ROAD PRICING IN EUROPE

Second version

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Colophon

ROAD PRICING in EUROPE

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We are striving to continually improve this document, and therefore
we would like to invite you to send any suggestions for improvements,
additions, etc to us via e-mail (efc@rdw.nl) so that we are able to
include this information in future versions.

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Foreword

Toll collection is a fast growing business in Europe. The revenue collected already largely exceeds € 10 billion annually, and ever more of this total is collected using electronic tolling. An increasing number of countries as well as cities are introducing schemes for collecting tolls. Consider for example motorway tolls in the ASECAP countries (e.g. France, Spain, Italy, Norway and a lot more European countries). And not only the number of toll systems is growing, the diversity of the tolling schemes is increasing as well. Toll collection started with toll plazas. Now microwave free flow systems have been implemented, e.g. in Austria, and satellite-based free flow systems have appeared, e.g. in 2005 the ‘LKW-Maut’ in Germany and more recently in Slovakia.

The forthcoming French ECO-TAX on heavy vehicles will combine the two technologies allowed by the European legislation for electronic road toll systems. There are more and more tolling schemes, with their numbers increasing every year.

Then we should jointly consider the Eurovignette Directive and the electronic road toll systems interoperability Directive with the EETS (European Electronic Toll Service). Eurovignette sets the criteria for the calculation of the tolls for Heavy Goods Vehicles, and EETS shall ensure the interoperability of all the electronic road toll systems in the EU. This means that trucks and passenger vehicles with more than nine seats will be allowed to drive through all the EU with just one on-board unit covered by one contract from October 2012 onwards. Two years later, EETS should be available for all other vehicles categories. Of course, this is not an easy task. While the European Commission looks more specifically into the legislative side of EETS implementation, the so-called ‘Stockholm Group’ of countries most active in road tolling introduction or preparation, currently assembling 13 countries, is exchanging information and looking into more practical issues.

Ever more national, regional or local authorities are facing choices relating to planning, designing and tendering for their systems. They must answer questions such as: What is good for my specific system, What will it cost and How will it best be managed? This is not an easy task, and much depends on the answers to those and other questions.

Having access to thorough overviews of what is already available from those who have practical experience in this area could prove very useful.

The registration authorities usually have a role to play in national or local EFC projects, sometimes limited, at other times very extensive. More often than not this is a new role for these authorities.

Along with EReg, RDW of the Netherlands has taken the initiative to collect this information and make it available to the EReg community and others who may be interested. In this second version of “Road Pricing in Europe”, the systems of eight more countries have been described and the first nine were updated, bringing the total to seventeen. The rest of Europe will be added in the third version.

I wholeheartedly welcome this initiative and hope that RDW and EReg will support the efforts of the Stockholm Group in making the toll collection business a little bit easier for our respective members.

Jan Willem Tierolf
Chairman of the Stockholm Group
ROAD PRICING IN EUROPE
- phase 1
- phase 2
- phase 3
1. Introduction

Under the direction of the Ministry of Infrastructure and the Environment the RDW (Department of Road Transport) worked on the introduction of a system for paying differently for mobility, in which drivers would no longer pay for owning a vehicle, but for using it. In 2010, the newly elected Government deemed road pricing controversial and did not wish to continue these developments either.

At the stopping of the project, a great deal of knowledge had been accumulated, but it appeared difficult to find a synthesis of all the knowledge gained elsewhere. This is why the RDW took the initiative to start producing an overview of all the pricing schemes in Europe. This first version starts with nine EU Member States. The RDW hopes this brochure will contribute in making information about road pricing initiatives available to a wider audience. This document is not ‘the end’ but just the beginning of a series.

You are kindly invited to look at this document critically and to provide as much information and suggestions as possible so that we can end up with an improved and more valuable result.

acknowledgement

Various people were contacted in preparation of this document. In addition it was reviewed by many other people who added their comments. All this in a fairly short period of time. We are very grateful to all these people. Without their help this document could never have been produced. In future we hope that we will be able to call upon them again so that this document can be kept up-to-date and, where necessary, expanded upon.

1.1 Structure

Approach/method of working

It was decided to collect as much information as possible for each country through research. Each of the various sources was approached in a particular way.

After the information had been gathered it was reviewed internally in the RDW. After the results of the review had been processed the final product was submitted to the contact person in each of the different countries, who was asked to verify the information and make any additions he thought necessary.

1.2 The next step

Seventeen countries have been covered in this version. An incremental approach will be taken, with new countries (and possible updates of countries that had already been covered) being added progressively. This means that gradually a complete overview of all the road pricing initiatives in Europe will be produced, probably with the later addition of the main road toll systems in the rest of the world, if useful to bundle this information together.

1.3 Countries

Overview map

The map on the left page gives an overview of the countries for which a description is given in this document. The phase 1 and 2 countries have been included in this version. Phases 3 countries will be available in subsequent versions.
2. **EETS (The European Electronic Toll Service)**

2.1 **Introduction**
A toll is a charge, tax or duty levied in relation with circulating a vehicle on certain roads or areas. Tolls are generally employed to finance the construction and maintenance of road infrastructure and to tackle rising levels of congestion, noise, and pollution.

Electronic road toll systems were introduced in several European countries in the early 1990s. These systems often operate by means of an on-board equipment to collect and process toll transaction data. The various systems set up at national or even local levels were however incompatible. National electronic road toll systems were seldom interoperable. Non-interoperability of road toll systems hinder easy vehicle circulation, especially international transport. Vehicles must be equipped with on-board units specific to each Member State or tolled domain. So, to travel for example from Portugal to the Netherlands, five on-board units might be needed. Consequently, transporters need to contract with several road operators, each with their own invoicing and billing procedure. This entails time-consuming paperwork and red tape for transporting goods across the EU. Moreover, occasional users have to deal with unfamiliar systems, different for each country or tolled domain with the ensuing negative impact on smooth traffic flow. With the growing introduction of road tolling initiatives on private cars, this becomes ever more true for any citizen, particularly for holiday travel.

In one sentence the objective of EETS can be summarised as:
“ONE VEHICLE, ONE CONTRACT, ONE ON-BOARD UNIT”

Under the European legislation, EETS is an additional service, complementary to the existing electronic road toll systems. This means that every Member State or road operator can decide to keep its current systems, but have also to accept EETS on a non-discriminatory basis. However, as far as electronic road toll systems are concerned, the interoperability Directive allows only the following technologies:

- Satellite positioning (i.e. GNSSs like GPS, EGNOS, Galileo, etc.);
- Mobile communications (GSM/GPRS);
- 5,8 GHz microwave (CEN DSRC standard; in Italy ETSI ES 200674-1 [the UNI DSRC standard] can be supported instead).

The OBU must be able to communicate with the enforcement and control equipment of the Toll Charger. The Toll Charger determines the technology used (within the prescribed technology).

2.2 **Organisation**
The European Commission is responsible for the EETS overall definition and legal framework. The European Commission is assisted by the Toll Committee, i.e. a regulatory committee composed of the Member States Representatives.
The Toll Committee often accepts as observers:
- other EEA (European Economic Area) countries (NO - LI - Iceland);
- professional associations (e.g. ASECAP - IRU - IRE - ACEA)
- candidate countries, and
- European Standard Organisations (CEN, CENELEC, ETSI).

The CEN and ISO standard organisations are working together in the CEN-TC278-WG1 and ISO-TC204-WG5 in defining Electronic Fee Collection standards.

Within these working groups, several subgroups are defined:
- Subgroup 1: Info exchange/architecture/security
- Subgroup 2: DSRC-based EFC and testing
- Subgroup 5: GNSS/CN-based EFC
- Subgroup 6: Compliance Check/Localisation/VAS.

These subgroups consist of several project teams, staffed by experts and paid for by the European Commission.
The CEN-TC278-WG1 and ISO-TC204-WG5 standards are to be approved respectively by the members of CEN and ISO. Once approved, the Toll Committee may decide to mandate some of these standards by direct reference in the EETS legislation. Equipment that conformant to these standards is assumed to comply with the related EETS essential requirements.

2.3 Short history
CEN/TC278 Road Transport and Traffic Telematics was established in 1991. Its scope was defined as follows: Standardisation in the field of telematics to be applied to road traffic and transport, including those elements that need technical harmonisation for intermodal operation in the case of other means of transport. It shall support:
- vehicle, container, swap body and goods wagon identification;
- communication between vehicles and road infrastructure;
- communication between vehicles;
- in-vehicle human machines interfacing as far as telematics is concerned;
- traffic and parking management;
- user fee collection;
- public transport management;
- user information.

The European Parliament and the Council of the European Union adopted a Directive on the interoperability of electronic road toll systems in 2004. This directive lays down the general conditions to ensure the interoperability of electronic road toll systems in the Community and requires setting up the EETS to provide this interoperability for users. It tasked the European Commission, assisted by the Toll Committee, to further define the EETS and its technical elements. Following the positive opinion of the Toll Committee and consultation of the European Parliament and the Council, the Commission adopted the Decision on EETS definition in October 2009.

2.4 EETS business model
The existing toll collection situation generally involves two parties: the Toll Charger who has a direct contract with the road user. The Toll Charger may have subcontractors or agents. In addition, some Toll Chargers have collaborated to create national or regional interoperability, by signing MoUs and/or having contracts with other Toll Chargers (e.g. France, Italy, Spain, Norway).

The EETS business model will introduce a third role, the EETS Provider (EP). The EETS Provider will supply its users with one OBE and one contract. It will deliver full European coverage to its users. The EETS Providers have to be accepted by all Toll Chargers and guarantee the payment of the toll due by its clients to the Toll Chargers.

2.5 EETS stakeholders roles
The toll-charging environment was described in the CESARE III project, which defined a model based on four roles. Each role may consist of several sub-roles, which can be performed by one or more organisations. Figure 2 (next page) shows the EETS stakeholders roles.
2.6 EETS Provider
To become an EETS Provider, an organisation needs to be registered as such in at least one Member State. Once registered the EP has the right to start negotiations with any Toll Charger in the EU. All Toll Chargers have the obligation to engage in such negotiations and, if there is no specific reason to refuse collaboration, conclude a contract. EPs have the obligation to achieve full European coverage within 24 months after their date of registration. In case of dispute, a national Conciliation Body will be referred to for a faster dispute settlement. The parties can choose to go to court in the country of the toll domain.

2.7 Registration
In order to be registered as EETS Provider, an organisation can apply for registration in a Member State where it is established. This registration confers the status of EETS Provider, which is recognised in the whole EU. To be registered, a company needs to demonstrate having the EETS technical equipment compliant with the requirements defined in Decision 2009/750/EC and fulfil additional requirements listed in the same Decision. The additional requirements are financial (e.g. deposit of a bank guarantee), quality related (e.g. ISO 9001 or equivalent) and competence related (e.g. proven expertise in handling large data streams and large numbers of customer accounts). Certification Institutions, notified by any Member State that wishes to do so, the Notified Bodies (NoBo’s), may do the certification, according to the so-called “New Approach”. All the Notified Bodies co-operate in a coordination group reporting to the Toll Committee.

2.8 After registration
Once registered, EPs normally start negotiations to conclude contracts with all the Toll Chargers, or groups of Toll Chargers, to eventually achieve full European coverage. Every Toll Charger can ask that field tests are done in his domain equipment of the EP, including end-to-end operation between the back-offices: the suitability for use test.
The Road-Side Equipment (RSE; usually the same as for the existing system), and other equipment of the Toll Charger relevant to EETS have to comply to EETS specifications. Tests can be (but do not need to) executed under the supervision of a NoBo, which shall deliver a report indicating where the problem areas are in case of incompatibility. Given the growing existence of national or regional interoperability (TIS-PL, Liber-T, VIA-T, TELEPASS, NORITS/EasyGo, Toll Collect⇒ASFINAG, etc.) it is expected that separate field tests will not have to be extensively carried out with each of the approximately 200 Toll Chargers operating in Europe today. In addition, it is foreseen that the industry will progressively integrate the return from experience with the suitability for use tests and reduce the work load involved in suitability for use tests on individual toll domains.

2.9 EETS Deployment Process

The EETS is instituted by Directive 2004/52/EC. The Directive's implementing Decision has been adopted by the European Commission and entered into force in October 2009. Three years after the Decision's entry into force, EETS must be available for vehicles weighing more than 3.5 tonnes or with more than 9 seats (i.e. October 2012); it must be available to all the other vehicles categories. Five years after the Decision's entry into force (i.e. October 2014) The Decision is addressed to the Member States which carry the overall responsibility for adapting their legislation and endeavouring that stakeholders fulfils their obligations. EETS provision being a commercial activity, the appearance of EETS Providers can not be mandated though.

Toll Chargers will need to:
- verify that their equipment is EETS compliant (should not be problem for new systems), possibly adapt to a EETS compliance checking interface and negotiate contracts with EPs,
- publish a toll domain statement describing how and under what (non-discriminatory) conditions EPs can enter into contracts with them and
- publish their toll context data (tariffs, vehicle parameters/classes, domain description, etc.).

A Member State has to:
- notify NoBo's if it wishes,
- register organisations as EETS Provider upon request;
- publish and maintain public registers of EETS Domains and Toll Chargers operating in their territory and
- publish the EETS Providers it has registered;
- set up a Conciliation Body, where applicable.

They do have the overall responsibility to implement the EETS framework in their country. In order to make this happen, a lot of work needs to be done; while for DSRC systems specifications generally exist, it is not as complete for satellite-based systems. Also for security checking, standardised interfaces and European applications are needed. This indicates that the timetable is extremely tight.
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**Phase 3**

3 Austria

3.1 General introduction
This section deals with Austria. In Austria, ‘Maut’ or toll is levied for the use of motorways, by means of a toll vignette. Also, in some cases an extra toll is levied for tunnels and bridges. This section discusses the toll vignette and tolls.

Contact details
Name: Federal Ministry for Transport Innovation and Technology
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Fax. +43 (0) 50108-12620
http://www.asfinag.at/unternehmen/maut
Offices: Vienna

3.2 Description of the system(s)

3.2.1 Toll vignette
The background and aim
In 1997 the toll vignette (a toll sticker or ‘Autobahnvignette’) was introduced in Austria for vehicles (also for foreign vehicles) with a maximum permissible weight up to and including 3500 kg. Since then these vignettes have appeared in 14 different colours. The toll vignette is compulsory on motorways (A roads) and various highways (S roads) in Austria and is petrol for the year 2012.
**Organisation**
Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft (ASiFINAG).

**System(s) description**
The toll vignette must be stuck on the inside of the front windscreen (on the left-hand side or behind the inside mirror). The vignette must be clearly visible from the outside, for the purposes of control. Places where the toll vignette cannot be stuck on the front windscreen are set out in the ‘Mautordnung’ (Tolling Regulation). For example, the toll vignette must not be obscured by tinted glass in the car.

For motorbikes, the toll vignette must be applied on a visible place on a fixed part of the motorbike where it is difficult or impossible to remove the toll vignette. The bottom part of the vignette (the film on which the vignette was supplied) must be retained, because this, with its serial number, is the proof that it has been bought. In the case of vignettes for a year, if a windscreen is broken you can present it as proof in order to obtain a replacement vignette free of charge.

If the toll vignette is not fully glued to the front windscreen or if it has expired it becomes invalid also if it is removed and reattached. It is easy to identify vignettes that have been reattached due to the presence of safety devices on the vignette (among other things a two-dimensional hologram). Anyone caught with this is penalised by having to pay a substitute toll or a fine.

The toll vignette goes with the vehicle and is not linked to the number plate or to the vehicle holder or driver. This means that a number of vehicles with a transferable number plate cannot share a toll vignette. Each vehicle must have its own toll vignette, save some exceptions.

Examples of the toll vignette can be seen on the website of Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft (ASiFINAG) (http://www.asfinag.at/toll-stickers-and-rates). The number “12” shows that the sticker is valid for the year 2012 (from 1 December 2011 to 31 January 2013).

Revenue from the sticker and any other toll charges are devoted bij ASFINAG to the building, operating and maintaining of the entire charged motorway and express road network in Austria.

**Technology**
The toll vignette must be stuck on the inside of the front windscreen (on the left-hand side or behind the inside mirror). The vignette must be clearly visible from the outside, for the purposes of control.

**Tariff structure**
The tariff of the toll vignette is based on:
- the type of vehicle
- the weight of the vehicle (motorbike or motor vehicle up to 3,500 kg)
- the period of validity of the toll vignette

The trailers or caravans pulled by these vehicles do not have to have a vignette.

The toll vignettes can be obtained in the Netherlands from the ANWB (The Royal Dutch Touring Club) and in Austria at the border, at tobaconnists, filling stations and the ÖAMTC and ARBÖ automobile associations. Vignettes can also be bought at a number of petrol stations along the German motorway heading towards Austria (about 10,000 sales points). These sales points are authorised to punch ten-day and two-month vignettes. The day the vignette is purchased does not necessarily have to be the same as the starting date punched on the toll vignette.
For passenger cars the tariff of the toll vignette is:
- for 10 days: about € 8.00; the day that is punched is the first calendar day of the period of 10 days (for example, from 10 January 2012 up to and including 19 January 2012).
- for 2 months: about € 23.40; starts on the date that is punched and ends two months later at the end of the day that corresponds to the date punched (for example, from 10 January 2012 up to and including 10 March 2012).
- for 1 year: about € 77.80; these annual stickers are valid for one month before and one month after a calendar year (for example, from 1 December 2011 to 31 January 2013).

For motorbikes the tariff of the toll vignette is:
- for 10 days: about € 4.60; the day that is punched is the first calendar day of the period of 10 days (for example, from 10 January 2012 up to and including 19 January 2012).
- for 2 months: about € 11.70; starts on the date that is punched and ends two months later at the end of the day that corresponds to the date punched (for example, from 10 January 2012 up to and including 10 March 2012).
- for 1 year: about € 31.00; these annual stickers are valid for one month before and one month after a calendar year (for example, from 1 December 2011 to 31 January 2013).

Revenue from the sticker and any other toll charges are devoted by ASFINAG to the building, operating and maintaining of the whole of the road network in Austria.

**Method of payment**

On motorway sections crossing the Alps (special toll routes) no Vignette is required but vehicles have to pay toll. On these sections a video toll card linked to the registration number can be bought. These cards are valid either for for one trip (current tariff) or alternatively for 1 year from the date they are issued (about € 92.00 - € 97.00). Vehicles do not have to stop at toll stations; however, this video toll system is available on all special toll routes except for the A11 Karawanken tunnel. The video toll lane is only for motor vehicles and trailers that are no wider than two metres. This card can be obtained from the website of ASFiNAG or by mobile phone or from the authorised sales points of ASFiNAG and its partners.

**Enforcement**

Everyone has to comply with the ‘new sticker rules’. If they are not complied with, this is followed by a substitute toll of € 120.00 for motor vehicles and € 65.00 for motorbikes. If the toll vignette is misused, the substitute toll can amount to a maximum of € 240.00 for motor vehicles and € 130.00 for motorbikes. Also in the case that a vignette is not attached or time-related vignettes are not punched, and as a result are invalid, a substitute toll or a fine can follow. If the substitute toll is not paid immediately or within time limit, an administrative procedure follows with the possibility of a fine of at least € 300.00 up to a maximum of € 3,000.00.

The figure from October 2010 shows the highways and motorways where a toll vignette is compulsory or where a toll (GO-Box) has to be paid (http://www.asfinag.at/maut/vignettenpflicht- und -ausnahmeregelungen). The electronic toll system is discussed in the next part of this section.
3.2.2 The electronic toll system

The background and aim

A toll vignette is compulsory on all Austrian highways and motorways for vehicles weighing up to 3,500 kg. On the same roads, since 1 January 2004 for heavier motor vehicles (more than 3,500 kg) there has been an electronic multi-lane toll system which is based on the distance travelled. An OBU GO-Box is compulsory for this.

An end-to-end, open, multi-lane configuration free-flow electronic toll levying system that makes it possible to levy toll from moving motor vehicles in unhindered driving conditions. This multi-lane free-flow system uses microwave technology Dedicated Short Range Communications (DSRC, 5.8 GHz). The DSRC antennas are mounted on about 800 portals above the motorway and communicate to the GO-Box (OBU) in the vehicle. Changing lanes does not affect the toll levying transaction. The toll levying process is fully automated.

Organisation

ASFiNAG, fully owned by the Austrian government, was originally set up in 1982 to concentrate financial transactions by previous 4 public owned motorway companies. In 1997 it was in addition given the right to planning, building, management, operating and levying tolls (ASFiNAG Ermächtigungsgesetz 1997 (BGBl I Nr. 113/1997)) (the ASFiNAG Enabling Act (Federal Law Gazette No. 113/1997). The right to levy toll is laid down in an unlimited contract between ASFINAG and the state. The toll is operationally collected by ASFINAG’s subsidiary, ASFINAG Maut Service GmbH, on behalf of and for ASFINAG. The Federal Minister of Transport fixes the toll level in a decree and approves them in agreement with the Federal Minister of Finance on the basis of the Federal Road Toll Act¹.

System(s) description

The toll is levied electronically with the GO-Box² (OBU). Vehicle owners are given this on registration at ASFINAG together with the vehicle declaration. The cost of the GO-Box for the user is € 5.00 once including 20% VAT in 2010 and in case of a pre payment mode has to be charged with a voucher (valid for two years). The vehicle declaration tells you about the data that is stored, in particular the vehicle licence plate, the GO-Box number and the EURO emission class that has been declared. All motor vehicles with a maximum permissible weight of more than 3,500 kg must be fitted with this GO-Box.

In the very few cases where the front windscreen is metallised a Split-GO-Box with an outdoor antenna is used. The following vehicles are exempt from paying tolls: emergency vehicles, motor vehicles of the armed forces and if ASFINAG in the tolling regulations declares a situation concerned also motor vehicles used for humanitarian relief operations. The GO-Box registers each time the vehicle passes under a toll portal (toll payment station) via a magnetron signal. The driver can use any lane without reducing the speed of the vehicle or stopping. The electronic toll system is fully automated and the driver does not have to do anything than eventually care for a beep signal (description see following).

The area where the GO-Box should be installed is at the bottom of the front windscreen, half way in the middle of the vehicle and the steering wheel. No objects must be put in the field of vision of the driver because that can impede the driver’s vision. Also, when it is not being used the windscreen wiper must not lie over the GO-Box.

¹ Source Juridische vormgeving beprijzing in het buitenland, final report, J. van Elburg, L. Veldhuis, H. Stout, Rotterdam, June 2007, page 32
² The dimensions of a GO-BOX are 11.5 x 6.5 x 2.7 cm (w x h x d) and it weights about 100 grams.
Before the GO-Box is installed it must be checked whether the registration number is the same as the details given on the GO-Box voucher. Also, the voucher serves for identification purposes with Customer Service. In the event of an infringement the driver and the owner of the registration number are jointly and severally liable. Because of the way in which it is attached – using velcro – the GO-Box can be removed at any time and then attached (again).

The following must be set on the GO-Box:
- The basic category of the pulling vehicle (without a trailer) is set on registration and cannot be changed by the user.
- The number of axles is set by the driver on the basis of the current number of axles (including attached trailers and semi-trailers). If a trailer or semi-trailer is added or removed, the vehicle category has to be changed. The driver is responsible for correctly setting the number of axles.

The driver cannot himself change the Euro emission class stored on the GO-Box. To do this he has to contact a GO sales point.

**Technology**
The safe transfer of data between the GO-Box and the toll portal means that toll charges are collected in a reliable way. The distance between the GO-Box in each individual vehicle and the toll portal is small and the technology is mature. The system guarantees that each time a vehicle that is subject to the toll passes under a portal, it is registered.

When passing a portal an acoustic signal (buzzer) is emitted by the GO-Box, which tells the driver that the toll transaction has been carried out correctly (or incorrectly).
- 1x beep, the toll transaction has been carried out correctly, everything in order;
- 2x beeps (service beep), the toll transaction has been carried out, everything in order, but warning: Go to the nearest GO sales office, because the pre-paid balance is low, charge up toll payments;
- the contract will expire shortly, charge up with toll payments or get a new GO-Box;
- the data on the GO-Box has to be changed, check documents.
- 4x beeps, the toll transaction has not been carried out, payment has not been made, compulsory to go the nearest GO sales office and pay the toll;
- No beep, the toll transaction has not been carried out.

It is also possible for the driver himself to check the status, as described above, with a function (button 1) on the GO-Box.

The way the electronic toll system works is based on modern microwave technology, and subject to approval and generally permitted in Austria. In accordance with EU recommendation 1999/519/EC, protection of the health of the operators is guaranteed also when passing through the toll portal (toll payment station).

The following also has to be taken into account for the GO-Box:
- For the levying of the toll the GO-Box uses radio frequency nos. FSB-LD031 and FSB-LD032.
- The driver does not own the GO-Box, but the OBU is solely loaned for the use of the toll system.
- The GO-Box is the property of ASFINAG.
- When it is no longer being used, it is compulsory for the driver to return the GO-Box.
- The GO-Box must not be opened; the GO-Box does not require any maintenance on the part of the driver.
The electronic toll system in Austria consists of the following sub-systems:

The ground-to-board communication between the roadside equipment and the GO-Box, which is needed for the levying of the toll, takes place at the portals on which microwave antennae are mounted.

