initiatives that might affect the tolled road concession schemes, the aim of the study is:

- to clarify what a road concession is,
- shed more light on issues concerning concessions as well as bottlenecks for the development of road infrastructures,
- highlight the benefits of the concession schemes and the conditions for ensuring their proper implementation across Europe.

## 1.2 Sources of information

The Study is based on data and information gathered through desk research and a performance survey.

The desk research in particular analyzed and compared several sources to allow a full and coherent overview of toll concession schemes in Europe. These sources are:

- Reports and publications from ASECAP and from its members,
- Data and statistics elaborated by relevant institutions (for a full list of sources see Annex 3),
- Further input from interventions, feedbacks and discussions on specific matters which took place during the Athens ASECAP Study Days (26-28 May 2014).

In addition to the desk research, in March 2014, a Performance survey was addressed to all ASECAP

members to gather all no-publicly available information related to toll systems and concession regimes. More in detail, the Performance survey aimed at obtaining an overview and an exhaustive understanding of the topics regarding toll road concession contracts and it gathered opinions, best practices and recommendations on future development of concession schemes in European countries.

## 1.3 Structure of the Study

This Handbook consists of the following chapters:

- *Chapter 2* provides a description of the typical concession model defining its main features and providing a definition both at European level and at ASECAP member level.
- *Chapter 3* provides a general overview of the concession models applied to networks operated by ASECAP members (i.e. national legal framework, the obligations of the Concessionaire and the financial aspects related to tolling mechanisms). This section also provides data and information with regard to the performance of the motorway network in concession (i.e. length of network built, toll equipment, traffic volumes and safety) and considerations about the socio economic relevance of toll concession schemes at local and regional level.
- *Chapter 4* is aimed at providing a clear understanding of the issues and risks endangering a correct application of the road concession tool through the assessment of possible impacts specific situations might have on the concession schemes.



- *Chapter 5* is aimed at depicting the alternative forms of funding (i.e. direct tolling, indirect tolling and shadow tolling) and at introducing the existing financial instruments to support transport infrastructure in Europe.
- *Chapter 6* is aimed at providing the legislative framework at European level with direct or indirect impacts on road toll concession models. In particular, this section describes the legislation in force with regard to the past, recent and upcoming EU legislative initiatives relevant for the development of the road toll sector.
- *Chapter 7* is aimed at providing concrete elements and recommendations to support the concession model as the most flexible tool for constructing, maintaining and operating a network for a given period.
- *Annex I* provides an overview of the implementation of the Eurovignette system in ASECAP members' network.
- *Annex II* provides the questionnaire format launched in the context of the Performance Survey 2014.
- *Annex III* provides the list of relevant sources investigated in the context of the desk analysis.

## 2 Description of the typical toll concession scheme

Nowadays governments are constantly looking for ways to develop their road networks and other transport links to meet citizens economic, political and social needs. New motorways are expensive and governments are often unable or unwilling to commit fiscal spending on roads. The scarcity of public resources has brought to the application of new models for the financing and management of tolled roads, ranging from the collection of tolls to the recourse to private finance via more “sophisticated” concession models. Each model envisages a different link between the State - which is the owner of the road network - and the Company - which has to carry out the road management and operation activities.

At the European level, nowadays such link can have different profiles:

- Road toll concession scheme;
- Direct control by the State (by specific Agencies as well);
- Public-Private Companies.

### 2.1 What is a road toll concession

In general, a concession is a kind of public-private partnership (PPP) under which a public authority (Concession Authority) grants specific long term rights to a private or semi-public organisation (Concessionaire), to construct, overhaul, maintain and operate an infrastructure. On the basis of the agreement between a government or its entities and a private firm, the Concessionaire is committed to use all utility assets conferred and has the responsibility for all operations and investments, while asset ownership remains with the authority and the assets revert to the authority at the end of the concession period.

In the context of a concession agreement, the Concessionaire typically obtains its revenues direc-

tly from the consumer in the form of a toll and/or from the public authority in the form of payments calculated on the basis of the traffic observed on the motorway.

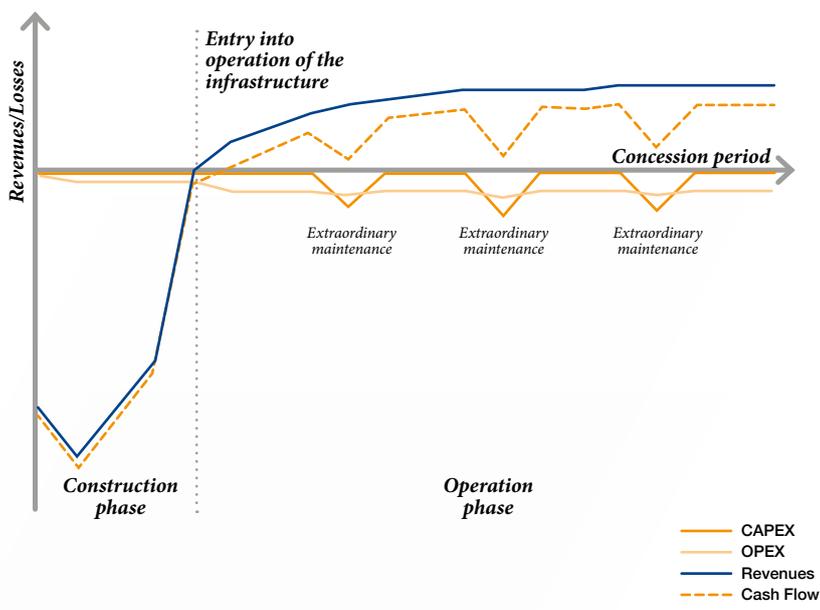
**Three mechanisms** for obtaining revenues are available:

1. **Direct road tolling:** the public authority delegates the construction, funding and management of a road to a managing company, which carries out the work at its expenses. The company collects tolls from the users (distance-based charge) to reimburse the investment and to cover maintenance costs (see also paragraph 5.1.1).
2. **Indirect road tolling:** the public authority delegates the construction, funding and management of a road to a managing company, which carries out the work at its expenses. Users pay a toll to the public authority, usually on the basis of a “vignette” (time-based charge). The operator is remunerated by the public authority, typically on the basis of availability payments (see also paragraph 5.1.2).
3. **Shadow toll system:** the public authority delegates the construction, funding and management of a road to a managing company. The company collects no toll from the users, for whom the infrastructure is free (see also paragraph 5.1.3). The company is directly remunerated by the public awarding authority.

From the perspective of the Concessionaire, the operating cash flow of a typical concession contract shows losses in the initial phase, typically from the beginning of the concession contract till the first years of operations, due the capital expenditures (CAPEX) and operating expenses (OPEX) in the construction phase and to the start-up phase of the tolling ac-

activity. However, few years after the entry into operation of the infrastructure, the operating cash flow typically shows increasing revenues due to consolidated traffic and decreasing expenditures, usually limited to road ordinary and extraordinary maintenance. Figure 1 provides an illustration highlighting (1) the costs, both CAPEX (e.g. construction materials, acquisition of land, etc.), and OPEX (e.g. labour cost, management and surveillance costs, etc.), initially incurred to construct the infrastructure; (2) the costs, both CAPEX and OPEX, incurring after the entry into operation of the infrastructure, due to the extraordinary and ordinary maintenance and management of the infrastructure; (3) the revenues and (4) the operating cash flow.

**Figure 1 – Operating cash flow of a typical concession contract**



Source: PwC elaboration

Two aspects are particularly relevant when dealing with a concession scheme: the **scope of the contract** and the **risk allocation between Concession Authority and Concessionaire**.

As anticipated, a concession contract includes not only the construction but also the maintenance and operation of an infrastructure. Thus, a concession contract involves both responsibility for a construction programme and a long-term service.

Furthermore, a concession contract implies a transfer of responsibility (risks) from the Concession Authority to the Concessionaire that is usually clearly identified by the national road administrations as being an essential component of a concession contract. In general, there are four categories of risk for a concession contract: (i) political and legal risks, (ii) technical risks, (iii) commercial risks and (iv) economic and financial risks. In theory, the risk allocation follows the principle that not all risks are equal and therefore they must not be borne by the same entity but should be carried out by the entity in possession of adequate structural tools for reducing the costs associated with bearing such risk. Therefore, an adequate balancing of risk allocation is essential from the beginning of the concession period in order to avoid subsequent reviews of the contractual clauses with related negotiations and costs. Risks are shared not only between the Concession Authorities and Concessionaires, but also with the public works contractors, operating companies and insurers (see chapter 4).

### 2.1.1 Definition of road toll concession at European level

At European level, in the context of the public procurement and concessions policy, several directives<sup>1</sup> provided over time different definitions of concession. The Directive 2014/23/EC currently in force provides the definitions of “concession” as reported in points (a) and (b):

- a. “works concession” means a contract for pecuniary interest concluded in writing by means of which one or more contracting authorities or contracting entities entrust the execution of works to one or more economic operators the consideration for which consists either solely in the right to exploit the works that are the subject of the contract or in that right together with payment;
- b. “services concession” means a contract for pecuniary interest concluded in writing by means of which one or more contracting authorities or contracting entities entrust the pro-

<sup>1</sup> In particular Directive 71/305/CEE and the Directive 2004/18/CE

vision and the management of services other than the execution of works referred to in point (a) to one or more economic operators, the consideration of which consists either solely in the right to exploit the services that are the subject of the contract or in that right together with payment.

In case of road motorways, the definition of concession schemes could be related to works concession and/or services concession (see paragraph 2.1.2).

### 2.1.2 Definition of road toll concession in ASECAP member European Countries

There is not a unique model of road toll concession, and, as a consequence, not a unique definition. As example, the table below reports the different definitions provided by ASECAP members.

The different definitions of road toll concession can be referred both to the definition of work concession and service concession contained in the Directive 2014/23/EC.

**Table 1 – Definition of road toll concession in the European countries\***

Country	Definition
<b>Austria</b>	In Austria, the “concession” (legal status: usus fructus contract, Fruchtgenussvertrag) between the Republic of Austria and ASFINAG is defined by a contract between these two entities and by further specific laws: ASFINAG is entitled to collect toll on the entire Austrian Motorway network (level of the toll rates being approved by the State). In return for the toll collected, ASFINAG is obliged to finance, build, maintain and operate the Austrian highway and motorway network.
<b>France</b>	A concession is a tool for State authorities to fund, maintain, exploit and develop an infrastructure network. Through the concession, the State delegate to the contracting partner the responsibility to build and operate the infrastructure bearing the risks associated. Remuneration of the partner is provided through toll collection.
<b>Greece</b>	In Greece a concession is a tool for State authorities to complete and maintain the motorway network through the tolls collected.
<b>Hungary</b>	In Hungary, a concession is a tool developed by private investors, financed through availability payment received directly from the State, to build, maintain, improve and operate the infrastructure.
<b>Italy</b>	“Public works concessions” are contracts, with financial clauses, written and registered, regarding the solely execution, or the detailed construction design and the consequent execution, or the final design and the detailed construction design and the execution of public works, and of works structurally and directly connected to them; and their functional and financial operation.
<b>Poland</b>	A concession is a type of contract between the State and the private entrepreneur, whereby the Concessionaire agrees to carry out the subject of the concession for remuneration, which is the right to use the subject of the concession with the right to collect the benefits (tolls).
<b>Slovenia</b>	A concession is a bilateral legal relationship between the state and public entity as the grantor and any legal entity as the Concessionaire, in which the awarding authority grants to the Concessionaire a special or exclusive right to perform public service or other activity in the public interest, which may include the construction of facilities and devices that are partly or wholly in the public interest.
<b>Spain</b>	A concession is a mixed contract of public works and public service operations. Through the concession, the Concessionaire, chosen by means of a public tender, operates a public service, such as placing an infrastructure for travel and road transportation at the disposal of individuals, and on the other, the Concessionaire occupies and uses an asset of public domain for the operation of that service.

\* The table reports definitions from ASECAP members which provided it in the context of the Performance Survey 2014.

## 3 Description of the ASECAP network

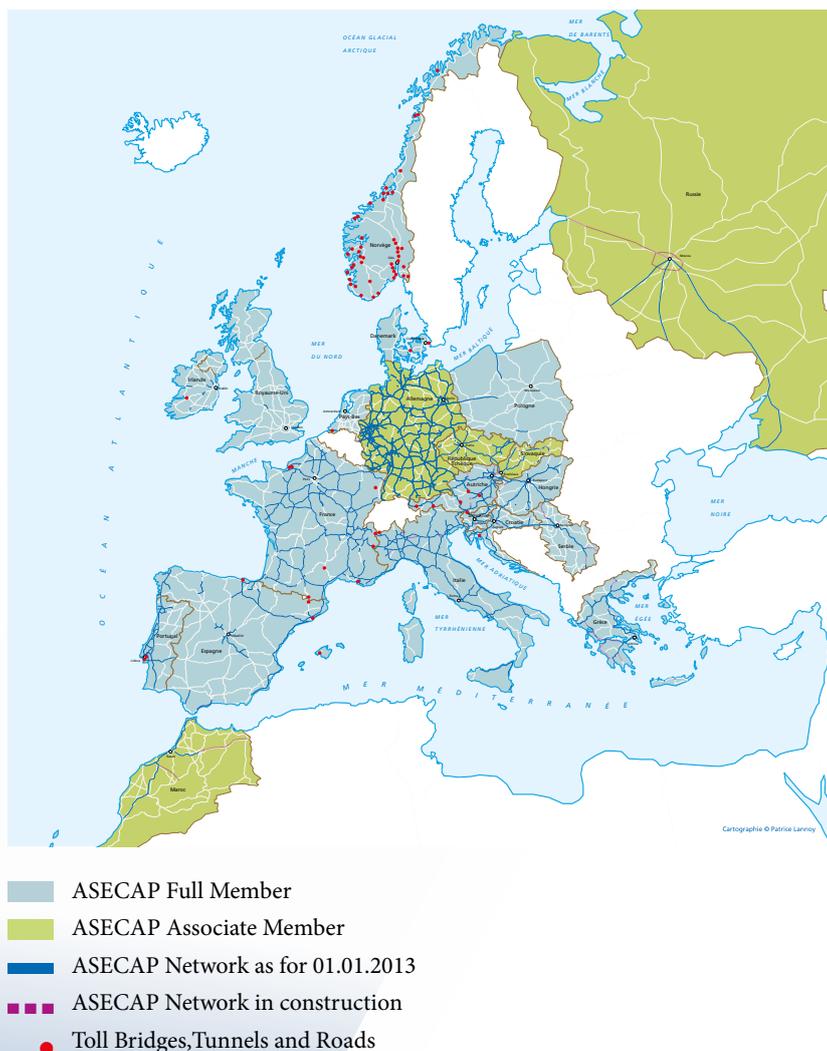
### 3.1 Presentation of ASECAP

ASECAP is the European Association of Operators of Toll Road Infrastructures, whose members' networks in 2014 span over 48,000 km of motorways, bridges and tunnels across 21 countries, managed by 187 companies.

ASECAP's purpose is to advocate and develop the system of motorways and road infrastructures in Europe applying tolls as a means to ensure the financing of their construction, maintenance and operation.

The members of the Association are either full members or associate members:

Figure 2 – ASECAP network and members (as for 01.01.2013)



Source: ASECAP

- **16 full members:** ASFINAG (Austria), HUKA (Croatia), SUND & BÆLT Holding A/S (Denmark), ASFA (France), HELLASTRON (Greece), AKA (Hungary), ITIA (Ireland), AISCAT (Italy), NORVEGFINANS (Norway), N.V. Westerscheldetunnel (The Netherlands), AWSA (Poland), APCAP (Portugal), Public Enterprise «Roads of Serbia» (Serbia), DARS (Slovenia), SEOPAN (Spain), Macquarie Motorway Group (United Kingdom);
- **5 associate members:** Kapsch T.S. (Czech Republic), TOLL COLLECT GmbH (Germany), Société Nationale des Autoroutes du Maroc (Morocco), AVTODOR (Russia), NDS (Slovak Republic).

**Full members** are associations of companies or companies holding at least one tolled motorway section or a tolled construction in Europe and whose income derives principally from collecting tolls paid by users.

**Associate members** are national associations or groups of toll motorways or concession holders operating in non-European countries adjacent and directly connected to the European members of the Association by land or by the Mediterranean sea, or – under certain conditions – companies in charge of collecting a distance-related user charge from the road users.

## 3.2 Concession models applied to networks operated by ASECAP members<sup>2</sup>

ASECAP members operate their road networks under a number of different concession schemes which can vary mainly on the basis of the nature of the Concessionaire (i.e. private, public or private/public), obligations of the Concessionaire (e.g. building, maintaining, operating, provision of ancillary services, etc.) and financial aspects such as the mechanism for settling and adjusting tolls. Following, is provided a brief description of the legal framework of the concession models, of the obligations for the Concessionaire and of the financial aspects in each ASECAP full member.

Details concerning specific obligations with regard to safety are described in the paragraph 3.2.1.

### Austria - ASFINAG



#### Legal framework

The concession company ASFINAG is governed by private law and is 100% owned by the Republic of Austria, i.e. the Concession Authority is identical with the Concessionaire. The *usus fructus* contract between the Republic of Austria and ASFINAG enables ASFINAG to collect tolls on the Austrian primary road network. The concession period of ASFINAG is unlimited.

#### Obligations

The Concessionaire ASFINAG has the obligation to maintain, operate and finance the current highway. Furthermore, it is obliged to build new concession

sections as set in the Federal Road Act (BSTG – Bundesstraßengesetz). All expenses are financed from the ASFINAG budget.

#### Financial aspects

The payment of toll constitutes a contract between ASFINAG and the users, where the user pay for using the road network of ASFINAG.

The toll fee is levied with a real tolling scheme (distance dependent > 3,5t maximum gross weight, time-dependent <=3,5t) and on some sections (mainly tunnels) vehicles <= 3,5t also pay distance related toll instead of time-dependent toll.

Toll rates are determined by applying the EU Euro Vignette Directive. The tariff is distinguished with the number of axles of a vehicles >3,5 t and the vehicles Euro-emission class. For some sections according to the Euro-Vignette directive a mark-up for cross-financing of trans-European railway networks is levied. The tariffs for vehicles <3,5t are just distinguished between motorbikes and passenger cars, no further distinctions are made for these vehicles.

### Croatia - HUKA



#### Legal framework

Motorway concessions are based on the Public Roads Act and Concession Act as well as on particular Concession Agreements between the grantor (State) and the Concessionaire whereby the State entrusts to the Concessionaire the entire responsibility for building and operating the motorways.

<sup>2</sup> Source: Information regarding Full Members from Performance Survey 2014 and Tolled infrastructures within ASECAP 2007

At the time the concessions have been granted, the length of the concession period had been fixed at 33 years. Reform of the Roads Act dated 2013 resulted in extension of the initial duration of concession to maximum 60 years.

#### ■ Obligations

The Concessionaire or the motorway company is responsible for designing, financing, building, maintaining, developing and operating the infrastructure. It has to comply with the location permit issued by the State, to adjust the infrastructure to traffic volume, and to provide annex services on the motorway.

#### ■ Financial aspects

The Croatian term CESTARINA is a fee paid by the user for using a motorway network or facility. It is based on distance travelled and on the category of the vehicle (vehicles are classified in 5 categories on the basis of number of axles, height and weight of the vehicle).

In accordance with the Roads Act, users in Croatia pay only for motorways and certain facilities (bridge and tunnel); the rest of the road network is free. The tariff is determined in accordance with certain criteria: costs of construction, operations, maintenance and development of the network, taking also into account the level of GDP.

In particular, companies are entitled to apply different tariffs based on category, period of the day, parts and stretches of motorways, purpose of the vehicle, and euro emission class of vehicle.

### Denmark - SUND & BAELT



#### ■ Legal framework

In Denmark, tolls are collected only for two large bridge links: Storebaelt (in Denmark) and Oeresund (between Denmark and Sweden). The Sund & Baelt Group is governed by private law and is 100 per cent owned by the Danish state. The affiliated companies are assigned the task of constructing the links and later on to be responsible for their operation.

#### ■ Obligations

Concessionaires are required to design, build, maintain, improve, and operate the infrastructure.

#### ■ Financial aspects

The tolls levied on the users are used to repay loans that were raised for the construction costs and to pay for the operation and maintenance of links. The amount of the toll is determined on the basis of the length/height of the vehicle and in some cases the number of trips. The amount of the toll is related to the construction and operating costs and is driven by commercial considerations. The toll amount is not adjusted to traffic volume.

## France - ASFA



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### ■ Legal framework

The French motorway system is based on the principle of the concession of public works and services (construction and operation) following the Law of 18 April 1955. The concession agreement, backed up by a detailed specification, is a contract whereby the State (the grantor) entrusts to concessionary companies, at their risk, the entire responsibility for building and operating the motorways for a limited period of time. Extension of concession contract is allowed up to 1 year (for contractual agreement); extension over 1 year must be approved by a dedicated rule.

### ■ Obligations

The companies are required to finance conduct the design of the feasibility study and to build, maintain, develop and operate the infrastructure. They are also obliged to provide ancillary services. However, they are under no obligation to adapt or expand the infrastructure in accordance with traffic volume, unless this has been specifically mentioned in the original specification.

### ■ Financial aspects

In France, a toll is the payment by the user of a fee for using a road infrastructure or network the revenues of which are directly assigned to a legally independent entity responsible for the finance, construction, maintenance and operation of that infrastructure.

The user pays according to the distance driven, the number of axles, the weight of the vehicle and, for recently built highways, its emissions coefficient. The tariff is fixed in relation to the costs of construction, operation and maintenance.

## Greece - HELLASTRON



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### ■ Legal framework

In Greece, the concessions are generally governed by private law and owned primarily by the government. There are also totally private companies in Greece, subject to different legislation. The mean concession period is 30 years. National rules foresee the possibility to extend the concession contract (up to 3 years) in case the expected internal rate of return (IRR) is achieved.

### ■ Obligations

The Concessionaire is required to maintain and improve the infrastructure, supply annex services and adjust or expand the infrastructure according to traffic volume.

### ■ Financial aspects

The user pays according to the distance travelled and the number of axles of the vehicle. The toll is determined by the operating costs.

## Hungary - AKA Zrt.



### ■ Legal framework

In Hungary, the concessions are governed by public law. The tenure of the concession is 35 years and it reverts to the granting authority at the end of the contract. There is no government guarantee and the companies are free to determine their own borrowing policy. Although the government does not supply any guarantee, it requires complete transparency from the Concessionaire, which operates as a private company. The mean concession period is 35 years. The national public procurement rules do not allow any modification to the terms of the contract, including extension of the concession contract.

### ■ Obligations

In Hungary, the Concessionaires are required to finance, build, maintain, improve and operate the infrastructure. Moreover the company has to adjust or expand the infrastructure according to the traffic volume.

### ■ Financial aspects

Road construction projects are financed from a special state fund, divided by the state budget, feeded by the tolls pays by users. In case of concession contracts, road construction and operation shall be “pre-financed” by the Concessionaire, and the state pays availability fees.

## Ireland - ITIA



### ■ Legal framework

In Ireland, the Public Private Partnership (“PPP”) contracts are awarded to a Concessionaire by the National Roads Authority (“NRA”) following a competitive bid process.

### ■ Obligations

Typically, the PPP contract signed with the Concessionaire requires the design, building, finance and operation of the new motorway. It is envisaged that the Concessionaire will recover its initial and ongoing costs through a combination of i) subsidies received from the NRA and ii) charging tolls in respect of use of the road. In some cases where tolls are not charged to the public, costs are recovered solely through availability payments received from the NRA.

### ■ Financial aspects

Maximum base tolls are set out in Bye Laws, which are created for each motorway where tolls are to be charged. They are increased or reduced by applying a consumer price index each year in accordance with the Bye Laws. Tolls are differentiated on the basis of number of axles and time of travel (for certain infrastructures).

<sup>1</sup> CIPE is the Italian Inter-Ministerial Committee for Economic Planning, an entity supposed to give advices and to coordinate all the issues related to the economic and financial planning at National level.

## Italy - AISCAT



© AISCAT

### ■ Legal framework

In Italy, the concessions are governed by law, by directives from CIPE<sup>3</sup> and by the concession's contract. Italian Concessionaires include 100% privately-owned companies as well as companies owned primarily by public authorities (local and regional authorities) but with some private shareholders. The concession is returned to the granting authority at the end of its period of tenure. The mean of concession period is 30 years and extension of the concession contract is allowed only in cases complying with the European laws on concessions.

### ■ Obligations

In Italy, in compliance with the concession contract, the Concessionaires are responsible for: financing, building, maintaining and upgrading the relevant sections of motorway, including the collection of tolls; organising and maintaining users' information and assistance services; keeping accounts as specified by the granting authority; providing granting authority with the relevant information needed to assess the favorable development of the concession, in compliance with the provisions of the concession contract.

### ■ Financial aspects

The toll is a payment made by a user in return for using a specific infrastructure, with reference to the construction, maintenance and operation of that infrastructure. The revenue is directly assigned to a

legally independent body responsible for financing, building, maintaining, and operating the infrastructure.

The determination of the toll amount is based upon the distance travelled, the number of axles, pollution levels for the Alpine tunnels only, and the height above the first axle. The amount of the toll is related to the construction and operating costs and is not driven by commercial considerations.

## Norway - Norvegfinans



© Norvegfinans

### ■ Legal framework

The State is not only in charge of planning but also of building and maintaining the road network including motorways (there are no road concessionaires in Norway). The sector's companies are only in charge of financing certain infrastructures and collecting tolls.

### ■ Obligations

The concession's only obligation is to supply the necessary financing and collect tolls.

### ■ Financing

The legislative background for toll collection is the Road Act, in which tolls are seen as a way to finance public road projects, and under certain conditions also other infrastructure projects. Each toll project needs approval both locally and in the Parliament. The toll's amount is determined by the State according to the construction costs.

## The Netherlands - N.V. Westerscheldetunnel



© N.V. Westerscheldetunnel

### Legal framework

The N.V. Westerscheldetunnel is the company in charge of building, maintaining and operating the infrastructure (namely the Westerscheldetunnel) in order to recover the costs of the investment and maintenance via the collection of tolls.

In 2033 the infrastructure will be transferred to the Dutch Government.

### Obligations

The company is obliged to maintain and operate the infrastructure.

### Financial aspects

According to law, the N.V. Westerscheldetunnel is entitled to determine the amount of the toll charges. Toll is collected as a fee, depends mainly on the length and height of the vehicles and is differentiated on the basis of number of axles and Euro standard.