There are around 100 fixed and additional portable and mobile enforcement stations (enforcement devices). These devices are used for registering drivers trying to avoid the toll and also for taking legal steps against toll violation offences.

Customer service serves as a contact point for, among others, carriers, freight companies, loaders and individual truck drivers.

A data transmission network passes on data between all the roadside devices and the central processing system.

The central processing system provides for the processing of all the administrative functions of the toll system, enforcement and the sales points. It deals in real-time with ensuring the technical and administrative operating of the whole of the electronic toll system. Corrections are made immediately, and information is provided immediately and quickly about the status of the various sub-systems, including administration, organisation and finance.

The status of each toll user is registered by list processing. This management list records various pieces of data:

- the method of payment
- blocking of a means of payment (blocking list)
- management of all violations and the exceptions to this.

3 The declaration of conformity and other documents can be found at www.kapschtraffic.com
The technical data of the GO-Box are:

- **Operating temperature:** -25°C to 85°C.
- **Relative air humidity:** maximum 90% (at 40°C).
- **The GO-Box is maintenance-free.**
- **It contains a lithium battery which has a life of about five years and has to be returned to a GO sales office due to environmental considerations.**
- **It is only permitted to be used inside (i.e. in the driver’s cabin and after it has been installed in accordance with the manufacturer’s instructions).**
- **After a car accident the functioning of the GO-Box must be checked at the nearest GO sales office.**

**Tariff structure**

Toll for using a specific section of a road is charged when a toll transaction takes place. A toll transaction takes place when the vehicle drives under a portal of the toll station and there is a toll required for using that specific section of the road.

The toll is calculated depending on the number of axles (motor vehicles with a maximum permissible weight of more than 3500 kg are classified into three axle categories) and the Euro emission class (tariff groups A, B, C and D).
The ‘Mauttarifverordnung’ and the ‘Bundesstraßen-Mautgesetz’ determine what the toll categories and tariffs are.

**Table of toll tariffs (valid from 1 January 2012)**

**EURO emission category toll rate system**
Tolls for vehicles over 3.5t maximum gross weight – valid from 1.1.2012

<table>
<thead>
<tr>
<th>Rates in € per km, exclusive 20% VAT</th>
<th>Category 2 2 axles</th>
<th>Category 3 3 axles</th>
<th>Category 4+ 4 and more axles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> EURO emission category EURO VI</td>
<td>0.1450</td>
<td>0.2030</td>
<td>0.3045</td>
</tr>
<tr>
<td><strong>B</strong> EURO emission category EURO EEV</td>
<td>0.1500</td>
<td>0.2100</td>
<td>0.3150</td>
</tr>
<tr>
<td><strong>C</strong> EURO emission category EURO IV &amp; V</td>
<td>0.1650</td>
<td>0.2310</td>
<td>0.3465</td>
</tr>
<tr>
<td><strong>D</strong> EURO emission category EURO 0 to III</td>
<td>0.1870</td>
<td>0.2618</td>
<td>0.3927</td>
</tr>
</tbody>
</table>

The toll rates that apply on the special toll sections of the A9, A10, A11, A13 and the S16 can be found on the ASFiNAG, GO-maut website (http://www.go-maut.at).

All the revenue from the electronic toll system (GO-system) goes to the road network on which toll is levied. There are no additional cash flows from the national budget. The toll rates are subject to 20% VAT. The total revenues (exclusive VAT) from the GO-system affecting heavy vehicles were about € 1,000 million in 2010. Revenue from special tolls sections (out of the total) were € 170 million; with a cost/revenue ratio of 11%, at an annual number of toll transactions of 630 million, with the percentage of toll dodgers being less than 1%.

The number of registered GO-Boxes (OBUs) end of 2010 about 980,000 for motor vehicles with a permitted maximum mass of more than 3,500 kg. Actual use (at least one toll communication within the last 18 months) as far as the number of OBUs is concerned is 563,000 (57%)

**Method of payment**

Toll payments for heavy vehicles in Austria are collected exclusively on a computerised basis, either by an existing debit system (pre-paid system), or by a system by which ASFiNAG Maut Service GmbH – the data processing centre – saves the billed data and payment is made later by a fuel card or credit card (the post-paid system). Since 2007, toll transactions can be settled directly with ASFiNAG by GO Direkt, a direct billing method. The costs of GO Direkt are borne by ASFiNAG and not by the party taking part in the electronic toll system. In addition, the invoices can be obtained electronically.

**Enforcement**

The enforcement system in Austria consists of a combination of automatic and manual controls, as a result of which it is virtually impossible to avoid paying the toll. Enforcement is carried out by fixed, portable and additional mobile enforcement devices and is carried out by the operator of the toll system, ASFiNAG Maut Service GmbH. The Service and Control Department of ASFiNAG is the enforcement unit that maintains supervision on the toll. Acting authorised by the regional administration, it also has the power to stop the vehicle, initiate administrative procedures, inspect the vehicle, and establish the identity of the driver and of the registered owner.
“Toll dodgers” will be registered in four steps:
Vehicles subject to pay toll that did not pay the toll correctly will be registered:
- by enforcement units mounted on the toll portals;
- by portable enforcement units such as on construction sites;
- by mobile enforcement officers;
- by inspections on existing traffic inspection sites.

The enforcement system identifies all motor vehicles for which a toll transaction has not taken place or where the toll transaction was not able to take place properly. About 130 enforcement units, the mobile toll police officers (SKD, the Monitoring Service Division, and employed by ASFiNAG), and also the enforcement centre, are responsible for the correct levying of the toll and for prosecuting offences. In the case of any deviations the information is passed on to the enforcement centre of the electronic toll system, including a photograph of the vehicle (ANPR). Depending on the result of the manual check, if a toll transaction has been carried out correctly the photographs are removed. In case of an offence owners of vehicles registered in Austria or Germany are requested in writing to pay a substitute toll. The drivers of vehicles from other countries that have committed an offence will if possible be requested in person by enforcement officers to pay the substitute toll. If they cannot be reached at the offence all data of the case are stored and the vehicle will be prosecuted after reentering Austria.

The substitute toll has to be paid in the following situations, among others:
- If there is no GO-Box or if it is not fitted properly, the substitute toll is € 220.00
- If the Go-Box is blocked or the pre-pay credit is not enough, the substitute toll is € 220.00
- If the vehicle category chosen or the EURO emission class is incorrect, the substitute toll is € 110.00.

If the enforcement officer is present, the substitute toll can be paid directly to the enforcement officer, and if “a written request to pay substitute toll” is received, it must be paid within four weeks after the date of issue.

The results of findings on the motorways and highways are added to the enforcement dossier, taking privacy into account (the whole of the toll system is in compliance with the ‘Datenschutzgesetz’ [Data Protection Act]). Then the central processing system combines all the toll that has not been paid voluntarily afterwards within five hours after the first finding into one infringement. If the substitute toll is then paid, the infringement is settled and with this the infringement is deleted. If the substitute toll is not paid, an administrative fine as the result of an administrative procedure may be imposed, which varies from € 300.00 to € 3,000.00 per infringement. Both the driver and the registered owner are jointly and severally liable for the infringements. This is provided for by the federal Toll Act and the Toll Ordinance in Austria.

3.2.3 Miscellaneous
Separately from the obligation to buy and display a vignette, extra tolls have to be paid on special alpin roads and tunnels in Austria.

This applies, among others, to the following toll roads:

**Federal roads:**

**Provincial and regional roads:**
Further information about how much the toll costs, a single journey and the varying periods of validity of cards on the federal special toll roads can be found on the website of Autobahnen-und Schnellstraßen-Finanzierungs-Aktiengesellschaft (ASiFINAG) (http://www.asfinag.at/maut/kartenarten-und-preise).

For a part of the A14 Rheintal Autobahn in Vorarlberg as from 1. September 2008 there has been an additional type of vignette, the “Korridorvignette”, for vehicles with a maximum permissible weight of up to 3,500 kg. This applies solely for the 23 km stretch of road (“Korridor”) of the A14 Rheintal/Walgau Autobahn in the province of Vorarlberg between the border with Germany and Hohenems (near a boarder crossing to Switzerland. This vignette is valid for 24 hours and costs € 2.00 for one direction and € 4.00 for both directions. Vehicles with a valid one-year, two-month or ten-day vignette do not demand the “Korridorvignette”. It is a temporary vignette (until about 2013) which will disappear when both tubes of the Pfändertunnel will be available for traffic.

3.3 EETS

ASFiNAG is involved in a number of European research projects in which the technical and contractual basis of the interoperability of toll systems or the introduction of the EETS is being developed. ASFiNAG has met all the requirements of interoperability and therefore meets all the standards required under the European Directive. The roadside devices that are used in the Austrian toll system have among other things been upgraded and are compatible with EN15509 (application for profile for DSRC interoperability).

Also, together with the operator of the Swiss system, Eidgenössische Oberzolldirektion (OZD), on 1 January 2004 ASFiNAG started towards interoperability with the Swiss TRIPON or EMOTACH OBU. Since 1. September 2011 there exists also an interoperability “TOLL2GO” with the German Toll Collect OBU. Vehicles equipped with the Toll Collect OBU can use this for payment in the Austrian system when registerd also to ASFINAG.

EETS domains & EETS providers registers:
German: http://www.bmvit.gv.at/verkehr/strasse/autostrasse/maut/eets.html

3.4 Development(s)
No information available

3.5 References/links
http://www.asfinag.at/maut Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft
http://www.go-maut.at/go/default.asp Mautsystem für LKW und Bus
http://www.oeamtc.at Austrian touring club ÖAMTC
4 Belgium

4.1 General introduction
In Belgium passenger cars do not have to pay a toll, except for the toll tunnel, the Liefkenshoek tunnel (R2), in Antwerp. Heavy goods vehicles have to pay a toll for all highways through the Eurovignette system. This is a virtual vignette. The system is shared with a number of other countries, including Belgium, Denmark and Sweden. One Eurovignette is valid for the period of its validity in all the countries taking part in the scheme.

Contact details
Name: Mobiliteit (Federal Office for Mobility and Transport)

Address: Vooruitgangsstraat 56
1210 Brussels
Belgium

Type of organisation: Ministry

Website: http://www.mobilit.fgov.be/

Department: Ministry of Transport

Contact person: -

Position: -

Telephone: (+32) 2 277 31 33

E-mail: -

Contact person document: -

Operator: NV Tunnel Liefkenshoek

Sint-Annalaan 1
B-9130 Kallo

Telephone (+32) 3 570 98 00
Fax (+32) 3 570 98 01

Offices: Kallo

4.2 Description of the system(s)

4.2.1 The levying of tolls and local charges
The background and aim
In Belgium a toll only has to be paid for the Liefkenshoek tunnel in Antwerp. The Liefkenshoek tunnel, under the river Schelde to the north of Antwerp, is the only toll tunnel in Belgium and forms the link between the A12 (Bergen op Zoom – Antwerp) and the N49 (Antwerp – Zelzate).
**Organisation**

NV Tunnel Liefkenshoek was founded in May 1987 as part of a Concession agreement with the Federal State at the time for a third Schelde connection in Antwerp. However, the budget constraints at the time made it impossible to build this tunnel with government funds. Following the example from abroad, the government opted for a private financing formula in the legal form of a concession. As from 10 July 1991 NV Tunnel Liefkenshoek became the concession holder and operator. To enable cross-border financing, in 1996 the Flemish Government decided that it would grant the renewal of the concession needed for this transaction, as a result of which the existing concession was extended by decree up to 2037. Since 29 July 2004 NV Tunnel Liefkenshoek has been a fully-owned subsidiary of NV BAM.

**System(s) description**

No information available

**Technology**

The area leading up to the toll tunnel, which cover 18 lanes, with 9 lanes in each direction (numbered from 1 to 9), which groups the collection of the toll for both directions in 1 place, is situated on the left bank of the Schelde river and was fully renovated in March 2004. The lanes are fitted with an automatic height detection system which determines the category of the vehicle.

**Tariff structure**

The toll charges for the Liefkenshoek tunnel as at 1 January 2012.

<table>
<thead>
<tr>
<th>Rates 2012 in €</th>
<th>Cash payment</th>
<th>Credit card</th>
<th>Teletol/OBU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Green lane</td>
<td>Blue lane</td>
<td>Yellow lane</td>
</tr>
<tr>
<td>Category 1 (height &lt; 2.75m) Tariff A</td>
<td>6.00</td>
<td>4.76</td>
<td>3.42</td>
</tr>
<tr>
<td>Category 2 (height ≥ 2.75m) Tariff B</td>
<td>19.00</td>
<td>16.92</td>
<td>13.62</td>
</tr>
</tbody>
</table>

The category of the vehicle is determined by taking the total height of the vehicle into account. The threshold is 2.75 m. Vehicles that are higher automatically come in category 2 (for example larger delivery vans, delivery vans with a roof load and mobile homes). Other criteria (the number of axles, use, length, weight, type of driving licence or a combination of them) are not used to define either of the categories.

Since 1 January 2001 the Liefkenshoek tunnel can be used free of charge in exceptional traffic conditions. This is shown on the information signs.
Method of payment
In Belgium payment for using the Liefkenshoek tunnel can be made in various ways:

- Payment in cash in euro notes and coins.
  The following currencies are also accepted: US dollars, Danish kroner, Swedish kroner, Swiss francs and pounds sterling. Change is given in euros.
- Credit cards (Visa, Eurocard – Mastercard, American Express, Diners)
- Fuel cards (DKV, UTA, Euro-Shell, Routex, Eurotrafic, Total National Fleet)
- ‘Teletolkaart’ (‘teletol’ system) (teletoll card for the teletoll system)

‘Teletol’ system
Since 1 February 2009 it has been possible to use ‘Teletol’ for the Liefkenshoek tunnel using a ‘Teletolkaart’ (teletoll card), which is valid for an indefinite period. ‘Teletol’ is a subscription system with special teletoll rates. Each passage through the Liefkenshoek tunnel is registered automatically. The ‘Teletolkaart’ (a magnetic card) has to be held through the opened window in front of the antenna of the toll lane, with the vehicle driving forwards slowly. The number on the card is registered on each passage. Also, the ‘Teletolkaart’ is not linked to a vehicle and/or a person. Only a number is given on the card, and it can be used both for passenger cars and for goods vehicles. ‘Teletolkaarten’ can be obtained from Transport en Logistiek Vlaanderen.

There are three lanes reserved for Teletol users, namely lanes 6, 7 and 8, which can be recognised from this logo.

Vehicles can also turn off to other lanes that are fitted with the Teletol system, recognised from this logo:
- passenger cars to lanes 2 and 3
- goods vehicles to lanes 2 and 3 and to lane 1

Lane 1 is specially fitted and is reserved for goods vehicles and exceptional transports.

Subscription holders must spend at least € 50.00 per year in toll charges going through the tunnel. If the figure of € 50.00 is not met, the difference is billed in the following year. If more journeys are made, only the teletoll charge for the passages is paid and no extra costs. Bills have to be paid by direct debit from a Belgian bank or by authorisation from a Dutch bank.

The Teletol contract (valid for an indefinite period) and the general terms and conditions can be downloaded from the Liefkenshoek tunnel website.

Enforcement
Barriers ensure that almost all payments are made.

4.2.2 Eurovignette
The background and aim
Belgium also uses the Eurovignette system, a toll system for goods vehicles on motorways and some other roads in Belgium. The Belgian Eurovignette is part of a scheme that is common for 5 countries of the EU where it has been introduced: Belgium, Denmark, Luxembourg, the Netherlands and Sweden. This means that once it has been collected, this user charge allows the vehicles that are subject to this charge to be driven in the territory of these five countries without any formalities. Since 2008, drivers no longer have to have the Eurovignette in their goods vehicles, but the information is stored electronically - the electronic Eurovignette - and can be called up at any time by the road operator.
The Eurovignette is a charge for the use of the road network by motor vehicles and vehicle combinations that are intended solely for the transporting of goods by road and which have a maximum permissible weight of not less than 12,000 kg. The Eurovignette is payable from the time that the vehicles subject to the charge actually use the road network.

In principle there are two “chargeable” road networks depending on the country of registration:
- a vehicle that is registered or must be registered in Belgium is chargeable as soon as it is driven on the public highway;
- a vehicle that is registered abroad is chargeable as soon as it is driven on the main road network as described in the law.

**Organisation**
No information available

**System(s) description**
No information available

**Technology**
No information available

**Tariff structure**
The Eurovignette applies to motor vehicles and vehicle combinations that are intended solely for the transporting of goods by road and which have a maximum permissible weight of not less than 12,000 kg.

The amount of the Eurovignette is calculated on the basis of tariff scales set by law and is determined by a combination of the following three factors:
- the total number of axles;
- the period of validity (day, week, month or year);
- the degree of pollution or the emission standard of the vehicle.

The following vehicles registered in Belgium are exempt from paying the Eurovignette. Vehicles that:
- are intended solely for tasks in the public interest;
- are only driven occasionally on the public highway (maximum of 30 days);
- belong to foreign diplomatic missions or international organisations that are exempt from all taxes;
- belong to an organisation or an establishment that is exempt from all taxes under an organic law and
- vehicles that are fitted out as a travelling shop,

The tariffs can be consulted on the ‘Eurovignette’ website: www.eurovignettes.eu.

**Method of payment**
Registration and payment for foreign goods vehicles can be made at the private points of sale in the bordering countries, at the authorised customs offices, at the authorised Belgian reception offices or at the offices of the Flemish tax authority. As from 1 January 2011 registration can be made via the online counter of the Flemish tax authority.

When they register, drivers of goods vehicles have to fill in the registration number, the country of origin, the number of axles, the euro emissions class and the period of validity (minimum of 1 day and maximum of 1 year).
The Eurovignette can be paid for in euros directly at the counter when registering using the usual fuel cards, fleet cards and credit cards. If paying by bank transfer, it must be taken into account that the Eurovignette will only be issued when the Flemish tax authority agency (‘Agentschap Vlaamse Belastingdienst’) has actually received the payment in its account.

**Enforcement**

Non-payment (that is to say the vehicle has not been included in the central database for the Eurovignette) for foreign goods vehicles is only established on the public highway by means of the customs procedure. The vehicle is at it were literally chained up until the amount that is due has been paid. If payment has not been made within 96 hours after this has been established, the vehicle is seized. The payment of the amount of the Eurovignette that has been dodged (and the penalty) is made to the investigator.

For vehicles registered in Belgium, in general the same collection procedure applies as for foreign vehicles. Sometimes, however, a notional citation is applied, for example because the vehicle contains perishable goods. In this case the vehicle is not chained up, but can be seized if payment has not been made within 96 hours. Here, the sum is not paid to the investigator, but the person liable to pay the tax has to go to the Flemish tax authority to pay the tax that is due. This authority then gives the person liable to pay the tax proof of payment in order for the vehicle to be released.

4.2.3 Miscellaneous

On some motorways in Belgium there is a shadow toll. Here, not the road user but the government pays the operator a sum of money for each time a vehicle uses a stretch of road. This happens in Belgium:

- at the Cointe Tunnel on the A602 in Liege. This tunnel was completed in 2000 and connects the E25 (from Luxembourg) with the E40 (from Brussels). SOFICO (Société wallonne de financement complémentaire des infrastructures) paid for the building of the tunnel. The Walloon District (‘Waalse Gewest’) pays back the investment on the basis of the number of vehicles passing through the tunnel and
- on the A8, where a shadow toll is levied by SOFICO on the stretch of road between Gellingen and Hacquegnies.

4.3 EET

EETs domains & EETs providers registers:

4.4 Development(s)

It is probable that from 2013 Belgium will introduce a toll for road traffic. The intention is to replace the Eurovignette system for heavy goods vehicles with a tax on the distance travelled. There will be a road vignette for passenger cars, but it is not clear yet what form this will take. Also it still has to be agreed yet when this measure for passenger cars will come into effect. There will be a separate system for foreign drivers, for example a road vignette for a short period. The intention is to invest the revenue in improving the roads in Belgium. As compensation, Belgians will pay less road tax.

**The future Oosterweel tunnel**

The Oosterweel tunnel is a new tunnel that will be built under the Schelde to the north of the city of Antwerp. The Oosterweel tunnel will be a toll tunnel. To ensure the revenues from the Oosterweel connection, goods traffic will be forbidden from using the Kennedy tunnel as soon as the connection is operational.
Passenger cars will then pay a toll for using the Oosterweel tunnel and drive through the Kennedy tunnel at no cost. It is not known yet when this tunnel will be operational. For further information, see http://www.werkenantwerpen.be/projecten/oosterweelverbinding.aspx

4.5 References/links
www.transportenlogistiekvlaanderen.be  Transport en Logistiek Vlaanderen

www.liefkenshoektunnel.be/Teletolsysteem/9031/liefkenshoektunnel  Liefkenshoek tunnel

www.werkenantwerpen.be/projecten/oosterweelverbinding.aspx  The future Oosterweel tunnel

www.eurovignettes.eu  Eurovignette

belastingen.vlaanderen.be/nlapps/docs/default.asp?id=350  The tax portal Flanders
5 Czech Republic

5.1 General introduction
This section deals the Czech Republic. As well as the compulsory toll ‘vignette’, the Czech Republic also has an electronic toll system. The maximum permissible weight (up to 3,500 kg and greater than 3,500 kg) is the determinant for this system. The toll vignette and the electronic toll system are both discussed in this section.

Contact details
Name Ministry of Transport
Address Ministerstvo dopravy České republicy
Nábřeží Ludvíka Svobody 12/1222
110 15 Prague
Czech Republic
Type of organisation Ministry
Website http://www.mdcr.cz/
Department Ministry of Transport
Contact person Pavel Nahodil
Position Head of the Drivers Administration Office
Telephone (+420) 225 131 112
E-mail posta@mdcr.cz

Contact person document Department of Roads
Jan Brouček
jan.broucek@mdcr.cz

Operator Road and Motorway Directorate
Ředitelství silnic a dálnic
Čerčanská 12
140 00 Prague
Czech Republic
http://www.rsd.cz/en

Kapsch Telematic Services spol. s r.o.
Ke Štvanici 656/3
186 00 Prague 8
Czech Republic
http://www.kapsch.net/cz/en

Offices Prague

5.2 Description of the system(s)

5.2.1 Toll vignette
The background and aim
On most highways and motorways in the Czech Republic a toll vignette (sticker) is compulsory for passenger cars (this also applies to foreign passenger cars) with a maximum permissible weight up to 3,500 kg, but not included weight of trailer (change from 2010). Motorcycles are exempt from this obligation. The vehicle details in the registration document determine the total weight of the vehicle or the vehicle with a trailer.
Organisation
State fund for Transport Infrastructure, Sokolovska str. 278, Prague 9, 190 00 CZ, telephone 266 097 295, www.sfdi.cz (organisation responsible for printing and distribution of vignettes)

System(s) description
The toll vignette comprises a two-part sticker on which the vehicle’s registration number must be written with a pen so that it is readily legible. Part one of the sticker must be affixed inside the windscreen at the bottom-right. This way of attaching the sticker restricts the driver’s vision as little as possible, while ensuring that the sticker can be seen clearly from the outside. Part two has to be kept for checking in. If the toll vignette is not fully affixed to the front window, or if the period for which it is valid has expired or the registration number is not filled in, the sticker is not valid. It may not be re-used by a different vehicle, but the sticker remains valid if the vehicle’s registration number has changed. After the expiry date the sticker must be removed from the vehicle.

Examples of these toll stickers can be seen on the Ceskedalnice website (http://www.motorway.cz/stickers).

Technology
The toll vignette on the inside of the front windscreen. The vignette must be clearly visible from the outside, for the purposes of enforcement.

Tariff structure
The tariff of the toll vignette is based on:
- the weight of the vehicle only (without trailer) and
- the validity period of the toll vignette

Toll vignettes can be obtained at the border and from large filling stations.
For passenger cars (including trailer) the tariff is (1 Euro: 25,50 CZK):
- for 10 days: CKZ 310; this sticker starts on the day stated on the sticker and expires at the end of the tenth calendar day.
- for 1 month: CKZ 440; this sticker starts on the day stated on the sticker and expires at the end of the same day of the following month.
- for 1 year: CKZ 1500; these annual stickers are valid one month before and after a calendar year (for example from 1 December 2011 to 31 January 2013).

Method of payment
Post offices, filling stations, road border crossings and motoring associations (cash, payment cards).

Enforcement
The toll vignette (the two-part sticker) which shows that payment has been made, comprises two parts. Part one is affixed to the inside of the windscreen. Part two must be kept carefully. Both parts of the sticker are required during police investigations or checks.
Penalty: a fine of up to CZK 5,000 or a fine notice period up to CZK 500,000 in administrative procedures.
The figure on the following page shows the highways and motorways where a toll vignette is compulsory (http://www.motorway.cz/stickers)
Roads in the Czech Republic where a toll is not charged are indicated by the road sign shown here.

5.2.2 The electronic toll system

The background and aim

In the Czech Republic the Road and Motorway Directorate runs the electronic toll system, which has been in operation since 1 January 2007. As from 1 January 2010, a toll has to be paid for each kilometre driven for vehicles with a maximum permissible weight greater than 3,500 kg (without trailer), collected electronically (this system also applies to foreign vehicles). These vehicles are fitted with the Premid unit. The Premid unit is a small electronic device (an On-Board Unit, OBU) that communicates with the electronic toll system (see the website of the Road and Motorway Directorate, Myto CZ www.mytocz.cz)

Organisation

- Buyer: Czech Ministry of Transport
- Operator: Czech Road and Motorway Directorate
- Mobile Enforcement: Czech Customs Administration
- Project Manager: Consortium of Deloitte and Bovis
- Independent Auditor: LogicaCMG
- General Contractor and operator of services of Electronic Toll Collection: Consortium Kapsch

Kapsch Telematic Services

In March 2006 Kapsch Telematic Services (hereinafter: Kapsch) was awarded the contract by the Ministry of Transport to have an electronic toll system operational in the Czech Republic within nine months (by 1 January 2007), for heavy goods vehicles with a maximum permitted weight of 12,000 kg (3,500 kg as from 1.1.2010).
Among other things the company was responsible for selecting the partners, the system’s technical integration, designing and defining all the operational processes (including the documentation), determining enforcement, training for its partners, staff and the Czech customs officials, designing payment method applications, supplying the OBUs to the initial road users and developing and implementing an integrated communication and PR campaign.

Since then Kapsch has been implementing the kilometre levy for goods vehicles (the contract ends in 2017): an end-to-end, open, multi-lane, free-flow electronic toll levying system that enables the toll to be collected from moving vehicles in unimpeded driving conditions.

This multi-lane free-flow system uses microwave technology: Dedicated Short Range Communications (DSRC). The DSRC antennas are installed on portals over the motorway which are connected to the Premid unit (OBU), and changing lanes does not affect the toll levying transaction. The toll levying process is fully automated.

Enforcement consists of four integrated processes:
- DSRC microwave technology;
- Automatic Number Plate Recognition, or Image Capture of the vehicle;
- Classification of the vehicle according to its dimensions, and
- Classification based on the number of axles, length, width and emission category.

**System(s) description**

The electronic toll levy is carried out using the Premid unit (OBU), which is received when the licence number is registered, and it is registered in the Premid unit (deposit €60 in June 2010). All vehicles with a maximum permissible weight greater than 3,500 kg must be fitted with one of these units. This also applies to vehicles which are exempt from the toll, including the emergency services, the Czech police, the armed forces and the fire service. These exempt vehicles have a special type of OBU. Vehicles with a metallised front window must have the Premid plus OBU, which is fitted with an external antenna. The driver can use any lane, without reducing the speed of the vehicle or stopping. The electronic toll system is fully automated and does not require any intervention on the part of the driver. The Premid unit can be obtained from all 250 Premid Point distribution centres along the toll roads or near them. They can also be obtained from 15 Premid Point contact centres, most of which are located in the regional centre of the Czech Republic.

The area where the Premid unit is intended to be installed is in the lower part of the windscreen, halfway between the middle of the vehicle and the steering wheel. No objects must be placed in the driver’s field of vision as this may impede the driver’s view. The driver is also responsible for the Premid unit being installed properly. Because of the way the unit is fitted - with Velcro - it can be removed and reattached at any time. Thus the Premid unit can be taken to the distribution point (Premid Point) for inspections, for charging, to return or to be exchanged. In these instances it may occur that the Premid unit is carried in a different vehicle but continues to communicate with the toll stations, for which a toll would be charged. A protective cover around the Premid unit then prevents the toll from being charged.

The following must be set on the Premid unit:
- The class of vehicle (without a trailer) is set at registration in accordance with the details on the permit, and cannot be changed by the user.
- The number of axles is set by the driver on the basis of the current number of axles (including attached trailers and semi-trailers). He is responsible for setting the number of axles correctly.

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1 The operating instructions (Premid Guid) for where and how a Premid unit must be fitted in a vehicle can be found on the website of the Road and Motorway Directorate Myto CZ, The Premid Plus Guide also gives the instructions for fitting the external antenna.
**Technology**

When passing a portal an acoustic signal (a buzzer) is emitted by the Premid unit (OBU), which notifies the driver that the toll transaction has been carried out correctly (or incorrectly).

- 1x beep, the toll transaction has been carried out, everything is in order;
- 2x beeps, the toll transaction has been carried out, everything is in order, but the pre-paid balance is low (less than CZK 600), recharge account;
- 4x beeps, the toll transaction has not been carried out, obligatory to find a Premid Point;
- No beep, the toll transaction has not been carried out, obligatory to find a Premid Point.

The electronic toll system’s operation is based on modern microwave technology, which has absolutely no effect on the environment and health. The following must also be taken into account for the Premid unit:

- The Premid unit uses radio interface nos. FSB-LD031 and FSB-LD032 for levying the toll.
- The driver does not own the Premid unit; the OBU is only loaned for the use of the toll system.
- After the period of use has expired, the Premid unit must be returned to the Premid Point.
- The Premid unit must not be opened or handled by unauthorised persons (e.g. subjected to reverse engineering).
- It complies with R&TTE regulations 1999/05.
- It complies with European standard EN 60721-3-5, in accordance with classes 5K2, 5B1, 5C1, 5S1, 5F1 and 5M3.
- Used in accordance with EU Directive 1999/5/EC.

**Overview:**

*Source: Kapsch Telematic Services Czech electronic toll collection – two and a half years’ experience, Ing. Karel Feix General Director, Prague, 15 October 2009*

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2 The declaration of conformity and other documents can be found at www.mytocz.cz.
The technical details of the Premid unit are:
- Operating temperature: -25°C to 85°C.
- Operational air humidity: maximum 90% (at 40°C).
- The Premid unit is maintenance-free.
- Blocking the Premid unit

A Premid unit can be blocked for several reasons. Firstly if the Premid unit has been reported as lost. Secondly, if there is an invalid payment in the post-paid system, because a ‘fleet card’ has been blocked because it is missing or is invalid, or because the bank guarantee has been sequestered, or if a collective payment has been refused. Finally, if a Premid unit is not used for a period of up to 36 months (the advance payment and the balance from the pre-paid system are forfeited to the toll system operator).

Tariff structure
The highways and motorways where the electronic toll system is in operation, see http://www.motorway.cz/toll.

The toll for using a specific section of a road is charged when a toll transaction takes place. A toll transaction occurs when the vehicle drives under a portal of the toll station and the toll applies for using that specific road section. There is also an obligation to pay the toll if the records in the electronic toll system show that the vehicle has to pay a toll for that section of the road, even if a toll transaction has not been registered when passing a toll system station.
The toll tariff also depends on:
- the vehicle category
- the number of axles
- the emission class of the vehicle, and
- in Regulation no. 26/201.

The amount to be paid for using the toll road is calculated as a multiple of the tariff that applies and the length of the section. It is the total of the amount of toll payable for all toll sections driven on a road where a toll levy applies. National and foreign road users pay the same amount. Road users here are:
- owners of the vehicles that are subject to the levying of a toll, or
- their representatives on the basis of an authorisation, or
- the drivers of the vehicles that are subject to the levying of a toll.

SEPTEMBER 1, 2011:
Toll rates for buses (vehicles category M2 and M3), valid for motorways, highways and 1st class roads

<table>
<thead>
<tr>
<th>Emission limit</th>
<th>Toll rates in CZK/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro 0 - II</td>
<td>1,38</td>
</tr>
<tr>
<td>Euro III and IV</td>
<td>1,00</td>
</tr>
<tr>
<td>From Euro V</td>
<td>0,80</td>
</tr>
</tbody>
</table>

JANUARY 1, 2012:
1) Toll rates for motorways and highways
a) Friday 3 – 9 p.m.

<table>
<thead>
<tr>
<th>Number of axles</th>
<th>Toll rates in CZK/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3 4≤</td>
<td>4,24 8,10 11,76</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>3,31 6,35 9,19</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>2,12 4,06 5,88</td>
</tr>
</tbody>
</table>

b) the rest time in week

<table>
<thead>
<tr>
<th>Number of axles</th>
<th>Toll rates in CZK/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3 4≤</td>
<td>3,34 5,67 8,24</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>2,61 4,45 6,44</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>1,67 2,85 4,12</td>
</tr>
</tbody>
</table>

2) Toll rates for 1st class roads
a) Friday 3 – 9 p.m.

<table>
<thead>
<tr>
<th>Number of axles</th>
<th>Toll rates in CZK/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3 4≤</td>
<td>2,00 3,92 5,60</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>1,56 3,06 4,38</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>1,00 1,96 2,80</td>
</tr>
</tbody>
</table>

b) the rest time in week

<table>
<thead>
<tr>
<th>Number of axles</th>
<th>Toll rates in CZK/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3 4≤</td>
<td>1,58 2,74 3,92</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>1,23 2,14 3,06</td>
</tr>
<tr>
<td>2 3 4≤</td>
<td>0,79 1,37 1,96</td>
</tr>
</tbody>
</table>
Revenue in 2009 was about 10% lower than 2008, but about the same as in 2007. Revenue is expected to be higher in 2010 than in 2008. Revenue in 2010 is about 15% higher than 2009. Total revenue estimated for the whole of the year is € 245 million. The break-even point had already been reached seven months after the system came into operation.

At 1 January 2010 there were around 420,000 active Premid units (OBUs) registered. In May there were almost 490,000 active OBUs for vehicles weighing over 3,500 kg. Now 575,000 OBUs are registered.

The forecast for accumulated profit of the electronic toll system up to 2017, for heavy goods vehicles with a maximum permissible weight greater than 3,500 kg, is € 769 million.

**Method of payment**

The Czech Republic has two ways of paying the toll:
- the pre-paid system, where payment is made in advance, and
- the post-paid system, where an invoice is paid.

**Pre-paid system**

In this system, tolls are paid by charging a Premid unit with credit before entering a tolled road. Payment can be made in cash, or by using permitted payment cards (permitted bank payment card and fleet cards). When the toll credit falls below a certain amount (CZK 600), the Premid unit will give an acoustic signal to the driver. Users can receive a statement of their toll transactions upon request. If something is wrong with the Premid unit, the OBU may be returned or replaced in a distribution point or contact point.

**Post-paid system**

This system does not require that the Premid unit is re-charged with toll credit constantly before or during a journey. The user does not have to monitor how much toll credit remains in their Premid unit. The vehicle operator does not have to worry about providing the users with enough cash.

The post-paid system requires the signing of a contract between the vehicle operator and the electronic toll system operator, entered into at a premid point contact centre. The vehicle operator is charged for toll transactions retroactively, and a pre-agreed and admissible means of payment, which is specified in the contract, is used. Upon request, the vehicle operator will receive a regular statement of its toll transactions, and/or other services as agreed upon in the contract.

Compared with the pre-paid method, the post-paid method (secured by a bank guarantee) offers many benefits and a great deal of convenience to vehicle operators. Another comparison is that the post-pay Premid unit can only be returned by a person authorised in accordance with the contract and only to a contact point. It is possible to replace a non-functioning (electronically unreadable) Premid unit with a functioning OBU at a distribution point.

**Enforcement**

The electronic toll system comprises a variety of sub-systems – fixed, portable and mobile enforcement devices – which are described in this section. The system can identify vehicles for which a toll transaction has not taken place, or where the toll transaction could not take place properly. These vehicles are recognised automatically and passed on to mobile enforcement.
Toll system station
The toll system stations are fitted with antennas which enable communication to take place between a toll system station and a Premid unit. When passing a toll portal an acoustic signal from the Premid unit notifies the driver that the toll has been registered. The toll process then occurs by computer.

Enforcement stations
The enforcement stations are fitted with systems to check whether vehicles have a Premid unit installed, whether they are still installed properly and to check the toll payments.

In the event of any deviations, the information is passed to the enforcement centre of the electronic toll system, including a photograph of the vehicle (ANPR). Staff in the enforcement centre verify the data. If an infringement is confirmed, this information is then passed to the mobile enforcement units. They have the authority to stop the vehicle and impose a fine. The vehicle can even be seized.

Portable enforcement devices
As well as the fixed portals, there are also portable enforcement devices that are not linked to a specific place. These enforcement devices can be used on various parts of a road.

Mobile enforcement
Mobile enforcement units, or the 'Customs Administration', fulfil the functions of fixed portals and portable enforcement devices. They are under the authority of the Directorate-General of Customs of the Czech Republic (Generální ředitelství cel ČR), the central headquarters of the electronic toll system, with direct knowledge of all punishable offences. They are authorised by law to stop any vehicles suspected of having infringed the toll system in any way. Should there be legal infringements they are also authorised to impose penalties, initiate an administrative procedure or even to impound vehicles.

The evidence in the records is not removed. Thus mobile enforcement can record a vehicle that might in any way be suspect for a long time after finding it. They can deal with an incident on the spot with the driver, provided they have determined with reliability that the vehicle might be suspect in some way. By imposing the penalty and paying the fine on the spot the matter is settled – but not, however, the obligation to pay the toll. It is also not possible to appeal against the matter later. If the driver refuses to pay the fine on the spot, an administrative procedure is initiated by the mobile enforcement unit, which informs the Customs Office.

5.2.3 Miscellaneous
No information available

5.3 EETS
EETS domains & EETS providers registers:

Czech:

English:
5.4 Development(s)
The following developments have been put in motion:
- Extending DRSC technology to all new highways (2008-2017), approx. 2,100 kilometres.
- Levying a toll on all vehicles with a maximum permissible weight greater than 3,500 kg (started in January 2010).
- Flexible tariffs on the levy: raising the Friday tariffs (February 2010).
- Hybrid toll levy as a solution for secondary roads (trial project).
- Traffic Management System (since 1.1.2009), broad traffic telematics solutions, such as recording traffic data for traffic management and planning, applications for improving road safety.

The future:
- Electronic coupons, time-based payment for passenger cars (2016);
- A hybrid toll system, extending it to all roads on the basis of GPS position finding, and
- Charging in the city of Prague.

5.5 References/links
http://www.mytocz.cz How the electronic toll system works in the Czech Republic
http://www.motorway.cz Czech motorway network (not the official website)
http://www.rsd.cz/en Road and Motorway Directorate
http://www.kapsch.net/cz/en Kapsch Telematic Services
6 Denmark

6.1 General introduction
Denmark does not have a national pricing system yet, but preparations are underway to introduce a system (starting with heavy goods vehicles). Originally the idea was to adapt the Dutch system. After the project in the Netherlands stopped, Denmark is going its own way with preparing a system. The scope and the technique are still subjects of discussion.

Contact details
Name Ministry of Transport
Address Fredriksolms Kanal 27F
1220 Copenhagen K
Danmark
Type of organisation Ministry
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Department Ministry of Transport
Contact person -
Position -
Telephone (+45) 33 92 33 55
E-mail trm@trm.dk

Contact person document The Ministry of Transport  klo@TRM.dk
Karoline Lolk
klo@TRM.dk

Operator -
Offices -

6.2 Description of the system(s)

6.2.1 GPS trial in Copenhagen

The background and aim
As the capital of Denmark, Copenhagen has seen rapid growth in recent years that has led to increased vehicle movements. From 2001 to 2003 a trial of GPS charging was undertaken, looking at distance and zonal charging with 500 volunteers over 4 phases. To examine the behavioural trends, the final phase required volunteers to pay back real money that they had been given in advance. Copenhagen's participation in PROGRESS also allowed the road pricing debate to be progressed in Denmark.

Organisation
No information available

System(s) description
No information available

Technology
No information available

Tariff structure
No information available
6.2.2 Eurovignette
Denmark uses the Eurovignette. For a description of the Eurovignette, see Section 4.2.2.

6.2.3 Miscellaneous

The Storebaelt Bridge
This bridge connects the islands of Funen and Zealand. In Denmark you pay a toll for using the Storebaelt Bridge, which connects the islands of Funen and Zealand on the route to Copenhagen. The 18 km long fixed link across Storebaelt comprises two bridges and a tunnel. Construction work on Storebaelt took place from 1988-1998. The motorway across Storebaelt opened in 1998 and the railway opened in 1997. The construction costs for the entire Storebaelt project totalled DKK 21.4 billion in 1988 prices. The costs were more or less equally apportioned between the road and rail link. A/S Storebaelt raised loans in Danish and international capital markets to fund the construction costs. A/S Storebaelt is a joint venture and is fully state-owned. A/S Storebaelt owns the Storebaelt link (the Great Belt Bridge), road and railway. A/S Storebaelt is responsible for the technical operations and maintenance of the road link and the maintenance of the rail link. A/S Storebaelt owns four ferry ports north and south of the Storebaelt link. These are Odden and Ebeltoft, Spodsbjerg and Taars.

A large proportion of Sund & Baelt’s 137 employees work with the Storebaelt Bridge. In addition, around 200 employees are employed by the private contractors responsible for operation and maintenance tasks on the road and rail link.

System(s) description
To use the lanes marked “BroBizz” or “Credit Card”, vehicles must have a number plate that can be read from the front. Vehicles without such number plates must use the manned lanes marked “Manuel”.

Toll tariffs
Toll charges for individual vehicles are based on height and length, including tow-bars, projecting loads, loose items and trailers. The weight limits denote the vehicle’s permitted total weight.

<table>
<thead>
<tr>
<th>Fee per single trip</th>
<th>Rates in Euro including 25% VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger cars</td>
<td>31 - 47</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>16 - 31</td>
</tr>
<tr>
<td>Passenger car with trailer</td>
<td>31 - 47</td>
</tr>
<tr>
<td>Camper vans</td>
<td>31 - 146</td>
</tr>
<tr>
<td>Van</td>
<td>31 - 92</td>
</tr>
<tr>
<td>Bus</td>
<td>31 - 146</td>
</tr>
<tr>
<td>Lorry</td>
<td>92 – 219</td>
</tr>
</tbody>
</table>

For passenger cars under 6 m, motorcycles and passenger cars under 3 m there are various discounts available (weekend ticket, Saturday ticket, Sunday ticket, evening ticket).
**Method of payment**
The method of payment is by cash (paid in Danish kroner, EURO, Swedish kroner, Norwegian kroner, US dollars, Swiss francs, British pounds). Currencies are settled in accordance with the current rate and a deduction for Great Belt’s change expenses. Change is paid in DKK.

**Enforcement**
If you drive through the toll station without paying, you will incur a surcharge of DKK 500 in addition to the standard price. The Storebælt toll station at Halsskov has 12 lanes in the westerly direction and 10 in the easterly direction (manned or unmanned, depending on the volume of traffic).

In order to make it easier to choose the correct lane, the lanes have different colours:

![Manuel, Kort, Credit Card, BroBizz]

Payment with cards, cash or BroBizz. The manned lanes for all types of vehicles are on the right. BroBizz holders can drive through without stopping. As these lanes electronically record the passage of vehicles with BroBizz, the barriers open automatically. The automatic lanes are on the left. To use the lanes marked “BroBizz” or “Credit Card”, vehicles must have a number plate that can be read from the front. Vehicles without such number plates must use the manned lanes marked “Manuel”.

If you drive through the toll station without paying, you will incur a surcharge of DKK 500 in addition to the standard price.

**The Øresund Bridge.**
This bridge is located between Denmark and Sweden. The construction of the Øresund Bridge began in 1995. It was completed on August 14, 1999. Initially, the crossing was not used as much as expected, probably because of the high tolls. Since 2005 there has been a rapid increase in traffic. This may have been caused by Danes buying homes in Sweden – to take advantage of lower housing prices in Malmö – and commuting to work in Denmark. In 2008, to cross by car, it cost DKK 260, SEK 325, or € 36.30, although discounts up to 75% are available for regular users. In 2007, almost 25 million people travelled over the Øresund Bridge: 15.2 million by car and bus, and 9.6 million by train.

The cost for the entire Øresund Connection construction, including motorway and railway connections on land, was calculated at DKK 30.1 billion according to the 2000 year price index, with the cost of the bridge paid back by 2035. In 2006 Sweden began spending a further SEK 9.45 billion on the Malmö City Tunnel as a new rail connection to the bridge; it is due for completion in 2010.

The connection will be entirely user financed. The owner company is owned half by the Danish government and half by the Swedish government. This owner company has taken loans guaranteed by the governments to finance the connection, and the user fees are the only incomes for the company. After the increase in traffic these fees are enough to pay the interest and begin paying back the loans, which is expected to take about 30 years. The tax payers have not paid for the bridge and the tunnel.
However, tax money has been used for the land connections. Especially on the Danish side the land connection has domestic benefit, mainly connecting the airport to the railway network. The Malmö City Tunnel has the benefit of connecting the southern part of the inner city to the rail network and allowing many more trains to and from Malmö.

**Environmental zones**

Lorries and other heavy diesel-powered vehicles account for approximately half of the harmful particle pollution in the largest cities in Denmark. In order to address this problem, the Danish Parliament has passed an act allowing the four largest cities in Denmark to introduce environmental zones. Environmental zones mean that heavy diesel-powered vehicles either have to meet the stipulated Euro standards or install particle filters. Particle filters catch approximately 80% of particles from a diesel engine. An environmental zone is currently implemented and in force in Copenhagen, Frederiksborg, Odense, Aarhus and Aalborg.

This road sign indicates that you are entering an environmental zone.

The environmental zones include diesel-powered lorries and buses weighing more than 3,500 kg. The requirements for these vehicles are the Euro 4 standard. When driving in the environmental zones you must be able to document that the vehicle meets the relevant Euro standard or has an effective particle filter installed. Otherwise you will be given a fine.

A vehicle that has had a particle filter fitted after purchase will always be able to enter the Danish environmental zones if the filter meets the following requirements. The particle filter must exert a maximum back pressure of 20 kPa at the engine’s maximum output. The particle filter must reduce no less than 80% of particle emissions measured according to recognised EU methods. In regular operation the particle filter must ensure that the gas density after the filter measured at free acceleration does not exceed a K value of more than 0.2 m⁻¹.

### 6.3 EETS

EETS domains & EETS providers registers:

http://www.vd.dk/EETS

As at 20 October 2010 there is one EETS domain in Denmark:

The Great Belt Link (Storebaelt Bridge) between the cities of Korsør and Nyborg.

Data for this EETS domain can be found using the following link: http://www.storebaelt.dk/pdf/omstorebaelt/eets-toll-domain-statement-register-in-denmark.pdf?novary=1286539889

A/S Storebælt
Vester Søgade 10, 6th floor
DK 1601 Copenhagen V
Denmark
http://www.storebaelt.dk/omstorebaelt/eets

### 6.4 Development(s)

The effect of road pricing depends on the pricing level. Investigations conducted by the National Environmental Research Institute (NERI) at Aarhus University show that the total amount of traffic can be reduced by 7-13% with the levels considered. Private traffic in particular, which does not contribute as much to health-damaging air pollution as, for instance, trucks per kilometre driven, will decline. Therefore, the effects on the local health-damaging air pollution will be considerably smaller – NERI estimates that on a trafficked road in Copenhagen, such as
Jagtvej, the NO2 concentration will be reduced by 3% at the most.

As part of the preparations to introduce road pricing in Denmark, the Danish Environmental Protection Agency has asked NERI for suggestions about the setting-up of a pricing model taking into consideration local health problems deriving from air pollution. It is expected that the road pricing system will be based on an in-vehicle GPS unit recording precisely where the car has travelled and the distance travelled. In this way the fee can be calculated per kilometre driven and, possibly also, be differentiated as to time and place. Such a system has not yet been introduced in any other country.

The purposes of introducing road pricing are multiple, and include reducing congestion, accidents, noise and air pollution – or, simply, to impose taxes. In 2004 the Danish Ministry of Transport estimated that external costs per kilometre driven were DKK 0.34, 0.18 and 0.26 for, respectively, congestion, accidents and noise. In environmental economics an externality is an environmental cost (or gain) which the activity of a party imposes on another party without full compensation from the first party.

NERI has calculated the corresponding external costs for the health effects of air pollution on different sizes of cities (see table below). Included are emissions of particles smaller than 2.5 micrometres (PM2.5), NOx (nitrogen oxides) and SO2 (sulphur dioxide). CO2 emission is not included as it has no direct health effects. As can be seen, the health effects clearly depend on the size of the town and the type of vehicle. NOx is the most important factor in the overall picture of the external costs of the road sector, followed by PM2.5 and SO2, while NOx and PM2.5 are almost equally important for large cities (Copenhagen).

The current situation (July 2011) is that work is being carried out on a proposal for the introduction of a pricing system for HGVs. This system is due to be introduced in 2013 on a (limited) number of motorways. In July 2011 it was decided to put this project under the control of the Ministry of Transport. Up until then the project was the responsibility of the Ministry of Finance.

### References/links

- [http://www.storebaelt.dk](http://www.storebaelt.dk) Storebaelt Bridge
- [http://www.sundogbaelt.dk](http://www.sundogbaelt.dk) Operator of the Storebaelt Bridge
- [http://www.mst.dk/English/ECO-technology/environmental_zones_in_Denmark/default.htm](http://www.mst.dk/English/ECO-technology/environmental_zones_in_Denmark/default.htm) Environmental zones in Denmark
7 Finland

7.1 General introduction

In the programme of the current Government it is stated that “Satellite based Road User Charging shall be studied”. The main activities carried out during the years are described below. Finland is currently very active in the area of ITS and Road Pricing is today seen as one part of ITS.