## Poland - AWSA



© AWSA

### Legal framework

The typical concession models applied in Poland are the project finance model, where the cash flow generated from tolls serves the debt repayment (granted for construction), maintenance and operation or projects with public authority support in a form of availability payments to the Concessionaires and securing the debt repayment. The mean of concession period is 30 years and the extension of concession contract is not allowed.

### Obligations

Concessionaires are obliged to identify and organize the financing, build new roads, or reconstruct the existing ones, by way of adaptation of the road originally built by the government, upgrade to the requirements of a modern motorway, operate and maintain the entire section according to the conditions and requirements of Concession Agreements.

### Financial aspects

In Poland there are both traditional concession scheme of financing (payment by user toll) as well as public-private contracts with repayments using availability scheme. Contrary to tolls collected on the motorway sections run by the State (GDDKiA – Road Administration), motorway tolls collected by private concessionaries are defined as a fee and are subject to 23% VAT.

On the A1 Motorway, the level of toll is subject to levels agreed with the government in the concession agreement. The A1 Motorway tolling system is “closed” type, meaning that the payment is made at the end of the journey at the exit gates. The toll amount is determined in function of the rate per km (vehicle category) and the distance driven.

Toll rates, which shall not exceed the trash hold as defined in the concession agreement, are defined by the Concessionaires on the A2 Motorway (5 categories) and A4 Motorway (2 categories) and by the Minister on the A1 Motorway (2 categories) and the A2 II Motorway (5 categories).

In general, toll rates follow the recommendation of traffic advisors forecast.

### Portugal - APCAP



© APCAP

#### ■ Legal framework

Concessions are governed by private law. The grantor is EP - Estradas de Portugal S.A, the national road authority entrusted by the Portuguese Government. The concession ends at the end of the contract, without charges and with no reversion funds. Extending it is not allowed.

#### ■ Obligations

In compliance with the concession agreement, the Concessionaires have the obligation of designing, building, maintaining, widening of lanes (when applicable) and operation (toll collection included).

The Concessionaire has to organize the toll collection service as efficiently and safely as possible and in a way that causes the minimum inconvenience and time loss to motorway users.

#### ■ Financial aspects

Generally, each Concessionaire fully finances its operation with financial resources raised or generated autonomously through tolls.

The amount of the toll is not driven by commercial considerations and is based upon traveled distance, number of axles and vehicle's height over the first axle.

The initial toll is defined by the State according to the average tariff of the year of reference on the national toll network. The Concessionaire may revise toll rates on the first month of each calendar year.

### Serbia - PUBLIC ENTERPRISE "Roads of Serbia"



© PE "Roads of Serbia"

#### ■ Legal framework

All motorways in Serbia are State-owned and PE "Roads of Serbia" is wholly-owned by the State. Currently, there are no concession companies for motorway operation or maintenance in Serbia.

#### ■ Obligations

PE «Roads of Serbia» is in charge of maintaining, protecting, exploiting, developing and managing state roads of I and II category in the Republic of Serbia. PE "Roads of Serbia" is also responsible for toll collection on motorways in opened and closed toll-collection systems.

#### ■ Financial aspects

Toll, financial loans, budget of the Republic of Serbia, other sources pursuant to the Law are the means to finance the construction and reconstruction, maintenance and protection of public roads.

## Slovenia - DARS



### Legal framework

In Slovenia, the concession contract between Republic of Slovenia (the Concession Authority) and DARS d.d. (the sole existing Concessionaire, a joint-stock company, established by law and 100% State-owned) has been signed for the entire duration of the motorway construction and/or for the period of repayment obligations on loans and debt securities raised and/or issued to this end, but not lower than 20 years. National rules allow contract extension up to 10 years (maximum duration 50 years).

### Obligations

In accordance with the national law, DARS is in charge of financial engineering, preparing, organising and managing construction and maintenance of the motorway network, and is responsible for the management of motorways in the Republic of Slovenia.

### Financial aspects

In Slovenia, the toll is applied as a tolling tool, since it is paid directly to the Concessionaire, however, toll tariffs are regulated by the Government.

DARS d.d. as a Concessionaire finances all its activities out of toll (toll represents approx. 94% of DARS d.d. revenues) and other revenues (leases, overweight load transport, telecommunications, easements).

DARS d.d. only has the right to suggest changes in the tolling policy regarding the amount of the toll per toll categories, Euro-emission classes, time of travel etc., but final decision is made by the Government of the Republic of Slovenia – who apart

from the Concessionaire's proposal, usually takes into account also the public opinion and the opinion of the users, mainly domestic haulers. The same goes for the determination of the price of vignettes: DARS d.d. can propose changes, but final decision is made by the Government.

## Spain - SEOPAN



### Legal framework

Concessions are governed by private law. The award of a concession takes place through a public tender, called together by the Ministry of Public Works on behalf of the Spanish State or by Regional Governments. Eligible for award are Spanish or foreign individuals and corporations, with full capacity to act, and that do not incur any prohibition to contract, in accordance with what is established in the Public Administration Contracts Legislation.

The concession for construction work and equipment followed by the operation of the service will be awarded by Royal Decree, approved by the Cabinet, at the request of the Ministry of Public Works, to the most suitable bid. This Royal Decree sets itself up as the declaration of public utility with regard to expropriation. A similar process takes place at a regional level in the case of those projects under the competence area of regional Administrations.

The Concessionaire manages the service, purpose of the concession, under the supervision, inspection and control of the awarding Administration, which will be exercised by the Government's Department of National Toll Road Concessionaire Companies. The Deputy Secretary of the Ministry of Public Works is, at the same time, the Government's Representative

for National Toll Road Concessionaire Companies, as stated in Royal Decree regulating the structure of the Ministry of Public Works.

Generally, the duration of concessions is 40 years for construction concessions (with the possibility of extension until 46 years) and 20 years for operation concessions (with the possibility of extension until 25 years).

#### ■ **Obligations**

The concession companies are required to finance, build, maintain, improve and operate the infrastructure. They are required to guarantee the best service to the user and keep the motorway in the best conditions.

#### ■ **Financial aspects**

The Concessionaire is committed to structure the financing of the motorway using its own resources or external ones (looking into finance market, issuing bonds).

In Spain, a toll is the payment by a user for using a specific infrastructure according to the distance travelled and some physical parameter of the vehicle (number of axles and presence of dual tyres). There are three tariff categories according to vehicle classification.

Every year, the concessionaire, previous approval by the awarding authority, increases toll rates. The method used to calculate the increase of toll rates on concessions awarded is based on the previous' year increase in cost of living, plus the difference between the forecasted and real traffics. The toll rate can be increased every year.

All the revenues collected from the users (except taxes as VAT) are allocated to the Concessionaire who has to invest on the proper maintenance of the road during all the period of concession contract.

## United Kingdom - Macquarie Motorway Group



#### ■ **Legal framework**

Macquarie Motorway Group - Midland Expressway Ltd has a 53 years concession to build, operate and maintain the M6 toll road. At present time, the concession will be held for a further 40 years period after which it will be handed back to the Government.

#### ■ **Obligations**

The company was appointed to build, maintain and operate the M6 toll road.

#### ■ **Financial aspects**

The operator defines toll levels with a market-led approach, without any interference from Government. There are five basic classifications to which define toll: motorcycle, car, car with trailer, light commercial vehicles and HGVs. Separate rates apply for wide loads and slow moving vehicles.

The table below summarizes the main aspects of concession models and road charging policies applied in the concessions under ASECAP members management.

**Table 2 – ASECAP members: main aspects of concession model, types of payment and charge differentiation**

Full members	NO. AND NATURE OF COMPANIES				CONCESSION PERIOD		TYPES OF PAYMENT		CHARGE DIFFERENTIATION		
	Public	Mixed capital	Private	Total	Average concession period	Extension period	Light vehicles	Heavy vehicles	Euro standard	Period of day	Axles
Austria	1			1	Unlimited	-	Distance-based	Distance-based	✓	✓ (Brenner motorway)	✓
Croatia	2	2		4	30 years	Maximum 60 years	Distance-based	Distance-based	✓	✓	
Denmark	2			2	-	-	Distance-based	Distance-based	✓	-	✓
France	2		21	23	30 years	1 year <sup>4</sup>	Distance-based	Distance-based	✓ (selected tunnels)	✓ (selected roads)	✓
Greece			8	8	30 years	3 years, under specific condition <sup>5</sup>	Distance-based	Distance-based	-	-	✓
Hungary			5	5	35 years	No	Time-based	Time-based	-	-	-
Ireland			9	9	35 years	-	Distance-based	Distance-based	-	✓ (Dublin port tunnel, only vehicles <3.5t)	✓
Italy	2	21	4	27	30 years	Yes, under specific condition <sup>6</sup>	Distance-based	Distance-based	-	-	✓
The Netherlands	1			1	30 years	-	-	Time-based	-	-	-
Norway			38	38	-	-	-	-	✓	-	✓
Poland			4	4	30 years	No	Distance-based	Distance-based	-	-	✓
Portugal		1	20	21	30 years	No	Distance-based	Distance-based	-	-	✓
Serbia	1			1	Unlimited	-	-	-	✓	✓ (day/night)	✓
Slovenia	1			1	20 years	10 years (maximum 50 years)	Time-based	Distance-based	-	✓ (selected roads)	✓
Spain	3		29	32	- 40 years for construction concessions - 20 years for operation concessions	- Maximum 46 years for construction concessions - Maximum 25 years for operation concessions	Distance-based	Distance-based	-	-	✓
United Kingdom			1	1	50 years	No	-	Time-based	-	✓	✓
<b>Total</b>	<b>17</b>	<b>24</b>	<b>139</b>	<b>180</b>							

Source: ASECAP, national reports, Performance Survey 2014; Evaluation of the implementation and effects of EU infrastructure charging policy since 1995 - Final (Report Ricardo – AEA/EC DG MOVE); European Commission

<sup>4</sup> Extension over 1 year must be approved by a dedicate rule.

<sup>5</sup> National rules foresee the possibility to extend the concession contract in case the expected IRR is achieved.

<sup>6</sup> Extension of the concession contract is allowed only in cases complying with the European laws on concessions.

### 3.2.1 Obligations with regard to safety improvements <sup>7</sup>

Nowadays, as in the past, concession companies play an important role in the development of the safety level of the road network. As a matter of fact, safety concerns tend to be taken into account since the early stage of a concession scheme. Beyond the general obligations concerning the construction, maintenance and operation, road concession contracts tend to foresee specific obligations for the Concessionaire regarding safety improvements along the road network (e.g. pavements maintenance, safety barriers, road lighting, etc.). In particular, the results of the Performance Survey revealed how in six countries (i.e. Austria, Italy, Poland, Slovenia, Greece and Hungary) the contractual schemes in force regularly foresee obligations with regard to safety improvements.

Further, in case unexpected obligations of this kind arise (e.g. need to upgrade pavements), the related costs are funded in different ways among ASECAP members:

- in Austria, Italy and Slovenia, such costs are included fully in the tolls paid by users;
- in France and Spain, such costs are fully or partially included in the tolls paid by users;
- in Poland such costs are totally borne by the Concessionaire without compensation;
- in Greece such costs are funded by governmental authorities.

The relevance given by the public authorities to safety concerns is confirmed by the monitoring activity put in place by the ASECAP members. As a matter of fact, the Public Authority in each country monitors different safety indicators and makes periodically on the ground inspections, in particular:

- In **Austria**, the public authority inspects, via on spot inspections and examination of plans and designs, if ASFINAG obeys the safety requirements and obligations.. The number of accidents and fatalities is a high priority matter and major political goal for the state / concession grantor.

- In **Italy**, the granting authority verifies constantly, by means of inspections, the safeness status of the motorways, on the basis of many indicators, including: the pavements conditions, the efficiency of the safety barriers, the lighting (where applicable), the compliance with all the technical parameters defined by the prescribed standards, etc. Furthermore, it is stipulated that within the annual tariffs update mechanism, an indicator about levels of safety or accidents has to be taken into account.

- In **France**, most security improvements are included in “*Contrats de plan*”, stipulated for a 5 years period and including investments to upgrade the concession and tariff increases to finance them. Security improvements could be funded by Concessionaires prior the inclusion in a Contrat de plan. Most often, the investments are fully or at least partially compensated later on.

- In **Spain**, no specific obligations relating to safety are considered in the toll concessions contracts, nevertheless, there is a general obligation to keep and maintain the motorway on the best conditions, under the strict supervision of the granting authority. On shadow tolls concessions, safety is a parameter included in the indicators used to assess the good operation of the road.

- In **Poland**, the Public Authority monitors/ conducts inspection of signing of the motorway for compliance with approved design, ongoing maintenance, preparation for winter maintenance, control infrastructure components related to the safety, toll collection. Such checks are held several times a year.

- In **Slovenia**, the safety improvements are defined on the basis of the number of traffic accidents that occurred on highways and expressways. The monitored indicators are number of killed and seriously injured persons.

- In **Greece**, the Public Authority monitors the condition of barriers, the lighting level, the as-

<sup>7</sup> Source: Performance Survey 2014

phalt surface characteristics (surface friction, regularity, rutting), the condition of signs and road markings, equipment in tunnels etc. The inspections by the Public Authority are made according to the provisions of the Contract Documents.

- In **Hungary**, the Public Authority periodically checks the compliance with a broad spectrum of technical requirements and legal provisions applicable for road operation and management.

### 3.3 Value added of the road toll concession

Concessionaires have successfully deployed and operated toll roads throughout Europe for more than 50 years. The value added provided by the road toll concession sector can be declined in terms of physical results, such as the development of the network, the share of traffic served and the contribution to the development of technology supporting the toll operation, and in terms of socio economic impacts on the local and regional areas, such as the reduction of travel time, the contribution to state budget by means of taxation and the creation of new jobs.

#### 3.3.1 Characteristics of ASECAP network: development of the network, share of traffic, safety performance, contribution to the development of technology<sup>8</sup>

ASECAP members operate more than 55% of the total motorway network in Europe. 775 of the 30,501 km of the ASECAP networks are operated by concessionaires in 5 Countries: France, Italy, Spain, Portugal and Austria are the countries with the longest conceded network (as a whole they are hereinafter referred to as 'larger networks')

It has to be noted that in Spain the conceded network is less than ¼ of the national high capacity road network (see table below). The remaining network –in some cases running in parallel to an already existing toll road– is made mainly of toll free

expressways directly managed by the State or Regional Governments.

**Table 3 –Length of ASECAP network**

Full members	Network length [km]	% on the total national motorway network
<b>Austria</b>	2,177	100%
<b>Croatia</b>	1,289	100%
<b>Denmark</b>	34	3%
<b>France</b>	9,048	78%
<b>Greece</b>	1,659	87%
<b>Hungary</b>	1,145	74%
<b>Ireland</b>	337	37%
<b>Italy</b>	5,814	86%
<b>The Netherlands</b>	20	1%
<b>Norway</b>	911	NA
<b>Poland</b>	468	34%
<b>Portugal</b>	2,943	98%
<b>Serbia</b>	603	100%
<b>Slovenia</b>	607	79%
<b>Spain</b>	3,404	23%
<b>United Kingdom</b>	42	1%
<b>Total</b>	30,501	55%

Source: ASECAP, Performance Survey 2014

In five countries (**Austria, Denmark, Netherlands, Serbia and Slovenia**) motorways (or toll infrastructures) are exclusively managed by the State through 100% controlled companies.

In **Croatia, Italy and Portugal** some motorways are operated by mixed capital companies, but only in **Italy** the majority of the concessionaire companies have mixed capital although, in terms of length of the network, the vast majority is operated by private companies. It seems that also in **Croatia** this model can be more extensively applied in the future (this subject is currently under examination by the government that is aiming at reducing the public share in motorway O&M). In **Portugal** just *Vialitoral*, the company operating the motorways of the Madeira

<sup>8</sup> The analyses contained in this section refer only to ASECAP full members, to whom questionnaires were addressed.

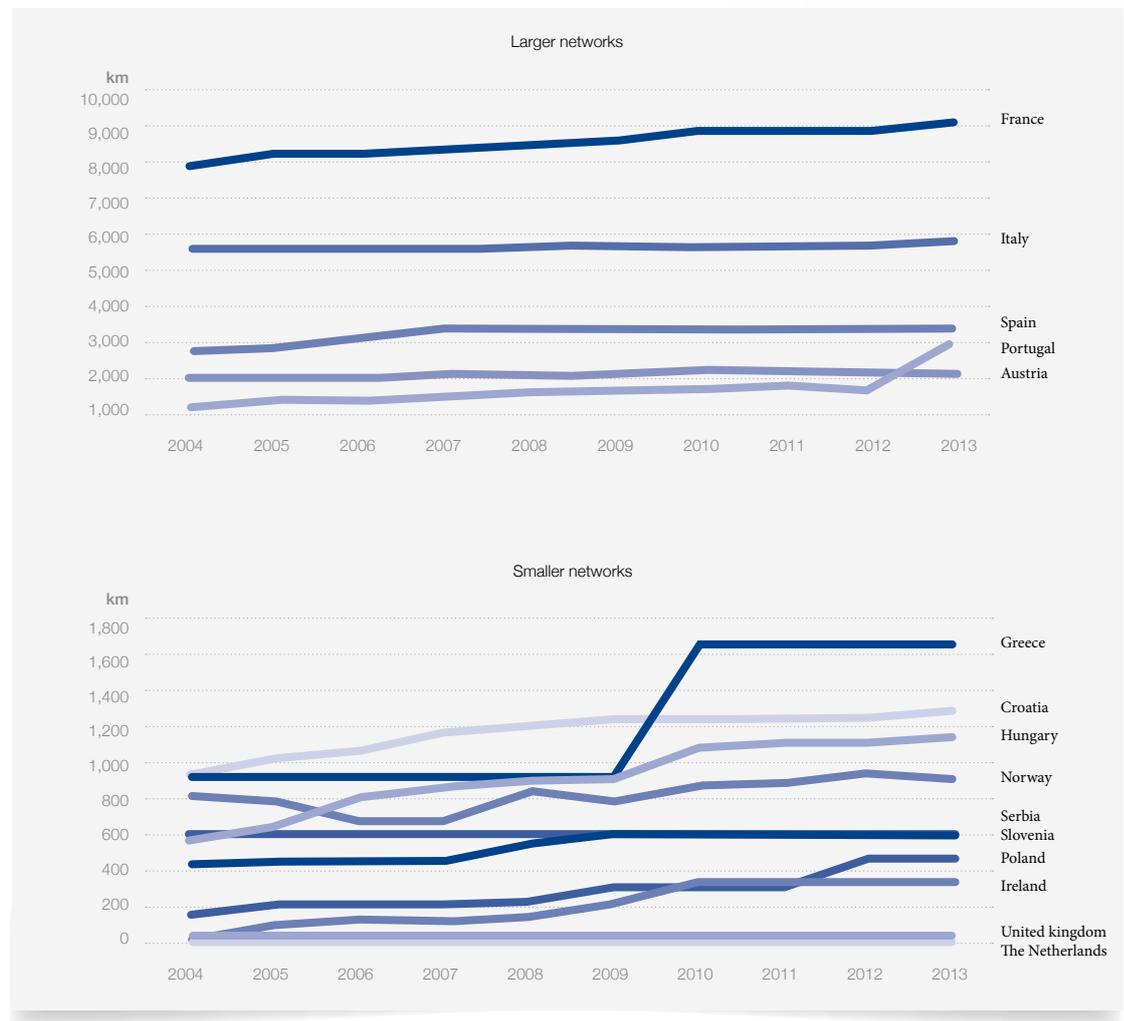
island, is partially owned by a public body (Madeira Region).

In **Austria**, out of 3 concession companies (ASFI-NAG, GROHAG, Felbertauern AG), just one (ASFI-NAG) operates motorways. The other 2 companies operate toll mountain roads. In this study only ASFI-NAG and its network is taken into account.

In **Denmark**, the **Netherlands**, **Norway** and **UK** only specific sections of the network are under concession (i.e. bridges, tunnels or short motorway links).

The Figure below shows the evolution of the conceded networks in the last 10 years.

**Figure 3 – Evolution of the ASECAP motorway network**



Source: ASECAP

Among the larger networks, the recent sharp increase of **Portuguese network** leaps out immediately. In 2013, in fact, several regional motorways previously operated under shadow tolling and conceded to private companies, turned into real tolling concessions, therefore the network increased of about 1,200 km.

A sharpening increase occurred also in **Greece** after 2009. In this case the expansion is due to the fact that many existing motorways previously operated by the State where conceded to private companies.

### 3.3.1.1 Tolling equipment

In accordance with the ‘pay-per-use’ principle, most part of the infrastructure is financed by a fee charged to the users and generally collected at toll stations. Vignette<sup>9</sup> - or ‘e-vignette’ - systems are currently used only in **Austria, Hungary** and **Slovenia** (only for light vehicles in all three countries).

Figures below show the number of toll stations and lanes for each country, both in absolute and relative terms.

**Austria**, where a **free-flow system**<sup>10</sup> is in operation for heavy goods vehicles above 3.5 tonnes, is the country with the highest density of toll stations (i.e. No. of toll stations / km)<sup>11</sup>.

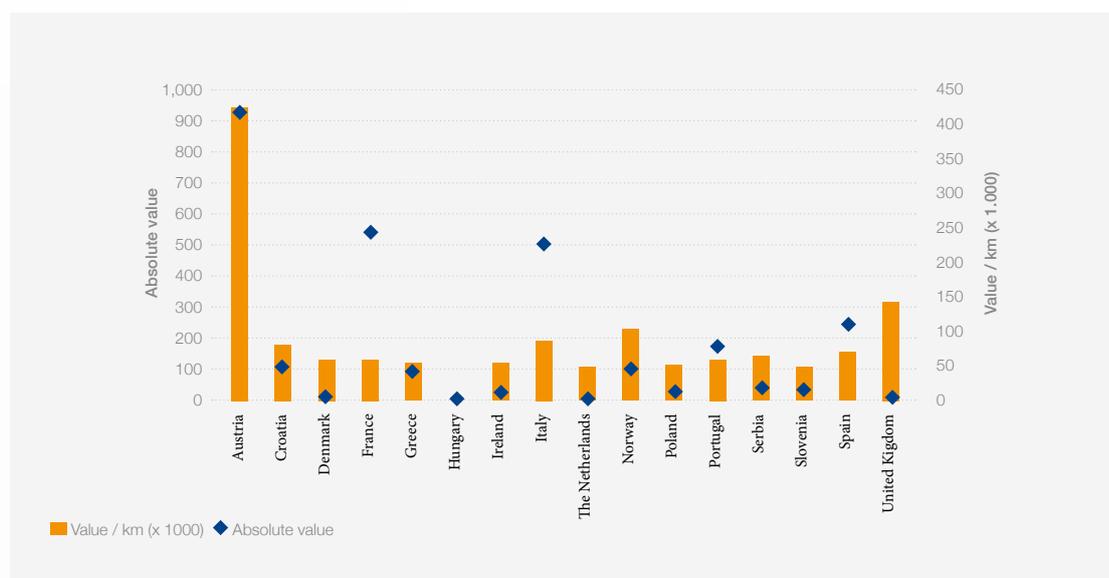
Among other countries, besides **UK** – where only 40 km are in concession -, other networks with high density of toll stations are **Norway, Italy, Croatia** and **Portugal**.

In terms of toll lanes, besides **Denmark** (two bridges in concession), **UK** and **the Netherlands** (one tunnel in concession), countries with the highest density are **Austria, Spain** and **Italy**.

In absolute terms, **Austria, France** and **Italy** are the country with the highest number of toll stations and lanes.

In the Netherlands and Ireland, almost all toll lanes are ETC type. Other countries with high **ETC**<sup>12</sup> share (more than 75%) are **Austria, UK, Denmark** and **Norway**.

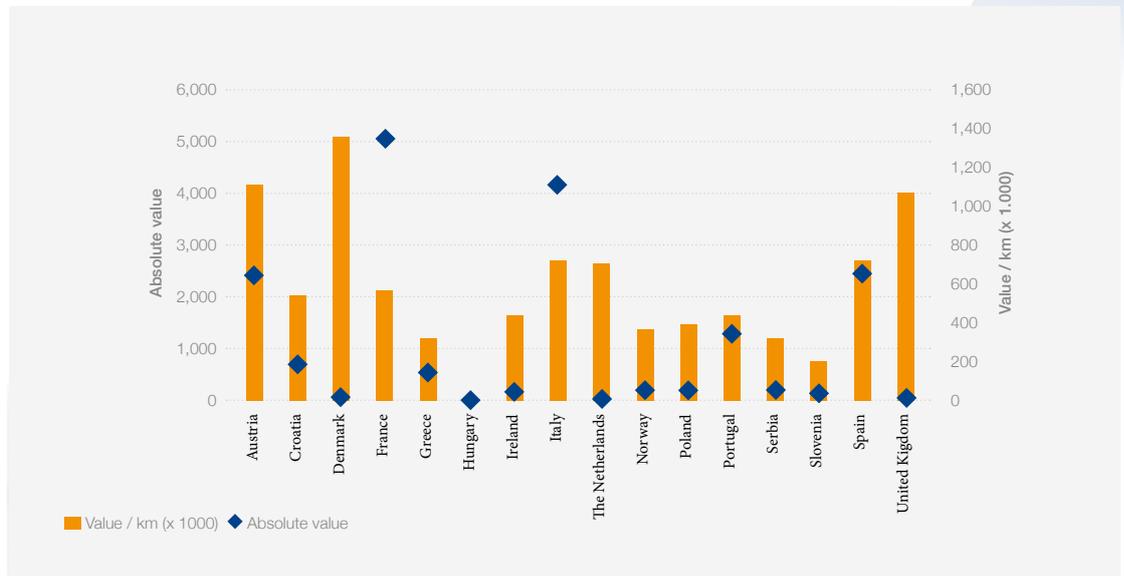
**Figure 4 – No. of toll stations (as for 01.01.2014)**



Source: ASECAP

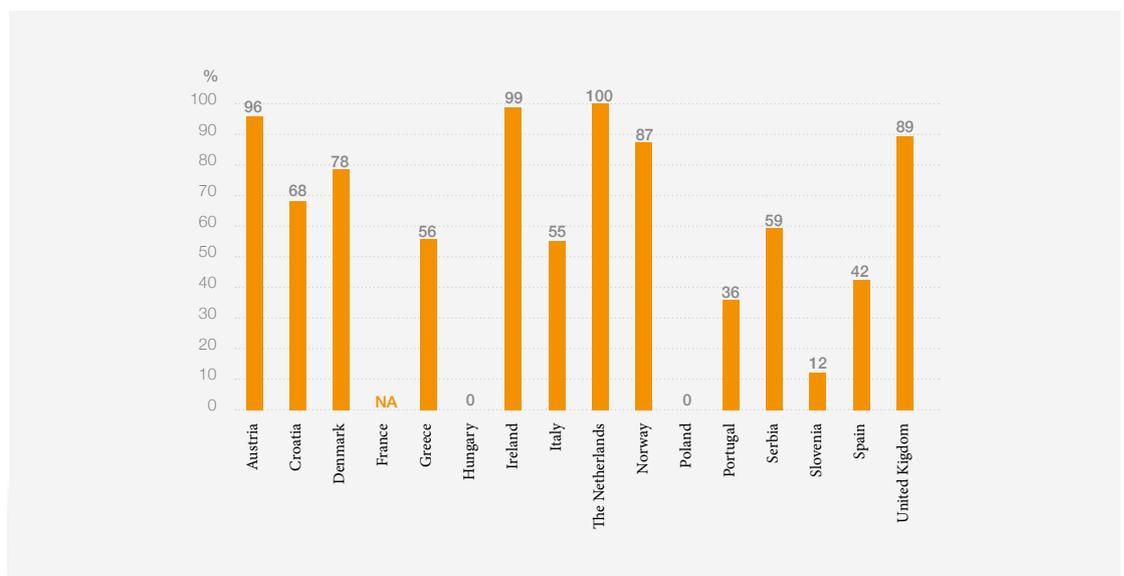
<sup>9</sup> Vignette is a form of road pricing imposed on vehicles based on a period of time instead of the usual road toll method based on distance travelled.  
<sup>10</sup> Free-flow systems allow tolls to be paid without any need to channel traffic and, above all, without any need to stop the vehicle. They consist of portals that cover the entire lane, on which cameras, antennas and classification systems detect on-board units and/or vehicle plates.  
<sup>11</sup> In this case each portal is considered as a single toll station  
<sup>12</sup> Electronic toll collection

**Figure 5 – No. of toll lanes (as for 01.01.2014)**



Source: ASECAP

**Figure 6 – % ETC/toll lanes (as for 01.01.2014)**



Source: ASECAP

### 3.3.1.2 Traffic

Figures below show the traffic evolution in the last 10 years. Traffic is expressed both in terms of volume (average daily traffic – ADT -) and distance travelled (veh-km).