Contact details
Name Ministry of Transport and Communications
Address Yliopistonkatu 5, Helsinki
          PO Box 31, FI-00023 Government
Type of organisation Ministry
Website http://www.mintc.fi
Department Transport Policy Department
Contact person Risto Murto
Position Director of Transport Management Unit
Telephone +358 9 160 28639
E-mail risto.murto@lvm.fi

7.2 Description of the situation

7.2.1 European projects, research etc.
Since the proposal for a Toll Ring in Helsinki in 1993 (see chapter 7.2.2), the Finnish transport authorities have quite actively supported participation in European research projects on EFC, e.g. ADEPT I and II, MOVE-it, MÅNS, VIKING, CARD-ME, DISTINCT, PROGRESS and CESARE IV.

In the Nordic MÅNS project interoperability guidelines were developed, which later lead to the Scandinavian EFC interoperability now known as EasyGo.

In PROGRESS the case of RUC in Helsinki was the scope of the Finnish part of the project. Although no real implementation was in sight, comprehensive traffic modelling of alternative pricing schemes including variations of Public Transport and Parking policies was carried out as well as studies regarding the acceptance of RUC in Helsinki.
The Helsinki Toll Ring proposal 1993

The first real attempt to introduce tolling in Finland was made in 1993. The Helsinki Toll Ring proposal was brought forward by a committee representing the local authorities (among others the City of Helsinki) and led by the Ministry of Transport. Under the public pressure the Transport Minister had to withdraw the proposal, which was quite advanced and also included a proposal for an Act for the toll scheme.
Road pricing in Europe

Study on Regional Heavy Goods Vehicle Charges in South-Eastern Finland (2007)

After the millennium shift the transit traffic to Russia from ports on the Finnish south-coast became a fast growing problem. It was mainly about car import to Russia using car transportation trucks but also other products was imported to Russia via Finnish ports. During the peaks of this transit traffic the truck queues at the Russian border sometimes reached the length of more than 50 km. This meant a serious traffic safety and service level problem on the road network. Furthermore, the Russian trucks drove for free (no road charges are applied in Finland) while Finnish hauliers had to do their business with the Finnish cost level and tax structure. Therefore the Transport Minister asked for a study that should result in a proposal for how the Russian trucks could be charged and thus contributing to the costs of road keeping.

No acceptable way of charging in practise only the Russian trucks could be found. Different tolling schemes were sketched but no solution how the Finnish hauliers could be compensated enough could be found. It was also in the end considered to be impossible to introduce only regional charges in South-Eastern Finland. Charges should be applied nationwide.

Other solutions like traffic management and large truck parking areas were thereafter planned, but in 2006 the HGV traffic across the border dropped from 80,000 veh./month to less than 40,000 veh./month, and no major measures were after all taken. Today the cross-border HGV traffic has grown to 60-65,000 veh/month, so the traffic problems are slowly coming back.

Congestion charging in Helsinki

In 2008-09 a study for Congestion Charging in region of Helsinki was initiated by the Ministry of Transport and Communication and carried out in co-operation with the local authorities. The aim was to develop alternative solutions and thoroughly study the effects of relevant alternatives. In the first phase 10 alternative RUC concepts were developed – all very different. Some of them were supported by DSRC-technology, some only by GNSS. The alternatives are shown in the next figure.

**Scenarios, summary**

![The full set of studied RUC scenarios (2008)](image)
Three alternatives were chosen for deeper analyses. In the end only GNSS-based charges were analysed (scenario 7). Further effect analyses showed that RUC would be a beneficial tool for demand management and from the economical point of view.

The new government installed in April 2011 has decided to look at the possibilities for satellite based charging. This aspiration is also to be included in a new ITS program for developing a multiservice ITS platform in the vehicle.

7.2.3 Other national studies and research

EFC technology review 1992

This study was the first general study on EFC in Finland. It included a review of the current EFC technology, tolling concepts, toll station layouts, system management, costs, legal issues and political considerations.

EFC review 2007 (project: “RUC in Helsinki”)

This study included an up-to-date review of the EFC technology as well as an inventory of the RUC situation in Europe. One result of the study was that the media and politicians became aware of that Finland at that time was (and still is) one of the very few countries in Europe that did not apply any kind of road user charges, i.e. that financial or traffic demand management instrument was not used at all.

Multiservice ITS platform

In 2011 a program for developing a multiservice ITS platform has been initiated and will start in 2012. In this program RUC is seen as one of many service options on the platform. RUC is not assumed to be the “killer application” – rather the platform should be able to take on board RUC and especially EETS, when it appears on the market.

Currently consortiums are formed and they will possibly be partly financed by Tekes – the Finnish Funding Agency for Technology and Innovation.

7.2.4 Shadow tolling and similar PPP schemes

There is already realised one pure shadow tolling project and one project where the payment to the operator is based on the service level of the road. Further are considered as a financing means for major road construction projects. In these projects the private contractor builds the road and operates it for a long period. The contractor is compensated by the state based on e.g. traffic volumes, the level of service of the road keeping or some other criteria.

In 1998-99 the Motorway Helsinki – Lahti (Hwy 7; 69 km) was realised as a shadow-tolling project. The contract is for 15 years of operation and the compensation to the operator is based on the actual traffic volumes.

In 2008 the E18 between Helsinki and Turku (Hwy 1; 51 km) was opened. The PPP contract was for the period 2005-2029. In this case the compensation to the road operator is based the service level: availability (open road sections, open lanes and actual speed limit) and performance (quality).

Further parts of the E18 between Turku and the Russian border are envisaged as PPP-projects, where the service level would be the basis for the compensation (availability and performance).
7.3 EETS
As described, Finland has been quite active in the preparations for EETS in earlier EU-projects and currently in Stockholm Group and Comite Telepeage. European Interoperability of RUC is considered to be for the benefit of Finland, which is a large, sparsely populated country far from Central Europe.

EETS domains & EETS providers registers:

7.4 Development(s)
There are currently no political decisions on any kind of RUC in Finland. In the programme of the current Government it is stated that “satellite based RUC” should be studied. These studies will be started in 2012 and they are likely to mainly concentrate on the effects of such charges.

7.5 References/links
http://www.mintc.fi             Ministry of Transport and Communications

http://www.trafi.fi/en/
finnish_transport_safety_agency/eets/eets-register.             EETS register
8 France

8.1 General introduction
This section deals with France, where the levying of a toll was first introduced in 1955. From that time it became possible to build toll roads. In addition, along with other countries, such as Germany, at the end of 2007 France decided to introduce a charge for heavy goods vehicles (more than 3,500 kg) on all national roads, except on toll roads. In France private car owners do not pay road tax. The French network of toll roads is operated by various private operators.

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8.2 Description of the system(s)

Organisation

In France, there is different kinds of roads managed by different actors:

a) At the State level, there is the national road network with conceded highways (around 9000 km), and non-conceded highways (2612 km) and other national roads (9747 km) which are free of taxes except for heavy goods véhicules (ongoing system to be set mid-2013).
The network is managed by the Transport Infrastructure Directorate of the Ministry in charge of Transport and its antennae throughout the country (the 11 DIR-Interdistricts Roads Departments) for the non-conceded network and the other national roads. At the national level, the Transport Infrastructure Directorate (DIT) determines and implements the road policy at national level and directs the Interdepartmental Roads Directorates (DIR). The DIR are responsible for the management and maintenance of the national and regional roads that are not tolled. Around 40% of the total road network is contracted out to authorised private operators (concessionholders). The various French motorway operators can be seen on the ASFA website (http://www.autoroutes.fr/en/asfa/french-motorway-companies.html). These operators are legal entities delegated by the State, by way of a concession agreement. This agreement sets out, among other things, the responsibility for the financing, design, building, operating and the maintenance of a public infrastructure for a predetermined period of time. On the date when this concession agreement expires, the ownership of and the responsibility for the infrastructure revert to the State. With this system, rapid growth in major government investments in infrastructure projects can be achieved, while the cost price of the project is not borne by the national budget.

b) At the District level, district roads (377,400 km), managed independently by local authorities. Among these, 5,000 km are submitted to the Heavy goods Vehicules Charge (in that case, there is an agreement between the State and the local authorities)

c) At the local level, local roads managed by the Cities (630,000 km)

8.2.1 Description of the Toll system for conceded network
The road toll system in France is based on the distance travelled and depends on the toll domain. The toll (péage) is charged for all vehicles on many motorways by a number of toll operators. An overview of the French toll road network is shown on the left page, a network of around 9,000 kilometres.

Tariff structure
The tariff (charge) of the road toll depends, among other things, on:
- the type of vehicle
- the distance travelled;
- the costs incurred after the building of the stretch of road
- varies by section of road/operator
- the number of axles.

8.2.2 Electronic toll system(s) description
In France, as well as paying in the conventional way (at a toll booth) it is possible to pay electronically and without stopping. An interoperable system has been developed for this, called Liber-t for cars and TIS-PL for heavy goods vehicles. There are two types in this system, the Liber-t Box (light vehicles) and the TIS-PL Box (heavy goods vehicles.
The OBU is a Dedicated Short Range Communication (DSCR) transponder in the vehicle that is read when the vehicle passes through a toll portal. Depending on the type of subscription, the administration costs are about € 2.00 per month. This only applies for those months in which the OBU is used. However, some toll road operators charge a fixed amount of about € 10.00 in administration costs if in a consecutive year the OBU is not used. If the OBU is used at least once each year, these costs are not charged. The driver can drive past every toll station regardless the concessionaire, without stopping. The electronic toll system is fully automated and in general does not require any action on the part of the driver.
The Liber-t Box and the TIS-PL Box can be obtained at toll booths and via the internet (various toll road operators). These télébadges remain the property of the toll company or the service provider.

The Liber-t Box applies for:
- vehicles (including trailer) with a maximum permitted weight up to 3,500 kg;
- vehicles up to 3 metres high (optimal for vehicles up to 2 metres high);
- motorways.

It is also possible to use the Liber-t Box for paying parking costs automatically in various car parks. For details, see the VINCI Park website (http://www.vincipark.com).

The TIS-PL Box applies for:
- vehicles (including trailer) with a maximum permitted weight of more than 3,500 kg;
- vehicles more than 3 metres high;
- with 2 or more axles;
- not a commercial vehicle;
- national roads.

The authorised operators are also broadening the Liber-t system with subscription schemes. These are adapted products that fit closely with the various needs of the users. These include the following products:
- preferential rates for students;
- free subscriptions for drivers with a disability;
- a membership fee of € 2.00 per month for occasional users;
- special discounts for live/work subscriptions;
- special discounts through partnerships with local councils, for a more efficient flow of traffic on connecting roads.

The hands-free toll tag holder – the Liber-t Box – must be installed inside the vehicle, at the top of the windscreen and a little to the left of the rear view mirror.

Liber-t, the electronic toll system for cars’ passengers in 2009:
- 3,810 lanes
- 126 toll gates
- 2,789,215 subscribers at the end of 2009
- 591,000 télébadges
- 389.7 million transactions
- 150.3 transactions per year per tag
- 179 car parks that have accepted Liber-t (Vinci Park)
- 1,437,990 car park transactions per year using Liber-t

TIS-PL, the electronic toll system for goods vehicles (>3,500 kg) in 2009:
- 1,236 lanes
- 591,000 subscribers at the end of 2009
- 153.2 million transactions
- 235 transactions per year per tag
- 179 car parks that have accepted Liber-t (Vinci Park)
- 1,437,990 car park transactions per year using Liber-t
**Enforcement**

Barriers ensure that almost all payments are made. From the preventive aspect, visual and sound alarms are installed, and there is also the inhibiting effect of the control staff present. The police also act to prevent instances of non-payment. By law, video enforcement is not permitted. The only way in which a violation can be recorded is by a “visual statement” by the police or by authorised toll company staff. Toll companies do not have access to the registration number database and they are not authorised to report someone committing a violation and to impose a fine. The toll company can send the violation statement to the police and then wait whether the police finally send this on.

### 8.2.3 Heavy goods vehicles charge

Along with other countries, such as Germany, at the end of 2007 France decided to introduce a charge for heavy goods vehicles (more than 3,500 kg) on all national roads, except on toll roads.

The objectives are to:
- reduce the environmental impacts of the road freight transport, by influencing the choices made by shippers by including a charge covering external costs associated with using this mode of transport,
- finally rationalize road transport over the medium and short distances (for example to reduce the number of empty trips and increasing the transported load, improving the distribution of traffic between conceded and non-conceded networks, optimizing the production processes of goods in order to generate a decrease in transport),
- obtain resources to finance the new infrastructures required for the implementation of the sustainable transport policy, in a multimodal perspective.

In this spirit, the revenues collected on the national road network will be assigned to the Financing Agency for Infrastructure of France (AFITF), whereas those collected from the local networks, after deduction of the costs relevant to the collection, will be paid out to the territorial authorities managing the taxed roads.

The national heavy goods vehicle eco-tax concerns all motorways and highways of the state road network located in mainland France, except the motorway and road sections subject to toll and routes on which the heavy goods vehicle traffic level is particularly low (under 800 per day both ways).

The territorial authorities’ roads which are expected to be affected by a high traffic shift coming from the toll motorways or from roads subject to the national heavy goods vehicle eco-tax or to identical charges in force in the neighboring countries, can also be subject to these charges. These roads have been defined by a decree in the Council of State, after advice by the deliberative assemblies of the managing local authorities ending a 2 years consultation phase. Overall, the length of the network subject to national heavy goods vehicle eco-tax amounts to 15,000 kilometres.

The national heavy goods vehicle eco-tax will be calculated based on the distance covered. For the same trip leading to the same result, whatever is the precision authorized by the locating technologies, this distance will be calculated by adding up the length of pre-determined elementary sections. For this reason, the taxable network is cut up into charging sections. A charging point is associated with each charging section, the passage by the charging point is the generating act of the national heavy goods vehicle eco-tax.

These elementary sections, called charging sections, are defined for the national heavy goods vehicle eco-tax as sections of taxed road between two successive intersections with other public roads.
In the cases where the intersections with public roads are close to one another, thus leading to very short sections, several adjacent charging sections can be joined at the State’s initiative. This ensures that the collection cost of the national heavy goods vehicle eco-tax will not be disproportionate to its product. Approximately 4,000 points have been defined.

The system will distinguish two operating methods for the payment of the national heavy goods vehicle eco-tax, depending on whether or not the person liable for tax has chosen to subscribe to an electronic toll system service:
- post-payment for the subscribers liable for tax having subscribed to a contract with a registered authorized electronic toll system company;
- down payment for the non-subscribers liable for tax, who should make a deposit and a prior down payment from which the national heavy goods vehicle eco-tax will be deducted.

The principle, for the subscribers liable for tax as for the non-subscribers, is the free collection service for the heavy goods vehicle eco-tax. This principle does not prevent the requirement of a deposit by the system operator during the supply of the on-board equipment to a non-subscriber, or the requirement of a deposit or guaranties by the electronic toll system companies when arranging a subscription.

The gross total annual amount of the tax to be collected is estimated at 1.2 billion euros at the coming into effect of the national heavy goods vehicle eco-tax, based on a weighted average rate of 12 cents per vehicle kilometre.

The enforcement system will be able to detect vehicles which do not comply with the conditions of the national heavy goods vehicle eco-tax, identifying and imposing penalties upon them. This system is strategic to limit fraud.

The enforcement system relies on the following means:
- The automatic enforcement means, allowing a very larger number of checks on the taxable network:
  - Fixed automatic enforcement on the routes bearing a strong traffic of vehicles liable for tax or on dedicated areas;
  - Moveable automatic enforcement, less predictable in order to complete the fixed devices, in particular on the other routes.
- So-called “manual” enforcement facilities which complete the automatic system:
  - Control of User liable for tax on control or parking areas, on the taxable network and beyond (on the conceded network, in particular);
  - Post-control of companies.

In case of non-payment (or partial payment) of the national heavy goods vehicle eco-tax or of the Alsace experimental tax, the offender is liable to both:
- the amount of the evaded tax (real tax when the base data is known, if not, a lump sum tax);
- of a customs fine of up to € 750.00

The State entrusts Ecomouv’, holder of the partnership contract, the execution of an overall mission including financing, design, execution, operation, servicing and maintenance of the necessary system for collection and enforcement of the national heavy goods vehicle eco-tax.

The national heavy goods vehicle eco-tax should come into effect mid 2013, 21 month after the partnership contract has been signed. It will be preceded by the Alsace experimental tax few months before.
The choice of technology for the enforcement and collection system of the base data of the national heavy goods vehicle eco-tax, compliant with the requirements fixed by the “Interoperability” directive, is finally a GNSS system.

Interoperability is at the heart of the project. The collection of the national heavy goods vehicle eco-tax from the subscribers liable for tax will be ensured by the electronic toll system companies, registered by the State and contracting with the contractor. These companies will be responsible for the supply of on-board equipment, invoicing and collection from the subscribers liable for tax. The distribution of responsibilities between the registered electronic toll system companies and the contractor, as well as the relevant financial conditions, is settled by a contract which will be established in respect with a general framework shaped as a standard contract. The contractor should contract with any electronic toll system companies duly registered according to the terms of the standard contract.

8.3 EETS
EETS domains & EETS providers registers:
http://www.developpement-durable.gouv.fr/Le-registre-electronique-national.html
France has already transposed into national law the Commission Decision of 6 October 2009 on the definition of the European Electronic Toll Service and its technical elements.

8.4 Development(s)
No information available

8.5 References/links
http://www.autoroutes.fr ASFA (Association des Sociétés Françaises d’Autoroutes)
http://www.vincipark.com VINCI Park
http://www.developpement-durable.gouv.fr Ministry in charge of Transport
http://www.ecomouv.com/fr French HGV Eco-Charge Operator ECOMOUV’
http://www.legifrance.gouv.fr Legifrance
9 Germany

9.1 General introduction

Germany is the first country in worldwide to have introduced a GPS-based toll system. It applies to trucks weighing over 12,000 kg. This makes Germany the trendsetter in Europe. After a difficult start with technical problems the system is now operating well and work is ongoing to improve the system and expand the road network.

The LKW-Maut (toll system for heavy goods vehicles) has a long history. For many years Germans were critical of the fact that foreign HGVs used German roads at no cost. Thus back in 1989 the German government came up with the idea of having foreigners pay via the charge for using roads (SBG, Strassenbenutzungsgebühr). This levy would be in the form of a 'vignette' (or sticker) which would cost € 3,500 annually. Bonn intended to compensate German carriers by the same sum, € 3,500 annually through the vehicle tax. But then the European Court of Justice intervened, citing a distortion of competition. The idea was ultimately amended and revised to become the Eurovignette.

In 2003 Germany decided to choose its own system, namely the ‘LKW-Maut’ system. After complex preparations where the introduction date was postponed several times (the original start date was 31st August 2003), the system came into operation on 1 January 2005 without any significant problems.

Germany also has two privately-financed toll tunnels and has introduced environmental zones in a number of areas.

Contact details

<table>
<thead>
<tr>
<th>Name</th>
<th>Bundesministerium für Verkehr, Bau und Stadtentwicklung</th>
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<tbody>
<tr>
<td>Address</td>
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<tr>
<td></td>
<td>Invalidenstr. 44</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Detlef Marek</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:detlef.marek@kba.de">detlef.marek@kba.de</a></td>
</tr>
</tbody>
</table>

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http://www.toll-collect.de

Offices

Berlin (head office), Hannover-Langenhagen, Nürnberg, Pforzheim and Wuppertal.
9.2 Description of the system(s)

9.2.1 LKW Maut system

The background and aim

Because the introduction of a vignette was not permitted by the European Court, the LKW-Maut was chosen because it is fairer than the Eurovignette. This is because it provides a greater ability to differentiate by truck weight and environmental class (this was further implemented in 2005). In calculating the levy the vehicle's weight and the number of axles are taken into account, and the extent to which the environment is harmed. The toll is levied on motorways only and a few federal road to avoid diverted traffic. An extension of about 1000km of federal roads (similar to motorways) is agreed by the politicians but not yet implemented by Toll Collect. The levy is also calculated based on the number of kilometres driven by the vehicle on German roads, i.e. on the basis of use. With this system, both national and foreign vehicles pay for the harm they cause to the roads and the environment.

System(s) description

The system works with what is called an On-Board Unit (OBU) mounted in the truck. The unit is installed by a limited number of authorised installation stations (service partners), guaranteeing the quality of the OBU and the installation. The OBU is made available by Toll Collect and remains its property. For the current model variety of OBU you should ask Toll Collect or simply a service partner. The installation costs are also borne by the user. He does not have to pay for the OBU.

The service partner handles the entire process, from installation through to notification. There is a limited choice of three models (two are built-in and one is built-on). The OBU comprises several components and is connected to the vehicle through a link to the tachograph. The gyro is built-in the OBU and no link to the vehicle. The built-in GNSS (GPS) receiver establishes which section of the road the vehicle is travelling on. So the GPS signal is not used for calculating the distance covered. Once the road section is determined, the entire section is charged. This section of road is measured using a calibrated method (see www.mauttabelle.de) for all road segments. Communication between the back office and the OBU is by GSM/GPRS. This is a closed connection, and the accumulated amount of toll are sent to the back office via this connection. The system also sends communications from the back office to the OBU, such as software updates for example. The OBU also contains a DSRC enforcement interface. The OBU provides two short-range communication interfaces: Infrared for Enforcement and localization beacons and 5.8 GHz microwave for interoperability with other systems (like Toll2Go service with Austria).

Using this interface an enforcement vehicle can read the status of the OBU even when it is moving (see also the section on enforcement). Should there be (suspected) fraud the OBU can turn to a status “not in operation”, i.e. red light. The user has to book manually and contact Toll Collect.

Technology

When preparing the truck for a route various information has to be entered before starting: the maximum weight (once), the number of axles (once), new/existing route and optionally the cost item (this latter appears on the account for settlement later). When using the OBU the costs of the journey are recorded (both the total per journey and also for each section).
Organisation

The legal regulations on the obligation to pay the toll determine the framework within which Toll Collect operates as the contractor in the Public Private Partnership: Toll Collect has implemented the satellite-supported toll levy system and operates it as a partner of the Federal Republic of Germany. As the operator, the following tasks have also been assigned to Toll Collect: establishing the road use for which a toll has to be paid and checking payment of the prescribed toll levies as well as levying the toll retrospectively in certain cases. As a company governed by private law, Toll Collect has no influence on determining whether a vehicle is liable to pay the toll or is exempt. Deciding which vehicles are liable for the toll and which roads entail an obligation to pay the toll, the extent of the charges and which environmental classes are defined, are all determined by the legislator. Responsibility for the road network where a toll has to be paid rests with the Bundesanstalt für Strassenwesen (BASt) (the Federal Highway Research Institute). One of the responsibilities of the BASt is measuring the length of the roads comprising the road network subject to toll, for example. Ongoing updating of the chargeable road network (for example when new sections of road are built) also falls under the BASt’s responsibility.

Toll Collect is a consortium formed by Daimler Financial Services AG (45%), Deutsche Telekom AG (45%) and the French company Cofiroute S.A. (10%). Some 500 people work for Toll Collect and its offices are in Berlin (head office), Hannover-Langenhagen, Nuremberg, Pforzheim and Wuppertal.
In 2010 Toll Collect received €490 million of the toll revenue collected (11%). This is as payment for operating the system.

The “Bundesministerium für Verkehr, Bau und Stadtentwicklung” (BMVBS) has the overall political responsibility for tolling. It had also the responsibility for the tender for selecting the operator and for the introduction of the system. The KBA (responsible a. o. for keeping the central traffic registers) is not responsible for the project or systems. KBA is involved in the control system by delivering relevant data from the central vehicle register to requests by number plate from the automatic control bridges (e. g. in case a “scanned” truck is not registered in the Toll Collect system) or from the stationary or mobile controls. Additionally KBA delivers the vehicle holder data to BAG in case the toll was not (properly) paid and the offence has to be enforced. The authority responsible for control and enforcement is the BAG.

**Tariff structure**

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<td></td>
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<td>Up to 3 axles: 27.3 cents 4 axles or more: 28.7 cents</td>
<td>Up to 3 axles: 27.3 cents 4 axles or more: 28.7 cents</td>
</tr>
<tr>
<td>Euro I / Euro 0</td>
<td>Category D</td>
<td>Up to 3 axles: 27.4 cents 4 axles or more: 28.8 cents</td>
<td>Up to 3 axles: 27.3 cents 4 axles or more: 28.7 cents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 3 axles: 27.3 cents 4 axles or more: 28.7 cents</td>
<td>Up to 3 axles: 27.3 cents 4 axles or more: 28.7 cents</td>
</tr>
</tbody>
</table>

1) The particulate abatement categories (PAC) are standards for the retrofitting of equipment to reduce emissions of particulate matter. PAC II meets the particulate matter emissions standards of Euro IV, and PAC I meets the standards of Euro III. Thus, for the purposes of toll levels, PACs II and I are deemed equivalent to emission categories Euro IV and Euro III respectively.

2) The percentages of vehicle kilometres are based on forecasts for 2010.

A number of changes were implemented from 1 January 2009. Tariffs differ depending on emissions. The rates that trucks pay now depend strongly on the vehicles’ emission values. The difference between the lowest and the highest category rose from 50 to 100 per cent based on emissions. Trucks now pay between 14.1 and 28.8 cents per kilometre, depending on the number of axles and the emission category. The government also made €100 million available annually to encourage the use of low-emission vehicles.

**Exceptions:**

In accordance with §1 subsections 1 and 2 of the German Motorway Toll Act for Heavy Commercial Vehicles (ABMG), certain vehicles and vehicle combinations are exempt from the toll. These include: Buses and coaches, Military vehicles, Police vehicles, Civil defence and emergency rescue vehicles, Vehicles used by a non-profit-making or charitable organisation to transport emergency aid in serious humanitarian crises, Fire service.

The new toll rates are expected to generate additional revenues of €1 billion in 2009. Some of the revenue will go to extending and improving the German infrastructure, and the rest will be directed to general resources.
Revenues rose to about € 4.4 billion in 2009. The VIFG (Verkehrsinfrastrukturfinanzierungsgesellschaft) (transport infrastructure financing company) has been set up for investments in infrastructure. Each year the revenues are made available to it and the company can allocate this money to roads, railways and canals. Thus the lock dues from inland shipping are also directed to the VIFG. However revenues from the usage levy for the German railways remain under the control of DB Netz AG. Between 2004 and 2009 the VIFG invested a total of € 15.1 billion in infrastructure.

At the end of 2008 there were 938,000 vehicles registered with Toll Collect. Between 2005 and 2008 the percentage of trucks in the lowest emission category rose from 1 to 40 per cent. At the same time the number of vehicles in the highest categories fell from 48 to 8 per cent.
In the 2010/2011 business year around 140,000 domestic and international transport companies with more than 900,000 toll-liable vehicles are registered with Toll Collect. More than half of these trucks are from outside Germany. In total, nearly 690,000 vehicles are equipped with OBU for satellite-based toll collection. This system is used to generate more than 90% of toll revenues. Recent figures can be taken from the Toll collect website.

**Method of payment**
The user can pay the toll in several ways. This can occur using an OBU with an account so that payment can be made afterwards, but payment can also occur using a credit card or fuel cards for example. If these are not used, participation can also be manual, by booking the route on the internet or using payment terminals which are either in Germany or abroad (near the border). The user then receives proof of payment and this proof has to be shown if asked.

**Legal basis for collecting the toll**
The Toll Act and the Toll Regulation provide the legal framework for introducing the distance-based truck toll. The Motorway Toll Act for Heavy Commercial Trucks, which took effect on 12 April 2002, provides the legal basis for collecting the new, distance-based toll. It determines, for example, which vehicles must pay toll on motorways, how the toll is collected, and how toll collection is enforced.

The Motorway Toll Act authorizes the German government to set the amount of the toll by regulation. This was implemented by the Regulation Setting the Amount of Toll. The German Toll Order regulates all details of truck-toll collection. The Toll Route Extension Order regulates toll collection on selected German trunk roads. The legislation has been updated recently, see http://www.gesetze-im-internet.de/bfstrmg/index.html

9.2.2 **Motorway Toll Act**

**Vehicles required to pay the toll**
All vehicles or vehicle combinations with a gross vehicle weight of 12,000 kg or more and designed or used exclusively for goods transport (§ 1 subsection 1 ABMG) are required to pay the toll. Currently ther is only one weight class (>12t). No further differentiation. Trucks below that are simply not toll liable.

**Toll road network**
The requirement to pay toll applies to German motorways, including fuel stations and rest stops, and some trunk roads.

**Toll amount**
The toll amount is based on the truck´s emission category and number of axles, as well as on the length of the toll route.
Exemption from paying toll
Under § 1 (1) and (2) of the Motorway Toll Act, certain vehicles and vehicle combinations are exempt from paying the toll for heavy trucks.

Enforcement
Toll enforcement and the punishment of violations are the responsibility of the Federal Office for Goods Transport (BAG). Toll Collect has provided BAG with the technology needed for an effective enforcement system so that BAG can enforce correct booking of the toll, thereby ensuring that all toll payers are treated equally. With the aid of this system, BAG can determine if a vehicle is obliged to pay the toll and if it has met this obligation fully, partially, or not at all.

The control system distinguishes between automatic enforcement through control bridges, enforcement by stationary and mobile teams, and company-level enforcement. This combination guarantees comprehensive, continuous enforcement of the requirement to pay toll and allows the control system to be constantly adjusted to meet prevailing circumstances. Also for automatic enforcement Infrared communication is used.

Automatic controls
300 permanently installed gantries are used to enforce toll requirements without interrupting traffic flow. Sensors on the control bridges scan the silhouettes of passing trucks to determine whether they are required to pay toll. A camera takes a number of digital photos of the truck’s number plate. At the same time, DSRC communication is used to determine whether the vehicle is equipped with an OBU. If so, the OBU transmits the current toll collection data to the control bridge, where it is compared with the control data that has been recorded. If the vehicle does not have an OBU, its number plate is compared against a list of all manual log-on data. In this way, it is determined whether the driver has paid the correct toll based on the number of axles on the truck, its pollution class and the route in question.

If the automatic review determines that the toll has not been properly paid, the data is transmitted to enforcement department of Toll Collect for manual review. If the results of the automatic review are confirmed, the data is stored and provided to BAG to punish the offence.

Once it has clearly been established that the toll has been paid, the data is deleted immediately.

Stationary team controls
Stationary inspections are carried out by BAG officers at selected parking lots near the control bridges. The control teams receive wireless data on vehicles that may not have properly paid the toll. This occurs seconds after the truck passes under the control bridge. The team then pulls the truck over for a detailed inspection.

Mobile team enforcement
BAG deploys approx. 300 control vehicles nationwide to enforce toll collection. The enforcement teams use infrared technology to determine whether passing trucks are logged onto the automatic system and if their vehicle information has been properly entered. The teams can check manual log-on data directly with Toll Collect headquarters by using a PC with mobile telecommunications equipment. If BAG determines that a toll has not been properly paid, it can immediately pull the truck over.

Company-level enforcement
BAG employees perform company-level enforcement by randomly checking freight transport companies on-site to determine if they have paid the required toll.
Consequences of toll infringement
Where incontrovertible evidence of non-payment or incomplete payment of the toll is established, the amount of toll due for the route travelled will be retrospectively charged, and the defaulting user is also liable to payment of a fine. Where the actual route cannot be determined, a retrospective charge will be made for a nominal distance of 500 km (312.5 miles). During the enforcement check, the required input data, including vehicle registration or toll-rate class, will be recorded and summary proceedings will be instituted by BAG against the defaulter. The standard fine for not paying is € 200.00. All fines are between € 35.00 (e.g. wrong number of axles) to € 400.00.

The BAG is also responsible for measuring and calculating the general detection quota (currently 99.86%).

9.2.3 Miscellaneous
Toll
There are two toll tunnels in Germany. The Warnowtunnel and the Herrentunnel. Both are financed with private money.

The Warnow tunnel
The Warnow Tunnel (also known as the Warnow River Crossing and the Warnowquerung in German) is a road tunnel 790 m long which connects the east and west bank of the Warnow river in the Hanseatic city of Rostock in Mecklenburg-Vorpommern, Germany. It is Germany’s first toll road in modern times and was opened on 12 September 2003 by Federal Transport Minister Dr. Manfred Stolpe.

The tunnel was built using a technique known as Immerged Tube Construction: the main part of the tunnel consists of six prefabricated concrete conduits which were formed and poured in a temporary drydock nearby, floated out into the river and lowered into a dredged channel in the river bottom. This is a technique apparently pioneered in the Detroit River in the construction of the Detroit–Windsor Tunnel in 1930, and has been used for underwater tunnels ever since.

The 50-year operating concession is held by Warnowquerung GmbH & Co. KG, which is 70% owned by the Australian investment company Macquarie Infrastructure Group, which operates many toll roads worldwide. There is a toll tariff (€ 2.30 – € 12.70) per passage. This can be paid by cash, chipcard (oscard) or a Tag. The Tag is a DSRC tag which can be bought for € 25.00 and can be installed by the user. The user gets a discount by using this box. The ‘quick box’ is independent of the car and can be used in different cars. It is also possible to pay a basic fee and a smaller amount per passage.

Herrentunnel
The Herrentunnel is in operation since August 2005. There is a toll tariff (€ 1.30 – € 10.00) per passage. This can be paid by cash, chipcard (so called Travepass), fleetcard or a so called ‘Quick-Box’. The ‘Quick-Box’ is a DSRC tag which can be bought for € 25.00 and can be installed by the user. The user gets a discount by using this box. The ‘Quick-Box’ is independent of the car and can be used in different cars. It is also possible to pay a basic fee and a smaller amount per passage (Quick-BoxPlus tarif). In this case the box can only be used by one car. The operator: Herrentunnel Lübeck GmbH & Co. KG operates the Herrentunnel.

The shareholders are HOCHTIEF PPP Solutions GmbH and BILFINGER BERGER BOT GmbH, whose know-how and experience are behind the building, maintenance and operation of the Herrentunnel.
The banks also endorse this wealth of experience, and including the federal grant and the equity of the concessionaire, guarantee the financing. The Bund and the Land set and ensure the toll charge.

**Environmental zones**

To prevent small particulates in the air, especially in city centres, what are known as “Umwelt zones” (environmental zones) have been introduced. These are zones where there is a lot of pressure on the environment, especially from small particulates in the air. Cars with too many fine particulates are not permitted to enter areas that have been designated as an “Umwelt zone”.

To see whether a car is allowed to enter the area or not, an “Umwelt” sticker is needed. This sticker is available on request (price approximately € 10.00). The car is given a colour. The Vehicle Registration Regulation stipulates uniformly throughout Germany the registration of passenger and commercial vehicles according to their particle emissions (fine particle emissions) and allocates the vehicle to pollutant groups. This law enables cities and municipalities to set up environmental zones if the emission threshold values for fine particles are exceeded. These measures are intended to ensure cleaner air in inner city areas and other areas of dense traffic by reducing fine particle pollution. Labelling a vehicle with an emission sticker, also often called a “fine particle sticker”, is voluntary. But vehicles without this sticker are not allowed into environment zones, otherwise there may be a fine of € 40.00 and one point in the Traffic Offences Register in Flensburg. This also applies if a vehicle without a sticker drives into the environmental zone although it could be given a sticker according to its emission code number. Vehicles registered in other countries also need a sticker.

The Broad classification is:

**Red**
a car with a licence plate between 31-12-1996 and 01-01-2001 (diesel)

**Yellow**
a car with a licence plate between 31-12-2000 and 01-01-2006 (diesel)

**Green**
a car with a licence plate after 31-12-1992 (petrol) or after 31-12-2005 (diesel)

The “Umweltzone” is manually enforced by police or other responsible control authorities by looking if a sticker (with the right colour) is on the front window of the vehicle.

9.3 **EETS**

Since 1st September TOLL2GO service launched in cooperation with the Austrian toll system operator ASFINAG. With TOLL2GO, trucks weighing 12 tonnes or more can use a single device, the Toll Collect OBU, to pay road usage charges in Germany and in Austria. The two toll system operators have successfully managed to link a microwave system with satellite-based toll system. More than 4,000 vehicles registered for the new electronic toll system within the first 14 days of operation.

EETS domains & EETS providers registers:

EETS domains register:
Road pricing in Europe

EETS providers register:
http://www.bag.bund.de/cln_009/DE/Navigation/Mautdienst/EETS_Anbieter/eets_anbieter_node.html

Further information can be found at the homepage of the Federal Office for Goods Transport:
http://www.bag.bund.de

9.4 Development(s)
The German truck toll system is operating well. General possibilities are to expand the road network (not only motorways) and/or the vehicle categories (e.g. light weight trucks, passenger cars). There are no political decisions yet on these issues.

9.5 References/links
http://www.mauttabelle.de Current summary of charges
http://www.bmvbs.de Federal Ministry of Transport, Building and Urban development
http://www.kba.de Kraftfahrt-Bundesamt
http://www.umweltzone.net/home Informationsportal Umweltzone.net
http://www.herrentunnel.de Herren tunnel
http://www.warnowquerung.com Warnow tunnel
http://www.toll-collect.de Toll Collect
http://www.ages.de Ages
10 Italy

10.1 General introduction
In Italy a toll is levied for the use of almost all motorways. Rome has an urban levy. In addition, toll is levied for the Great Saint Bernard Tunnel, the Mont Blanc Tunnel, the Fréjus Tunnel and the Munt la Schera Tunnel. This section describes all these forms of toll revenue.

Contact details
Name: Ministry of Infrastructure and Transport
Department: Department for Land Transport
Address: via. G. Caracci, 36 - 00157 Rome
Type of organisation: Ministry
Website:
Department:
Contact person: Dott. Ing. Antonio Erario
Position: Head of Division 1 - International Regulatory Affairs
Telephone:
E-mail: antonio.erario@mit.gov.it
Contact person document: Dott. Ing. Antonio Erario
Operator: Autostrade per l'Italia - Società per azioni
Via Alberto Bergamini 50
00159 Roma
info@autostrade.it
www.autostrade.it
Offices:

10.2 Description of the system(s)

10.2.1 The electronic toll system
The background and aim
The motorway, or autostrada, is the super highway through Italy. Nearly all motorways in Italy are toll roads, most of which (over 2,855 kilometres) are operated by the Autostrade group. The first 800-kilometre long toll road, between Milan and Naples, was completed in 1956. In general, no tolls are levied in the south of Italy. This is a measure of the Italian government to stimulate the local economy.

The amount of the toll is usually based on the length of the section covered and in general is determined by tickets that are issued when approaching the motorway, or on some stretches of the motorway a fixed amount is charged. Payment can be made in cash, at some places with a credit card or everywhere with the VIA card and the Telepass. Only the VIA card and the Telepass are recognised throughout Italy – apart from Sicily – and are recommended in order to prevent queues at the payment stations when paying in cash.

Organisation
The Italian roads sector is financed from the toll revenues from motorways and tunnels. Concessions for toll roads were introduced by law (Codice della Strada) in 1929. The fundamental principles for infrastructure concessions are laid down in the Codice della Strada, and also the role of the supervisory body - ANAS. ANAS is the national roads authority. It is responsible for the main roads network, both directly (for toll-free roads) and indirectly (through the granting of concessions).
The criteria for calculating toll tariffs and other rules setting out the details of the concession are provided for in a specific law or act authorising each particular concession. Further details on this are set out in a detailed set of rules (conventions) between the concession-holders and ANAS. The concession-holders are responsible for collecting toll, roads information and providing assistance.

One of the aspects set out in the convention is the annual revision of toll tariffs, based on a complex price-cap system by the concession holders. This takes inflation into account, the scope of the services that the concession-holders provide and the changes in the quality of the service.

The tolls vary depending on whether the vehicles are for passengers or for carrying goods, and within this differentiation also by weight and the number of axles. The toll tariff is also a representation of the costs of building, managing and maintaining the road network and for this reason varies for each individual concession. The concession-holders pay 20% VAT on the revenue and are obliged to use the revenue for investment in those roads that generated the income, after deducting a profit margin. On top of the 20% VAT, a small amount of the toll is paid to the Central Guarantee Fund, managed by the Ministry of Economic Affairs. The Central Guarantee Fund is a guarantee fund if a toll company gets into a financial crisis.

Most of the motorways in Italy are operated by the Autostrade group. In 1999 the company was privatised by the Italian government. The Autostrade group companies are:

- Autostrade per l’Italia S.p.A. (2,854.6 km)
- Società Italiana per Azioni per il Traforo del Monte Bianco (5.8 km)
- Raccordo Autostradale Valle d’Aosta S.p.A. (32.4 km)
- Autostrada Torino-Savona S.p.A. (130.9 km)
- Società Autostrada Tirrenica p.A. (36.6 km)
- Tangenziale di Napoli S.p.A. (20.2 km)
- Società Autostrade Meridionali p.A. (51.6 km)
- Strada dei Parchi (281.4 km)

Autostrade Group’s network is run by Autostrade per l’Italia and its owned concessionaries. An overview of the Italian toll road network, see link http://www.autostrade.it/en/la-nostra-rete/index.html?initPosAra=1

**System(s) description**

The toll can be levied electronically with the Telepass (OBU + Smart Card). This is hired from Autostrade for a monthly fee of € 1.04 per Telepass + VAT + an annual VIA card membership fee of € 15.49 for the first card and € 3.10 for the cards after that. The Telepass is an electronic receiver that is fitted on the front windscreen. This Telepass makes it possible to use the Telepass lanes indicated separately at the Italian toll stations so that the toll is debited automatically (paying without stopping).

**Technology**

The system uses RSE (Road Side Equipment) - beacons along the side of the road. It works with DSRC technology. For Telepass - an off-board recording system – the vehicles are fitted with an OBU, which is attached behind the front windscreen, with an ID code.
**Tariff structure**

**Variable amount of toll (closed system)**

The toll tariff is based on distance, the number of axles, and the height over the first axle (emission only for a tunnel through the Alps). There are 5 categories of toll, which are discussed further below in this section. Also, the toll can vary depending on the condition of the road (viaducts and mountain inclines have higher maintenance costs); the kilometre price is subdivided into rates for flat land and mountain areas. The tolls include 20% VAT, which can be claimed back.

The current tariffs for the main routes and the individual sections can be found on the website of Autostrade per l’Italia: http://www.autostrade.it

**Class 1**
Motorbikes and passenger cars (the height of which measured from the underside of the front wheel is less than 1.30 m).

**Class 2**
Buses, camper vans and passenger cars (the height of which measured from the underside of the right front wheel is more than 1.30 m).

**Class 3**
Combinations with a total of three axles (for example a vehicle of class 1 or 2 with a baggage trailer or caravan).

**Class 4**
Combination with a total of four axles (for example a vehicle of class 1 or 2 with a double-axle caravan).

**Class 5**
Combination with five or more axles

**Fixed amount of toll (open system)**

In some cases the amount of the toll does not depend on the number of kilometres driven and is fixed. These stretches of motorway are called “open systems” (for example the A8 Milan-Lakes, A12 Rome-Civitavecchia and some single stations) where the customer does not pick up a ticket to register the point where he gets onto the motorway and where he gets off. The journey itself is unknown, so the kilometres on which the amount of the toll is calculated are fixed at a certain amount with the approval of the ANAS. This so-called open system is different to the “closed system”, which is usually the case, where the customer picks up a ticket when entering the motorway and hands it back at the exit, paying a toll corresponding to the length of journey.

**Method of payment**

A peage system with manual portals (white lane) and automatic portals. The usual credit cards are accepted. In Italy these are usually indicated with Cartasi. At the toll portals follow the signs marked ‘Carte’ (blue lane).

A ‘VIA card’ can be used at the Carte payment portals, where settlement is often quicker than at the other toll portals. It is a magnetic prepaid charge card, for € 25.00, € 50.00 or € 75.00, which can be used to pay tolls in all automatic toll lanes and in lanes with a cashier throughout the motorway network in Italy. The VIA card charge card is available to any legal and physical person and can be used for any type of vehicle travelling on motorways, either private or commercial. The VIA card charge card in euros can be used anywhere on the Italian motorway network, regardless of its expiry date. VIA cards can be bought at, among other places, service stations along the motorway, tobacconists and some banks. The yellow lanes are specifically for the automatic Telepass system. The toll is debited electronically with the Telepass. The driver can pay without stopping.
**VIA card Consortium**

Every year the Italian government fixes a subsidy for hauliers that use the Italian toll roads with the VIA card or the Telepass. A subsidy of +/- 10% is usual. To claim this subsidy, membership of this Consortium is required (cost: 5% commission and € 5.00 to join the Consortium). As a member of this Consortium, the toll income collected from the other members can be used. In this way a discount can be obtained on the own toll income.

If payments have not been made successfully, if there are problems with cards and if you have any questions about the toll roads, you can get help from the service centres along the motorway marked Punto Blu (blue dots).

**Enforcement**

Autostrade per l’Italia stations are under a video surveillance system. There is no specific legal provision that defines the violation of not paying toll, only a generic provision that paying toll on toll roads is compulsory. The video system that is used for enforcement is fixed in law. In the case of a missed toll payment, missing toll ticket or the misuse of infrastructure at the toll gates, car registration plates are automatically recorded to institute civil, administrative and/or legal proceedings when necessary in accordance with Art. 176 of Legislative Decree 285-1992. Video will be used only by the personnel in charge to follow the procedures of recovery of payment, and in the case of illegal actions in order to decide on legal actions.

In the case of failure to pay, the licence plate number will be recorded. The toll that is due must be paid, without any surcharge, within and not later than 15 days from the date the Missing Payment Report was issued. Afterwards, the amount will be increased by assessment taxes (Point 176/11 bis, Nuovo Codice della Strada - New Highway Code).

Toll companies have access to the national database of number plates. The toll company is not authorised to report the person who has committed a violation and to impose a fine. But toll companies try to persuade violators to pay via the “commercial” route.

**10.2.2 Urban levy in Rome**

**The background and aim**

As well as the network of toll roads, Italy also has an urban levy in Rome. Since October 2001 Rome has the largest Access Restriction Area in Europe, after London, with an Automatic Control System (ACS). The basic instrument for preserving Rome’s historic centre (Limited Traffic Zone, LTZ) is the installation of electronic portals for traffic control and monitoring. Because of the very serious air pollution in Rome, in 1989 a start was made with taking measures to control traffic, aimed at restricting access to the centre to traffic that is absolutely necessary. The aims of the restriction include: greater use of public transport, less congestion and less air pollution. The LTZ traffic scheme that was adopted meant that from that time the centre was only accessible for authorised vehicles (with a permit). Since 1998, in addition to the required permit, payment is required to enter the centre. The revenue is devoted to mobility projects.
Organisation
STA (the Rome Mobility Agency) manages the access control system and so far has issued about 150,000 permits. On the basis of the Roads Act the Comune di Roma is mandated to use the revenue from the access permits and the violations. The act states that it is intended for mobility-related projects. But exactly what mobility-related projects are involved is left to Rome itself.

System(s) description
No information available

Technology
However, the system that was introduced in 1998 turned out to be open to fraud. This resulted in an electronic LTZ system being introduced in 2001. The off-board recording system (OBU + Smart Card) is based on the Autostrade Telepass system. The 23 toll portals on the access roads recognise the number plates optically, with cameras, using ANPR technology. These toll portals check whether the vehicle has the necessary permit, and in the event of a violation they institute the sanction procedure. The toll portals also use infrared microwave technology, and a DSRC transponder in the vehicles checks whether a vehicle has access to the centre. The area covered by the system is 4.6 square kilometres.

Tariff structure
A permit, which is valid for a year, is required for access to the centre from Monday to Friday between 6.30 am and 6.00 pm and on Saturday from 2.00 pm to 6.00 pm. The tariffs vary by target group and can come to €320.00 per year. The tariffs are based on the costs of a subscription for public transport. Certain groups have the right to be exempt from paying the toll; this applies, among others, to residents in the centre, doctors with offices in the centre, tradesmen and the disabled.

Method of payment
No information available

Enforcement
Enforcement is carried out through a system of number plate recognition (ANPR) using cameras, from Monday to Friday between 6.30 am and 6.00 pm and on Saturday from 2.00 pm to 6.00 pm. The cameras record a vehicle that has not been authorised, the information is sent to a central system and a fine is sent.

10.2.3 Ecopass for the historic centre of Milan
An Ecopass is needed for the historic centre of Milan, every day between 7.30 am and 7.30 pm. Outside these hours and on Saturdays, Sundays and public holidays a sticker is not needed. This is required for older vehicles (emission standard lower than Euro 3 for petrol-driven vehicles) and for diesel cars without a particle filter. All other vehicles, including electrically-powered vehicles or cars run on LPG or natural gas, can enter the city free of charge. The amount depends on the emission level of the vehicle (€2.00, €5.00 or €10.00 per day, with the option of paying for several days). Cameras at special toll portals verify whether the vehicle has the Ecopass. The Ecopass can be bought at newspaper shops, tobacconists or at the desks of the Intesa and San Paolo banks. The Ecopass can also be bought online with credit cards.

10.2.4 Miscellaneous
Charges are also levied for certain tunnels: the Great Saint Bernard Tunnel, the Mont-Blanc Tunnels, the Fréjus Tunnel and the Munt la Schera Tunnel.
**Great Saint Bernard Tunnel**

No separate toll has to be paid for road tunnels in Switzerland, except for the Great Saint Bernard Tunnel at the border with Italy. For tax reasons there are two price tables – one for north-south (entering on the Swiss side) and one for south-north (entering in Italy).

**Toll charges as from 1 January 2012**

(Charges south-north in € and north-south in CHF, 20 per cent VAT).