In 2013 the country with the highest ADT was the **United Kingdom** (about 40,000 vehicles) , followed by **Italy** and **Austria**.

Considering the number of vehicles travelling, countries with highest levels are **France** and **Italy** (more than 75 bn of veh-km per year). All other countries register less than 30 bn of vehicles-km per year.

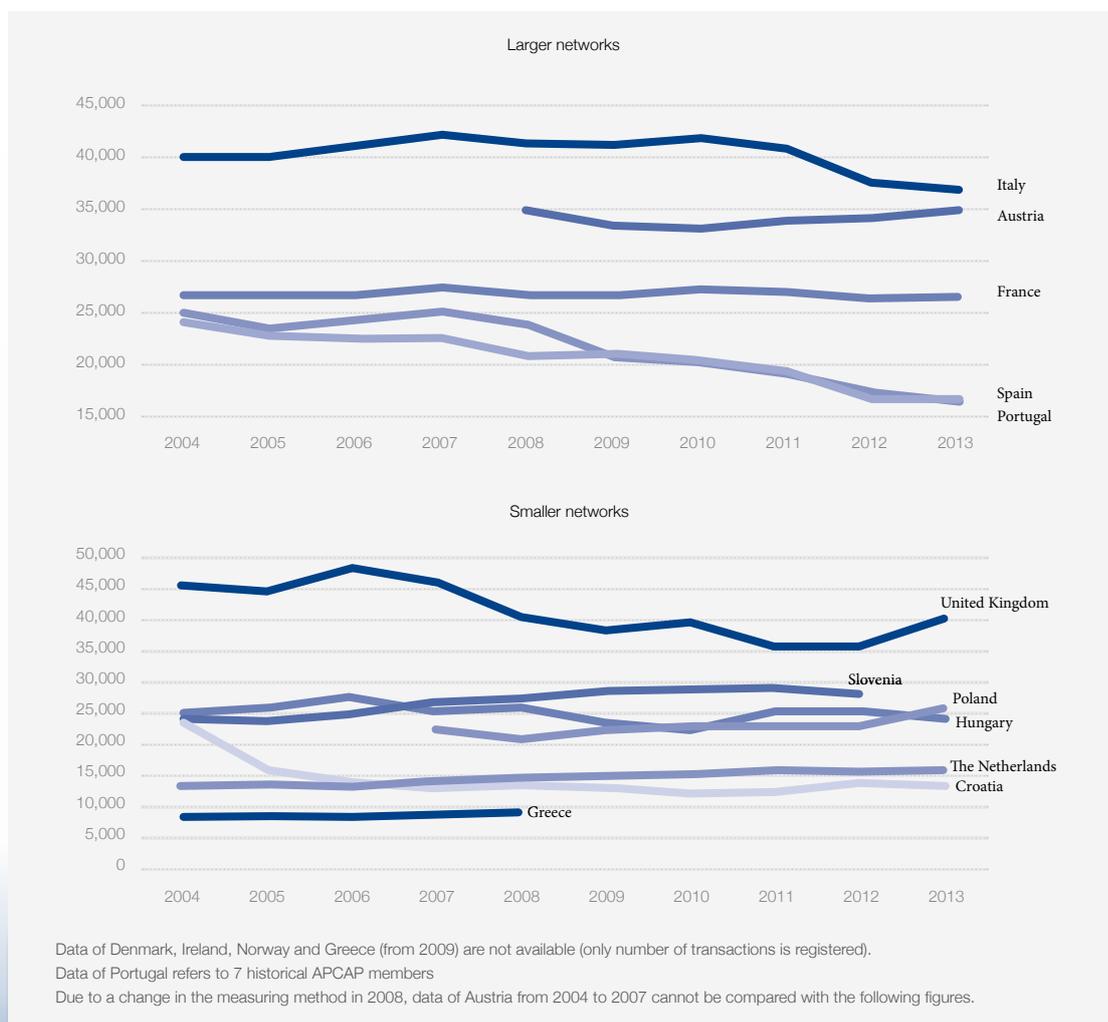
Traffic is generally strongly influenced by economic trend; economic growth tends to lead to increased

travel and transport of goods. In a more rapidly growing economy, a greater proportion of the population is likely to be working, has more disposable income and more products are manufactured which must be transported and for which raw materials must be supplied.

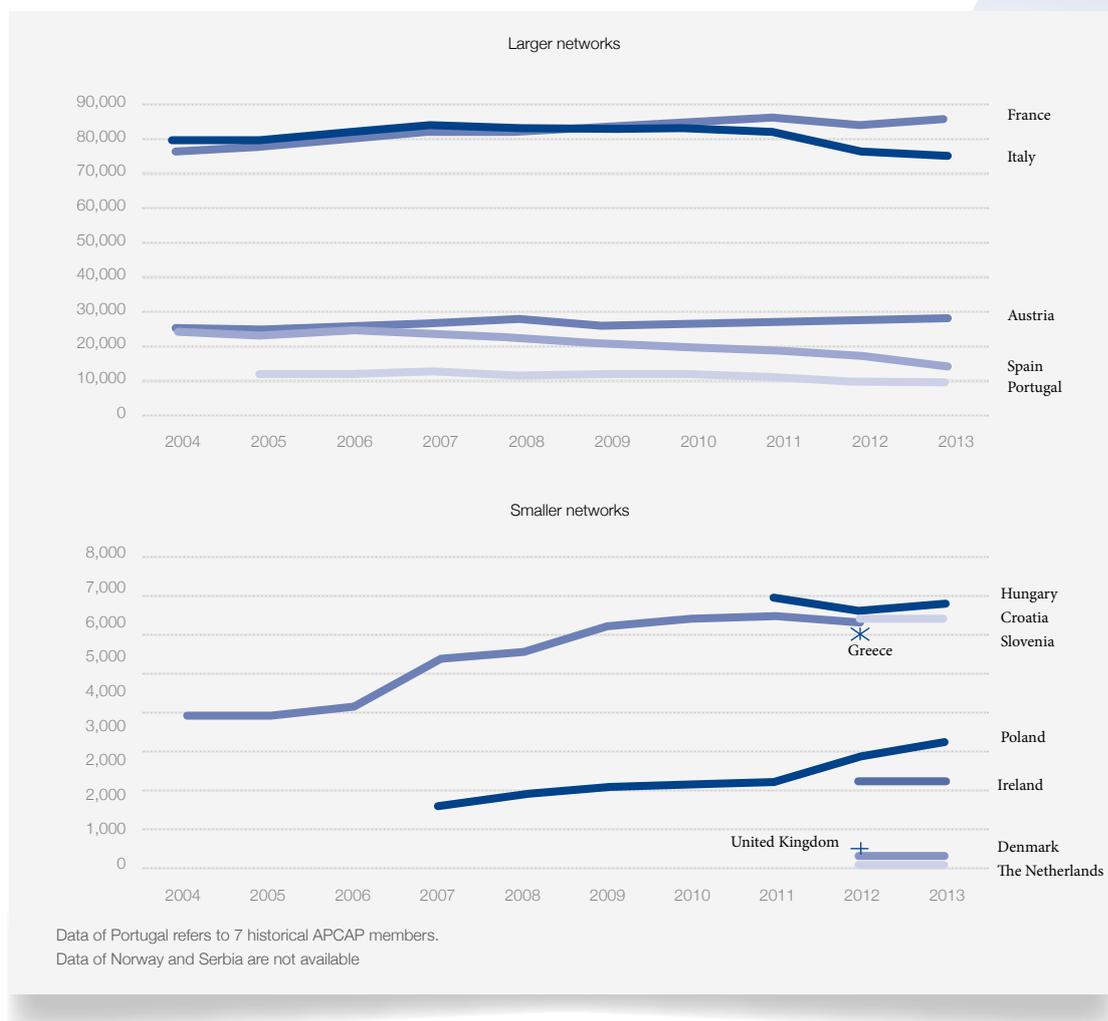
Of course, it may also happen the opposite: in case of **economic slump**, traffic moves downward. This is the phenomenon that many European countries are observing in the recent years.

Nevertheless, despite the current economic global crisis, traffic in some motorway networks is still growing (e.g. **Austria**, +5% in the 3-year period 2010 - 2013; **Poland**, even +13% from 2012 to 2013).

**Figure 7 – Average Daily Traffic (ADT) on the ASECAP network**



Source: ASECAP, Performance Survey 2014

**Figure 8 – Total veh-km travelling on the network (10<sup>6</sup> veh-km) on the ASECAP network**

Source: ASECAP, Performance Survey 2014

### 3.3.1.3 Safety

One of the most remarkable features of the service provided by toll motorways is **safety**. It is unquestionable that safety is duly taken into account in every stage of a motorway's life cycle, i.e. planning, construction and operating stage.

All tolled motorways have specially designed **equipment** to ensure road safety, such as perimeter fences, anti-glare panels, lighting at toll stations and semi-urban stretches, cutting-edge operational and traffic management centres, closed-circuit television, traffic data collection systems, 24 hour customer care, SOS posts and meteorological stations and

other safety systems. There are fast road patrols for collecting lost items, providing early assistance and warnings of any accidents and there is an efficient winter service based on 24 hour monitoring of road and weather conditions. Traffic is made safe at road works sites through early and efficient warnings, road marking and the setting up of protective fences including TMAs (truck mounted attenuators).

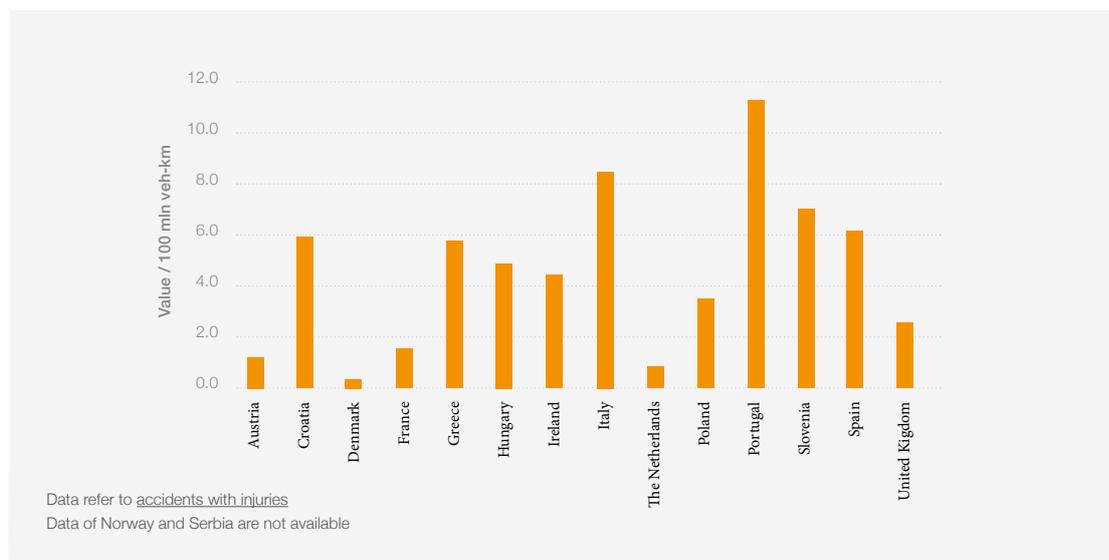
Priority is always given to the safety of people and goods travelling throughout the motorway concession network. This concerns both motorists and lorry drivers, who can rest in fully equipped **service and parking areas**.

Consistent and continuous **investments** are made by Concessionaires in **research and development** of new and more efficient technological systems aimed to improve safety levels. It is worth underlining that many types of equipment that are now efficaciously installed in European road and motorway networks have been previously developed

by motorway companies (e.g. safety barriers, traffic control systems, signs and markings, automatic speed control systems, etc.). An example is described in the Case Study 1.

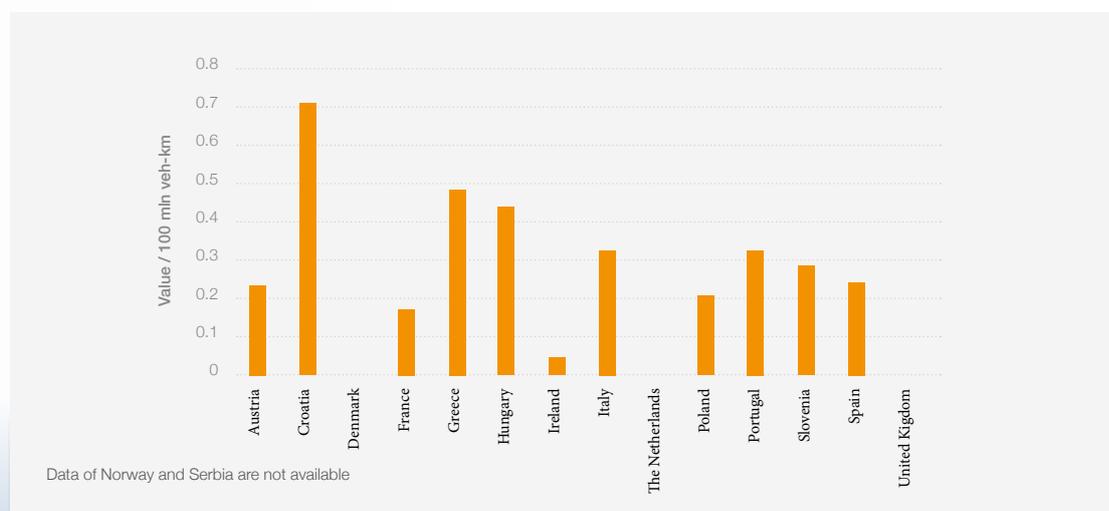
Figures below show road safety trends of accident and fatality rates (i.e. absolute value / veh-km)<sup>14</sup>.

**Figure 9– Accident rate 2012**



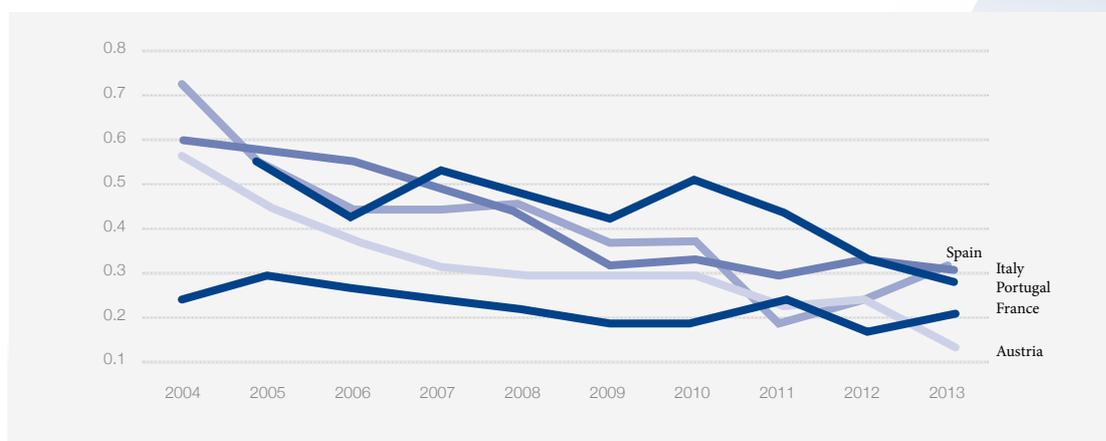
Source: ASECAP, national reports, Performance Survey 2014

**Figure 10– Fatality rate 2012**



Source: ASECAP, national reports, Performance Survey 2014

<sup>14</sup> It should be noted that the accident rate it is highly influenced by the local methods of statistical surveys (i.e. the meaning of “accident” may be different between the various countries). Accordingly, for a more reliable comparison, it is recommended to consider the fatality rates.

**Figure 11– Evolution of fatality rate (only larger networks)**

Source: Performance Survey 2014

Besides **Denmark** and **Netherland**, where only short specific road links are under concession, the lowest accident and fatality rates are observed in **France**.

In 2012, **Portugal** and **Italy** have the highest accident rates (> 8 accidents/100 mln veh-km) but their fatality rates are on average. **Croatia**, **Greece** and **Hungary** have the highest fatality rates (> 0.4 fatalities/100 mln veh-km).

In the period 2004 – 2013 particularly significant improvements are observed in all key countries. Higher reduction trend of fatality rate are observed in **Austria** (-76%), **Spain** (-57%) and **Italy** (-49%). **France**, already starting from good safety performances, further reduced the fatality rate by 16%.

Since the distance travelled by vehicles is a figure rarely available for other road networks, a reliable com-

parison between safety rates on motorway and road network is not feasible. However, few cases have been subject to specific analyses: ASFA (France)<sup>15</sup> and APCAP (Portugal)<sup>16</sup> estimates that the level of safety on motorways is **4 to 5 times** higher than for the rest of the road network (the Portuguese case is reported in detail in the Case Study 2).

Table 4 compares the evolution of fatalities on the motorways with the rest of the road network in three countries. The performance of the motorway networks is significantly better. The road safety improvement is about 10% higher on the motorways. It is worth to underline that ASECAP network has met the objective of the European Commission to halve the number of fatalities in 10 years, a couple of years before the rest of the network.

**Table 4 – Road safety evolution 2002/2012: comparison between No. of fatalities on road and motorway networks**

Country	Road network			Motorway network		
	2002	2012	D%	2002	2012	D%
<b>Austria</b>	956	531	-44%	152	59	-61%
<b>France</b>	7,655	3,653	-52%	328	143	-56%
<b>Italy</b>	6,980	3,653	-48%	625	250	-60%

Source: European Commission, national reports

<sup>15</sup> ASFA – Motorway safety / Fatal accidents / Key figures (2013)

<sup>16</sup> APCAP – As vantagens de viajar em autoestradas (2013)

### Case Study 1 - The 'Safety Tutor' project in Italy

The **Safety Tutor** is a system developed by *Autos-trade per l'Italia* and made available since 2005 to the Italian traffic police to record, on the basis of the time spent to cover a given distance, the **average speed** of a vehicle.

The Safety Tutor has been installed on stretches of the Italian motorway network with a mortality rate over the average. It allows speeding sanctions to be issued automatically and do not require the actual presence of traffic police on the motorway.

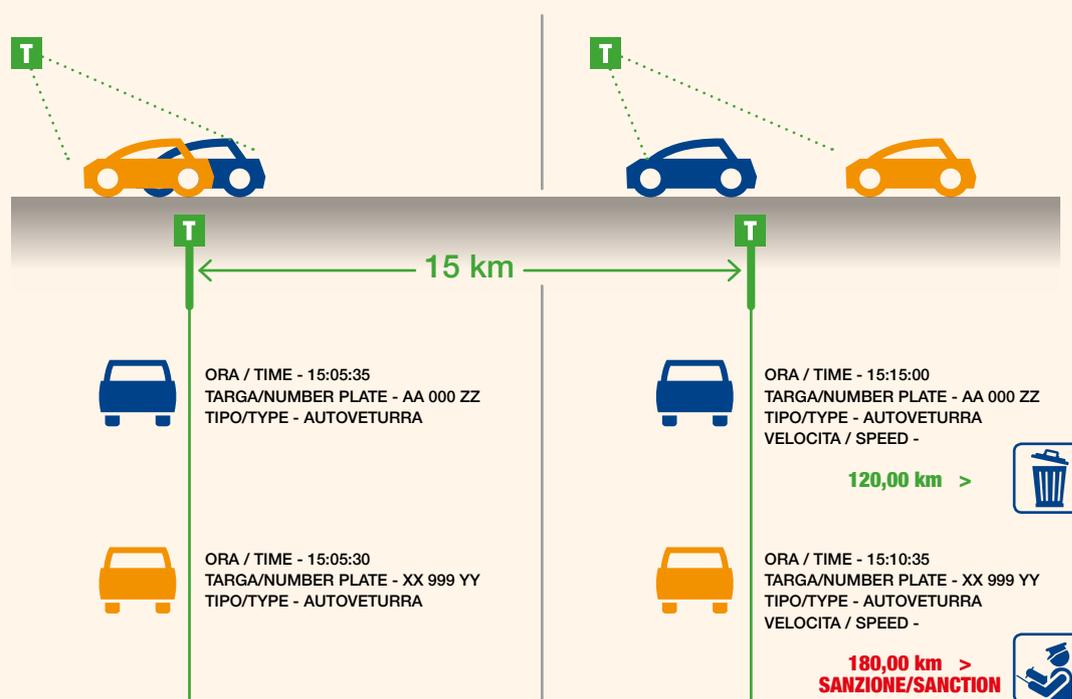
The vehicles' average speed is monitored in all lanes over long sections of the motorway (generally 10 to 25 km in length). The system is operational under all

weather conditions (fog, rain, etc.) day and night. It can detect vehicles travelling with their lights off or in the emergency lane, two occurrences that put the safety of other motorists at risk, for which sanctions are particularly severe.

The system, in force on over **2,500 km** of the Italian motorway network, has had a significant impact on reducing **average speed (-15%)**, **maximum speed (-25%)**, and, as a consequence, accidents rates<sup>17</sup>:

- Fatality rate: **-51%**
- Injury rate: **-27%**
- Accidents rate: **-19%**

Figure 12 – Safety Tutor: how it works



Source: Infotraffico.autovie.it

<sup>17</sup> Data referred to the first 12 months of operation.

## Case Study 2 - Benefits to travel on the Portuguese motorway network

APCAP, the Portuguese motorway association, has recently demonstrated the assumption that **motorways are safer than other roads**. This study is contained in the report 'As vantagens de viajar em autoestradas' ('The advantages of travelling on motorways') (June 2013).

Just analyzing the recent historical development (Figure below) of traffic and accidents, both on motorways and national road network, it is plain that the differential reduction of accidents is more significant in the motorway network.

**Figure 13 – Evolution of traffic (blue line) and accidents (green line) on the motorways (left) and other roads (right)**



Source: APCAP

Nevertheless APCAP wanted to study in detail this phenomenon and analyzed 10 routes, comparing motorway trips with those carried out on the ordinary road network. Accidents and fatalities on different routes are summarized in the Table below.

The analysis shows that for all trips, the accident rate on the motorway is lower compared to what

recorded on the alternative road. Sometimes the difference between the accident rates in these two types of route is quite evident, as for the route Lisbon - Albufeira, where the fatality rate recorded in alternative road is more than 7 times higher the one of motorway. Figure below summarizes graphically these results.