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<th>10-journey card valid for 1 year</th>
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**Goods vehicles higher than 3 m:**

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<th>20-journey card valid for 1 year</th>
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</thead>
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<td>498.00</td>
<td>868.00</td>
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<td></td>
<td>CHF 80.50</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3A/3B</td>
<td>€ 97.50</td>
<td>155.50</td>
<td>729.00</td>
<td>1,260.00</td>
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<td>4</td>
<td>€ 147.50</td>
<td>236.00</td>
<td>1,112.00</td>
<td>1,905.00</td>
</tr>
<tr>
<td></td>
<td>CHF 177.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend category:**

A1  Motor bike, motor bike with sidecar, motor bike with trailer
A2  Vehicles with 2 or more axles, height measured at front axle, lower than 1.30m and total height lower than or equal to 2 m.
B1  Vehicles with two or more axles with height exceeding 2 m, lower than or equal to 3 m.
B2/B3 Two axle truck, total height over 3 m; two axle bus with total height over 3 m
3A/3B Three axle truck, total height over 3 m; three axle bus, total height over 3 m
4    Vehicles with four or more axles with total height over 3 m

As no VAT is charged on the Swiss side, no invoices are issued; it is, however, possible to request a receipt on purchase of a ticket.

Further information about changes in the amount of the toll, a single journey and the varying validity of payment cards can be found on the website of the Gran-Saint-Bernard, tunnel: http://www.letunnel.eu/

**Organisation**

The two concessionary companies: Societa’ Italiana per il traforo del Gran San Bernardo from St-Rhemy-en Bosses, Italy and Societe Tunnel du Grand-Saint-Bernard SA from Bourg-Saint-Pierre, Switzerland have equal holdings in SISEX SA.

The Italo-Swiss company SISEX SA, held equally by the two concessionary companies, plays a largely commercial role, administering the division of takings between the two concessionary companies and dealing with matters specifically regarding tolls and special offers.
By agreement with the two concessionary companies, since January 2006, SISEX SA has played an important role in co-ordinating and monitoring matters of common interest such as safety, management and investments.

**SISEX SA**
Société Italo-Suisse d’exploitation du Tunnel du Grand-Saint Bernard
Italy: Tunnel tollgate - 11100 Saint-Rhemy-en-Bosses (AO)
Tel. +39 0165 78 09 49
Switzerland: PO Box 2, CH - 1946 Bourg-Saint-Pierre (VS)
Tel. +41 (0) 27 787 12 06 Fax +41 (0) 27 787 12 19
E-mail: info@letunnel.com

**SITRASB SpA**
Società Italiana Traforo Gran San Bernardo S.p.A.
Director, Management and Administrative Office
via Chambéry n° 51- 11100 Aosta
Tel. +39 0165 363641 / +39 0165 363642 Fax +39 0165 363628
E-mail: sitrasb@sitrasb.it

**TGSB SA**
Tunnel du Grand-Saint-Bernard S.A.
Administration
Av. d’Ouchy 47 • CP 16 • 1000 Lausanne 6
Tel. +41 (0)21 617 72 90
Fax +41 (0)21 617 77 80
email: administration.suisse@letunnel.com

**Mont-Blanc and Fréjus Tunnel**
A charge is also made for using the ‘Mont-Blanc and Fréjus Tunnel’. More information about opening times and charges can be found from the link below:
http://www.tunnelmb.net/v3.0

**The Munt la Schera Tunnel**
A charge is also made for using the ‘Munt la Schera Tunnel’. More information about opening times and charges can be found from the link below:
http://www.engadin-strom.ch/de/fs_inhalt.php?section=5&sprache=de

**Environmental zones**
In some town centres in Italy there is limited access for vehicles in certain zones (historic city centres). The zones have been created in order to combat air pollution and to protect monuments. These zones can be identified by a rectangular sign with the words ‘Zona traffico limitato’ (zone with limited traffic). They also show times and exceptions. Motorised traffic is permitted in these zones only for holders of a permit. Enforcement is carried out with flash poles. The fine is at least € 110.00. The fine is usually collected by the collection agency European Municipality Outsourcing (EMO), which is contracted by the Italian government. It is only worth appealing if the driver can prove that he was not there or if the driver only receives the fine if more than a year has elapsed. If a rental car was used, the period in which the fine is sent can be more than a year. An appeal can also be made if the driver comes under one of the exceptions: someone who is staying in a hotel in the city centre or has a disabled card.
10.3 EETS
EETS domains & EETS providers registers:
http://www.mit.gov.it/mit/site.php

10.4 Development(s)

Genoa cordon pricing scheme
"Genoa has tested a cordon pricing scheme in a small (1km2) central area of the city; this area includes the old historical centre and includes the heart of commercial activities (shops, business) and the main pedestrian streets.

Status of implementation
- The preliminary design for a congestion charging system has been produced and has shown potentially excellent results (private traffic reduction of about 20%, increase of PT use of 5% and net income of 20 million euros per year), as well as the evaluation of a pollution-based charging option that instead turned out not to be applicable economically;
- The access control system (with 2 APNR gates and three gates fitted with bollards) has been launched and the system is currently being expanded;
- The BLUAREA parking scheme has been launched in 8 areas of the city and is being expanded.

Results
- Limitation of access to permitted categories (residents and freight distributors in accordance with the Mobility Credits scheme)
- Effectiveness of the mixed pricing scheme based on the Mobility Credits
- Effectiveness of the BLUAREA scheme for parking management
- Public acceptance of the scheme over 55%
(See http://www.civitas.eu/measure_sheet.phtml?lan=de&id=141)

10.5 References/links
http://www.autostrade.it/ Autostrade per l’Italia
http://www.tolltickets.com Toll tickets
http://www.telepass.it Telepass
http://www.letunnel.eu/ Great Saint Bernard Tunnel
http://www.tunnelmb.net/v3.0/ Mont-Blanc Tunnel
http://www.sitaf.it/ Società Italiana del Traforo Autostradale del Frejus
http://www.engadin-strom.ch/de/fs_inhalt.php?section=5&sprache=de The Munt la Schera Tunnel
http://www.tln.nl/ BM_tol_praktijk_nl.html Transport and Logistics Nederland
http://www.progress-project.org/ Progress/rome.html Urba levy, Rome
http://www.comune.milano.it/dseserver/ecopass/ingresso_giornaliero.html  Ecopass Milan

http://www.civitas.eu/measure_sheet.phtml?lan=de&id=141  Genoa cordon pricing scheme
11 Luxembourg

11.1 General introduction
Luxembourg does not have a national pricing system. Due to the geographical location of Luxembourg there is a great deal of transit traffic through the country. For this reason Luxembourg has set out a vision for the future for the years ahead (up to 2020) on the transport movements expected through the country. Pricing is not (yet) part of it.

Contact details
Contact details
Name
Ministère du Développement durable et des Infrastructures
Address
Bâtiment Alcide de Gasperi (“Héichhaus”) 4, Place de l’Europe
L-1499 Luxembourg
Type of organisation
Ministry
Website
http://www.gouvernement.lu/ministeres/developpement-durable-infrastructures.html
Department
- Contact person
Dott. Ing. Antonio Erario
Position
Head of Division 1 - International Regulatory Affairs
Telephone
- E-mail
- Contact person document
SNCT - Société Nationale de Contrôle Technique
Camille Gonderinger
CGonderinger@snct.lu
Operator
- Offices
-  

11.2 Description of the system(s)

11.2.1 The electronic toll system

The background and aim
Luxembourg does not have a national pricing system, but since 1997 it has been using the Eurovignette. A description of this vignette can be found in Section 4.2.2.

Organisation
No information available

System(s) description
No information available

Technology
No information available

Tariff structure
No information available

Method of payment
No information available

Enforcement
No information available
11.2.2 Eurovignette
Luxembourg uses the Eurovignette. For a description of the Eurovignette, see Section 4.2.2.

11.2.3 Miscellaneous
Luxembourg does not yet have areas based on emissions restrictions.

11.3 EETS
EETS domains & EETS providers registers:
No information available

11.4 Development(s)
Due to the geographical location of Luxembourg, there is a great deal of transit traffic through the country. This applies both for commercial traffic (HGVs) and passenger cars. In particular there is also traffic during holiday periods between the countries of southern and northern Europe. Luxembourg has drawn up a strategic plan up to the year 2020 in which all the developments are set out (the Transport Sector Plan (TSP)).

At European and international level, Luxembourg will need good connections with the other centres of activity in Europe in order to ensure its future economic, social, cultural and political development. This is why connecting the country to the trans-European transport networks is essential for its development and means that it is necessary to maintain, or even improve, these connections for all modes of transport: rail, road, by water and by air. The imbalance in the distribution between the different modes of transport does indeed constitute a major problem for their organisation. For example, for the area of goods transport alone, within the European Union this can be seen in a marginalisation of transport by rail which accounts for only 15% of the volume of goods transported (in tonnes-km) compared with more than 70% by road. The complexity of the problem is underlined by a study by the European Conference of Ministers of Transport on transport and the environment which reports that “90% of freight is transported less than 150 km. Added to this is that fact that many rail journeys are accompanied by transport by road prior to departing and on arrival, which to some extent limits the potential of the railways “to resolve” the problem of goods transport”, knowing that rail is competitive only for transports over distances greater than 450-500 km.

A large number of projects are included in the plan in order to be able to guarantee accessibility up to 2020. A summary of the projects is given in the figure on the right.
Large-scale rail infrastructure projects
1.1 New railway line between Luxembourg and Esch/Alzette
1.2 New two-track railway line between Luxembourg and Bettembourg
1.3 Hamm-Aéroport-Kirchberg railway line
1.4 Construction of a branch line between Belval-Usines and Belvaux-Mairie
1.5 Connecting tunnel from Belvaux-Mairie in the direction of Oberkorn

Doubling and redevelopment of existing railway lines
2.1 Making the Luxembourg-Pétange line into two tracks
2.2 New viaduct parallel to the existing Pulvermühle viaduct
2.3 Making the Hamm-Irrgarten section into two tracks
2.4 Redevelopment of a loop line at Michelau
2.5 Optimisation of the Kleinbettingen line
2.6 Making the line between Rodange and the French border into two tracks
2.7 Redevelopment of Luxembourg station with a North, South and West terminus
2.8 Branch line at Irrgarten for a direct connection between Kirchberg and Trier and making the Irrgarten-Oetrange section into two tracks

Technical adaptation of existing railway infrastructure
3.1 Block optimisation on the north line between Dommeldange and Ettelbruck

Integrated transport projects in urban areas
4.1 Light rail between the outlying station of Kirchberg and the central station
4.2 Light rail between the central station and the outlying station of Cessange
4.3 Extension of the light rail towards the outlying station of Howald
4.4 Extension of the light rail from the place de l’Etoile towards the second European school
4.5 Extension of the light rail from the outlying station of Cessange towards Bertrange-Strassen
4.6 Extension of the light rail from the outlying station of Howald towards Leudelange
4.7 Extension of the light rail from the outlying station of Kirchberg towards Höhenhof/Aéroport
4.8 Light rail between the station of Esch/Alzette and the station of Belvaux Mairie.

11.5 References/links
http://www.gouvernement.lu/ministeres/developpement-durable-infrastructures.html

The Transport Sector Plan
12 The Netherlands

12.1 General introduction
Pricing is a subject that has already been discussed on various occasions in the Netherlands. In the various parliamentary terms projects have been started to introduce a form of pricing, ranging from a system with toll portals to a fully GPS-based system for all vehicles. However, these projects have never led to a pricing system actually being introduced. Nevertheless, to provide extra information a brief description of the latest initiative has been included.

Contact details
Name: Ministerie van Infrastructuur en Milieu
Address: Plesmanweg 1-6
2597 JG Den Haag
Postbus 20901
2500 EX Den Haag
Type of organisation: Ministry
Website: www.rijksoverheid.nl
Department: Directoraat-Generaal Mobiliteit (DGMo)
Contact person: mevrouw L.M.C. Onger
Position: Director-General
Telephone: -
E-mail: -

Contact person document: Willem Rijnberg (RDW)
E-mail contact person document: wrijnberg@rdw.nl
Operator: -
Offices: -

12.2 Description of the system(s)

12.2.1 The “Anders Betalen voor Mobiliteit” project
Note: This is a brief description of the ABvM project that was stopped in the middle of 2010, so it was never introduced.

Between 2007 and the middle of 2010 work was carried out on a system aimed at improving road access and the quality of the environment. The official name of the plan that was adopted by the Dutch government at the end of November 2007 was: Anders Betalen voor Mobiliteit (ABvM) (paying differently for mobility). The aim of ABvM was to provide for the introduction of road pricing, also known under the name of a similar previous plan: rekeningrijden. Owners of vehicles would no longer pay for owning a vehicle, but for using it.

The minister charges all Dutch holders of motor vehicles and holders of foreign heavy goods vehicles for using the Dutch infrastructure. To do this the minister imposes a levy on holders of motor vehicles based on the number of kilometres driven in the Netherlands, the place and time when these kilometres are driven and the environmental characteristics of the vehicle with which these kilometres are driven.
Throughout the Netherlands levies are charged for the kilometres driven at a basic rate. There is a peak rate for certain times of the day and places.

All motor vehicles with a Dutch number plate that come under the kilometre price road pricing system (KMP) would be fitted with a so-called ‘recording device’ with which the use of a motor vehicle is recorded. Every vehicle taking part in the scheme is given a device that records the distance, the place and the time. Based on this the kilometre price to be paid by the holder can be calculated. The total amounts are billed by the collection agency. Supervision of the implementation of the law and its enforcement remains a government task.

An authorised KMP station installs the device and gives it a unique identity with the help of a security module, in the form of a Trusted Element. The KMP station reports the vehicle with its built-in recording device and identity to the agency that deals with the KMP recording device. The recording device records the total number of kilometres driven and also the location (coordinates) and the times these were driven. The location is converted into the type of location (a peak area or not). To determine the location the device uses the signals from the GNSS satellite system. The device passes on the distance data in aggregated form to the collection agency. The collection agency converts the distance data, in combination with the applicable tariffs and vehicle characteristics, into a levy. The collection agency processes the levies into invoices and sends them to the holders of the vehicles. The holders are responsible for paying the invoice.

The front office is the contact point for holders and other people involved in the KMP system for asking questions, submitting requests and reporting matters that are relevant for the KMP system.

Enforcement provides for monitoring and checking that the system for recording kilometres is working properly and compliance with the KMP system. Along the roadside enforcement equipment collects data from vehicles that pass it, that are responsible for complying with the system (they are suspected). The enforcement agency processes and analyses this data. If the analysis of this data gives rise to do so, the next step is that measures are taken against the holder.

The kilometre price also applies for foreign heavy goods vehicles. The holders of these vehicles can use the same recording device as is used for Dutch vehicles. For holders of foreign heavy goods vehicles there is also the possibility of using a secondary system. If this system is used a device does not have to be installed in the vehicle and the information is entered in a payment terminal.

After the elections in March 2010 the political context changed such that there was no longer any support for a pricing system on the scale described above. When it took office the new government decided to stop the project, so the system was NOT introduced.

12.2.2 Eurovignette
The Netherlands uses the Eurovignette. For a description of the Eurovignette, see Section 4.2.2.

12.2.3 Miscellaneous
After the “Anders betalen voor Mobiliteit” initiative was stopped, the Netherlands has not had a pricing system. The individual road sections on which a toll is charged are described below. There are two toll tunnels in the Netherlands: the Kiltunnel at Dordrecht and the Westerscheldetunnel in Zeeland. The Netherlands also has the Wijkertunnel, which for thirty years (up to 2026) is what is known as a schaduwtol (a shadow toll tunnel). With this tunnel the toll is paid not by drivers but by Rijkswaterstaat for each passage through the tunnel to the private financiers of the Wijkertunnel (including the ING Bank and PGGM).
The Kiltunnel connects the N217 from 's-Gravendeel with the A16 and the N3 in the direction of Dordrecht. The Stichting (Foundation) Tunnel Dordtse Kil was set up in 1972. This foundation lent the money to finance the building and operating of the tunnel. The foundation is a joint venture between the province of South Holland (50%) and five cities, of which Dordrecht is the main shareholder (42%). The tunnel was built between 1974 and 1977. The tunnel has been open and used as a toll tunnel since 1 October 1977.

For vehicles less than 2.3 m in height the charges are € 2.00, and for vehicles higher than 2.3 m they are € 5.00. These are the charges for payment in cash.

A chip card (telecard) can also be used for paying. This card can be bought for a deposit of € 4.55 plus the cost of topping up (a minimum of € 15.00 and a maximum of € 500.00 on each occasion). The card can be charged at a charging station. By holding the card in front of a reader the amount is debited from the balance on the card. The rates for telecard holders are € 1.45 and € 3.80 (per 1/1 2011) respectively.

The Westerscheldetunnel

The public limited company N.V. Westerscheldetunnel was set up on 11 November 1998 with the task of building and operating the Westerscheldetunnel. Construction was completed successfully in 2003 and since 14 March 2003 the company has been responsible for the management and maintenance of the Westerscheldetunnel, traffic and accident management for the tunnel and the roads leading to it and collecting the toll. The company was set up by the Dutch government and Zeeland Province, and since 1 July 2009 the shares have been fully owned by Zeeland Province.

The tunnel is 6.6 kilometres long and connects the N62 under the Westerschelde between Ellewoutsdijk and Terneuzen, and as such is the longest tunnel for road traffic in the Netherlands.

It is a toll tunnel. The length and height of the vehicle are measured automatically at the toll portals. These determine the tariff, which is divided into four categories. The charges are in accordance with the Tunnelwet Westerschelde (the act governing the Westerscheldetunnel).
The charges in 2011 for a single passage are:

Category 1: Length less than or equal to 6 metres and a height less than or equal to 3.00 metres (passenger cars, motorbikes, all-terrain vehicles, all without trailers)

Category 2: Length greater than 6 metres and a height of the pulling vehicle less than or equal to 3.00 metres (most vehicles in category 1 with a trailer)

Category 3: Length less than or equal to 12 metres and a height greater than 3.00 metres

Category 4: Length greater than 12 metres and a height greater than 3.00 metres

Category 5: Motorcycles

---

**Charges in € in 2012 for a single passage**

<table>
<thead>
<tr>
<th>Category</th>
<th>Standard</th>
<th>t-tag</th>
<th>Frequent user discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>5.00</td>
<td>3.80</td>
<td>3.05</td>
</tr>
<tr>
<td>Category 2</td>
<td>7.45</td>
<td>5.70</td>
<td>4.55</td>
</tr>
<tr>
<td>Category 3</td>
<td>18.20</td>
<td>13.90</td>
<td>11.15</td>
</tr>
<tr>
<td>Category 4</td>
<td>25.00</td>
<td>19.00</td>
<td>15.25</td>
</tr>
<tr>
<td>Category 5</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
</tr>
</tbody>
</table>

Charges for a single passage including 19% VAT, for 2012

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**T-tag**

What is known as the t-tag can also be used. The t-tag is a device that has to be placed behind the windscreen. With this it is possible to pass through any toll portal without stopping. Each time a vehicle passes through it the toll that is due – less the special subscriber’s discount – is automatically debited from your outstanding credit balance. A special company has been set up to manage the t-tag: Movenience. Movenience B.V. was created in June 2007. Movenience is a company with two shareholders: the Zeeland toll company NV Westerscheldetunnel and the Portuguese toll company BRISA. Movenience deals with the issuing of the t-tag, the electronic device with which toll and parking charges can be paid. Movenience settles the financial transactions of payments with the t-tag, looks after the credit control that goes with it and has its own customer service.

A t-tag subscription is a pre-paid subscription. The starting balance for cars is € 60.00, and € 200.00 for goods vehicles. There is no category information on the tag. The category is determined when using the tunnel. The t-tag can also be used for paying for car parks in the towns of Vlissingen and Terneuzen in Zeeland.

**Frequent user discount**

As from 1 January 2012 t-tag holders who drive through the Westerscheldetunnel more than 150 times a year get a frequent user discount. This discount comes into effect after the 150th passage per t-tag per year. On average the frequent user discount is 20.00% of the t-tag tariff. There are also four days no toll is charged.

**Environmental zones**

In the Netherlands there is an environmental zone in the town centre of large cities. In these zones there is limited access for goods vehicles that emit too much particulate matter and nitrogen oxides.
The aim of the environmental zone is to enable air quality to meet the standards.
Information can be found on the website of the Expertise Centrum Milieuzones about where the environmental zones are located, conditions for gaining access, the checking of number plates to enable the vehicle to gain access and how exemptions can be obtained.
There are environmental zones in the following cities in the Netherlands: ‘s Hertogenbosch, Amsterdam, Breda, Delft, Den Haag, Eindhoven, Leiden, Maastricht, Rotterdam, Tilburg, Utrecht and Rijswijk.

**Access on the basis of the sign displaying the words ‘environmental zone’**
The environmental zone is indicated with a traffic sign. If certain criteria are met, then there can be an exemption for driving into the environmental zones.
The table below lists the criteria that have to be met, and in what periods, in order to get an exemption. This information can be seen on the RDW website.

<table>
<thead>
<tr>
<th>Exemption period</th>
<th>An exemption for entering environmental zones with the C22a sign applies for lorries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 1 January 2010 to 1 July 2013</td>
<td>with a Euro IV engine or higher; with a Euro III engine with a certified particle filter and less than 8 years old from the date of first registration; that run on a fuel other than diesel.</td>
</tr>
<tr>
<td>From 1 July 2013</td>
<td>with a Euro IV engine or higher; that run on a fuel other than diesel.</td>
</tr>
</tbody>
</table>

In special cases a national exemption can be obtained. This applies for: special vehicles, or special categories. If it is not possible to obtain a national exemption, it is still possible to apply for a local exemption from the cities concerned that operate environmental zones.

12.3 EETS
Pursuant to article 19 of this decision, the Ministry of Transport, Public Works and Water Management provides the following information in regards to the national electronic register:
a: there are no EETS domains in the Netherlands.
b: no EETS providers have been registered in the Netherlands.

EETS domains & EETS providers registers:
[http://english.verkeerenwaterstaat.nl/english/topics/mobility_and_accessibility/eets.aspx](http://english.verkeenenwaterstaat.nl/english/topics/mobility_and_accessibility/eets.aspx)

12.4 Development(s)
No information available

12.5 References/links
[http://www.kiltunnel.nl](http://www.kiltunnel.nl) Information about the Kiltunnel
[http://www.westerscheldetunnel.nl](http://www.westerscheldetunnel.nl) Information about the Westerscheldetunnel
[http://www.rdw.nl](http://www.rdw.nl) RDW
[http://www.milieuzones.nl](http://www.milieuzones.nl) Expertise Centrum Milieuzones
13 Norway

13.1 General introduction
At present there are about 50 road projects in Norway that are financed in part by toll revenue. The toll stations use electronic fee collection through the AutoPASS-system, which is a coordinated payment system for all Norwegian toll stations. This concept allows the road users to drive through the toll stations without stopping. The effect is a better flow of traffic, less space and manpower used for tolling and a more customer friendly service.

Contact details
Name
Norwegian Public Roads Administration (Statens vegvesen)
Address
Statens vegvesen Vegdirektoratet
P.O. box 8142 Dep
NO-0033 OSLO
+47 915 02030
E-mail
ap@vegvesen.no (general)
firmapost@vegvesen.no (Matters concerning the planning, construction and operation of the national and county road networks, vehicle inspection and requirements, driver training and licensing.)
Type of organisation
Government agency
Offices
One central directorate and five regional offices
Website
http://www.vegvesen.no/en/Home
Department
-
Contact person
Arve Kirkevold
Position
Director, Road User Charging
arve.kirkevold@vegvesen.no

Toll Road Operator
A number of toll operators, listed at http://www.autopass.no

13.2 Description of the system(s)

13.2.1 Toll systems
The background and aim
Norway has more than 80 years’ experience in using road tolls as a financial instrument for building bridges, tunnels and roads. During the last 25 years it has become an increasingly important way of financing road projects. In 2010, about 6.3 billion NOK (about €800 million) were collected in tolls, almost equalling state budget funds for road construction.

Toll projects in Norway must be based on the “utility-principle”. This means that the users paying tolls should benefit from the road project and those benefitting from the road projects should pay tolls. There are three types of toll schemes in Norway:

Single road project
Tolls are most commonly used to finance a specific project, like a highway section, bridge or tunnel. A toll company is established to repay the loan through toll collection, normally over a period of 15 years. Toll plazas are located in such a way that the users paying tolls are the ones who benefit from the road project.
**City schemes**
Many Norwegian cities have toll rings, meaning a set of toll plazas collecting tolls from everyone traveling into (or out of) the city. As opposed to single road projects, there is a more indirect link between toll payment and road usage. Tolls collected from toll rings can also be used for other measures to improve the transport system within the city, such as the construction, maintenance and operation of public transport. Note that the stated aim of the toll ring is to finance the concerned projects, not to regulate or reduce traffic.

**Charging on ferry**
A number of fjords and smaller islands have ferry crossings. During the construction period of a bridge or tunnel replacing the ferry, or a nearby road project, a toll can be added to the ferry ticket in order to co-finance the project.

**13.2.2 Organisation**
The Norwegian Public Roads Administration (NPRA) – a government agency – is responsible for the national and county public roads in Norway. This includes the planning, construction and operation of the national and county road networks, vehicle inspection and requirements, driver training and licensing, and subsidies to car ferries.