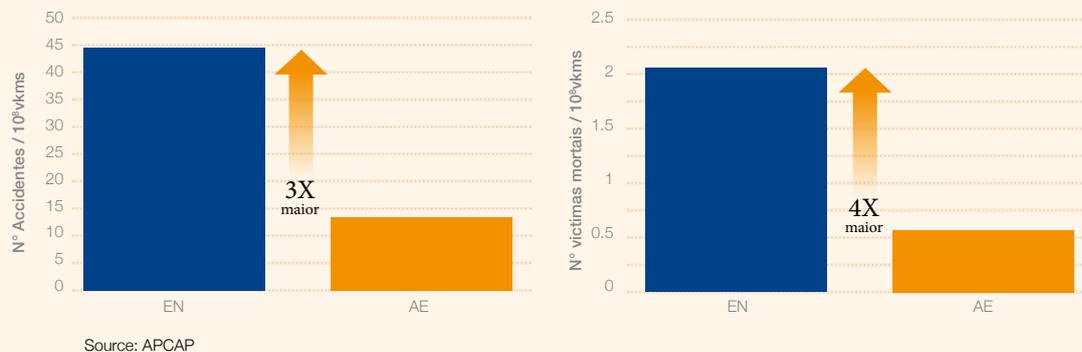
**Table 5 – Accident data in selected routes**

Route	Accident rate			Fatality rate		
	Road	Motorway	D %	Road	Motorway	D %
Lisboa - Nazaré	58.5	15.3	-74%	1.1	0.2	-81%
Santarém - Peniche	21.7	7.0	-68%	0.9	0.0	NA
Espinho - Valongo	44.0	13.3	-70%	2.1	0.6	-72%
Cascais - Mem Martins	13.3	10.3	-23%	0.6	0.0	NA
Braga - Apúlia	46.9	5.8	-88%	1.0	0.8	-23%
Lisboa - Tróia	46.6	21.4	-54%	4.1	1.1	-74%
Lisboa - Albufeira	42.7	13.0	-70%	4.7	0.6	-86%
Lisboa - Porto	43.0	12.0	-72%	1.7	0.6	-64%
Porto - Valença	70.0	15.1	-78%	2.6	0.4	-84%
Leiria - Mira	40.2	7.9	-80%	1.4	0.9	-34%

Source: APCAP

Case Study 2 - Benefits to travel on the Portuguese motorway network (suite)

**Figure 14 – Comparison of accident (left) and fatality (right) rates between motorways (blue) and other roads (green)**

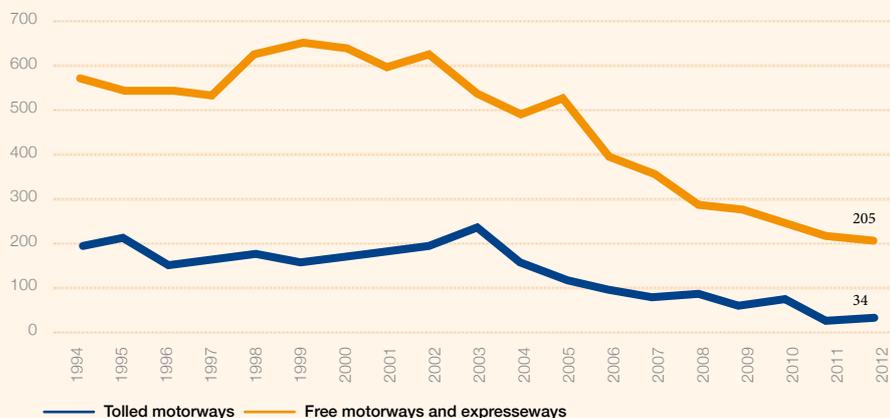


**Case Study 3 – Comparison between toll and non-toll network in Spain**

Toll motorways are, in absolute and relative terms, the safest roads of the Spanish road network. In fact, Spain has managed to comfortably exceed the European Commission’s target of halving the number of fatalities in 10 years (from 2001 to 2010), achieving a reduction of 61.5% (79.8% if we take data from 2001 to 2012).

The physical and geometric characteristics of toll motorways, its design and high-quality materials used for its construction, its good equipment, the efficient and personalized toll motorway management, and a regular and periodic maintenance performed throughout the motorway concession life cycle, guarantee the road safety standards.

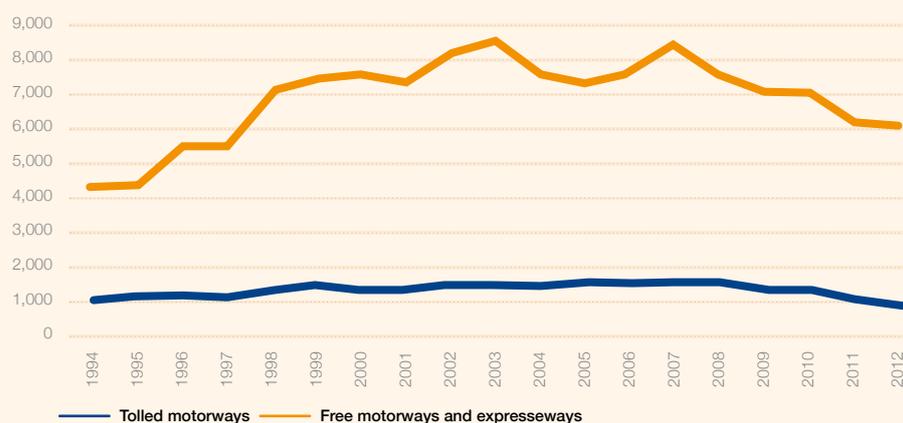
**Figure 15 – Evolution of traffic accidents fatalities in the Spanish road network according to the type of road (1994-2012)**



*Case Study 3 - Evolution of traffic accidents fatalities in the Spanish road network according to the type of road (1994-2012)*

The reduction of fatalities in the State toll road network has been -82.4%, meanwhile a -64.1% reduction has occurred in free motorway and highways.

**Figure 16 – Evolution of traffic accident victims in the Spanish Road Network according to the type of road (1994-2012)**



Source: Anuario Estadístico 2012 Ministerio de Fomento

The reduction of accidents with victims in the Spanish toll motorway network has been -17.3%. However, accidents with victims in free motorways and highways has increased by 41.8%.

The table below shows that the toll motorway network has, in general terms, a dangerousness rate approximately half of what the free toll motorways and highways have.

**Table 6 – Comparison of dangerousness rate**

	Toll Motorways	Motorways	Highways
Fatal accidents rate	0.15	0.26	0.26
Fatalities rate	0.17	0.26	0.29
Dangerousness rate	6.92	12.78	7.5

### 3.3.2 Socio - economic relevance of road toll concessions

Transport infrastructure projects such as motorways have significant impacts on the development of regional economies. In particular, the **socio economic relevance** of transport projects such as toll road motorways can be evaluated in terms of **direct user's benefits** and of **socio economic spill overs** (see Figure 17).

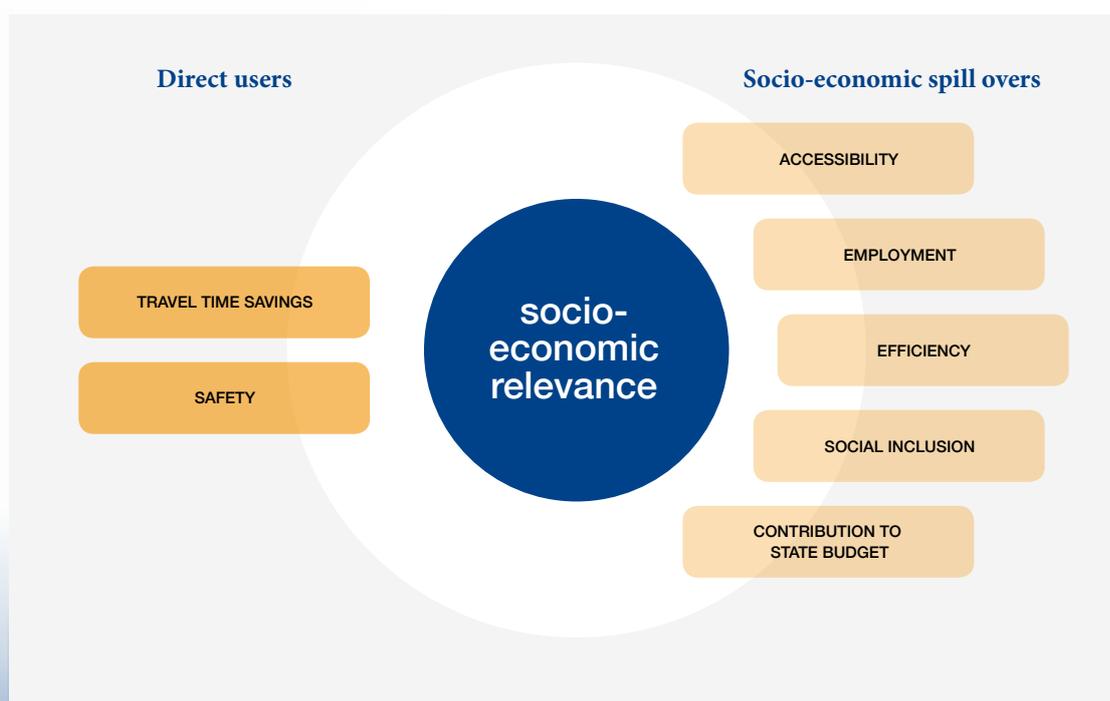
According to the principles of the Cost Benefit Analysis, the main direct user's benefits generated by road infrastructure investments are:

- **Travel time:** time savings result from an improvement in the efficiency of the transport system by shortening routes or increased traffic fluidity.
- **Safety:** greenfield and/or brownfield investments in road infrastructure projects should allow reductions in risks of accidents and casualties. Safety savings are usually valued as monetary benefits to society as a whole due to the reduction in number and relevance of accidents (see paragraph 3.3.1.3).

The most relevant socio economic spill overs (wider effects with impact at regional and/or national level) are:

- **Accessibility:** road transport projects are usually meant to improve the accessibility of a given area or region by reducing travel time or increasing the potential to travel. A better level of accessibility may increase the market size for manufacturing, tourism and/or labour activities, leading to increased competition and/or centralisation.
- **Employment:** the impacts of construction, operation and maintenance of a road infrastructure on employment include direct, indirect and induced employment.
- **Efficiency:** time and cost savings deriving from the implementation of a road transport infrastructure would allow the industry in a given region to improve its production and distribution activities to create new business opportunities and to increase the internal competition, leading to further increases in profitability.
- **Social inclusion:** road transport projects properly implemented would improve the accessibility and mobility of those regions suffering from economic and social problems.

Figure 17 – Socio economic relevance of road transport projects



- **Contribution to state budget:** road infrastructure projects give a relevant contribution to the national state budget by means of different forms of taxation over time, from construction activities to operational ones.

In order to give evidence of the relevant contribution of the road toll concession sector to the development of the road transport network as a whole and to the socio economic improvement at local level, it has to be investigated the yearly volume of investments made by the concessionaires, and the overall contribution to state budget and employment rate due to the road concession sector<sup>18</sup>.

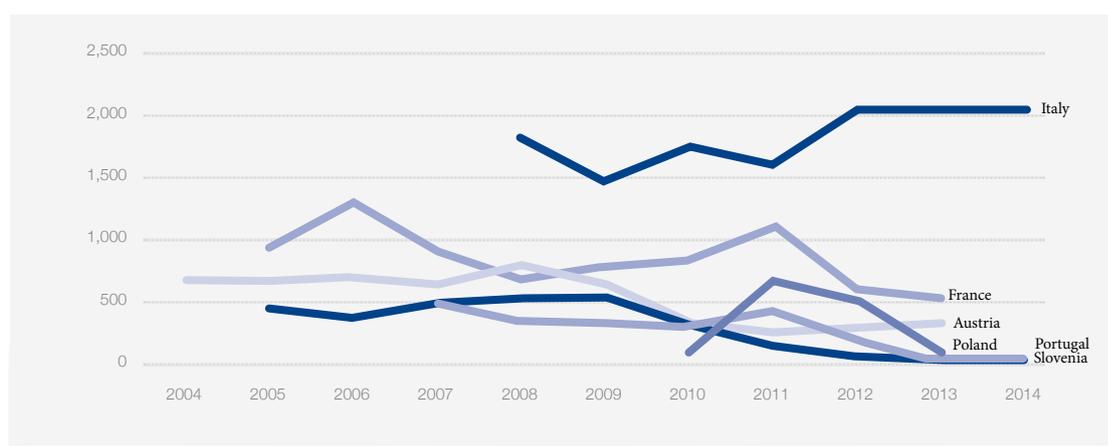
Motorway companies made relevant investments over time in new motorways and in existing ones generating positive impacts in terms of direct, indirect and induced value added at local and regional level. In the following tables the investments in new motorways (see Figure 18) and in existing ones (see Figure 19) in the last 10 years are reported.

In the period 2004 – 2013, the total amount of investments in new motorways with regard to the sample of respondent ASECAP members was about 28,598 MEUR<sup>19</sup>. Italy is the country that invested more in the reference period: 14,120 MEUR as total amount invested in the reference period.

Further, several ASECAP members planned future investments in new motorways:

- **Italy** planned investments for about 16,000 MEUR for the period 2013 –2020;
- **France** planned investments for about 1,800 MEUR by 2014;
- **Slovenia** planned investments for about 320 MEUR for the period 2014 – 2016;
- **Portugal** planned investments for about 280 MEUR by 2014;
- **Austria** planned investments in new and in existing infrastructure for about 4,500 MEUR for the period 2014 – 2019.

**Figure 18 – Past investments in new motorways in the last 10 years (millions €/year)\***



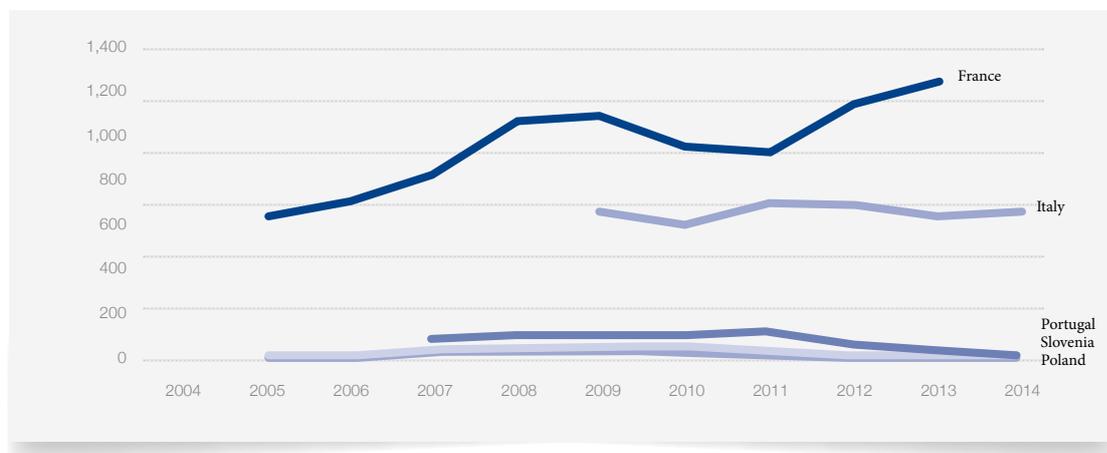
\* Source: Performance Survey 2014

Data regarding Austria also include past investments in existing motorways

<sup>18</sup> The following data and figures regard solely the ASECAP members which provided the information requested in the context of the Performance Survey 2014.

<sup>19</sup> The amount on investments in new infrastructure for Austria is not included in such statistics as it is not available (only statistics on investments in new and existing infrastructure as a whole is available).

**Figure 19 – Past investments for the improvement of existing motorways (e.g. 3rd or 4th lanes, etc.) in the last 10 years (millions €/year)\***



\* Source: Performance Survey 2014  
Data regarding Austria are reported in figure 18 as sum of past investments in new and existing motorways

In the period 2004 – 2013, the total amount of investments made by the sample of respondent ASECAP members for the improvement of existing motorways was about 13,878 MEUR<sup>20</sup>. France is the country that invested more in the reference period: 8,730 MEUR as total amount invested in the reference period.

Further, several countries planned future investments for the improvement of the existing motorways:

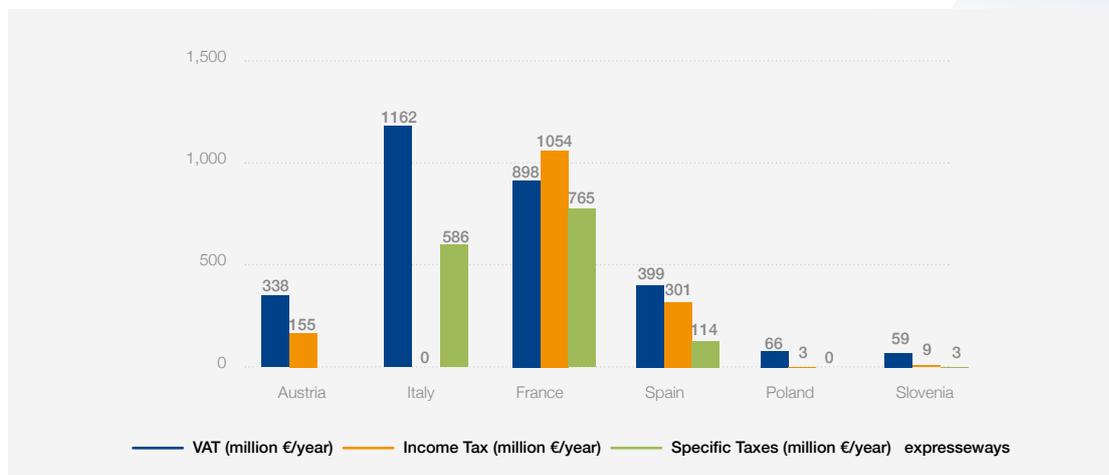
- Poland planned investments for a total amount of about 210 MEUR for the period 2014 –2026;

- Slovenia planned investments for a total amount of about 130 MEUR for the period 2014 –2016;
- Portugal planned investments for a total amount of about 60 MEUR by 2014.

As anticipated, the concession sector largely contributes to the national state budget, playing an important role as tax payer by means of different forms of taxation: VAT, Income Tax, eventual specific taxes (see Figure 20).

<sup>20</sup> The amount on investments in existing infrastructure for Austria is not included in such statistics as it is not available (only statistics on investments in new and existing infrastructure as a whole is available).

**Figure 20 – Financial accounting (Concessionaire) – Yearly contribution to State budget by means of taxation (millions €/year)\***



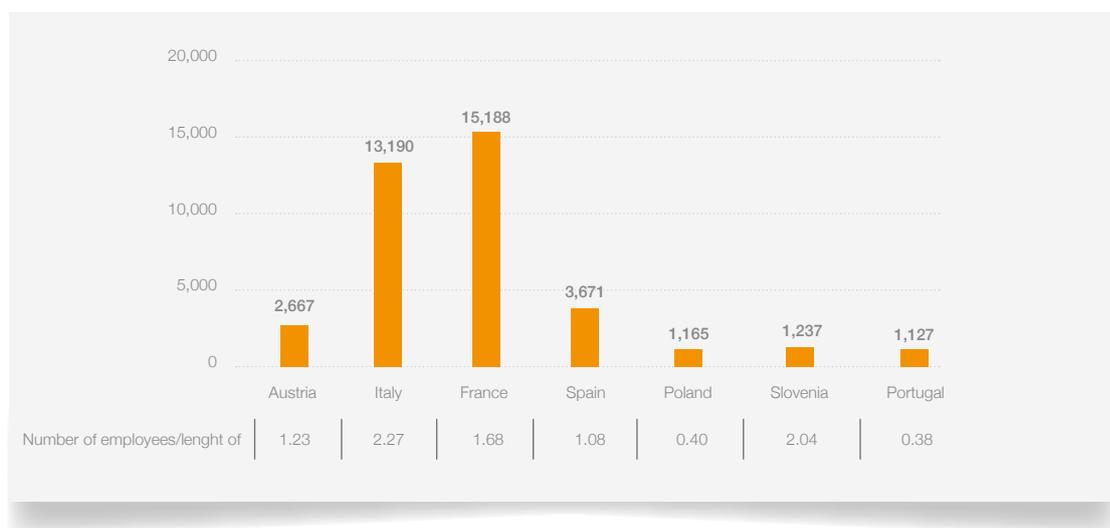
\* Source: Performance Survey 2014

In Italy and France<sup>21</sup>, concessionaires yearly contribute to state budget by means of VAT for a total amount of about 1,100 and 900 MEUR. With regard to income taxation, France yearly contributes with more than 1,000 MEUR paid while Spain contribution accounts for a total amount equal to 300 MEUR. Lastly, in some cases, the national rules may foresee specific taxes as in France where in 2012 a total amount of 765 MEUR were paid (191.8 MEUR

as Redevance Domaniale and 573.5 MEUR as Taxe d'aménagement du territoire).

Concessionaires in Europe are also important in terms of number of direct employed operators (indirect and induced employment is a further positive effect). As a matter of fact, the sample of respondent ASECAP members employ about 38,000 direct workers (see Figure 21).

<sup>21</sup> Figures for France are only partial as not all companies report VAT to ASFA.

**Figure 21 – No. of total direct employees\***

\* Source: Performance Survey 2014

In particular, France, Italy and Spain, the countries with the longest motorway network, reported the highest number of employees: respectively 15,188, 13,190 and 3,671. It is worth noting that differences in number of direct employees mainly depends on the fact that in some countries part of the activities is outsourced.

In relative terms, Italy is the country with the highest number of employees per km of motorway network (2.27).

### 3.4 Conclusions

Toll road concession models in Europe foresee the obligation for the Concessionaire to maintain and operate the motorway network or section by means of toll charged to the users.

Concession models can be clustered on the basis of the nature of the concessionnaire; three different concession models have been detected:

- Concession to a private company: company owned exclusively by private investors;
- Concession to a public company: company owned by a government or other public bodies;

- Concession to a mixed capital company: company in which the State acts as a partner of private capital.

In five countries (Austria, Denmark, Netherlands, Serbia and Slovenia) motorways (or toll infrastructures) are exclusively managed by the State through 100% controlled companies. In Croatia, Italy and Portugal some motorways are operated by mixed capital companies, but only in Italy this is a common practice (80% of the companies have mixed capital).

The period of a typical toll road concession (for construction and operation) normally last 30 years or more while the possibility to extent the concession period (and the extension period itself) varies among ASECAP members: in certain cases the national procurement rules do not foresee change of existing contractual clauses (e.g. in Hungary), in other cases the extension is allowed only under certain conditions (e.g. in Greece there is the possibility for a 3 year extension of the Concession Period in case the expected IRR is achieved).

As anticipated, the toll is a payment made by a user in return for using a specific infrastructure,

with reference to the construction, maintenance and operation of that infrastructure. Generally, toll rates were initially determined on the basis of the distance travelled and in order to cover the construction cost and the operating costs. Nowadays an increasing number of concessionaires are experiencing various forms of charge differentiation, most of them based on the number of axles (as a proxy for road maintenance needs), time of travel (in order to monitor air and noise pollution and reduce congestion during peak hour) and emission Euro standard (in order to reduce air pollution).

Three out of sixteen ASECAP members (Austria, Croatia and Slovenia) differentiate the road charges according to the Euro emission class of the vehicle, to time of travel and to number of axles. All ASECAP members, with the exception of Hungary and Norway, which do not apply any form of charge differentiation, differentiate the road charging only on the basis of the number of axles. Charge differentiation based on time of travel is applied only on specific infrastructures (selected road or tunnel) in Austria, France, Ireland, Slovenia, Spain and UK.

The results of the Performance Analysis carried out in the context of the Study show how, although there is no unique model of road toll concession, excellent results are achieved when models may be adapted to peculiarities of specific markets. As a matter of fact, in the last ten years, concession models in ASECAP members have contributed to the development of a large part of the European motorway network.

Among ASECAP members, France, Italy, Spain, Portugal and Austria are the countries with the longest conceded network (they collect 77% of the total ASECAP network).

Further, concession models applied in ASECAP members achieved relevant results in terms of traffic volumes. In particular, the country with the highest average daily traffic (ADT) in 2013 was the United Kingdom (about 40,000 veh.), followed by Italy and Austria. Considering the number of vehicles - km, countries with highest levels are France and Italy (more than 75 bn of veh. -km per year). All other countries register less than 30 bn of vehicles-km per year. In general, traffic along motorway network managed by ASECAP members, as for the rest of the motorway network is strongly influenced by economic trend. In the last three years, many ASECAP members have, in fact, experienced a certain reduction of traffic, nevertheless they continue providing an excellent service to the mobility of the citizens.

Lastly, it is worth noting that the road concession models have relevant socio economic impacts on the development of regional economies in terms of direct users benefits (e.g. travel time savings and road network safety improvements in terms of reduction of risks of accidents and casualties) and of socio economic spill overs (accessibility, employment, efficiency in production and distribution activities, social inclusion of remote areas, and contribution to state budget by means of taxation). In particular, with regard to safety, concession models make consistent and continuous investments over time in research and development on new and more efficient technological systems aimed to improve safety levels. The efforts made in safety in the past and at present generated significant improvements with regard to the reduction of fatality rate in particular in Austria, Spain, Italy and France. In addition, recent studies<sup>22</sup> confirmed that motorways are safer than other roads in terms both of accident and fatality rates.

<sup>22</sup> In particular, see the report 'As vantagens de viajar em autoestradas' ('The advantages of travelling on motorways') (June 2013) of APCAP (the Portuguese motorway association).

## 4 Issues and Risks

Nowadays, many factors are endangering a correct application of the road concession tool, thus depriving countries of a valuable asset, in a moment in which growth and development would strongly need it. The risk allocation between the two key actors of a typical concession model, namely the Concession Authority and the Concessionaire, is crucial and should follow the standard advice that «**the party best able to shoulder the risk should continue to bear it**».

In general, the risk allocation scheme is provided by the national legislation, as it is the legal basis of concession contracts. The heterogeneity of national legislations is reflected on differentiated risk allocation schemes of concession contracts (see paragraph 4.1).

There are several events likely to affect the initial risk allocation and, in certain cases, even causing a change of the contractual clauses between Concession Authority and Concessionaire (see paragraph 4.2).

The social acceptability of toll systems is another major issue likely to influence the initial risk allocation and must be examined with care in any case where an infrastructure is to be placed under toll (see paragraph 4.3).

Lastly, during the concession period, some ASECAP members (Italy, France and Spain) experienced cases of evolutions and/or divergences in the interpretations of contractual clauses occurred over time (see paragraph 4.4).