On matter pertaining to national roads, the NPRA is under the direction of the Ministry of Transport and Communications. On those related to county roads, the Regional Director (of the NPRA) is subordinated the county legislature. The NPRA is under the leadership of the Directorate of Public Roads, which is an autonomous agency subordinated the Ministry of Transport and Communication. The Public Roads Administration encompasses five regional offices.

All toll financed projects are based on a local initiative, like the municipal or county administration, or an interest group. The project must then be evaluated by the regional branch of the NPRA, before it is formally approved in the local and/or municipal council. All projects involving road user charges must be approved by the Norwegian Parliament.

If a project is approved, a contract is signed between the NPRA and the Toll Road Operator, in which the latter is given the right to collect tolls for the repayment of the loan. The Toll Road Operator negotiates a loan from a private lending institution. The NPRA claims the money and use these to undertake the concerned project. Normally, toll collection does not start until the new road has been finished, but in some cases toll collection starts in advance in order to minimize interest payments. The tolls collected by the Toll Road Operator are strictly reserved for the road project in question, meaning the toll stations must close down when the loan has been repaid.

The NPRA is responsible for planning and constructing the toll plaza, and owns the road side equipment (antennas, cameras etc). The NPRA determines the tariffs and publish these at www.autopass.no.

**13.2.3 System(s) description**
There are four types of collection schemes in Norway:
1. Most toll chargers employ a fully automatic, free-flow system, in which the road user does not stop, but simply drives through. The road side equipment automatically reads the road user’s On-Board Unit (AutoPASS or another OBU valid in the EasyGO-area), and debits his/her account.
If the user has an invalid AutoPASS-OBU, or no OBU at all, cameras will automatically take photo of the vehicle license plate and the Toll Road Operator will send an invoice to the road user. This is done without additional surcharge.

2. A few toll charges still have a manual system. Road users with a valid AutoPASS-OBU installed can use the free-flow lane marked “AutoPASS”. Users without an AutoPASS-OBU have to use the lanes with coin machines or manned toll booths.

3. A very few toll roads have only manned toll booths.

4. On some ferry connections, an additional toll charge is levied on the ferry ticket.

In addition, there are some private toll roads that are strictly local, but these are outside the AutoPASS-scheme and not the responsibility of the NPRA.
AutoPASS has been developed for collecting the toll electronically in Norway. This technology consists of toll portals and an OBU. The road side equipment employs microwave technology - DSRC 5,8 GHz.

The DSRC profiles used for communication are the profiles already in use in the EasyGo service, PISTA, BroBizz, AutoPASS. EN15509 will be included in EasyGo from 2012.

An increasing number of toll plazas in Norway are fully automated. The driver can pass through without stopping. A photo is taken of the registration plate of all vehicles that do not have an AutoPASS.
Nominal Operation Scenario – A 3 gantry Charging Point

Figure 2: The AutoPASS concept

AutoPASS-logo

AutoPASS-OBUs

Sign: Toll road/ user payment on the road

Sign: automatic toll station (all electronic, open road, free flow tolling)

Sign: Toll station with AutoPASS

Sign: Toll station with electronic tolling
Customer signalling

When passing a toll station a signal is emitted, which notifies the driver that the toll transaction has been carried out correctly (or incorrectly).

- Green plus: The toll transaction has been verified and assigned to a valid contract
- White plus: For customers with pre-paid contracts it means that the toll transaction has been carried out, but the balance on the account is low. If the user has a post-payment contract, it means that an invoice has been sent.
- No signal: Front and rear image is taken, and license plates are examined for post-payment.

In manual toll stations, a yellow minus (or at some toll stations a yellow camera) is also included. This is displayed if there is an invalid passage in the AutoPASS-lane and a photo of the driver’s license plate is taken. If the user has a valid contract, the charge is made to the customer’s account. If not, there is a risk of an additional surcharge.

Tariff structure

Most toll stations only distinguish between light (up to 3.5 ton) and heavy (more than 3.5 ton) vehicles. Toll Road Operators do in some cases charge a toll for motorbikes, charge a toll for the number of passengers, or vary tolls to day/time. Most toll stations have two-way charging, apart from city schemes.

Motorcycles, electrical vehicles, hydrogen vehicles, emergency vehicles, buses in public service, vehicles for service and maintenance and vehicles in funeral procession are exempted from toll. Such exemptions are handled by the Toll Road Operator.

There are large variations in the tariffs, as these are determined by factors specific to the relevant road project. Tariffs for light vehicle range from 5 to 150 NOK, and for heavy vehicles from 10 to 590 NOK. Normally heavy vehicles pay 2-4 times as much as light vehicles.

Many Toll Road Operators give discounts of 30-50% if the user has a pre-paid account. Toll stations on the main road network generally have lower discounts.

An updated list of tariffs and discounts can be found on the AutoPASS website (www.autopass.no).
### Method of payment

The table below illustrates method of payment in Norwegian toll stations. It depends on whether the user has an AutoPASS-OBU or Visitors Payment-agreement, and on what kind of toll station the transaction is made.

<table>
<thead>
<tr>
<th>Type of toll station</th>
<th>Type of road user</th>
<th>Automatic toll plaza with post-payment</th>
<th>Automatic toll plaza with pre-payment</th>
<th>AutoPASS-lane in manual toll plaza</th>
<th>Toll booth/coin machine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road users with AutoPASS / EastGO-OBU</strong></td>
<td>Transactions are aggregated over at most 3 months and then invoiced to the user. Additional charge (NOK 300) if invoice is not paid in time.</td>
<td>Debited from AutoPASS-account. Pre-payment makes user eligible for discount.</td>
<td>Debited from AutoPASS-account. Pre-payment makes user eligible for discount.</td>
<td>Cash/credit card</td>
<td></td>
</tr>
<tr>
<td><strong>Road users without AutoPASS / EastGO-OBU</strong></td>
<td>Transactions are aggregated over at most 3 months and then invoiced to the user. Toll can also be paid at petrol station (Kr-Service) or online.</td>
<td>Invalid. Must be paid at petrol station or online within 3 days, otherwise invoice with additional charge (NOK 300) is sent.</td>
<td>Cash/credit card</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Foreign road users using ‘visitors payment’</strong></td>
<td>Initial deposit is debited. When deposit is used, the toll is drawn from credit card. Remaining deposit will be refunded after journey.</td>
<td></td>
<td></td>
<td>Cash/credit card</td>
<td></td>
</tr>
<tr>
<td><strong>Foreign road users without ‘visitors payment’ or AutoPASS / EastGO-OBU</strong></td>
<td>Should be paid at petrol station or online. If not, invoiced in home country through Euro Parking Collection (EPC) plc. Additional charge (NOK 300) if invoice is not paid in time.</td>
<td>Invalid. Must be paid at petrol station or online within 3 days, otherwise invoice with additional charge (NOK 300) is sent through EPC.</td>
<td>Cash/credit card</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Signing an AutoPASS-contract

Each toll road is served by a Toll Road Operator. There are about 50 toll collecting companies in Norway. In order to use AutoPASS (since 2004) in Norway, you must have an AutoPASS contract and an AutoPASS-OBU. The AutoPASS contract can be obtained from the various toll companies, which normally also act as issuers of contracts and AutoPASS-OBUs. These are distributed via the Toll Road Operators’ websites and petrol stations having a distributor agreement with the respective Toll Road Operator.

An AutoPASS-OBU is valid for all toll payments, regardless of the Toll Road Operator issuing the contract/OBU. However, having contract with a Toll Road Operator gives access to the discounts given by this specific Toll Road Operator.
Road users dependent on getting discounts on many toll roads can sign additional contracts with more Toll Road Operators, and have all these contracts connected to the same AutoPASS-OBU. Some Toll Road Operators also give a discount to all users with a valid AutoPASS-OBU.

Most toll companies require pre-payment when issuing an AutoPASS-contract, while others issue AutoPASS-contracts with post-payment (or both). Normally, pre-payments are necessary to be eligible for the high discounts that are available at some toll roads.

The AutoPASS should be fitted inside the front windscreen behind the mirror. The chip of the OBU is linked to the registration number of the vehicle, which means that it cannot be exchanged between different vehicles without informing the toll road operator.

It is possible to connect additional agreements with other Toll Road Operators to the same AutoPASS-OBU, in order to qualify for the discounts they are offering. Likewise, a company can have many vehicles (and AutoPASS-OBUs) covered by one AutoPASS contract, as long as the vehicles have the same weight class.

**Visitors Payment**

With a stay of no longer than three months in Norway, visitors to the country who have a credit card can use the automatic payment system ‘Visitors Payment.’ ‘Visitors Payment’ is an online service using a prepaid account. Register in advance or up to 14 days after the first toll passage.

To use this payment system, the credit card number and the vehicle’s registration number have to be registered on the AutoPASS website (www.autopass.no/visitors). Valid credit cards are VISA and MasterCard.

*‘Visitors Payment’ deposits*

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Weight Limit</th>
<th>Deposit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightweight vehicle</td>
<td>≤ 3,500 kg</td>
<td>NOK 300</td>
</tr>
<tr>
<td>Heavyweight vehicle</td>
<td>&gt; 3,500 kg</td>
<td>NOK 1,000</td>
</tr>
</tbody>
</table>

When passing a toll portal a photo is taken of the registration plate, and the toll is debited automatically from the deposit. When the deposit is almost empty, a new invoice is sent for the toll payment. If the user passes a toll plaza without having an account, there is the risk of an additional surcharge of NOK 300 + the toll. The duration of the agreement is variable, with a maximum of three months. An OBU is not required for this kind of payment. The driver can drive through the AutoPASS-lane without stopping.

**Manual payment**

If the user has not registered in advance (Visitors Payment) or does not have an AutoPASS-OBU, payment can be made at a service station nearby up to three days after passing a toll station (the signs with ‘Kr-service’ toll have to be followed).

If a vehicle drives in the AutoPASS lane and the driver does not have an AutoPASS or if the credit card has not been registered, there is the risk of an additional surcharge of 300 NOK.

**Complaints**

A complaint about a payment of the toll or an additional surcharge must be made in writing to the operator from which the invoice has been received. The additional surcharge has to be paid until the complaint has been dealt with. If the driver does not agree with the way the complaint has been dealt with, an appeal can be made to the Norwegian Public Road Administration.
Enforcement
If the driver does not have an AutoPASS or ‘Visitors’ Payment’ contract, the invoice is sent to the owner of the vehicle. This invoice comes from Euro Parking Collection (EPC) plc in London, England. It can be six months before the invoice is sent. If the invoice is not paid in time, first a reminder is sent and after that the invoice is increased by NOK 300.

13.2.4 EasyGO
EasyGo is a European partnership that enables you to use your AutoPASS or BroBizz at a number of locations in Denmark, Sweden and Norway, as well as on ferry services between Denmark and Germany. The payment points in the EasyGo system are shown on the EasyGo website (http://easygo.com/en/countries). If you have a BroBizz from A/S Storebælt or Øresundsbro Konsortiet, an AutoPASS from Norway or an AutoBizz from Scandlines, you can use it on the Storebælt Bridge, the Øresund Bridge, Svinesund Bridge and all AutoPASS facilities in Norway. In addition, it is also possible to use EasyGo on some ferry routes in the three countries and between Denmark and Germany.

13.3 EETS
The EFC-directive (2004/52/EC) establishing the European Electronic Toll Service (EETS) has not yet been implemented in Norway. However, Norway intends to implement the directive and conform to its technical and legal requirements.

13.4 Developments

EasyGO+
The EasyGO+ service will add Austria to the existing EasyGO-cooperation. This means that it will be possible to drive in Scandinavia and Austria with the same contract and On-Board Unit (like AutoPASS). The service will be in line with the directive of the European Commission 2004/52/EC and the decision of the European Commission 2009/750/EC. The service will be available for heavy vehicles and is intended to start up in the beginning of 2013.

The aims of the project are:
- Merge the electronic fee systems in Scandinavia and Austria, hence demonstrating interoperability between regions in Europe
- Provide a multi-national solution based on EU-directives and approved standards
- Take a leading role in the international developments in this field

Alternative uses of AutoPASS
AutoPASS-payment is also used on the ferry connection between Flakk and Rørvik in Sør-Trøndelag. If the project is successful, it might be used for other ferry projects in the future. There have also been undertaken pilot projects on using the AutoPASS-system for parking payments.

New toll roads
The road projects that are underway in Norway can be found on the NPRA website under the topic “Vegprosjekter” on the main page of www.vegvesen.no. (http://www.vegvesen.no/Vegprosjekter).

13.5 References/links
http://www.vegvesen.no Norwegian Public Roads Administration (Statens vegvesen)
http://www.autopass.no Autopass
http://easygo.com/en EasyGo
http://www.norvegfinans.com/en/ Norvegfinans, Norske Vegfinansieringsselskapers Forening
14 Poland

14.1 General introduction
As from 3 July Poland (with a short delay of a few days) has introduced a pricing system. (This system is based on DSRC technology and in technical terms is similar to the Austrian system). For the time being the system has been introduced on a limited number of motorways and for heavy goods vehicles (HGVs). The electronic fee replaces the current system using toll stickers.

From 1 July 2011, drivers of motor vehicles with a maximum permissible weight of below 3.5 tonnes will be required to pay tolls on some sections of motorways managed by GDDKiA (the General Directorate for National Roads and Motorways) and therefore begin to use the manual toll collection system on these sections. From 1 July 2011, toll collection will cover the Konin - Stryków section of the A2 motorway, and from 1 January 2012 the Bielany Wrocław - Sośnica section of the A4 motorway. Other sections of motorways will gradually be covered by this system. The manual toll collection system in the above sections will be closed, which means that the driver entering any of these sections of motorway will collect a ticket with which the toll will be paid at the toll booth on leaving the motorway. The toll will vary depending on the type of vehicle and the number of kilometres travelled.

The viaTOLL system does not currently apply to those sections of toll motorways which are not managed by GDDKiA. The collection of tolls for sections managed by private operators under concessions will take place in accordance with existing rules. A list of those sections of motorways is given below:

- A1 - section Rusocin-Nowe Marzy (www.a1-autostrada.pl)
- A2 - section Konin-Nowy Tomyśl (www.autostrada-a2.pl)
- A4 - section Kraków-Katowice (www.autostrada-a4.pl)

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Type of organisation Ministry
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E-mail kancelaria@gddkia.gov.pl

Contact person document -
Operator viaTOLL
Office Kapsch
14.2 Description of the system(s)

14.2.1 The electronic toll systems

The background and aim

On a selection of roads, since 1 July 2011 there has been an electronic multi-lane toll system for heavier motor vehicles (more than 3500 kg) which is based on the distance travelled. A ViaBOX (OBU) is compulsory for this. Exceptions are sections of road with a road toll which have a manual toll station. In this case it is still possible to use a ViaBOX on special lanes.

This system is an end-to-end, open, multi-lane configuration free-flow electronic toll levying system that makes it possible to levy toll from moving motor vehicles in unhindered driving conditions.

This multi-lane free-flow system uses Dedicated Short Range Communication microwave technology (DSRC, 5.8 GHz). The DSRC antennae are mounted on approx. 430 portals on about 100 sections over the motorway that are connected to the ViaBOX (OBU) and changing lanes does not affect the toll levying transaction. The toll levying process is fully automated.

From 1 July 2011 drivers of motor vehicles with a maximum permissible weight of below 3.5 tonnes will be required to pay tolls on some sections of motorways managed by GDDKiA and therefore begin to use the manual toll collection system on these sections. From 1 July this year, toll collection will cover the Konin - Stryków section of the A2 motorway, and from 1 January 2012, the Bielany Wroclaw - Sośnica section of the A4 motorway. Other sections of motorways will gradually be covered by this system. The manual toll collection system in the above sections will be closed, which means that the driver entering any of these sections of motorway will collect a ticket with which the toll will be paid at the toll booth on leaving the motorway. The toll will vary depending on the type of vehicle and the number of kilometres travelled.

Organisation

A special organisation has been set up for levying the toll: ViaTOLL. Through a design, build and maintenance contract this organisation awarded the tender to Kapsch. The Federal Ministry of Infrastructure formally fixes the toll payments and approves them in agreement with the Federal Ministry of Finance on the basis of the Act of 7 November 2008 amending the Act on public roads and certain other acts.

System(s) description

The toll is levied electronically with the viaBOX (OBU). You are given this on registration together with the vehicle declaration. In 2011 the cost of the ViaBOX is € 30.00 including VAT. All motor vehicles with a maximum permissible weight of more than 3500 kg must be fitted with this viaBOX.

The following vehicles are exempt from paying tolls: emergency vehicles, motor vehicles of the armed forces and motor vehicles used for humanitarian relief operations. The GO-Box registers each time the vehicle passes under a toll portal (toll payment station) via a magnetron signal. The driver can use any lane without reducing the speed of the vehicle or stopping. The electronic toll system is fully automated and the driver does not have to do anything. The GO-Box can be obtained at about 250 sales points in Austria along the main road network and at all the main border crossings at a cost of EUR 5.00 (including VAT). Information leaflets are also available here, in twelve languages. The new GO-Boxes are issued here; there is a charging point for the pre-pay GO-Box and in the event of defects customers can have their problems resolved.
The area where the GO-Box should be installed is at the bottom of the front windscreen, half way between the middle of the vehicle and the steering wheel. No objects must be put in the field of vision of the driver because that can impede the driver’s vision. Also, when it is not being used the windscreen wiper must not lie over the GO-Box. Before the GO-Box is installed it must be checked whether the registration number is the same as the details given on the GO-Box voucher. Also, the voucher serves for identification purposes with Customer Service. In the event of an infringement the driver and the owner of the registration number are jointly and severally liable. Because of the way in which it is attached – using velcro – the GO-Box can be removed at any time and then attached (again).

The following must be set on the GO-Box:
- The basic category of the pulling vehicle (without a trailer) is set on registration and cannot be changed by the user.
- The number of axles is set by the driver on the basis of the current number of axles (including attached trailers and semi-trailers). If a trailer or semi-trailer is added or removed, the vehicle category has to be changed. The driver is responsible for correctly setting the number of axles.

The driver cannot himself change the European emission norms on the GO-Box. To do this he has to contact a GO sales point.

**Technology**

To use the network of toll roads covered by the viaTOLL system it is necessary to equip the vehicle with a small on-board electronic device (the viaBOX). This device transmits encoded information about the vehicle to receptors installed on gantries when the vehicle passes beneath them. Using the viaBOX device facilitates electronic payment for the use of toll roads.

The viaBOX will be delivered following registration, which includes signing the agreement and paying the deposit (30 Euro). Installation of the viaBOX is very easy; simply attach the viaBOX to the inside of the vehicle’s windscreen using the fasteners for each side which are included in the equipment pack received. Inside the pack there is also a detailed user guide which describes the installation process and provides additional information about the operation of the viaBOX. The on-board device uses batteries and therefore does not have to be connected to a power supply inside the vehicle. Also, each viaBOX can be used only in the particular vehicle to which it was registered.

To avoid confusion with on-board units from other countries, the viaBOX is marked with the logo of the viaTOLL system.

The viaTOLL system logo and a photograph of a standard viaBOX:

The viaBOX device complies with all requirements and regulations deriving from European directives.

The viaBOX is provided with an indicator and noise signals:
- 1x green viaBOX is OK
- 2x green viaBOX is OK, but the account balance is low. Re-charge the account. Only applicable for prepay accounts.
- 4x red Error. Go to a contact or distribution point.
- No flash Error. Go to a contact or distribution point
1x beep  Toll transaction occurred, everything is in order.
2x beeps Toll transaction occurred, everything is in order, but the account balance is low. Re-charge the account. Only applicable for prepay accounts.
4x beeps Toll transaction did not occur. Go to a contact or distribution point.
No beep  Toll transaction did not occur. Go to a contact or distribution point.

There are fixed, portable and mobile enforcement stations (enforcement devices). These devices are used for registering drivers trying to avoid the toll and also for taking legal steps against toll violation offences.

Customer service serves as a contact point for, among others, carriers, freight companies, loaders and individual truck drivers.

A data transmission network passes on data between all the roadside devices and the central processing system.

The central processing system provides for the processing of all the administrative functions of the toll system, enforcement and the sales points. It deals in real-time with ensuring the technical and administrative operating of the whole of the electronic toll system. Corrections are made immediately, and information is provided immediately and quickly about the status of the various sub-systems, including administration, organisation and finance.

The status of each toll user is registered by list processing. This management list records various pieces of data:
- the method of payment
- blocking of a means of payment (blocking list)
- management of all violations and the exceptions to this.

*Artist's impression of the electronic toll system in Poland*
The technical data of the GO-Box are:
- Operating temperature: -25°C to 85°C.
- Relative air humidity: maximum 90% (at 40°C).
- The GO-Box is maintenance-free.
- It contains a lithium battery which has a life of about five years and has to be returned to a sales office due to environmental considerations.
- It is only permitted to be used inside (i.e. in the driver’s cabin and after it has been installed in accordance with the manufacturer’s instructions).
- After a car accident the functioning of the GO-Box must be checked at the nearest GO sales office.

**Tariff structure**

Toll for using a specific section of a road is charged when a toll transaction takes place. A toll transaction takes place when the vehicle drives under a portal of the toll station and there is a toll for using that specific section of the road.

The system is used on the roads shown below:

The Ministry of Infrastructure has indicated rates of electronic tolls in force for the viaTOLL system in Appendices 3 and 4 of the Regulation of Council of Ministers on the list of national roads or their sections on which the toll is collected electronically, and the rates of electronic tolls (www.viatoll.pl).
The rates of electronic tolls for national roads of the class A and S or their sections on which electronic tolls are collected.

<table>
<thead>
<tr>
<th>Vehicle category</th>
<th>The rate of electronic toll expressed in PLN for 1 km travelled on a national road</th>
<th>The vehicle classes in EURO depending on the exhaust emission limits (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>max. EURO 2</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Vehicles with an maximum permissible weight (2) of over 3.5 tonnes and less than 12 tonnes</td>
<td>0.40</td>
<td>0.35</td>
</tr>
<tr>
<td>Vehicles with an maximum permissible weight (2) of at least 12 tonnes</td>
<td>0.53</td>
<td>0.46</td>
</tr>
<tr>
<td>Buses regardless of their maximum permissible weight</td>
<td>0.40</td>
<td>0.35</td>
</tr>
</tbody>
</table>

The rates of electronic tolls for national roads of the class GP and G (national roads) or their sections on which electronic tolls are collected.

<table>
<thead>
<tr>
<th>Vehicle category</th>
<th>The rate of electronic toll expressed in PLN for 1 km travelled on a national road</th>
<th>The vehicle classes in EURO depending on the exhaust emission limits (1)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>max. EURO 2</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Vehicles with an maximum permissible weight (2) of over 3.5 tonnes and less than 12 tonnes</td>
<td>0.32</td>
<td>0.28</td>
</tr>
<tr>
<td>Vehicles with an maximum permissible weight (2) of at least 12 tonnes</td>
<td>0.42</td>
<td>0.37</td>
</tr>
<tr>
<td>Buses regardless of their maximum permissible weight</td>
<td>0.32</td>
<td>0.28</td>
</tr>
</tbody>
</table>
Road pricing in Europe

On the A2 toll is also payable for vehicles with a weight of less than 3500 kg:
The motorway toll rate per kilometre for category 1 vehicles (motorcycles) is 0.10 PLN.
The motorway toll rate per kilometre for category 2 vehicles (motor vehicles with a maximum permissible weight not exceeding 3.5 tonnes) is 0.20 PLN.
All revenue from the viaTOLL system will go to the National Road Fund. It will be spent on further investments in the development of the road network in Poland and the modernisation of the existing road infrastructure.

Method of payment

It is possible to pay both on a pre-paid and a post-paid basis. In both cases the ViaBOX has to be obtained. A deposit of 120 PLN (30 euros) is needed.
The pre-pay procedure is an account in credit, and the viaBOX must be collected at a distribution point, where it can be topped up with an individual amount (minimum amount: 120 PLN, approx. 30 euros), which then can be spent on tolls as and when needed.
In the case of post-paid, a contract has to be entered into and the ViaBOX is sent to the user.
The toll can be paid through various providers, for example DKV, BP and UTA.

Enforcement

viaTOLL electronic toll collection includes an enforcement system that verifies whether a vehicle is subject to toll and, if so, whether the toll payment process has been followed correctly. The Road Transport Inspectorate is authorised to control vehicles.

Mobile and portable enforcement units are equipped with devices that are able to check whether vehicles have installed the viaBOX device, whether they are properly installed and in addition whether a toll has been collected. In the case of any irregularities, such information is automatically generated along with a photo of the vehicle and sent to the Control Centre. The employees of the Control Centre will verify this information. If a breach of the obligation to pay the toll is confirmed the information will be sent to the Mobile Enforcement Unit which will be supported by the inspectors of the Road Transport Inspectorate. Their task will be to stop the offending vehicle, draw up an inspection report and initiate administrative proceedings to enforce an administrative penalty for failure to pay the toll electronically. If the vehicle is registered abroad, the inspectors will have the right to stop the vehicle until the penalty is paid.