### 4.1 Risk allocation between Concession Authority and Concessionaire

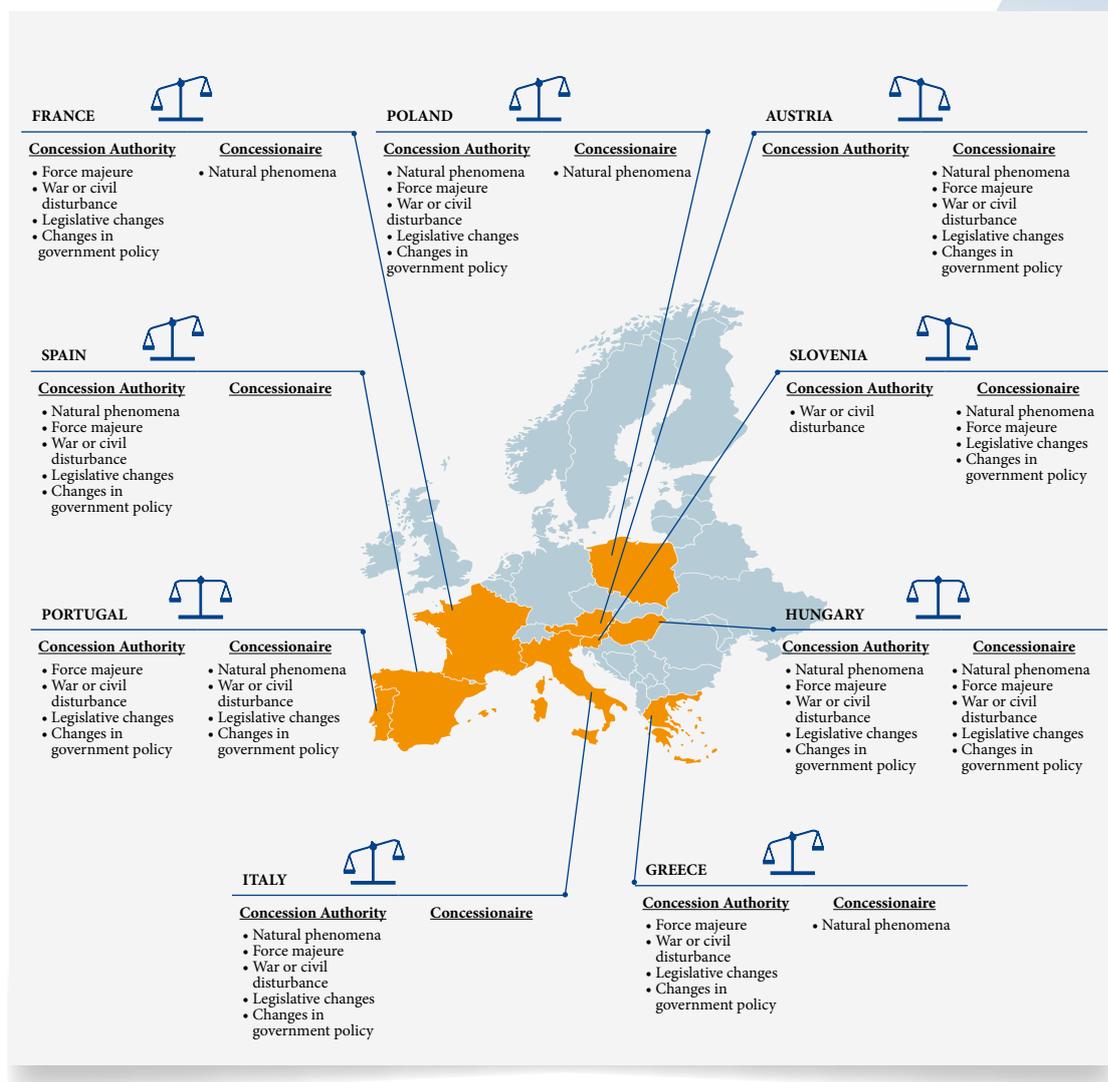
In general, the risk allocation structure is clearly identified by the nation road administration and is a crucial part of the concession agreement. However, the actual risk sharing among Concession Authority and Concessionaire varies significantly from one country to another. Typically, the concession agreements in force regulate four categories of risk: political and legal risks, economic and financial risks, technical risks (i.e. construction-related risks) and further risks (i.e. commercial risks and operational risks)<sup>23</sup>.

#### 4.1.1 Political and legal risks

Political and legal risks, such as **natural phenomena, force majeure, war or civil disturbance, legislative changes** and **changes in government policy** are allocated between the Concession Authority and the Concessionaire in the European countries in different ways (see figure below).

<sup>23</sup> This chapter reports the analysis on risk allocation for those ASECAP members which provided the questionnaire filled in the context of the Performance Survey 2014.

Figure 22 – Political and legal risks



Source: Performance Survey 2014

The political and legal risks are generally borne by the Concession Authority in France, Greece, Spain, Italy and Poland; while in Austria and Slovenia are

generally borne by the Concessionaire<sup>24</sup>. In Portugal and Hungary, the Concession Authority and the Concessionaire share the political and legal risks.

<sup>24</sup> In these two countries the Concessionaire is 100% owned by the Concession Authority.

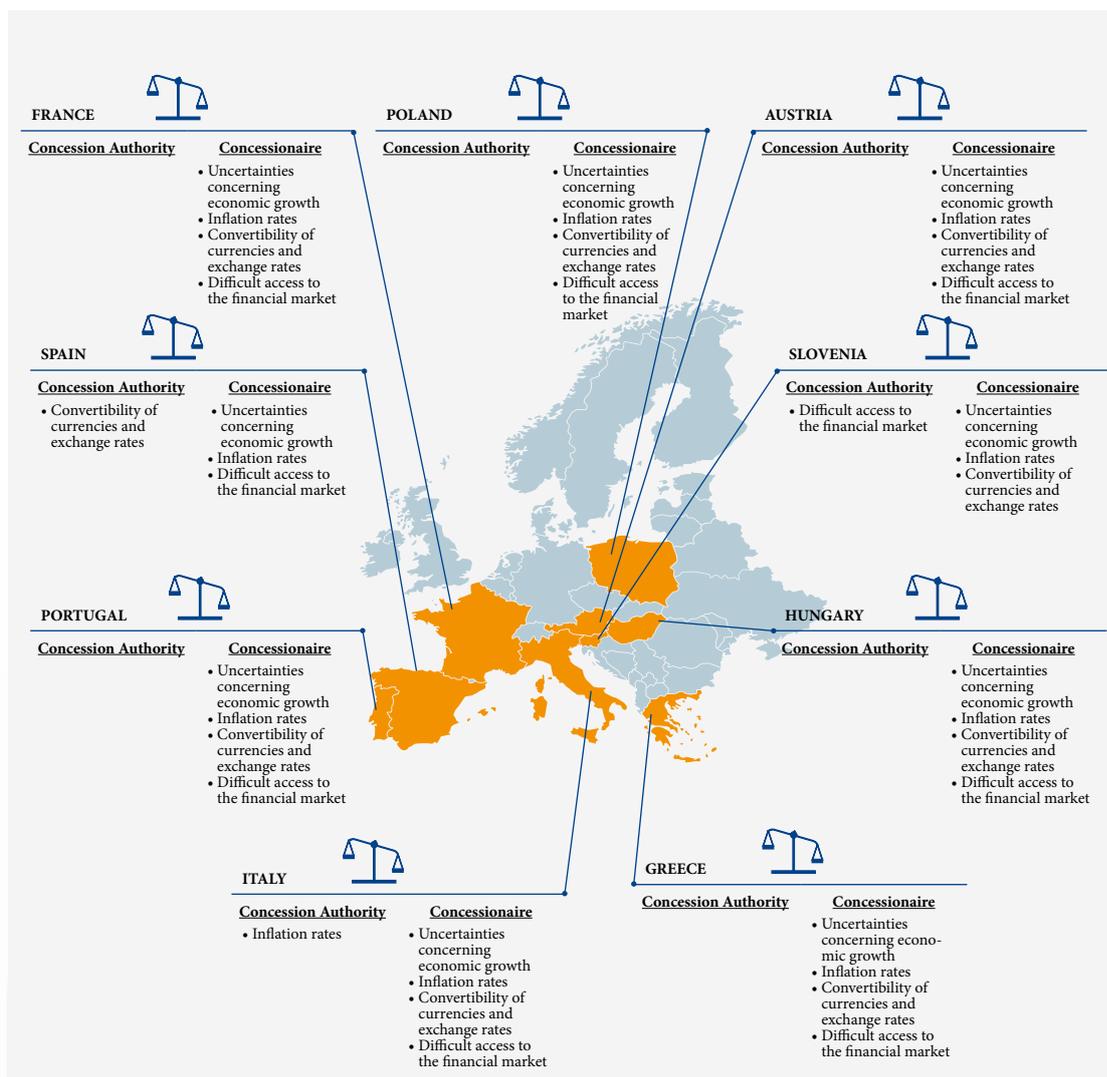
### 4.1.2 Economic and financial risks

The economic and financial risks such as **uncertainties concerning economic growth, inflation rates, convertibility of currencies and exchange rates, difficult access to the financial market** are allocated between the Concession Authority and the Conces-

sionaire in the European countries in different ways (see figure below).

The economic and financial risks are generally borne by the Concessionaire in all investigated countries.

**Figure 23 – Economic and financial risks**



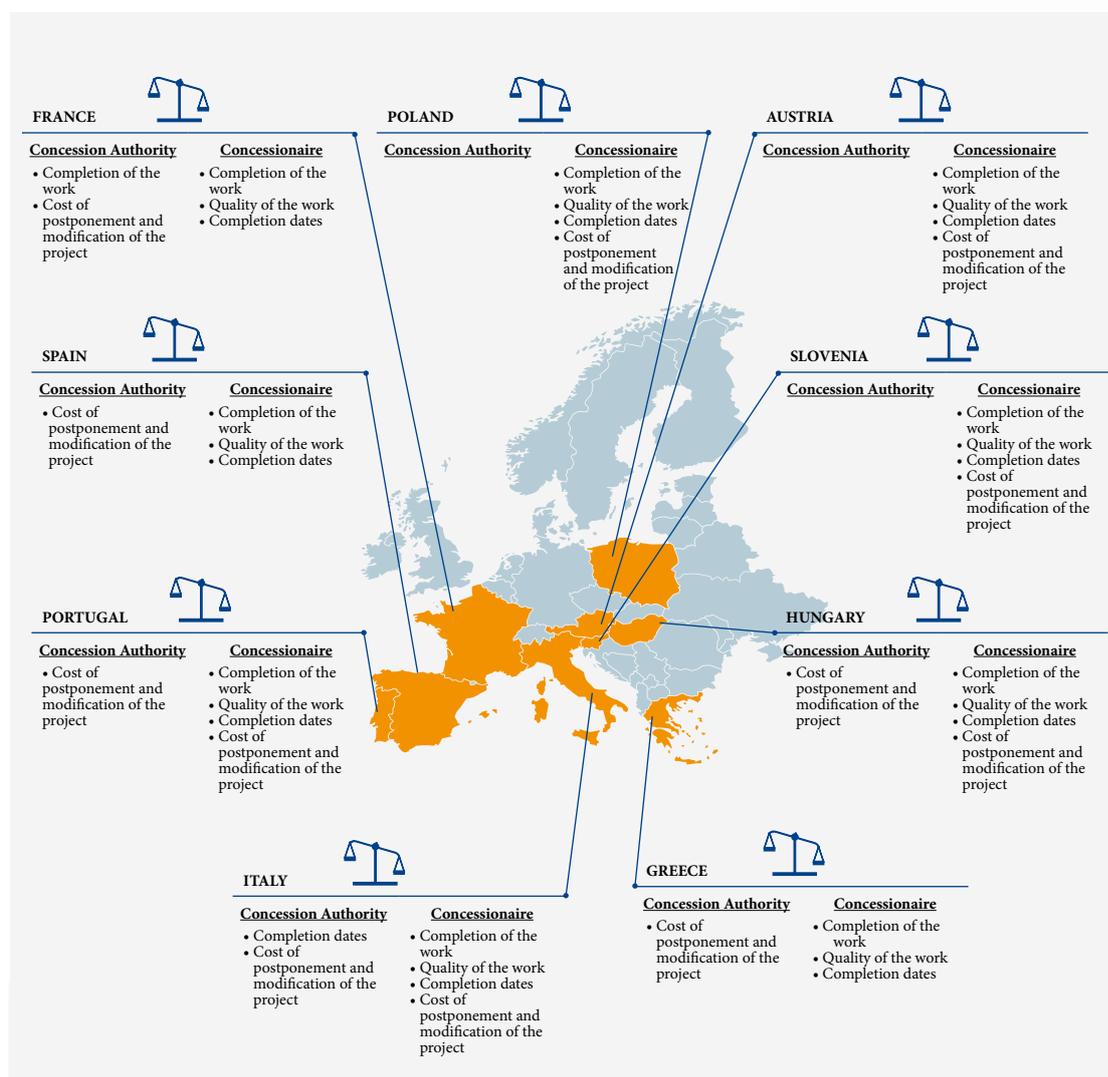
Source: Performance Survey 2014

### 4.1.3 Technical risks: construction-related risks

The technical risks such as **completion of the work, quality of the work, completion dates, cost of postponement and modification of the project** are allocated between the Concession Authority and the Concessionaire in the European countries in different ways (see figure below).

The technical risks are generally borne by the Concessionaire in Spain, Austria, Poland, Slovenia, Greece, Hungary and Portugal; while in France and Italy such risks are distributed between the Concession Authority and the Concessionaire.

**Figure 24 – Technical risks: construction-related risks**



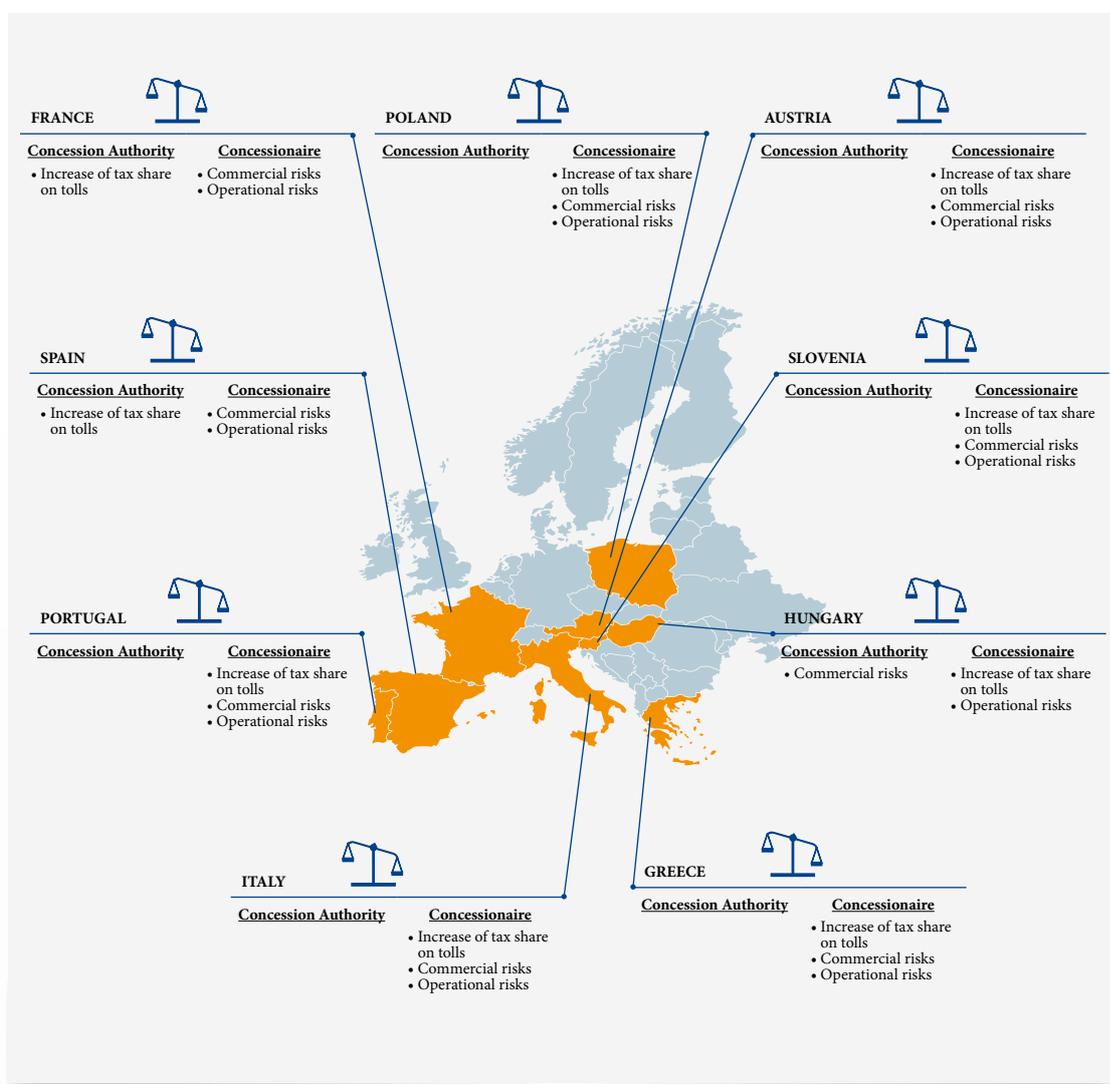
Source: Performance Survey 2014

#### 4.1.4 Further risks

Further risks such as **increase of tax share on tolls, commercial risks** (e.g. traffic decreases), **operational risks** (e.g. interruption of lanes due to accidents) are allocated between the Concession Authority and the Concessionaire in the European countries in different ways (see figure below).

Further risks such as increase of tax share on tolls, commercial risks and operational risks are generally borne by the Concessionaire in Italy, Austria and Poland; while in France, Spain, Greece, Portugal, Slovenia and Hungary such risks are distributed between the Concession Authority and the Concessionaire.

Figure 25 – Further risks



Source: Performance Survey 2014

## 4.2 Unforeseen events affecting risk allocation<sup>25</sup>

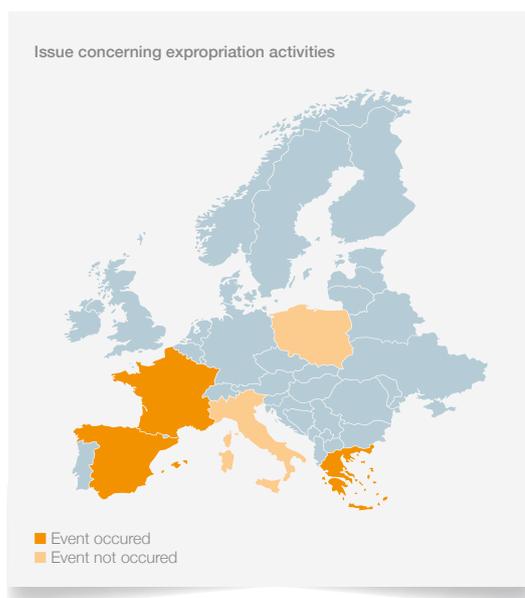
Despite clear risk allocation schemes between the Concession Authority and the Concessionaire defined in the concession contracts (on the basis of the specific national legislation in force), ASECAP members reported unforeseen events that, over time, affected the initial risk allocation scheme.

In particular, ASECAP members report issues related to expropriation activities, unforeseen construction costs induced by legislation evolutions, changes in fiscal environment, unforeseeable traffic decreases, parallel free roads draining traffic from toll motorway, and ill-adapted speed regulations deteriorating the level of service and additional taxes/charges not related to motorway operations.

### 4.2.1 Issues concerning expropriation activities

Some ASECAP members reported cases in which unforeseen events related to expropriation activities (e.g. delays and extra costs) caused issues to the concession scheme. In some cases, Concession Authorities faced the issues changing the initial allocation schemes, elsewhere the issue was entirely faced unilaterally (by one contractual party) without changing the initial clauses of the contract. Four ASECAP members reported the problem, in particular:

- in **France** it caused no change in risk allocation scheme.
- in **Greece** investigation due to archeological findings caused delay on the timetable. The extra costs occurred for this incident were covered by the Public authority, but no change in the contractual risk allocation were made;
- in **Spain** the increase of the cost of expropriation is took on board by the Concessionaire. In the concrete case of the Concessionaire that went bankruptcy, the State, as owner of the road, is forced to pay the extra cost occurring for the expropriation land.



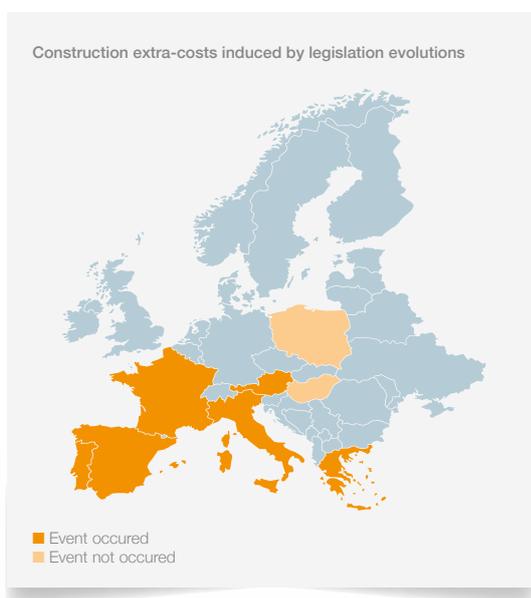
### 4.2.2 Construction extra- costs induced by legislation evolutions

Some ASECAP members reported cases in which external legislation evolutions (e.g. additional environmental obligations) caused issue to the concession schemes in term of extra-costs during the construction phase. In some cases, Concession Authorities faced the issues changing the initial allocation schemes (e.g. giving compensations, extending the concession period or allowing for a tariff increase); elsewhere the issue was entirely faced unilaterally (by one contractual party) without changing the initial clauses of the contract. Six ASECAP members reported the issue caused by legislation evolutions, in particular:

- in **Austria** additional environmental obligations caused delays in the approval procedures and extra-costs borne mainly by the Concessionaire;
- in **France** it caused delays for completion of the work, increase of construction costs, changes to the contract and partial funding from the State;

<sup>25</sup> Source: Performance Survey 2014

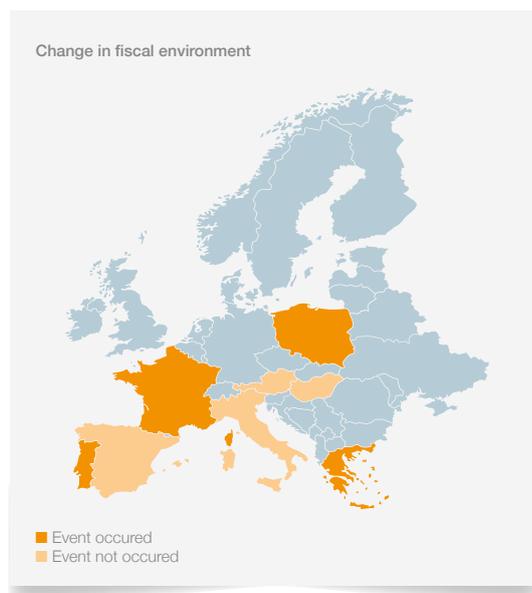
- in **Greece** it caused extra-costs paid by the Public authority with no change in the contractual risk allocation;
- in **Portugal** construction extra-costs occurred on the whole motorway network since 1990 and some compensations were received;
- in **Spain** the construction extra-costs, in some cases have been compensated with an extension period or an increase in the toll tariff in order to keep the financial balance of the concession.



#### 4.2.3 Changes in fiscal environment

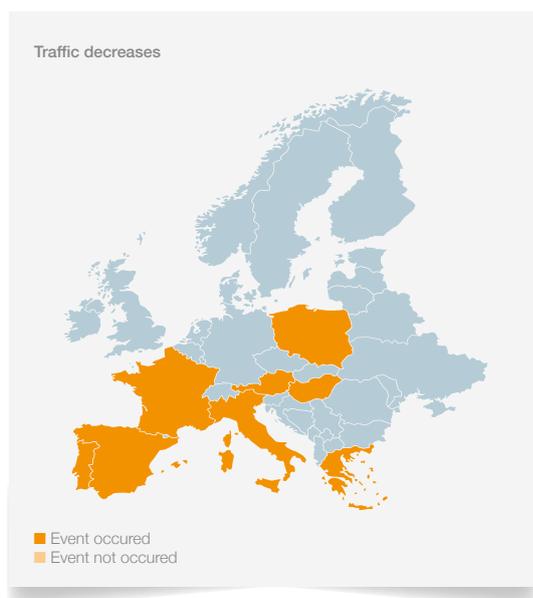
Some ASECAP members reported cases in which changes in fiscal environment (e.g. VAT increase) caused issues to the concession schemes in force. In some cases, the changes were fully faced by the Concessionaire with no changes on the initial risk allocation, in other cases such changes were reflected in the tolls charged to the users. Four ASECAP members reported the issue induced by legislation evolutions occurred, in particular:

- in **France** change in fiscal legislation occurred between 2009-2013 but no change in risk allocation scheme were reported;
- in **Greece** a change in fiscal environment caused traffic decrease which in turn caused draw stop from the banks. A negotiation started in order to face the problem, and as a result, several agreements on certain contract terms to mitigate the fiscal and economic environment were made;
- in **Poland** changes in fiscal environment caused a considerable VAT increase on toll collection along the whole network, but no change in risk allocation scheme;
- in **Portugal** changes in fiscal environment (increase of VAT) occurred in 2005 and in 2011, and were fully reflected in the tolls charged with no change in risk allocation.



#### 4.2.4 Traffic decreases

Some ASECAP members reported cases in which traffic decrease caused issue to the concession schemes. In some cases, the Concessionaire reported losses of revenue but no change in risk allocation scheme, elsewhere the Concession Authority provided compensation. Seven ASECAP members reported issues induced by traffic decreases, in particular:



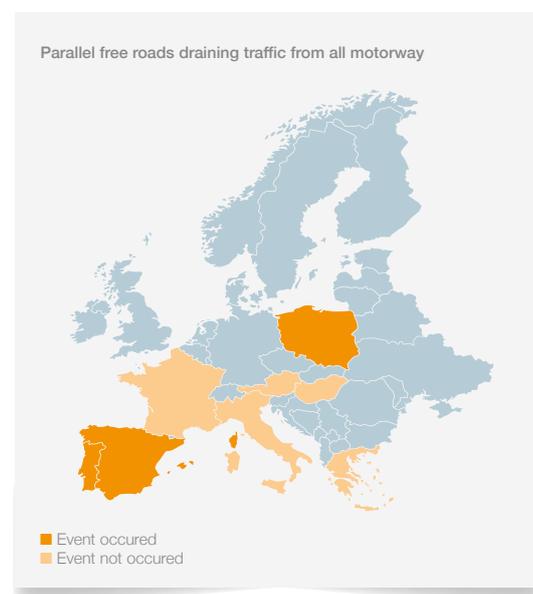
- in **Austria, Italy, France** and **Portugal** it caused a reduction of the expected revenues. In particular in Austria, as a consequence of the drop of revenues, the construction program of ASFINAG was adjusted;
- in **Greece** traffic decreases caused draw stop from the banks. A negotiation started in order to solve the problem, and as a result agreements on certain contract terms to mitigate the fiscal and economic environment were made;
- in **Poland** after a change of law by withdrawal of the vignette system, traffic of heavy vehicles declined by almost 40%. No change in risk allocation scheme;
- in **Spain** an instrument called traffic compensation account has been created in order to support the Concessionaire experiencing traffic lower than 80% of what initially foreseen. Nevertheless, this instrument was only used one year and the risk is still fully supported by concessionaires.

#### 4.2.5 Parallel free roads draining traffic from toll motorway

In some countries the Administration decides to build or improve parallel expressways to the existing toll motorways. These parallel roads are free of charge and profit of the same quality standards than the toll motorways. This initiative does not respond to a demand of traffic or mobility, which is already covered with the existing toll motorway, but to others interests which are not strictly economic or social.

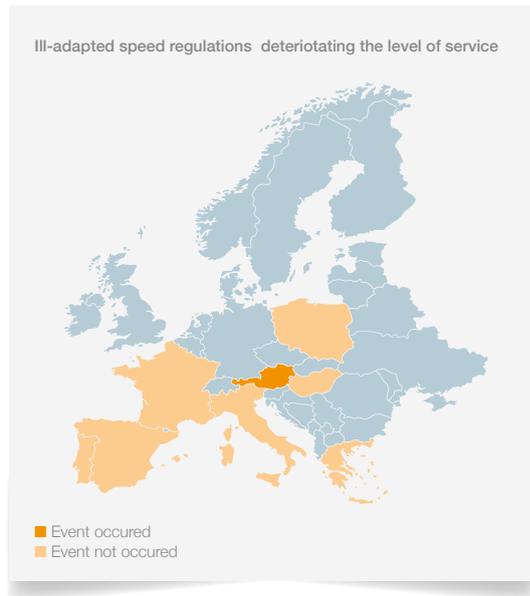
Once the toll concession contract will be finalized, the Administration, which is the owner of both infrastructures, will have to take the responsibility of managing and maintaining both roads. This duplicity is unnecessary and it charges an extra cost to taxpayer and additional risk for the Concessionaire whose contract shall be reviewed. In particular:

- In **Spain**, 30% of the toll network is being affected by this phenomenon. In this case, the two main Administration levels (State and Regions) created the duplication of road infrastructure along the same corridor which resulted imbalances over existing toll roads (i.e. privately managed but owned by the same public Administrations promoting the parallel networks) as well as a problem of overcapacity in these corridors.



#### 4.2.6 Ill-adapted speed regulations deteriorating the level of service

The issuance of ill-adapted speed regulations occurred in Austria with no impact on the level of service of the motorway network.

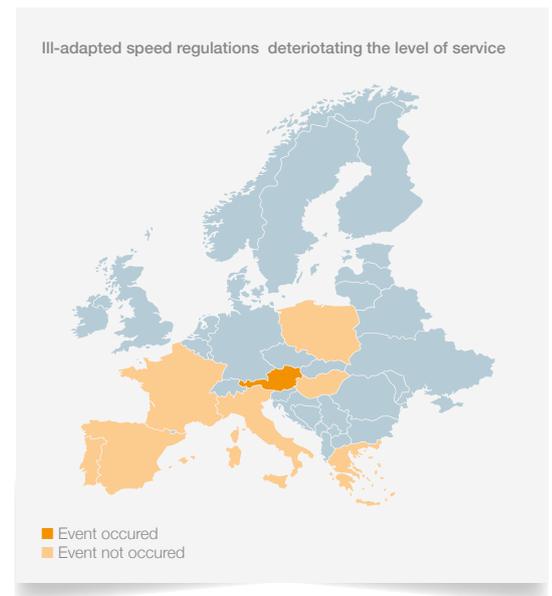


In Austria, during the night, the speed limit for trucks was reduced to 60 km/h. It did not have an impact on the utilization of the road sections. Further, more and more sections were limited to 100 km/h for passenger cars to improve air quality, with no impact on usage.

#### 4.2.7 Additional taxes/charges not related to motorway operations

Some ASECAP members reported cases in which additional taxes/charges not related to motorway operations caused complaints by users, as they were reflected in an increase of toll charged to them. Two ASECAP members reported issues induced by additional taxes/charges not related to motorway operations, in particular:

- in **Austria**, the introduction of a mark-up for cross financing of railway tunnels for the truck tolling tariffs caused complaints by haulier associations<sup>26</sup>;
- in **France**, it caused a protest on toll level: bad public image hindering negotiation process with the State.



<sup>26</sup> For trucks a traffic ban on the parallel road exists.

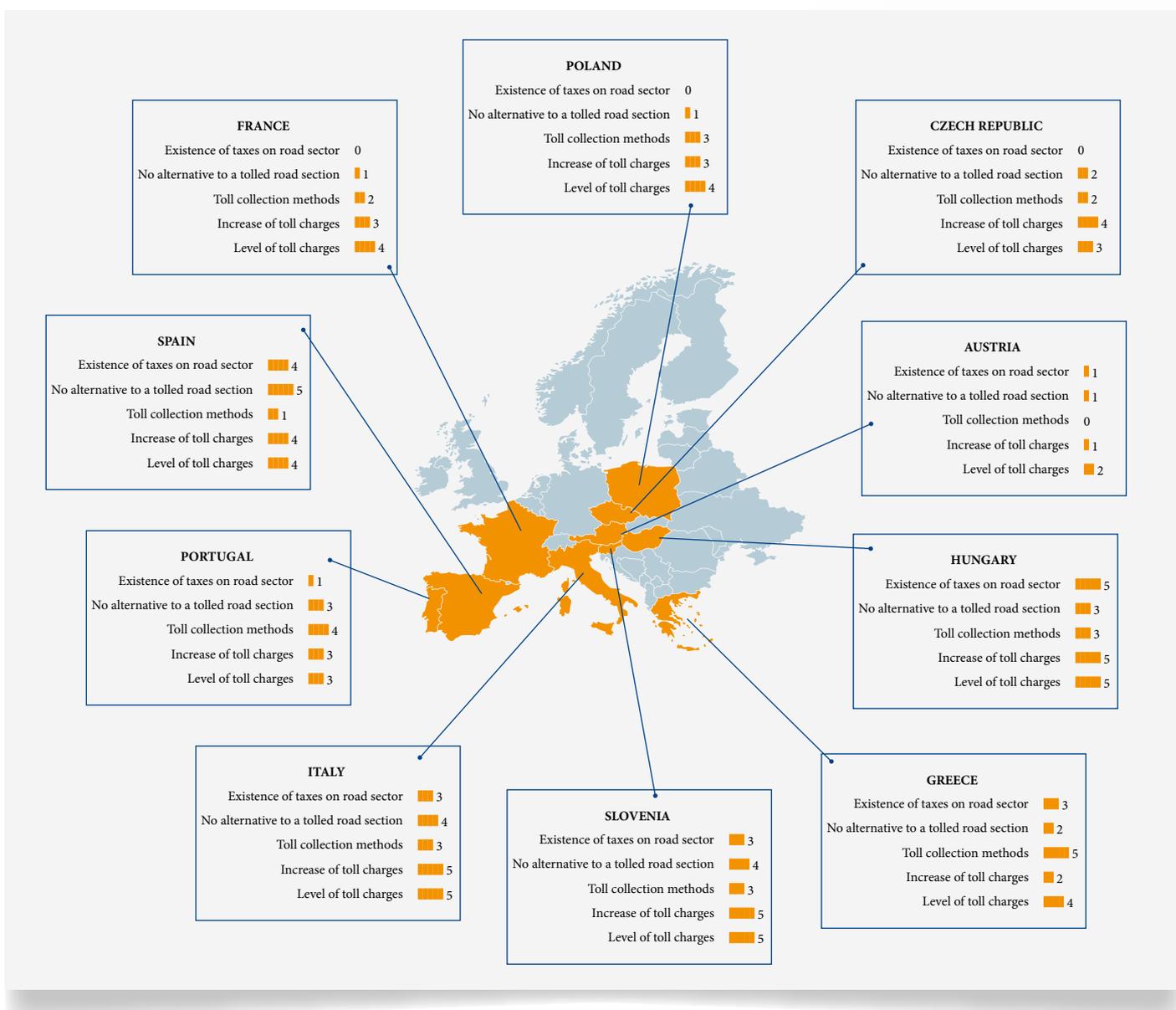
### 4.3 Aspects affecting social acceptability of toll systems

The social acceptability of toll systems represents a critical issue of the current concessions in force, depending mainly on certain factors such as level and increase over time of toll charges, toll collection method, presence of alternative road with respect to a tolled road section, existence of taxes on road sector.

Figure 26 reports the results of the Performance Survey with regard to the level of social acceptability registered in each ASECAP member.

As can be inferred by the above figure, the level and increase of toll charges represent the most critical aspects affecting the social acceptability of a toll system.

Figure 26 – Aspects affecting social acceptability of toll systems



Scale of 0 to 5, with 0 being poor level of impact and 5 being very high level of impact  
Source: Performance Survey 2014

## 4.4 Cases of evolutions/divergences in the interpretation of the contracts

Italy, France and Spain experienced cases of evolutions and/or divergences in the interpretations of clauses included in the initial concession contracts.

### 4.4.1 Italy

In Italy cases of divergent interpretation of contract clauses defining rules for managing the transition period till the awarding of the concession to a new company occurred.

Both case studies reported below refer to Autostrade Centro Padane, Concessionaire for the construction and management of motorway A21 Piacenza-Cremona-Brescia and the road section to Fiorenzuola d'Arda (PC) since 1973.

#### 4.4.1.1 Case Study 1 – Compensation for assets not fully amortised by the outgoing Concessionaire

The original agreement between Autostrade Centro Padane (the Concessionaire) and ANAS (the Concession Authority) has been subject to various amendments and integrations until the single agreement in November 2007. The deadline of the concession was set by the agreement in September 2011.

Following the extinction of the concession, however, the continued management of the motorway section became necessary, awaiting the selection of a new Concessionaire.

Therefore, on August 2012 an additional legal act to the agreement between ANAS and the outgoing Concessionaire was concluded to regulate the cooperation between the Concession Authority and the outgoing Concessionaire waiting for the takeover by the succeeding Concessionaire.

The additional legal act was envisaging that ANAS (the Concession Authority) or succeeding Concessionaire has to pay Autostrade Centro Padane a compensation equal to the amount of reversible as-

sets generated until that moment and not yet amortised, as results from the financial statement for the year in which the license ends.

To date, however:

- the call for tenders to select the new Concessionaire has not been concluded yet;
- no compensation has been paid to Autostrade Centro Padane by the succeeding Concessionaire (considering that the tender is still far from being awarded) nor by the Concession Authority despite the various requests; reason for which the Concessionaire had to engage in a legal dispute in order to obtain the above mentioned compensation.

In addition, in order to make the necessary investments, the Concessionaire had to take out bank loans, which have to be repaid by October 2014. To guarantee the loans repayment, a pledge has been set out in accordance with the agreement, which has been regularly accepted by the Concession Authority.

The events described imply a significant impact on Autostrade Centro Padane, which has to return the funds received in the form of loans without benefiting from the compensation envisaged by the acts which, to date, has not been provided.

#### 4.4.1.2 Case Study 2 – Managing the motorway during the transition period

One clause of the agreement between ANAS and Autostrade Centro Padane envisaged the obligation for the outgoing Concessionaire to continue in managing the motorway and related commitments until the transfer of the same, that takes place when the succeeding Concessionaire provides the related compensation.

Another clause foresaw that in case the new Concessionaire would not succeed within twenty-

four months from the time limit of the concession agreement, even by paying in advance the possible compensation, the Concession Authority would provide for the succeeding, after having provided the eventual compensation in favour of the outgoing Concessionaire.

Once the concession expired, ANAS (the Concession Authority) asked Autostrade Centro Padane (the outgoing Concessionaire) to continue in the management as if the licence was still valid, therefore continuing in making investments.

The outgoing Concessionaire, as a precautionary measure, contested the provision noting that (i) it was only in charge of managing the motorway section (ii) it was not bound to continue in making investments.

The administrative court sustained the complaint by the Concessionaire and, thus, suspended the duty to continue in making investments.

This decision allowed for the conclusion of an additional act to the agreement on the basis of a Business Plan that does not include investments, a condition required by banks in order to provide funding in favour of the licensee company.

#### 4.4.2 France

In France the negotiations around the contract represent one of the most sensitive topics in a concession framework.

##### 4.4.2.1 Case Study 1 – Raise of one dedicated tax supported by the Concessionaires: the “Redevance domaniale”

The principle of the Redevance domaniale is that Concessionaires are occupying public grounds to run their business and should pay a fee for that, regardless of the fact that they were the ones who paid to acquire the land and build the infrastructure. The idea is that the acquisition process was made possible only by conferring State-like powers to Concessionaires, not ordinarily available to private companies, making them liable for that advantage.

The tax was calculated as the addition of two terms, one based on revenues and the other on an estimated rental value of the land occupied. Both terms are evolving in time, revenues through tariff and traffic and rental values being indexed yearly. The amount of the tax was therefore steadily increasing.

Early 2013, the government took the decision to re-evaluate unilaterally the value of that tax, introducing a new formula that would double the amount paid by the Concessionaires. No justification was given on how any evolution of the value of public ground occupation would have justified that increase. That decision was blocked by a jurisdiction, the *Conseil d'Etat*, which had to be consulted by the government prior to the introduction of the modification.

The government modified the decree, changing the formula to target an increase of only 50%. Consulted again, the *Conseil d'Etat* declared that the new decree was not illegal.

As soon as the decree was officially published, all Concessionaires, with the support of ASFA, went to Court to ask for a cancellation of the decree. That Court was the *Conseil d'Etat* again, although in a different configuration.

The *Conseil d'Etat* swiftly gave its judgment, refusing to cancel the decree, although no real justification was given. However, in its decision, it also included a provision saying that Concessionaires should be authorized to be compensated if needed, due to the strict regulation of tariffs, which left them no freedom to manage their revenues. This provision was key because government had previously started to assert that no compensation should be granted, accordingly to another misinterpretation of articles of the contract protecting the Concessionaires against the consequences of a raise in any specific taxes and duties affecting their business.

The tax increase is effective since July 2013 and first payments have been proceeded accordingly by the Concessionaires. Compensation is still pending, although its principle has been accepted by the State.

### 4.4.3 Spain

In Spain, external events such as unforeseen expropriation land and construction extra-costs, traffic decreases and development of parallel expressways caused claims by the Concessionaires and the need for a review of the initial concession agreement clauses.

#### 4.4.3.1 Case Study 1 – Compensations for economic rebalance

In Spain, some toll motorways recently awarded suffered different unexpected situations such as:

- increase of the expropriation land costs: courts have recognized prices 8 times higher than the ones foreseen by the awarding authority;
- increase of the construction costs: toll companies had to assume additional construction costs not included in the original contract;
- important traffic decreases.

As a consequence, these tolls motorways were not able to face the payments and start bankruptcy proceedings.

The Government approved two laws, Law 26/2009 and Law 43/2010, where different measures were defined in order to help the Concessionaires to reestablish their economic situations.

These measures were the creation of a compensation account for the traffic below 80% and participative loans for facing expropriation land payment for the amount up to 175% of the estimated price. During a certain period, the awarding authority will have to allocate every year a given amount of money to these two concepts. All these money and measures would have been paid back to the administration once the traffic levels will be recovered.

On top of that, Law 26/2009 recognized the possibility of defining additional measures in order to reestablish the economic and financial balance of the concessions.

Despite what it was recognized by law:

- the compensation account was only implemented the first years (while it was foreseen to be implemented annually up to 2021);
- participative loans were also partially implemented;
- no additional measures were applied;
- most of these contracts have not been rebalanced.

#### 4.4.3.2 Case Study 2 – Construction of parallel expressways

In Spain, some toll motorways had suffered the construction of a parallel expressway or the improvement of a parallel road in the same corridor. The construction of these expressways was not foreseen and was not included in the road plans/schemes when the motorways were granted.

The Government interpreted that when the construction of a parallel road is made by a public authority (regional) which is different to the one who has been awarded the motorway (State), then, it is legal. It also understands that the fact of having awarded a motorway does not prevent the public authority to make additional works in parallel roads when it is for public interest reasons.

## 4.5 Conclusions

The **allocation of risks** between the Concession Authority and the Concessionaire represents a crucial **aspect of a concession contract**. In general, the risk allocation scheme is clearly identified by the national legislation in force as it is the most relevant component of a concession contract. As a consequence of heterogenous legislative frameworks, the risk allocation among ASECAP members' contracts **varies significantly from one country to another**.

Not all risks are the same and thus are not borne by the same entity. Typically, **a specific risk should be borne by the entity best suited to do so** as being

in possession of an adequate financial structure to reduce the associated costs. However, the initial and over time risk allocation generates many issues as it is not always easy to define to what extent a subject is able to control the specific risk.

It should be considered as a general principle, either in concession legislative framework or at least in the contract itself, that any unforeseen risk or force majeure event should legitimate a contract revision that could lead to rebalance the contract and guarantee its long-term fulfillment.

As far as the political and legal risks are concerned, such risks tend to be borne by the Concession Authority (only in Austria and Slovenia, where they are 100% owned by the Concession Authority, such risks are borne by the Concessionaire). The economic and financial risks are generally borne by the Concessionaire. With regard to the technical risks (risks related to the construction activities), such risks tend to be borne by the Concessionaire, with some exemptions in France and Italy where such risks are distributed between the Concession Authority and the Concessionaire. Further risks such as the increase of tax share on tolls, commercial risks and operational risks are generally borne by the Concessionaire in Italy, Austria and Poland; while in other countries are distributed between the Concession Authority and the Concessionaire.

The ASECAP members reported several cases of occurred unforeseen events such as issues concerning expropriation activities, construction extra-costs induced by legislation evolutions and changes in fiscal environment and traffic decreases. Such events caused impacts on risk allocation schemes in terms for instance of compensations received by the Concessionaire or review of the contractual terms regarding period extension or toll tariff increase. In some countries external events, such as the development of parallel free roads draining traffic from toll motorway, the issuance of ill-adapted speed regulation deteriorating the level of service along the toll motorway and the introduction of additional taxes/charges not related to motorway operations, actually

occurred, in general with no relevant impact on road toll contract conditions.

The social acceptability of the toll systems represents a relevant concern both for the Concession Authority and for the Concessionaire itself. The ASECAP members reported the level and the increase of toll charges as the most critical aspects affecting the social acceptability of the toll systems.

Cases of evolution and divergences in the interpretation of the contracts occurred over time in several European countries. In particular, in Italy, France and Spain divergences in the interpretation of the concession contracts have caused different effects such as controversial during the transition period between the outgoing Concessionaire and the Concession Authority on compensation for not fully amortized assets and on investment obligations after the expiry of the concession (in Italy); changes of the fiscal policy applied in the road sector (in France); and compensations by the government for guaranteeing the economic rebalance of the Concessionaire (in Spain).

## 5 Forms of funding

In all European countries there is a general need to find new financial resources for the construction, operation and maintenance of new highway sections. Nowadays, the forecasted traffic on the sections to be built is significantly lower than the consolidated traffic on the former existing sections. Consequently, the financial viability of new projects requires a significant financial support from the State, and the amount of subsidies requested by the candidates in their proposal has become a major criterion of selection.

### 5.1 Alternative forms of road tolling

The European experiences in road charging show three main mechanisms for obtaining revenues:

1. *Direct road tolling*: the public authority delegates the construction, funding and management of a road to a managing company. The company collects tolls from the users (distance-based charge) to pay back the investment and to cover maintenance costs (see also paragraph 5.1.1).
2. *Indirect road tolling*: the public authority delegates the construction, funding and management of a road to a managing company. Users pay a toll to the public authority, usually on the basis of a "vignette" (time-based charge). The operator is remunerated by the public authority, typically on the basis of availability payments (see also paragraph 5.1.2).
3. *Shadow toll system*: the public authority delegates the construction, funding and management of a road to a managing company. The company collects no toll from the users, for whom the infrastructure is free (see also paragraph 5.1.3).

#### 5.1.1 Direct Tolling

Over the past decade, due to resources shortage, Governments have sought alternative methods of financing transport improvements without affecting their fiscal situation. Charging tolls, too, has become an attractive option for managing traffic on increasingly congested roads.

While pursuing a road tolling policy, it is vital that the government understands its objectives since these objectives will shape all activities undertaken, both in the early years and during the operation of the road as regulatory questions arise. Direct tolling systems are generally applied in the road transport sector in order to reach one or more of the following objectives:

- *Tolls as new, stable and dedicated source of finance*: Toll revenues represent a new source of revenue, in a context in which road has previously been supported out of the general Government revenues. Tolls provide an ongoing revenue source, which is not tied to the annual Government budgetary process. Toll revenues can be dedicated to the support of construction and maintenance for a particular road thereby ensuring that maintenance funds in particular do not compete with the requirements of other roads in the network.
- *Tolls as tool for addressing user pay principle and internalizing of externalities*: Toll systems are crucial for a sustainable transport policy aimed at increasing the extent of «use related payment» and internalize the negative effects of road usage.

- *Tolls as tool for developing road infrastructure in less developed regions:*

Some countries have introduced tolls on one road in order to support the development of infrastructure networks in less developed regions. Such schemes can help to transfer wealth from one region of a country to another.

- *Tolls as tool for developing the Private Sector:* Some Governments have sought private sector participation in roads where they wanted to develop the road network, and to develop the private sector within their economy at the same time. In addition the involvement of the private sector can allow the government to finance at least part of the road development off balance sheet.

Typically tolls vary with distance traveled along the road and according to the number of axles on the vehicle. This approach was first adopted because it can act as a proxy for the road space used by the vehicle and the damage that the vehicle inflicts on the road pavement. However other options (which can be combined) include variation by time of day or by day of week, variation due to cost of road construction or road maintenance, congestion related tolling and loyalty programs/discounts for frequent users or local residents.

As far as the different technologies for tolling are concerned, two basic options are available:

- **Manual tolling:** the most common method is still manual. The drawbacks are that it is a slow system and therefore requires more toll booths/lanes than any other to achieve the same traffic flow. Set up costs may also be high if land acquisition is costly. The possible payment mechanisms comprise cash and credit card.
- **(Smart) Electronic tolling:** electronic systems require all users to carry tags in their vehicles and to pass the toll gates at a slow speed, but without stopping. There has been some oppositions to electronic tolling because of the level of information which it allows road operators to collect about individual users movements. Other drawbacks for the system are: the re-

quirement to accurately records car owners' addresses which might not be always available; the compatibility between different systems where there are several toll road operators each with different electronic toll collection equipment. This latter one however, could be prevented by Governments by carefully structuring agreements or with legislative control (see also paragraph 3.3.1.1).

Lastly, mixed tolling systems (manual and electronic tolling) are also common.

### 5.1.2 Indirect Tolling

In charging systems based on indirect road tolling the public authority delegates the construction, funding and management of a road to a managing company. Users pay a toll to the public authority, usually on the basis of a "vignette" (time-based charge). The managing company is remunerated by the public authority, typically on the basis of availability payments (see paragraph 5.1.2.1).

Further, some ASECAP member successfully experienced new contractual tools such as *Adossement* (see paragraph 5.1.2.2), which foresees the indirect financing of new road infrastructures.

#### 5.1.2.1 Availability payments

In the context of the availability payment concessions, the Concession Authority borne the project's revenue risk. The Concession Authority pledges availability payments to compensate the Concessionaire for its role in designing, constructing, operating, and maintaining the facility for a set time period during which it receives a foreseeable and fixed set of income. Availability payments are often used for projects that are not tolled or for which project revenues are not expected to cover debt service costs.

In **Hungary**, after an initial use of tolling schemes, **from 2004 the development of motorway network has been supported by availability payment systems.**

The characteristics of the Payment Mechanism in Hungary are the following:

- revenues from vignette are collected by the State;
- monthly availability fee to be paid to the Concessionaire with possible deduction of:
  - temporary unavailability,
  - safety related problems,
  - failure to meet operational requirements;
- further payments can be made:
  - linked to the volume of heavy goods vehicles (HGV),
- payments being indexed to inflation and exchange rate.

The table below provides a comparison between the original concession structure based on toll road scheme and the concession structure renegotiated in 2004 based on availability payment scheme.

#### Lessons learnt

- Some forms of government support is required to attract sustainable private finance.
- Toll roads are risky in a low traffic and untested policy environment.
- Availability payment schemes reduce traffic/revenue risk and increase access to private finance due to security of cash flows and increased creditworthiness of the Concessionaire.

#### **5.1.2.2 Adossement System**

The **Adossement System** is a contractual **tool for financing new road infrastructure** profitable in socio-economic terms but **not financially balanced** using savings from already existing infrastructure/or adding the new motorways to the existing companies.

**Table 7 –M5 Motorway: from tolling to availability payments**

	Original concession structure (1994)	Renegotiated concession structure (2004)
<b>Type of concession</b>	BOT concession for 57 km motorway (including existing 27 km and 30 km half-motorway section)	BOT concession for M5 motorway including a 47 km extension
<b>Concession period</b>	35 years	35 years
<b>Structure</b>	Toll road (Toll: €0.07/km/car)	Availability payment scheme
<b>Concessionaire</b>	Private consortium (incl. Bouygues, Strabag)	40% government stake in consortium with private partners
<b>Traffic levels</b>	35-40% below projections	Significant increase
<b>Government support</b>	<ul style="list-style-type: none"> <li>• Minimum revenue guarantee through stand-by operational subsidy from Road Fund in case of traffic shortfall</li> <li>• Subsidy amounts capped on a six-monthly basis for first six years</li> <li>• Dividends to be paid into Road Fund</li> <li>• Government in-kind and financial contribution = 45% of total cost</li> </ul>	<ul style="list-style-type: none"> <li>• Annual availability payment of €80 million</li> <li>• Monthly performance payments based on average coverage ratios and agreed return</li> <li>• In case of non-performance, deductions from payments based on penalty point system</li> </ul>
<b>Total project cost</b>	€370 million	€919 million
<b>Financial structure</b>	Debt/equity: 80%/20% Syndicated bank loan of ECU204 million with EBRD guarantees	Debt/equity: 82%/18% €750 million syndicated bank loan 20-year maturity Pricing: LIBOR + 120-160 bps
<b>Other</b>	Strong public resistance against high toll levels	Highly successful refinancing and syndication to 24 banks (incl. EBRD)

Source: Public-Private Partnerships: Lessons from the Roads Sector- World Bank

Such contractual toll was used in France, Austria, Spain and Portugal.

In **France** since the 80s the State conferred new sections of the network to Concessionaires already operating existing road sections, giving them the responsibility for matching revenues on old motorway sections and the responsibility to bear the cost for setting up new ones, and extending the concession period in order to ensure the overall economic feasibility of such operations. Almost all of network extension since the 80s (more than half of total network) has been financed through the *adossment* system.

In **Austria** the ASFINAG system provides the possibility to use the system within the concession agreement; in **Portugal** several concession agreements in the past provided the possibility to use the *adossment* system and nowadays it is provided in the context of the renegotiation of BRISA and BCR concessions.

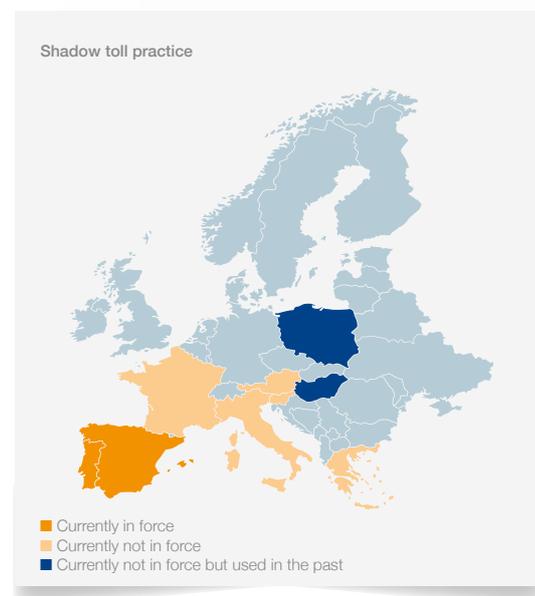
Even if it is not a pure “*adossment*” system, in **Spain** the last toll concession contracts included the financing, construction, operation and maintenance of the proper toll motorway but also additional toll free motorways (as it is the case of the third Madrid ring road- M50). The Concessionaire companies do not receive any income from these toll free motorways.

#### Lessons learnt:

- The role of the Concession Authority as road network planner is crucial in order to identify the road section to be included in existing concession agreement while guaranteeing the economic and financial balance of the Concessionaire.
- The implementation of *adossment* systems allows to avoid the use of public resources, in the form of public subsidies, for developing the road motorway network, especially in areas where traffic potential is not sufficient to totally fund the infrastructure.
- The implementation of *adossment* systems may create concerns regarding geographical monopolies within the network.

### 5.1.3 Shadow toll system<sup>27</sup>

A **shadow toll system** enables the public authority to **delegate the construction, funding and management of a road infrastructure to a concession company**. The public authority remunerates the concession company principally on the basis of the degree of utilisation of the infrastructure (e.g. number of users) and on the performance of the concession company (e.g. number of lanes closed to traffic, intervention for increasing road safety, etc.). Thus, the concession company collects no toll from the users, for whom the infrastructure is free. In general, the shadow toll practice is used **along motorways with few heavy vehicle-traffic**.



In **United Kingdom** the use of shadow tolls has been part of a larger program developing public/private partnerships - the «Private Finance Initiative» (PFI). In the context of road transport, the PFI has taken the form of “Design, Build, Finance and Operate” (DBFO) concessions whereby a single private investor develops, builds, finances and operates the road for certain period. The shadow toll practice in UK was aimed at fulfilling two major objectives: (1) to obtain better value for money by incentivizing the DBFO company to consider life-cycle costs, and (2)

<sup>27</sup> Source: Performance Survey 2014

to cultivate a private sector motorway operating industry that will be prepared for real tolls when (and if) they are implemented.

The DBFO program was launched in August 1994. As of March 1997, two groups of four concessions each had been awarded for eight separate DBFO projects totaling £567 million (\$706 million), and a third group of seven others was under development.

As far as the financing schemes are concerned, some of the very earliest shadow toll roads in the UK were funded using the monoline wrapped bond structure. This structure, adopted until 2007, included combinations of public bonds, private placements and EIB funding. In addition, the financing schemes adopted to support shadow toll practice in UK also included fixed-rate bonds and index linked bonds.

Recently in the UK, some pension funds have been playing an important role in supporting bids in PPP roads. Most relevant is the M8 project in Scotland which was recently closed thanks to the support of a private placement from Allianz.

For the time being, there is a relative weak pipeline of road projects in the UK due to the government's cuts in spending and a more highly empowered public sector: the government is focused on getting the motorways agency more power to act as an arm's-length agency.

As far as the risk allocation is concerned, the British PFI program as a whole allowed the transfer risk to the private sector and thus the full control of the related costs. The DBFO contracts place all risks related to delivery of the road on the Concessionaire, unless explicitly assumed by the Government in the contract. Thus, any unforeseen risks will be the responsibility of the private sector.

The shadow toll approach in UK was criticized by many parties: the green lobby stated that it was encouraging more traffic by paying more if more vehicles used the road and the PPP sector did not like having to take risk on something they could not manage. Despite these criticisms, it was clear in the late 1990s that the road sector in the UK

was the only sector that had managed to establish a viable PPP program without further government intervention.

Around the year 2000 a number of schemes came forward which were a hybrid between the shadow toll structure and the availability structure. These included the A13 project which had shadow tolls only for heavy vehicles and the A130 project which was sponsored by Essex county council and had shadow tolls for both cars and heavy goods vehicles. The reason to include shadow tolls varied over the years, but one of the core reasons was the need to achieve off balance sheet treatment under the current UK government accounting regime.

However, the approach changed significantly when the UK government adopted ESA 95 as the basis for its accounting for PFI schemes. In essence ESA 95 made no distinction between the transfer of usage risk and the transfer of the availability risk in terms of whether schemes could be deemed a PPP or not.

The purpose of shadow tolls in the original DBFOs was to create a UK PPP sector for concessions and also to potentially prepare the way for a real toll concession environment. However it has become clear that no such real toll concession program is likely to occur soon and therefore the use of shadow tolls is questionable.

In **Spain**, the shadow tolls were widely used in the past. Nowadays, due to the difficulties for the Administrations to assume the payment to the Concessionaires, this scheme is not promoted any longer. In Poland, since the introduction of the vignette for national network in 2005, heavy goods vehicles (HGV) have no longer been charged on the concession motorways (in order to avoid double charging). In return, Concessionaires were compensated by the State for the lost right to charge tolls. In July 2011, the vignette system was replaced by distance-related ETC (on State owned motorways), while the Concessionaires started to collect real toll for HGV on concession network.

In **Portugal** the shadow toll system was used until the government decides to convert in 2010 and

2011 the 7 shadow toll concessions into the real model renegotiating all the existing concessions and related financial contracts. Nowadays the shadow toll practice is in force in Douro interior (since 2008) and at regional level in the Madeira (since 2000) and Acores (since 2006) archipelagos.

#### Lessons learnt:

The advantages of road funding by means of a shadow toll system, compared with toll concession funding are as follows:

- In case of shadow toll system there is no tendency to shift traffic onto other roads as the users perceive the use of road infrastructure as free.
- In a shadow toll system there are no expenses associated with toll collection (in general between 10 and 15% of revenue are absorbed by toll collection costs and approximately 10% of the initial cost of the infrastructure represents construction of the toll stations).
- A shadow toll system does not solve the funding problem as the Concession Authority must pay shadow toll remuneration to the concession company in due course.
- The final cost is borne by the tax-payer and not by the road user.

## 5.2 Overview of the financial instruments to support transport infrastructure in Europe

In order to counteract the negative impacts of the crisis on investments in road infrastructure, European governments and financial institutions have been recently creating and supporting new financial instruments that could guarantee investments in expensive large infrastructure. These instruments seem to be particularly viable in the context of the current crisis, where private banks and investors are not keen to risk their capital in long-term investments that are often economically and financially unviable.

Such initiatives regard:

- Project bonds (see paragraph 5.2.1);
- Infrastructure funds (see paragraph 5.2.2);

- Loan Guarantee Instrument for Trans-European Transport Network Projects (see paragraph 5.2.3).

### 5.2.1 Project bonds

The Project Bond initiative is a joint initiative by the European Commission and the EIB. Its objective is to stimulate capital market financing for large-scale infrastructure projects in the sectors of transport, energy and information and communication technology. The Project Bond initiative is designed to enable eligible infrastructure projects promoters, usually public private partnerships (PPP), to attract additional private finance from institutional investors such as insurance companies and pension funds.

In **France**, the construction of the **A28 toll motorway** is financed by the concession company using the proceeds of the issue of indexed linked project bonds.

The motorway A28 is a 125 kilometres north-south motorway in Normandy, connecting the A13 motorway (Paris-Rouen-Caen) in the north, to the existing A28 motorway in Alençon in the south. The A13 motorway is operated by SAPN, and the A28 motorway in the south is operated by Cofiroute. In the north, the A28 motorway through the A29 and A16 motorways is connected to the industrial centres of Le Havre, Dunkirk, Calais and the Lille urban area. In the south, through the existing A28 motorway, the facility is connected to Alençon, Le Mans, Tours and the South West of France.

The innovative approach to financing the A28 is the **first index-linked bond issue in the Eurozone by a non-sovereign entity**. In particular, the Project is financed by the concession company using:

- the equity and quasi equity provided by the shareholders;
- the subsidies granted (by the Grantor) and certain French local authorities;
- the proceeds of the issue of the B Bonds;
- the proceeds of the issue of the A Bonds (indexed linked bonds).

### Lessons learnt

The contractual and financial structure based upon the use of Project Bonds should be carefully designed in order to achieve a balance between the risks and the financial contributions of each of the parties involved in the project:

- The risks should be adequately allocated between the Concession Authority, the Concessionaire, the contractors and the operators;
- The innovative financing fits to the revenues profile of a toll motorway, and contribute to the development of the Euro infrastructure bond market.

### 5.2.2 Infrastructure funds

Infrastructure funds are private equity funds that collect capital on the market for investments in the infrastructure sector, including companies building dams, highways, bridges, oil and gas pipelines, power plants and others. By investing in companies, they enable the construction of large infrastructure avoiding the high risk often connected to directly financing them. They offer returns in the range of 25 to 30 per cent and invest in the construction of infrastructure.

The **Marguerite Fund** is an example of **independent fund investing in European infrastructure**<sup>28</sup>. The Fund's investments infrastructures are structured on a project finance basis for the long-term (20 years) and focus on asset creation (i.e. greenfield projects).

In 2013 in **Spain** the **A1 motorway** has been financed by the Marguerite Fund. The stretch of motorway is located on a North-South corridor connecting Madrid with the regions of Cantabria, Basque Country, La Rioja, Navarra and with France via Irun. The project is expected to increase road traffic safety in a key north-south axis of Spain and contribute to the homogenisation of Spanish and European transport systems, thereby improving connections with other modes of transport. In addition, the A1 motorway's socio-economic benefits

are expected in the form of improved accessibility to the northern part of the Iberian Peninsula, facilitating the increased flow of goods and services towards Madrid.

In 2014 the Fund signed the **N17 / N18 Gort to Tuam** PPP Scheme, a greenfield road project in **Ireland** involving the financing, design, construction and operation of a new 57km dual carriageway section of the N17/N18 near Galway, on the west coast of Ireland, for the National Roads Authority of Ireland. This project is expected to significantly improve road safety and reduce travel time.

In addition to these signed projects, the Fund is currently in advanced negotiations for the following TEN-T projects: the A45 TEN-T toll road in France, the A831 TEN-T motorway in France and the A94 TEN-T availability road in Germany.

### Lessons learnt

- A publicly-backed unlisted infrastructure fund is accepted on the market as a credible investor and more easily invests in complex projects and countries where other private investors would not be keen to invest.
- An infrastructure fund addressing road sector may attract significant co-investment, thereby resulting in a high multiplier effect.

### 5.2.3 Loan Guarantee Instrument for Trans-European Transport Network Projects (LGTT)

LGTT is an **innovative joint financial instrument established and developed jointly by the European Commission and the European Investment Bank**. LGTT is a debt, risk-sharing instrument which aims at facilitating a larger mobilisation of private investment in large infrastructure projects, particularly in financing of Trans-European Transport Network infrastructure.

The LGTT is an EIB guarantee facility provided to the private sector (project sponsors/ promoters), to enhance the credit rating of the senior debt by reducing traffic risk.

<sup>28</sup> The Fund was launched by six public financial institutions as European Fund for Energy, Climate Change and Infrastructure ("Marguerite Fund") on 4 December 2009

To date, the EIB has signed 7 LGTT Operations and made a screening of 50 projects for which the LGTT has been contemplated by the EIB, in order to assess their suitability for the LGTT facility.

Table below provides a list of the LGTT Operations in the road sector signed. Up to date, none of those operations is yet physically completed or opened to traffic (construction phase).

In the context of the financial agreements signed, LGTT helps to improve the robustness of the project by effectively implementing a floor on traffic risk over the first years of operation. Generally, such lower risk profile allows the project's sponsors to realize better commercial funding terms and thus decrease overall project costs. Further, the changes to the project's risk profile also prompts lenders that are previously

**Table 8 –Signed LGTT Projects** <sup>29</sup>

Country/ Project	Description	Objective	Size	LGTT amount	EIB finance proposed	Status of implementation
<b>Autobahn A-5 PPP TEN/ Germany</b>	Widening of an existing motorway between Baden-Baden and Offenburg to six lanes.	The enlargement of the motorway will deliver a high quality route that would offer an improved service and enhanced safety for users and be capable of accommodating significant traffic volumes.	n.a.	25m EUR	Up to 50% of the investment costs.	Signed - 30 March 2009 Expected year to start: 2021
<b>Eix Transversal C-25 PPP /Spain</b>	The project comprises the renewal and upgrade of the C-25 road expressway corridor, Eix Transversal.	Improve traffic safety and reduce congestion on the existing road network.	900m EUR	70m EUR	Up to EUR 300m.	Signed - 29 July 2010 Expected year to start: 2018
<b>Baixo Alentejo Motorway /Portugal</b>	Construction, widening and upgrading to 2x2 lane motorway standard of 117 km of IP8 and IP2 and improvement of 217 km of adjacent sections.	To promote regional development, connection between Sines Harbour to the future Beja International Airport and Spain, with motorway cross-sections. To reduce travel times and vehicles operating costs, and enhancing safety.	500m EUR	25m EUR	Up to EUR 250m. EUR (EUR 180m SFF project loan)	Signed – 30 January 2009 Expected year to start: 2014
<b>Autobahn Augsburg Ulm PPP TEN / Germany</b>	The project concerns the widening of a 41 km section of the A8 motorway.	Upgrading of motorway (from four to six lanes) in order to reduce frequent congestion and a high accident frequency rate.	500m EUR	59.6m EUR	250m EUR	Signed – 31 May 2011 Expected year to start: 2016

<sup>29</sup> Information gained from the Project Fact Sheets published on the EIB website - <http://www.eib.org/projects/pipeline/index.htm>

unwilling to lend to the project to accept a project with volume risk. Overall, LGTT benefits sponsors, lenders and the contracting authority alike.

#### Lessons learnt

- The pricing mechanism of the guarantee needs to be clarified to the Concessionaire. EIB based its pricing decision on various inputs (i.e. traffic forecast, indices, timing and availability period, financial covenants, gearing) and the borrower has to be aware of how these different factors affect the eventual price in order to be able to optimize the project's financial structure.
- The rigidity of the LGTT structure requires the borrower to determine which of the available guarantee types, revolving liquidity structure or single drawdown, as well as the exact dates for re-balancing tests and exact conditions precedent for potential drawdowns. However, as problems in brownfield projects are often not immediately visible at early stage of the project but rather occur over the operations phase of the project, it may be difficult for the borrower to decide on these issues in advance.

## 5.3 Conclusions

Depending on national policies and aims, various forms of funding have been tested and applied on the European roads. Some of them proved successful, some were mostly abandoned due to inadequacies (e.g. shadow tolling). In general, several case studies showed that a model suitable for every situation does not exist but specific conditions make viable certain forms of financing.

Also ASECAP members have been experiencing alternative forms of financing beyond the "pure" tolling system in order to cope in particular with the lower traffic on the sections to be built with respect to the former sections. It is advisable to take into account those successful practice in order to enhance the portfolio of tools for the funding of the European roads.

In order to define what funding tool better fits the surrounding country conditions, hereafter a table summarising features, pros and cons of the three pure concession payment mechanism options is provided.

**Table 9 – Concession payment mechanisms: pros and cons**

	Direct tolls	Indirect tolls	Shadow tolls
<b>Features</b>	<ul style="list-style-type: none"> <li>• Road users pay for the use of the road infrastructure</li> <li>• Concessionaire paid for making road available for public use</li> <li>• Tolls applied to vehicles are generally differentiated on the basis of number of axles, period of time (day/week) and Euro standard class.</li> </ul>	<ul style="list-style-type: none"> <li>• Sometimes mixed with real tolls so that Concessionaire pays a non-availability payment to authority for road or lane closures out of toll revenue.</li> <li>• Amount of deduction/ non-availability payment usually determined by reference to factors including: length of project road, number of lanes affected, duration of unavailability, time of day of unavailability</li> </ul>	<ul style="list-style-type: none"> <li>• No actual tolls are collected from public</li> <li>• Concessionaire is paid by authority on road use – the more the road is used the more the Concessionaire is paid</li> <li>• Usually have banding mechanism, which applies different shadow toll payments to different levels of traffic</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Application of the user-payer principle</li> <li>• Maintenance of the existing network is guaranteed</li> <li>• Investments in infrastructure can be augmented</li> <li>• Zero cost to the Government</li> <li>• Government has fiscal space to fund other projects</li> <li>• Optimisation of utilisation of the transport network (traffic spread, inter-modal sharing of traffic load, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>• Absence of traffic/ revenue risk simplifies project</li> <li>• Lower level of due diligence needed</li> <li>• Reduces risk on Concessionaire – making project cheaper</li> <li>• Removes emphasis on monitoring traffic flows during operational period</li> <li>• No consumer resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Where environment is perceived to be hostile to real tolls, it can introduce PPP structures</li> <li>• Prepare way for real-tolled roads in due course by cultivating an industry used to taking traffic risk</li> <li>• Mechanism of traffic risk transfer may reduce the complexity of project and the level of due diligence required</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• High capital construction costs mean that projects traffic volumes may be considered as an insufficient revenue stream to meet debt service and equity return for sponsors</li> <li>• Potential consumer resistance to paying for road use and required mitigation strategies to solve it</li> </ul>	<ul style="list-style-type: none"> <li>• No revenue generation device – total cost of project falls on public purse</li> <li>• Concessionaire is not concerned on the quantity of traffic volume and so do not transfer traffic or revenue risk</li> <li>• Limited price signals (affecting traffic behaviors)</li> </ul>	<ul style="list-style-type: none"> <li>• No revenue generation device – total cost of project falls on public purse</li> <li>• If traffic volumes are significantly exceeding forecasts, government may have to pay higher “toll” than it budgeted for</li> <li>• Price signals (affecting traffic behaviors) are not given to the users</li> </ul>

Source : PwC Elaboration based upon World Bank input<sup>30</sup>

<sup>30</sup> Source: <http://ppp.worldbank.org/public-private-partnership/sector/transportation/roads-tolls-bridges/road-concessions>

## 6 The European legislative framework affecting the concession sector

Several legislative initiatives currently in force and recent and upcoming ones are likely to affect directly or indirectly the road concession sector.

In general, the European transport policy pursues several goals, among which the most relevant concerns the development of a fair competition in the sector among the operators, and the promotion of the free flow of goods and people in a safety manner. Further, transport policy tends to incorporate social and environmental aspects, such as regional policy objectives and reducing the external costs of pollution and congestion.

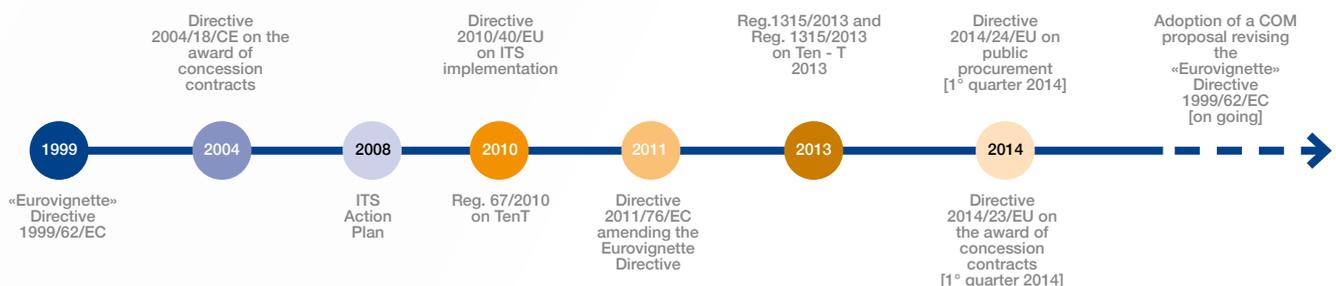
### 6.1 EU legislative initiatives in the transport sector

In the past two decades, several legislative initiatives were undertaken in the transport sector and several are currently under elaboration and will likely entry into force by 2014:

- Revision of the EU legislation on public procurement and concessions;
- Revision of the EU legislation on road usage charging;
- Application of the ITS Directive in the EU Members States;
- TEN- T policy in Europe;
- Definition of the Road Safety Action Plan;
- Environmental Impact of Construction Works;
- Revision of the EU legislation on weight and dimensions of trucks.

In the following paragraphs the most relevant initiatives are described with regard to the main contents and providing specific focus on opportunities and threats to be taken into due account while reviewing/updating the legislation.

Figure 27 – EU legislative initiatives in the transport sector



### 6.1.1 Public procurement and concessions policy in Europe

Past Initiative	Main contents
<b>Directive 71/305/CEE</b>	<ul style="list-style-type: none"> <li>It gives the definition of the concession of public works (taken again by all the following directives on the subject), while excluding the concessions from its field of application.</li> </ul>
<b>Directive 2004/18/CE</b>	<ul style="list-style-type: none"> <li>It provides rules for coordination of procedures for the award of public works contracts, public supply contracts and public service contracts. On one side it confirms the traditional definition of public works and introduces the definition of the concept of concession of services, on the other side it excludes the service concessions from its field of application.</li> </ul>
Recent initiative	Main contents
<b>Directive 2014/23/EU</b>	<ul style="list-style-type: none"> <li>It establishes rules on the procedures for procurement by contracting authorities and contracting entities by means of a concession (it applies to concession whose value is equal or greater than € 5.186.000)</li> <li>It contains a clearer and precise definition of concession covering works and services.</li> <li>It foresees solutions for dealing with changes to concessions contracts during their term (modification of contracts during their terms).</li> <li>It allows Member States to define the concession procedures that apply.</li> <li>It foresees the applicability of the judicial guarantees established in the Remedies Directives to all concessions.</li> </ul>
<b>Directive 2014/24/EU</b>	<ul style="list-style-type: none"> <li>It establishes rules on the procedures for procurement by contracting authorities with respect to public contracts as well as design contests (it applies to procurement whose value net of VAT is equal or greater than specific thresholds depending on the nature of the contract).</li> <li>It gives general guidelines for setting up an open, restricted or competitive with negotiation procedure or to manage a competitive dialogue.</li> </ul>

#### Focus on Directives 2014/23/EU and 2014/24/EU

Opportunities	Threats
<ul style="list-style-type: none"> <li>✓ <b>Legal certainty:</b> clear definition of concessions and rules applied as to allow the stakeholders to distinguish between concessions and public contracts or unilateral acts.</li> <li>✓ <b>Transparency and business opportunities:</b> compulsory publication of concession notices on official media for value greater than EUR 5 million in order to increase fair opportunities for all EU SMEs.</li> <li>✓ <b>Flexibility:</b> MSs are allowed to define the procedure that apply taking into account the principles of transparency and equal treatment.</li> <li>✓ <b>Impartiality and judicial protection:</b> applicability of the judicial guarantees established in the Remedies Directives to all concessions in order to increase confidence in the impartiality of public authorities' decisions and encourage participation of the private sector to the tendering procedures.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Role of the concessionaire not sufficient protected in terms of <b>initial risk allocation</b> and <b>unforeseen events affecting</b> it over concession period (e.g. construction extra-costs induced by legislation evolutions, traffic decreases).</li> <li>✓ Rules on <b>duration of the contract not sufficient specified allowing diversified</b> implementation among Members.</li> <li>✓ <b>Cases affecting the economic rebalance of the concession contract</b> and requiring a review of the contract are non sufficient explored.</li> <li>✓ <b>Limitation on tariffs or period extension in the application law</b> by Members might affect the economic rebalance of the concession contracts.</li> <li>✓ <b>Misleading interpretation</b> of different directives regulating similar aspects.</li> </ul>

## 6.1.2 Road infrastructure charging policy initiatives in Europe

Past Initiatives	Main contents
«Eurovignette» Directive 1999/62/EC	<ul style="list-style-type: none"> <li>It authorises Member States to levy 'user charges' (time-based charges) or tolls (distance-based charges), setting the minimum rates for vehicle taxes to be applied by the Member States, as well as the framework for setting tolls and user charging for vehicles with maximum permissible weight over 12 tonnes. Charges limited to the levels required to maintain and replace infrastructure, could be varied according to the emission standards of the vehicles.</li> </ul>
Directive 2004/52/EC	<ul style="list-style-type: none"> <li>It aims at ensuring the interoperability of electronic road tolling systems within the EU through the creation of a «European electronic toll service» in order to minimise transaction costs and enhance the transparency of tariffs.</li> </ul>
Directive 2006/38/EC	<ul style="list-style-type: none"> <li>It allows toll variation and a mark-up in exceptional cases to finance trans-European network projects in mountain areas; it introduces a mandatory Euro emission class differentiation.</li> <li>It introduces greater possibilities to vary tolls away from the leverage level to achieve policy objective linked to the environment, congestion and management of traffic flow, albeit with a maximum degree of variation upwards. The scope was extended to cover commercial vehicles over 3.5 tonnes.</li> </ul>
Decision 2009/750/EC	<ul style="list-style-type: none"> <li>The Decision 2009/750/EC has defined EETS by setting up the essential requirements for interoperability, as well as the procedural, contractual and legal aspects related to EETS provision. Furthermore the Decision established the obligations and rights for EETS Providers, Toll Chargers and EETS Users.</li> </ul>
Directive 2011/76/EC	<ul style="list-style-type: none"> <li>It allows the inclusion of external costs of air and noise pollution in addition to the cost of infrastructure. In particular, the Directive sets rules on calculation methodology for external costs, maximum chargeable costs, mandatory provision on charge differentiation according to EURO emission classes (once the concession contract come up for renewal). In addition, a wider differentiation could be used to reduce congestion through greater variation of peak-hour charges.</li> </ul>

## Focus on revision initiative foreseen by the EC Management Plan 2014

Opportunities	Threats
<ul style="list-style-type: none"> <li>✓ Promotion of the <b>user pays</b> and <b>polluter pays</b> principles.</li> <li>✓ <b>Sustainable financing</b> for road infrastructures: road charging as alternative for financing building and maintenance of the infrastructures and attracting private funds.</li> <li>✓ Exploring options for <b>differentiating charges by Euro class, time of travel and axles</b>.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Inclusion of external costs such as pollution and traffic congestion might boost the public perception of <b>the concessionaire as tax collector on the behalf of the Public Authority</b>, while increasing the tolls applied.</li> <li>✓ <b>Interoperability among charging systems and usage of Eurovignette standards</b> requires changes in financial plans due to further investments on technology (to be borne by the concessionaires), changes in applicable law and clauses of concession agreements.</li> </ul>

### 6.1.3 Intelligent transport system policy in the EU Members States

Past Initiatives	Main contents
<b>ITS Action Plan (2008)</b>	<ul style="list-style-type: none"> <li>• The Action Plan for the Deployment of Intelligent Transport Systems (ITS) in Europe aims at creating conditions to speed up market penetration of rather mature ITS applications and services in Europe.</li> <li>• The ITS Action plan comprises 6 priority action areas such as Optimal use of road, traffic and travel data; Continuity of traffic and freight management ITS services on European transport corridors and in conurbations; Road safety and security; Data security and protection, and liability issues; Integration of the vehicle into the transport infrastructure; European ITS cooperation and coordination</li> </ul>
<b>Directive 2010/40/EU</b>	<ul style="list-style-type: none"> <li>• The Directive 2010/40/EU represents the legislative framework for the Coordinated and Effective Deployment and Use of Intelligent Transport Systems.</li> <li>• It aims at promoting the use of information and communication technologies in transport such as dynamic traffic management, real-time traffic information, satellite navigation, tracking &amp; tracing, multi-modal journey planners, electronic toll collection, in-vehicle safety systems.</li> <li>• It establishes a framework for coordinated and effective deployment and use of ITS, setting common priorities and developing specifications and standards.</li> </ul>
<b>Directive 2011/76/EC</b>	<ul style="list-style-type: none"> <li>• It allows the inclusion of external costs of air and noise pollution in addition to the cost of infrastructure. In particular, the Directive sets rules on calculation methodology for external costs, maximum chargeable costs, mandatory provision on charge differentiation according to EURO emission classes (once the concession contract come up for renewal). In addition, a wider differentiation could be used to reduce congestion through greater variation of peak-hour charges.</li> </ul>

### Application of the ITS Directive in the EU Members States

Opportunities	Threats
<ul style="list-style-type: none"> <li>✓ ITSs might contribute in <b>reducing fatalities, congestion and CO<sub>2</sub> emissions.</b></li> <li>✓ ITSs <b>enable road users to pay tolls easily</b> throughout the whole of the EU thanks to one subscription contract with one service provider and one single onboard unit.</li> </ul>	<ul style="list-style-type: none"> <li>✓ The provisions comprised in the ITS Directive implies <b>significant investments to be borne by the concessionaires.</b></li> <li>✓ The <b>interoperability between future ITS applications on the 5.9 Ghz band and European Electronic Toll applications based on the CEN DSCRC 5.8 Ghz band</b> (standard used by practically all tolled motorways) is a critical issue currently under investigation.</li> </ul>

## 6.1.4 TEN - T policy in Europe

Past Initiative	Main contents
<b>Regulation 67/2010</b>	<ul style="list-style-type: none"> <li>• It defines the general rules for granting Community aid to projects of common interest in the field of Trans-European networks for transport, energy and telecommunications infrastructures.</li> <li>• It defines general rules regarding eligibility, forms of aid (e.g. subsidies, direct grants, etc.) and project selection criteria .</li> </ul>
Recent initiatives	Main contents
<b>Regulation 1315/2013</b>	<ul style="list-style-type: none"> <li>• It establishes new guidelines for the development of a Trans-European transport network: it identifies projects of common interest, priorities and measures for the implementation of the trans-European transport network.</li> <li>• The priorities identified for road infrastructure development are: (a) improvement and promotion of road safety; (b) use of IT and integrated communication and payment systems; (c) introduction of new technologies and innovation for the promotion of low carbon transport; (d) provision of appropriate parking space for commercial users offering an appropriate level of safety and security; (e) the mitigation of congestion.</li> </ul>
<b>Regulation 1316/2013</b>	<ul style="list-style-type: none"> <li>• It establishes the Connecting Europe Facility («CEF»), which determines the conditions, methods and procedures for providing Union financial assistance to trans-European networks in order to support projects of common interest in the sectors of transport, telecommunications and energy infrastructures and to exploit potential synergies between those sectors. It also establishes the breakdown of the resources to be made available under the multiannual financial framework for the years 2014-2020.</li> </ul>

## Focus on regulations n. 1315/2013 and n. 1316/2013

Opportunities	Threats
<ul style="list-style-type: none"> <li>✓ Structuring of <b>new Financial Instruments for road financing</b>, beyond the existing instruments for loans and guarantees facilitated by risk-sharing instruments and equity instruments, in order to provide better solutions for road infrastructure projects such as infrastructure funds, project bonds and new financial instruments at national level as a combination with further sources of funding.</li> <li>✓ Priorities set for road infrastructure development include the promotion of the use of the ITS .</li> <li>✓ Grants available to finance the development/improvement of road TEN-T network in those MS eligible for Cohesion Fund and with no railway network.</li> </ul>	<ul style="list-style-type: none"> <li>✓ The priorities set for road infrastructure development <b>do not cover the possibility to use grants available in the context of CEF to finance new road infrastructures or the maintenance of the existing ones</b> in the majority of MS.</li> <li>✓ The trans-European transport network <b>covers only part of the existing road transport networks.</b></li> </ul>

## 6.2 State aid legislation<sup>31</sup>

### 6.2.1 Definition of State Aid

State aid is defined as an **advantage in any form whatsoever conferred on a selective basis to undertakings by national public authorities**. Subsidies granted to individuals or general measures open to all enterprises do not constitute State aid (examples include general taxation measures or employment legislation).

To be State aid, a measure needs to have these features:

- there has been an intervention by the State or through State resources which can take a variety of forms (e.g. grants, interest and tax reliefs, guarantees, government holdings of all or part of a company, or providing goods and services on preferential terms, etc.);
- the intervention gives the recipient an advantage on a selective basis (e.g. to specific companies or industry sectors, or to companies located in specific regions);
- competition has been or may be distorted;
- the intervention is likely to affect trade between Member States.

### 6.2.2 Compatible State Aid and notification

Despite State Aid measures are in general not permitted by the EU legislation, there are a number of circumstances in which government interventions is necessary for a well-functioning and equitable economy. To cope with such circumstances the **EU legislation leaves room for Members States to put in place measures that fall under the State Aid definition (compatible State Aid)**. EU State aid control requires **prior notification** of all new aid measures to the Commission. Member States must wait for the Commission's decision before they can put the measure into effect.

There are a few exceptions to mandatory notification, for example:

- aid covered by a Block Exemption (giving automatic approval for a range of aid measures defined by the Commission);
- *de minimis* aid not exceeding €200,000 per undertaking over any period of 3 fiscal years (€100,000 in the road transport sector);
- aid granted under an aid scheme already authorized by the Commission.

### 6.2.3 Toll road concessions and State Aid

As described in other Chapters of this report, toll road concessions schemes envisage risks sharing between the Concession Authority and the Concessionaire. Under certain circumstances (e.g. changing of the economic scenario, financial crisis, etc..) Concession Authorities had to put in place specific measures (including, but not limited to financial support) to safeguard the life of concessions. Part of such measures fell under the definition of State Aid and were notified to and approved (or accepted as no State Aid) by the European Commission.

In **Spain**, in order to cope with the recent issues affecting the road concession models – i.e. the economic environment (traffic dwindling, public entities with budget constraints), the road network (imbalanced network, presence of free alternatives and competitive means of transport) and the concessions (tariffs not homogeneous), along two motorways in concession - Unicat and Trucks AP7 - a lowering tariffs policy was deployed on the basis of the compensation of the annual losses of the Concessionaire by the Catalunya Government. Such intervention was notified to the EU and approved.

In **Greece**, recent decisions by the European Commission authorized State aids for four motorway projects that had run into trouble as a result of the financial crisis in order to secure the completion of the projects. Such projects are: Olympia Odos, Ionia Odos, Central Motorway and Aegean Motorway.

In **France**, in 2010, five Concessionaires signed with the State an «*engagement vert*» committing themselves in developing environmental programs with

<sup>31</sup> Source: [http://ec.europa.eu/competition/index\\_en.html](http://ec.europa.eu/competition/index_en.html)

specific objectives concerning noise reduction, water protection and CO<sub>2</sub> reduction along their network in exchange for a one year-extension of the concession period. The engagement vertics are accepted as no State aid by the EU.

A new investment package valued at 3.6 billion € has been agreed between the State and the Concessionaires. It is currently pending approval from the EU.

Further, in France, since 2000 the introduction of an accounting regime to be applied to the existing concessions more in line with the common one (in particular with regard to the depreciation process) was compensated by the possibility to extent the concession period. Such intervention was notified to the EU and approved.

The Concessionaires consider the possibility offered by the European Commission to have a certain degree of flexibility on the adoption of State Aid measures by the Concession Authorities as key to safeguard the interests of EU market players. Differently, distortion in the competition might be generated by non-EU companies approaching the market with the financial support of their Governments.

### 6.3 Conclusions

The evaluation of the legislative framework in force in the European Union allows the identification of **areas currently not covered by the current EU initiatives**.

In the context of the Public procurement and concessions policy in Europe, the upcoming initiatives should be aimed at improving the legal certainty, transparency and flexibility of the procurement procedures in force in the Member States.

With regard to the Road infrastructure charging policy initiatives in Europe, the efforts to be made by the EU and national policy makers should be aimed at promoting the user pays and polluter pays principles and sustainable forms of road infrastructures financing, and at exploring options for differentiating charges by Euro class, time of travel and axles.

Considering the areas not covered by the current Intelligent transport system policy in the EU Members States, the upcoming initiatives should be aimed at promoting technologies able to reduce fatalities, congestion and CO<sub>2</sub> emissions and to allow road users to pay tolls easily.

Lastly, as far as the TEN - T policy in Europe is concerned, more efforts are envisaged in order to structure new financial instruments for road financing beyond the existing instruments as loans and guarantees facilitated by risk-sharing instruments and equity instruments. In particular, alternative financial tools such as infrastructure funds and project bonds may provide better solutions for financing road infrastructure projects, even as a combination with further sources of financing.

Under certain circumstances (e.g changing of the economic scenario, financial crisis, etc..) Concession Authorities had to put in place specific measures (including, but not limited to financial support) to safeguard the life of concessions. Part of such measures fell under the definition of State Aid and were notified to and approved (or accepted as no State Aid) by the European Commission. In particular, in Spain and in Greece, in order to cope with the recent issues affecting the road concession models (e.g. traffic decreases and state budget constraints) the European Union approved the state intervention in order to mitigate the financial crisis of the Concessionaire. The degree of flexibility on the adoption of State Aid measures by the Concession Authorities is key to safeguard the interests of EU market players. Differently, distortion in the competition might be generated by non-EU companies approaching the market with the financial support of their Governments.

*Last but not least*, it is worth noting that **EU institutions have to take an active role in supporting the concession model by effectively cooperating with Members States in order to avoid that national transposition laws of European directives introduce stricter rules narrowing the scope of the EU legislation** while also ensuring timing and smooth implementation phase.

# 7 Conclusions and recommendations

## 7.1 Advantages of road toll concession scheme

Despite the effort spent by the EU and by the Member States to stimulate the use of other transport means, road transport still represents the most utilized way of moving people and freight across Europe: 72% of passengers are transported by car and 45% of freight is transported by trucks.

Motorways are the safest and less congested type of roads and they can ensure a smoother and speedier traffic flow compared to other road categories. However, compared to other road typologies, they are more expensive and imply a more complicated operational model (e.g. to collect fee, in case of tolled motorways, to control traffic flow, to ensure maintenance and safety equipment are adequate to speed, etc..).

In the concession scheme a specialized operator (the concessionaire) is involved in financing, building, maintaining and operating the motorway.

Thanks to their specialized capabilities, concessionaires have successfully contributed to the deployment and operation of large part of toll road network throughout Europe for more than 50 years. Their motorways have enabled the development of our economies and a safe mobility of our citizens.

Various experiences in different countries show that the use of toll roads and concessions, thanks to the economy of scales generated by the management of a portfolio of assets and by the management and technical knowledge of concessionaires, is much more efficient and sustainable than any other road financing system.

The advantages of road toll concessions are obvious and include among others:

- bringing forward the beginning and reducing duration of the road construction works, without waiting for the availability of public funding;
- sparing of public funds (i.e. tax money) so that they can be allocated to other social or investment priorities;
- transferring risks to dedicated counterparts: mainly those related to construction costs and traffic demand;
- generally cheaper construction costs, especially if private financing is sought;
- thanks to earmarking of toll revenues, it guarantees proper maintenance and upgrade of the facility during the whole concession period, committing both human and monetary resources, and it also brings excellent safety records;
- enabling the control of traffic demand and the internalization of external costs of transport;
- more flexibility to react to changes in overall economy situation and to adapt to a new environment from legal, technological, financial point of view as long as the new objective requirements does not breach the original contractual arrangements and are in line with the available cash flows;
- being an highly adaptable infrastructure, it may foster new sustainable mobility services and usages: HOV lanes, mass transit services through express buses and coaches, carpooling;
- fiscal return to the general budget through taxes<sup>32</sup>;
- Neutral impact of concessions on public accounts. Investments have no impact on public deficit and the debts of the concessions have no impact on public debt, which is a key issue for Governments and their effort to reach the European fiscal consolidation goals.

<sup>32</sup> In France and in Spain, above 40% of gross tolls proceeds are actually directed towards State budgets

## 7.2 Recommendations

On the basis of the above analyses, hereafter recommendations for the future development of road toll concession schemes in Europe are reported:

### 1. Road network plays a leading role in European mobility landscape yet it still requires urgent and huge investments:

- **adding capacity** when needed and **completing the road network** is still of uttermost importance to support **European integration and economic growth**;
- **achieving missing links**, helping integrating remote territories and building a more resilient network;
- developing and **optimizing road networks in urban areas** to reduce congestion while enhancing sustainable mobility;
- putting an end to years of **underfunded maintenance** leading to increasingly decaying infrastructures.

### 2. In a period of scarcity of State finances, alternative funding solutions for road maintenance and development, given that:

- **maintenance and upgrades on the existing network** are due to become an increasing burden on State budgets;
- delayed maintenance works resulting from budget adjustments only lead to **increased costs of repairs** or worst, ailing infrastructure;
- public funds for new investments are scarce: sectors with self-financing capabilities should be tapped when possible, therefore **schemes involving private investors should be favored**.

### 3. Concession model is a powerful tool to help building and maintaining European roads:

- leveraging the investment capabilities of mature concessions **to avoid passing costs on tax payers**:
  - developing the possibility of backing new concessions to mature network in order to complete works without delays and at minimum costs both for public finances and road users;
  - allowing a more flexible approach on contract management (e.g. tariff increases, duration extensions...) to finance new investments and upgrades of the network, in compliance with European regulations;

- as clearly demonstrated in this study, concession is a highly flexible and adaptable tool which may fit different objectives related to local contexts;

- promoting innovative contractual tools supporting the economic and financial balance of the Concessionaire to **attract private investors**.

### 4. Concession is compliant with the “users pay principle” and “polluters pay principle”:

- **the most equitable solution** for building, maintaining and operating road infrastructures;
- **earmarking of funds collected from users** guarantees a fair level of pricing and a sustainable management of the infrastructure;
- concession and toll are efficient tools of **congestion management practices** in urban areas to reduce environmental impacts as well as the financial burden for public authorities operating and maintaining such infrastructures;
- road concession being a sustainable model, **it should be treated fairly compared to other transportation modes**, especially regarding fiscal matters;
- promotion of **cross border enforcement operations** concerning road safety and tolling violations across Member States, in order to maintain equity amongst users.

### 5. Concession scheme should be optimized to attract private investors:

- promoting the **legal security and predictability of the concession schemes** is a prerequisite for private investments;
- developing high-tech solutions to **enhance security** through ITS and facilitate tolling with secure modern payment means;
- authorizing **revision of general risk allocation schemes** as to alleviate the position of the Concessionaire if needed:
  - authorizing modulation of risks over time due to the evolution of the network and possibility to rely on government subsidies in certain cases (e.g. major traffic decreases);
  - identifying clearly the cases that imply economic rebalance of the concession contract; facilitating tariffs increases or period extension to make economic rebalances; allowing the introduction of minimum income guarantees.

# Annex I

## Application of the directive 1999/62/EC in the ASECAP members' network

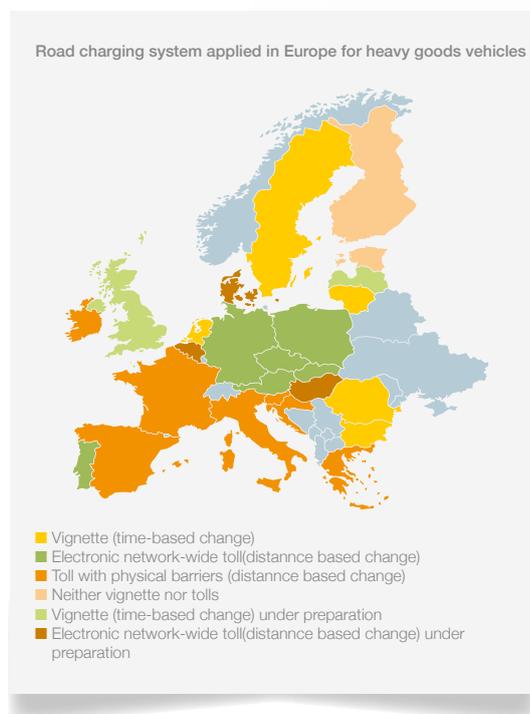
In 1999, the European Commission issued the so called Eurovignette Directive 1999/62/EC with the aim to preserve the functioning of the internal market and prevent any discriminatory charging practice by Member States. The Eurovignette Directive as modified by Directive 2006/38/EC and by Directive 2011/76/EU set out several rules to be applied by the Member States in order to charge the road users.

The Directive does not oblige Member States to introduce user charges, however in case user charges should be applied, tolls should be related to the cost of constructing, operating and developing the infrastructure, should allow the maintenance and the replacement of the infrastructure and should be according to the emissions standard of the respective vehicles.

The Eurovignette Directive allows two types of payment for the use of road infrastructure as follows:

- **Vignettes or time-based charges or user charges:** the purchase of a vignette gives the user the right to use the infrastructure for a given period of time (a day, a week, a month or a year);
- **Tolls or distance-based charges:** tolls are applied to vehicles travelling a given distance on the infrastructure and are defined on the basis of the distance travelled and the category of vehicle. Tolls can be applied to the whole national network or to selected infrastructure.

The majority of Member States have now implemented some type of road charging both for heavy goods vehicles and for light (or private) vehicles.

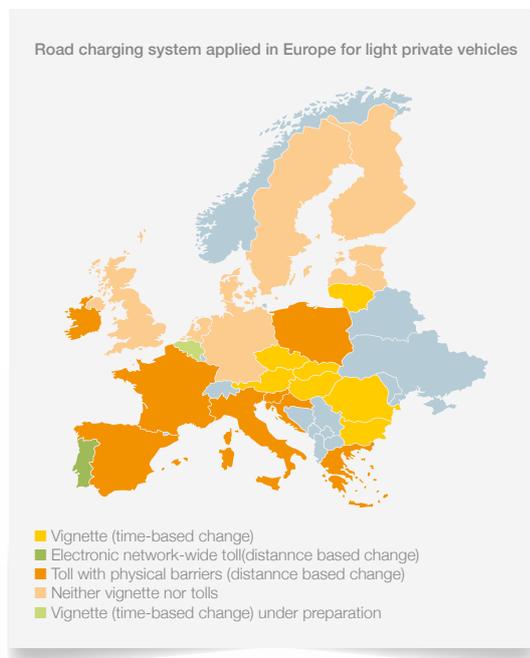


As far as the **road charging of heavy goods vehicles** is concerned, countries can be grouped into six main categories depending on the type of charging system, as follows:

- Vignette systems in place: Bulgaria, Romania, Hungary and Lithuania have national vignette systems for trucks. Sweden, Denmark, the Netherlands, Belgium and Luxembourg operate a shared «Eurovignette».
- Vignette systems in development: The UK and Latvia are developing vignette systems for trucks.
- Electronic network wide tolling systems in place: Germany, Austria, the Czech Republic, Slovakia, Poland and Portugal.
- Electronic network wide tolling in development: Belgium, France and Hungary. France will only be applying the charges to existing untolled state owned motorways, so it will re-

tain its present system of tolls with physical barriers on motorway concessions.

- Tolls with physical barriers: includes Ireland, France, Spain, Italy, Slovenia, Greece and Croatia. Although other countries have manual tolling on a small number of roads, the scale is not significant. Poland and Portugal also have tolls with physical barriers on part of the network, although they are classified as having electronic network-wide tolling in place.
- No tolls: The UK, Latvia, Finland, Estonia, Malta and Cyprus.



As far as the **road charging of light (private) vehicles** is concerned, countries can be grouped into six main categories depending on the type of charging system, as follows:

- Vignette systems (time-based charges) in place: 7 Member States have put in place national vignettes (Czech Republic, Slovenia, Austria, Slovak Republic, Hungary, Romania, Bulgaria).
- Vignette systems in development: in Belgium.
- Electronic network wide tolling systems in place: in Portugal.
- Tolls with physical barriers: 7 Member States collect tolls with physical barriers on the motorways (Spain, France, Ireland, Italy, Greece, Poland, Croatia).
- No tolls: 10 Member States still have no system in place for charging light vehicles for the use of road infrastructure (UK, Germany, Denmark, The Netherlands, Belgium, Sweden, Finland, Latvia, Estonia, Cyprus).

# Annex II

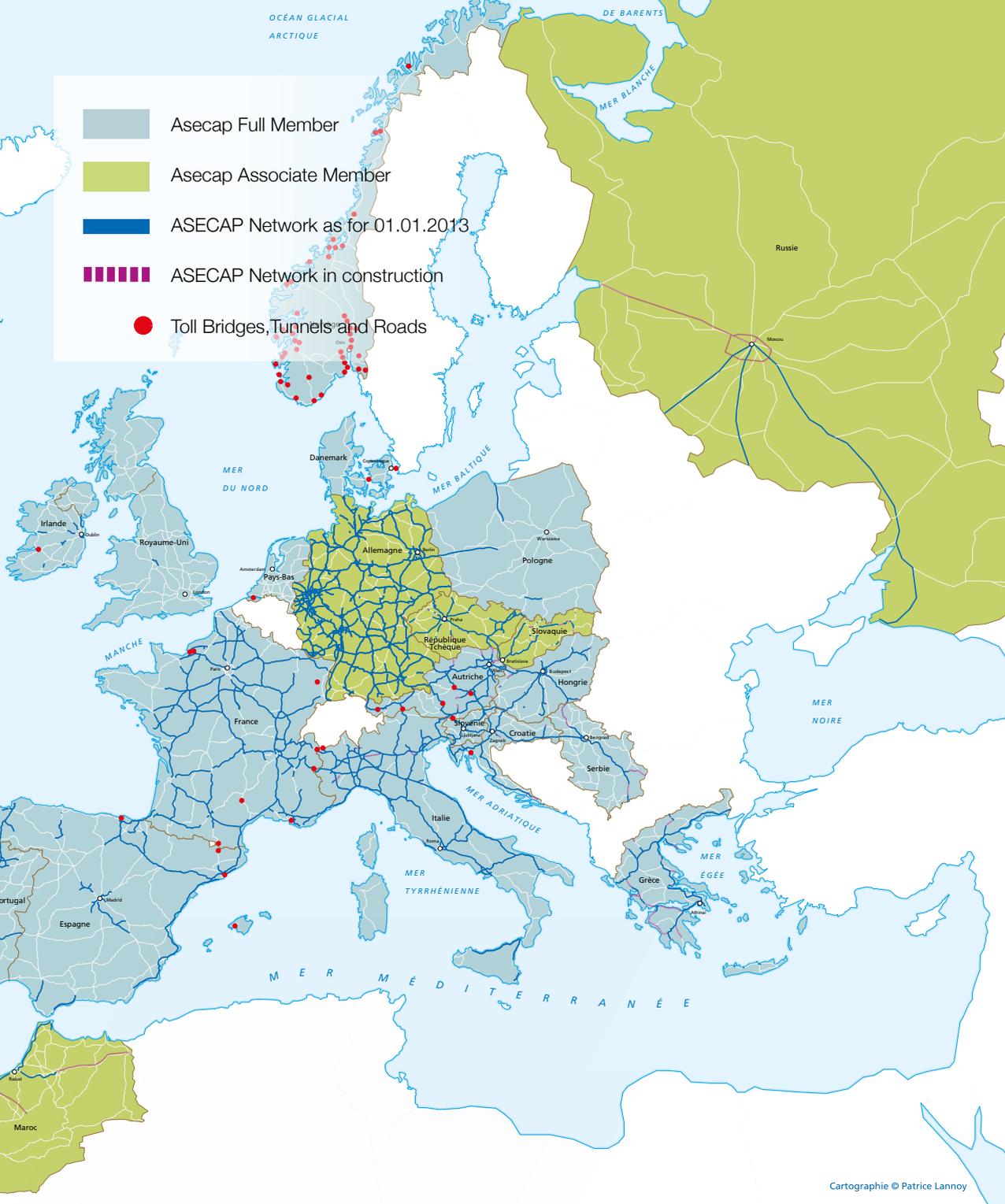
## List of sources

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- APCAP – *Anuário estatístico de segurança rodoviária (2012)*
- APCAP – *As vantagens de viajar em autoestradas (2013)*
- APCAP – *Key figures 2012*
- ASECAP – *Key Figures 2014*
- ASECAP – *Statistical Bulletin 2014*
- ASECAP – *Toll Road Operators – Strongly committed to safe and sustainable mobility (2014)*
- ASECAP members – *National Reports presented during the ASECAP Study and Information Days*
- ASETA – *Toll in motorways in Spain 2011*
- ASFA – *Key figures 2013*
- ERSO – *Traffic Safety Basic Facts 2012 – Motorways*
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- Eurostat – *Energy, transport and environment indicators (2013)*
- HUKA – *Key figures 2013*
- Ricardo – *AEA/EC DG MOVE - Evaluation of the implementation and effects of EU infrastructure charging policy since 1995 - Final*
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### Data

- European Commission – *Road safety evolution in EU*
- Eurostat – *Length of motorways*



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## ABOUT ASECAP

ASECAP is the European Association of Operators of Toll Road Infrastructures, whose members' networks span more than 48,000 Km of motorways, bridges and tunnels across 21 countries.

ASECAP's purpose is to defend and develop the system of motorways and road infrastructure in Europe. Tolls are applied as a means to ensure the financing of their construction, maintenance and operation.









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