In all cases of violation of the obligation to pay the electronic toll, such as a vehicle not being registered in the viaTOLL system, improper installation of the viaBOX device, incorrect designation of the vehicle category on registration, entering a toll section without paying the toll... etc, penalties as defined in Article 13k of the Act of 7 November 2008 amending the Act on public roads and certain other acts will be imposed. This means that a penalty can be imposed of between 500 and 3000 PLN (125-750 euros).

14.2.2 Privately operated toll roads

The viaTOLL system does not currently apply to those sections of toll motorways that are not managed by GDDKiA. The collection of tolls for sections managed by private operators under concessions will take place in accordance with existing rules. A list of those sections of motorways is given below:
- A1 - section Rusocin-Nowe Marzy (www.a1-autostrada.pl)
- A2 - section Konin-Nowy Tomyśl (www.autostrada-a2.pl)
- A4 - section Kraków-Katowice (www.autostrada-a4.pl)
These roads do not come under the viaTOLL system that has just been introduced.
A1

Organisation
The A1 is operated by Gdańsk Transport Company Gdańsk Transport Company is a special-purpose company set up in 1996 to pursue the Autostrada A1 project. The company holds the concession to design, build, operate and finance a new segment of the motorway from Gdańsk to Toruń totalling approximately 152 km. The concession was granted in 1997. The term ‘concession’ stands for an administrative decision issued by the concession-giving body, in this case the then Ministry of Transport and Maritime Economy (now Ministry of Transport). The concession was issued for a specific term and will expire in 2039.

System description
The A1 motorway tolling system is of the “closed” type and the tolls are collected at the end of the journey, at the gates. Tolling stations (SPOs), except the main toll plaza located on the main corridor (PPO), are located on the access and exit roads (the so-called slip roads) of the motorway junctions. There are seven tolling plazas along the motorway: PPO Rusocin, SPO Stanisławie, SPO Swarożyn, SPO Pelplin, SPO Kopytkowo, SPO Warlubie and SPO Nowe Marzy. While entering one collects a single-ride ticket, entitling the driver to use the road; the ticket must be retained, as it will be used to charge the toll. The amount of the toll depends on the category of vehicle and the distance driven. If the driver does not have a valid entrance ticket to present, he will be obliged to pay the maximum rate set in the binding tariff for the specific category of vehicle and the tolling site concerned.

Construction work on Phase 1 of the 90-km section of the motorway from Rusocin to Nowe Marzy near Grudziądz commenced in the autumn of 2005. The scope of the phase comprises the building of the six sections. The 25-kilometre section of the motorway from Rusocin to Swarożyn has been opened to traffic since December 2008. The remaining 65 kilometres of the A1 motorway were opened in October 2008. The building of the 62-km stretch of the motorway between Nowe Marzy and Toruń started in August 2008. The scope comprises the building of the four sections. The opening of the project is planned in December 2011.

Technology
No information available

Tariff structure
Toll Category 1: motorcycles, vehicles with two axles.
Toll Category 2: vehicles with two axles of which at least one axle is fitted with dual wheels and vehicles with two axles with a trailer.
Toll Category 3: vehicles with three axles, vehicles with two axles of which at least one axle is fitted with dual wheels with a trailer.
Toll Category 4: vehicles with more than three axles, vehicles with three axles and a trailer, vehicles with more than three axles with a trailer.
Toll Category 5: vehicles that do not fall into Toll Categories 1 – 4 and vehicles whose dimensions and/or axle load or weight exceed the limits permissible specified in the laws regarding traffic (Authorised Abnormal Vehicles).
The basic toll rates, excluding VAT, are as follows:

<table>
<thead>
<tr>
<th>Vehicle category</th>
<th>Rate in PLN (net) per km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>0.16 (0.04 euro)</td>
</tr>
<tr>
<td>Category 2</td>
<td>0.38 (0.085 euro)</td>
</tr>
<tr>
<td>Category 3</td>
<td>0.38 (0.085 euro)</td>
</tr>
<tr>
<td>Category 4</td>
<td>0.38 (0.085 euro)</td>
</tr>
<tr>
<td>Category 5</td>
<td>Cat.1 rate x 10</td>
</tr>
</tbody>
</table>

**Method of payment**

Tolls for passage on the A1 motorway on the Rusocin - Swarożyn section will be collected only in cash and in the following currencies: Polish złoty (PLN), Euro (EUR) and American dollars (USD). As far as foreign currencies are concerned, the only notes that will be accepted will be those not bigger than 100. Change will be given in Polish złoty only. Drivers can also pay their tolls with debit and credit cards. Soon fleet cards will be accepted as well.

**Enforcement**

No information available

**A2**

**Organisation**

The A2 is operated by Autostrada Wielkopolska S.A.

A party to the concession agreement on behalf of the Polish government is the Minister of Infrastructure, while the body responsible for its implementation is the General Directorate of National Roads and Motorways. In order to meet its obligations under the concession agreement, a development company was established - A2 Bau Development GmbH (founded by the shareholders of AWSA: Strabag AG and NCC International AB), which is responsible for the construction, and an operating company – Autostrada Ekspolatacja SA (founded by the shareholders of AWSA: Transroute International SA, Kulczyk Holding SA and Strabag AG).

In order to ensure proper performance under the contracts, in strict compliance with Polish law and the provisions of the project agreements, the parties to the concession, the Minister and the concessionaire, appointed an independent engineer – WS Atkins of the UK, whose duty has been to supervise the design process, the construction and operation of the motorway, as well as to care for the proper execution and adequate quality of the works. Autostrada Wielkopolska SA is implementing the biggest concession-based investment project in Poland under the PPP (Public Private Partnership), i.e. the construction and operation of the A2 toll motorway.

**System description**

The A2 motorway tolling system is of the “closed” type and the tolls are collected at the end of the journey, at the gates. Tolling stations (SPOs), except the main toll plaza located on the main corridor (PPO), are located on the access and exit roads (the so-called slip roads) of the motorway junctions.
**Technology**

No information available

**Tariff structure**

<table>
<thead>
<tr>
<th>Toll Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>motorcycles, vehicles with two axles.</td>
</tr>
<tr>
<td>2</td>
<td>vehicles with two axles of which at least one axle is fitted with dual wheels and vehicles with two axles with a trailer.</td>
</tr>
<tr>
<td>3</td>
<td>vehicles with three axles, vehicles with two axles of which at least one axle is fitted with dual wheels with a trailer.</td>
</tr>
<tr>
<td>4</td>
<td>vehicles with more than three axles, vehicles with three axles and a trailer, vehicles with more than three axles with a trailer.</td>
</tr>
<tr>
<td>5</td>
<td>vehicles that do not fall into Toll Categories 1 – 4 and vehicles whose dimensions and/or axle load or weight exceed the limits permissible specified in the laws regarding traffic (Authorised Abnormal Vehicles).</td>
</tr>
</tbody>
</table>

The basic toll rates for the sections Konin – Września, Września – Poznań, Poznań - Nowy Tomyśl, excluding VAT, are as follows:

<table>
<thead>
<tr>
<th>Vehicle category</th>
<th>Rate in PLN (net) per km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>13 (3.25 euros)</td>
</tr>
<tr>
<td>Category 2</td>
<td>27 (5.75 euros)</td>
</tr>
<tr>
<td>Category 3</td>
<td>41 (10.25 euros)</td>
</tr>
<tr>
<td>Category 4</td>
<td>63 (15.75 euros)</td>
</tr>
<tr>
<td>Category 5 Cat.1</td>
<td>130 (32.50 euros)</td>
</tr>
</tbody>
</table>

Discount cards – for private persons frequently using the A2 motorway, pre-paid products. The advantage of cards is that they are failure-free, reliable, and rewritable. A card that is out of charge can be re-charged at dedicated outlets on the motorway. The vehicle number, number of passages, validity date and card number are printed on a discount card.

**Method of payment**

1. Cash - PLN, USD, EUR (change given in PLN);
2. Debit and credit cards - Visa, EuroCard, MasterCard;
3. Fleet cards - Routex, DKV, UTA, ARIS, FLOTA, SHELL, RESSA; post-paid products;
4. Discount cards - for frequent users – pre-paid products

**Enforcement**

No information available

**A4**

**Organisation**

The A4 is operated by Stalexport Autostrada Małopolska. Stalexport Autostrady affiliate is a leading company dealing with the servicing and modernising of motorways in Poland. The company is the holder of the first concession for administering the stretch of the A4 motorway, which is an independent and toll motorway connecting Katowice and Kraków. The company’s mission is to contribute to improving road quality in Poland by providing professional services.
**System description**

The A4 motorway tolling system is of the “closed” type and the tolls are collected at the end of the journey, at the gates. Tolling stations (SPOs), except the main toll plaza located on the main corridor (PPO), are located on the access and exit roads (the so-called slip roads) of the motorway junctions.

**Technology**

No information available

**Tariff structure**

- **Toll Category 1:** motorcycles, vehicles with two axles.
- **Toll Category 2:** vehicles with two axles of which at least one axle is fitted with dual wheels and vehicles with two axles with a trailer.
- **Toll Category 3:** vehicles with three axles, vehicles with two axles of which at least one axle is fitted with dual wheels with a trailer.
- **Toll Category 4:** vehicles with more than three axles, vehicles with three axles and a trailer, vehicles with more than three axles with a trailer.
- **Toll Category 5:** vehicles that do not fall into Toll Categories 1 – 4 and vehicles whose dimensions and/or axle load or weight exceed the limits permissible specified in the laws regarding traffic (Authorised Abnormal Vehicles).

The basic toll rates, excluding VAT, are as follows:

<table>
<thead>
<tr>
<th>Vehicle category</th>
<th>Rate in PLN (net) per km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>8 (2 euros)</td>
</tr>
<tr>
<td>Category 2</td>
<td>15 (3.75 euros)</td>
</tr>
<tr>
<td>Category 3</td>
<td>15 (3.75 euros)</td>
</tr>
<tr>
<td>Category 4</td>
<td>24.50 (6.15 euros)</td>
</tr>
<tr>
<td>Category 5 Cat.1</td>
<td>24.50 (6.15 euros)</td>
</tr>
</tbody>
</table>
120

Road pricing in Europe

Method of payment
1. Cash - PLN, USD, EUR (change given in PLN);
2. Debit and credit cards - Visa, EuroCard, MasterCard;
3. Subscription coupons (discount for frequent users).

Enforcement
No information available

Miscellaneous
Poland does not yet have areas based on emissions restrictions.

14.3 EETS
EETS domains & EETS providers registers:

Polish: http://www.mi.gov.pl/files/2/46f38651bb49e/
KrajowyElektronicznyRejestrObszarwEETSiDostawcwEETS270111.pdf

English: http://www.mi.gov.pl/files/2/46f38651bb49e/
NationalElectronicRegisterofEETSdomainsandEETSProviders.pdf

14.4 Development(s)
From 1 June 2012 drivers of motor vehicles and combination vehicles with maximum permissible weight ≤3.5 tonnes will gain an opportunity to use the electronic method of payment for the use of GDDKiA managed toll motorways. Such method of payment will be available to drivers on the Konin – Stryków section of the A2 motorway and the Bielany Wrocławskie – Sośnica section of the A4. With time the system will include further sections of national toll motorways.

To use the network of toll roads covered by the viaTOLL system, the vehicles have to be fitted with a small on-board electronic device (“viaAUTO”). The device transmits encoded information about the vehicle to relays installed on gantries while driving beneath them. With viaAUTO, electronic payments can be made for using toll roads.

viaAUTO will be delivered after registration, and signing the agreement and paying the deposit. Installation of viaAUTO is very simple. The viaAUTO is attached to the inside of the vehicle’s windscreen with the bilateral fasteners. The on-board device uses batteries and therefore does not have to be connected to a power supply inside the vehicle. viaAUTO can be used only in the particular vehicle to which it was registered.

To avoid confusion with on-board units from other countries, viaAUTO is marked with the logo of the viaTOLL system.

![A picture of the viaAUTO System](image)

The viaTOLL system does not currently apply to those sections of toll motorways that are not managed by GDDKiA. The collection of tolls for sections managed by private operators under concessions will take place in accordance with existing rules. These sections of motorways are listed below.
Road pricing in Europe

- A1 section Ruscin-Nowe Marzy (www.a1-autostrada.pl)
- A2 section Konin-Nowy Tomyśl (www.autostrada-a2.pl)
- A4 section Kraków-Katowice (www.autostrada-a4.pl)

The road infrastructure is being extended and improved on many sections of road. Construction and conversion works cover national roads of a total length of 1418 km. Construction works include new roads, i.e. motorways of 729 km, expressways of 528 km and town bypasses of 92 km. The existing road network of 76 km is undergoing conversion.

### 14.5 References/links

- [http://www.viaTOLL.pl/images/stories/rozporzadzenie.pdf](http://www.viaTOLL.pl/images/stories/rozporzadzenie.pdf) Regulation of Council of Ministers on the list of national roads or their sections on which the toll is collected electronically, and the rates of electronic tolls.
15 Portugal

15.1 General introduction
Some of the motorways in Portugal are toll roads, particularly the motorways along the coast and in the north. In the interior most motorways are toll-free, as are the urban motorway networks of Lisbon and Porto. At about 8 - 10 cents per kilometre, the toll roads are cheaper than in France and Spain. The toll roads generally use a closed system, as is often found in France as well. The toll can be paid in euro notes and coins, and with the exception of the A7, A8, A11 and A15, also with a credit card, i.e. with Visa or MasterCard. Passenger cars come under category 1, except for delivery vans which come under category 2. Since 15 October 2010, an electronic toll has been introduced on a number of motorways, using DSRC tags. The roads concerned are the A28 (Norte Litoral), the Grande Porto (A4, A41 and A42) and the Costa de Prata (A17, A25 and A29).

Portugal was one of the first countries in Europe to introduce a free-flow system for paying tolls for using motorways. In addition, a toll is levied in the ‘usual’ way via toll gates and on two bridges.

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1149-050 Lisbon
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-
Position
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Brisa
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-
Operator
Q-Free
Offices
-

15.2 Description of the system(s)

15.2.1 Toll roads
The background and aim
The road network in Portugal is quite dense in the north and in the centre of the country, and somewhat less dense in the south. A lot of new highways have been built particularly since the 1990s. Up to the beginning of the 1990s, there was only one motorway between the north and the south and some short stretches of motorway here and there. Portugal now has a well-developed and modern motorway network which connects all the cities in the country. There are approximately 2,790 kilometres of motorway, some of which are toll roads and others which are toll-free. Most of the motorways are along the axis of the A1 which runs from Lisbon to Porto and onwards to the border with Spain. This is where most of the main cities and towns are situated as well. In more recent years the number of kilometres of motorway in the interior has been steadily increasing.
In the south the motorway network is limited to the north-south A2 and the Algarve motorway along the south coast (A22).

The toll on SCUT roads which was introduced recently is mainly of a financial nature, and its purpose is to consolidate government finances.

The illustration below shows the major road network.

**Organisation**

The administration of the roads in Portugal has been contracted out to a single party: Brisa. Brisa currently operates a total network of 1,100 km, made up of 11 motorways covering the country from north to south and west to east. Each motorway has its own identity and its own characteristics, and they all share being built carefully, having equipment and services updated all the time and being served by hundreds of people who work every day to ensure the comfort and safety of every road user.

**System(s) description**

When driving onto the motorway, you receive a ticket at a toll gate. When leaving the motorway this ticket has to be shown and paid for (or paid at an automatic payment machine). It may be paid in cash or with a credit card.
Road pricing in Europe

**Tariff structure**

Criteria used for vehicle classification for the purpose of toll payment are set forth in Base XIV of DL 294/97, of 24 October. According to the said Decree-law, vehicles are classified according to two criteria: Vehicle height measured vertically as from first axis; Total number of axes of vehicle.

Vehicle are classified as follows:

“1 – Vehicle classes for the purposes of applying toll rates per kilometre of motorway travelled are as follows, by increasing order of tariffs:

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motorcycles and vehicles with height measured vertically as from first axis below 1,10m, with or without trailer.</td>
</tr>
<tr>
<td>2</td>
<td>Vehicles with two axes and height measured vertically equal or above 1,10 m.</td>
</tr>
<tr>
<td>3</td>
<td>Vehicles with three axes and height measured vertically equal or above 1,10 m.</td>
</tr>
<tr>
<td>4</td>
<td>Vehicles with three or more axes and height measured vertically equal or above 1,10 m.</td>
</tr>
</tbody>
</table>

Vehicle classification is represented in the following charts:

![Vehicle classification chart 1](chart1.png)

Vehicles with height measured vertically as from first axis below 1,10m, with or without trailer

*Motorcycles are considered class 1 in case of manual toll collection or class 5 for in case of electronic collection - Via Verde.*

![Vehicle classification chart 2](chart2.png)

Vehicles with two axes and height measured vertically equal or, above 1,10 m.

![Vehicle classification chart 3](chart3.png)

Vehicles with three axes and height measured vertically equal or, above 1,10 m.

![Vehicle classification chart 4](chart4.png)

Vehicles with more than three axes and height measured vertically equal or, above 1,10 m.

Special tariffs applicable to vehicles described in Decree-law 39/2005 of 17 February are as follows:

“1 – Vehicle users wishing to benefit from the change provided in this law must cumulatively:

a) Be subscribers of the electronic toll collection system;
b) Provide evidence before managers of toll collection systems of compliance with requirements in previous paragraphs.

2 – For the purposes of sub-paragraph b) of the previous paragraph, evidence must be provided by official document issued by relevant authority.”

The official document with list of vehicles which comply or fail to comply with requirements in Decree-law 39/2005 is available at the web site of Direcção Geral de Viação. In case the homologation number specified in the vehicle register is not included in this list, please contact Direcção Geral de Viação to request supporting document.”

Motorcycles are considered class 1 in case of manual toll collection or class 5 for in case of electronic collection - Via Verde.
Method of payment
Cash and credit cards can be used for paying. Also, a financial provider can be used (Via Verde), which also provides other ways of paying, such as at car parks and in filling stations.

Via Verde uses a card as a means of payment. There does not need to be a device in the vehicle, but there can be. The Via Verde services can also be used with the Servisa card.

Enforcement
At every toll gate there is a barrier, also for those with an OBU. You cannot drive on the motorway without paying toll.

15.2.2 Electronic Toll Roads
The background and aim
Since 15 October 2010, an electronic toll system has been introduced on a number of motorways. This system uses DSRC tags (5.8 Ghz technology) and is in use on the A28 (Norte Litoral), the Grande Porto (A4, A41 and A42) and the Costa de Prata (A17, A25 and A29). This is the first nationwide toll system introduced in Europe. The toll has been introduced on what are known as SCUT roads. These are motorways on which until the system was introduced no toll had been levied.

System(s) description
The system is a free-flow system which uses what is known as a DSRC tag mounted in the vehicle.

A number of different devices are used for registering:

- ED (electronic device) This contains only the registration number and is the same as the Via Verde system for other toll roads. The ED is not linked to the vehicle.
- DEM is the same device but is linked in the back-office to keeping records of the journey. This means that a detailed bill can be produced.
- TD (temporary device) is a device that is not linked to a name, so it can be used without any names being involved and by foreigners. This is a tag with a pre-paid balance. There must be a balance of at least € 50.00 available.

The tag is fixed on the front windscreen and only contains a unique identification (a 13-digit number). About 2 million tags were distributed when the system started.

If there is not a tag on the windscreen, or if it is not recognised by the system, a photograph is taken using ANPR and on the basis of this an invoice can be produced. The user must then pay the toll within 5 days. Otherwise there is a penalty; additional administrative costs are involved if payment is made later.

Authorised companies have to be used in order to obtain a tag.
**Organisation**
The system was designed, built and is operated by Q-Free. It was given a 5-year contract for operating the system.

**Tariff structure**
The system applies for all users (also including foreigners).

A tariff must be paid for each section of road between two exits. The amount depends on the type of vehicle and is divided into four categories. The rates vary from € 0.20 to € 3.00.

Payment can be made:
- Using the Via Verde system (the same tag);
- By direct debit;
- By a pre-paid balance linked to a bank account;
- By the pre-paid method anonymously.

An application has to be submitted to use the discount.
For hire cars a tag can be hired with a guarantee. There must be a pre-paid amount on the tag or it must be linked to a credit card. The guarantee is given back when the person hiring the car returns the tag and all toll has been paid.

**Legislation**
The system was approved at a meeting of the Council of Ministers. The resolution determined the rules for operating the system for collecting tolls on all motorways without costs for the user (SCUT). This resolution also contained the principles of universality and positive discrimination.
First, the date of collection of the toll on the SCUT Norte Litoral, Porto and the Silver Coast was fixed for 15 October 2010, taking into consideration the adoption of law no. 46/2010, on 7 September by the National Assembly.

Second, the government sought to reach a compromise and the remaining SCUT roads (Norte, Beira Litoral and Alta, Beira Interior and Algarve) will start to collect tolls at the latest by 15 April 2011.

This system at the same created a system of positive discrimination, related to the collection of toll revenues for local users from the poorest regions. This works by means of a mixed system of exemptions and discounts for people and local businesses. By using exemptions the first 10 times, these individuals receive a discount of 15%.

A transition period with exceptions is in force until 30 June 2012; this applies for residents and businesses. It includes:
- Municipalities with a part of their territory less than 10 km from the motorway (in the case of the SCUT Norte Litoral, Porto and Costa da Prata) and
- Municipalities with a part of their territory less than 20 km from the motorway (Norte, Beira Litoral and Alta, Beira Interior and the Algarve).

The introduction of a toll on motorways is provided for in the Stability and Growth Pact (SGP) for the period 2010-2013 as a measure for consolidating government finances.
**Enforcement**

The concession holders and operators of the toll-levying system regularly carry out checks on the roads with the cooperation of the police authorities. First of all, these actions will be educational and informative, to ensure that users are informed about the payment methods that are available.

In a second stage the aim will be to ensure that users are actually complying with the obligation to pay charges. This enforcement will also be aimed at other violations, including those financial penalties that have already been imposed and simple non-payment of the toll. Ultimately this may result in the vehicle being impounded.

The penalty is ten times the amount of toll payment owed with a minimum amount of €25.00.

**15.2.3 Miscellaneous**

**Toll**

There are two toll bridges in Portugal:

**The 25 de Abril and the Vasco da Gama bridges**

*(the 25th of April Bridge and the Vasco da Gama Bridge)*

The 25 de Abril and the Vasco da Gama bridges cross the Tejo (Tagus) river and connect Lisbon with the south of Portugal via the A2 motorway (25 de Abril) and the A12 motorway (Vasco da Gama). Both bridges were built by the private company Lusoponte, which has the concession for levying the toll for 40 years.

**Tariffs**

Tariffs for the Vasco da Gama bridge:

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.50</td>
</tr>
<tr>
<td>2</td>
<td>5.85</td>
</tr>
<tr>
<td>3</td>
<td>8.70</td>
</tr>
<tr>
<td>4</td>
<td>11.20</td>
</tr>
</tbody>
</table>

1. Vehicles lower than 1.10 m measured at 1st axle, with or without trailer
2. Two-axle vehicles with a height of 1.10 m or more measured at 1st axle
3. Three-axle vehicles with a height of 1.10 m measured at 1st axle
4. Vehicles with more than three axles and a height of 1.10 m or more measured at 1st axle

Payment is made in cash, Portuguese bank card, Via Card or with the Via Verde card (there is a discount with the Via Verde card).

Tariffs for the 25 de Abril bridge:

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.55</td>
</tr>
<tr>
<td>2</td>
<td>3.55</td>
</tr>
<tr>
<td>3</td>
<td>5.05</td>
</tr>
<tr>
<td>4</td>
<td>6.60</td>
</tr>
</tbody>
</table>
1 Vehicles lower than 1.10 m measured at 1st axle, with or without trailer
2 Two-axle vehicles with a height of 1.10 m or more measured at 1st axle
3 Three-axle vehicles with a height of 1.10 m measured at 1st axle
4 Vehicles with more than three axles and a height of 1.10 m or more measured at 1st axle

The following discounts on the 25 de Abril Bridge are applied when Via Card or Via Verde are used as forms of payment:

Viacard

<table>
<thead>
<tr>
<th>Nº crossings per month</th>
<th>Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 a 12</td>
<td>10%</td>
</tr>
<tr>
<td>13 a 70</td>
<td>70%</td>
</tr>
<tr>
<td>71 and more</td>
<td>100%</td>
</tr>
</tbody>
</table>

Via Verde

<table>
<thead>
<tr>
<th>Nº crossings per month</th>
<th>Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 a 12</td>
<td>0%</td>
</tr>
<tr>
<td>13 a 70</td>
<td>70%</td>
</tr>
<tr>
<td>71 and more</td>
<td>100%</td>
</tr>
</tbody>
</table>

1* 30% discount for motorcycles using Via Verde

Payment is made in cash, Portuguese bank card, Via Card or with the Via Verde card (there is a discount with the Via Verde card depending on the number of crossings).

15.3 EETS

EETS domains & EETS providers registers:
http://www.siev.pt/seep-eets.html

15.4 Development(s)

No information available

15.5 References/links

http://www.lusoponte.pt Builder and operator of the 25 de Abril and the Vasco da Gama bridges

http://www.viaverde.pt/Website Financial provider

http://www.brisa.pt Brisa
16 Spain

16.1 General introduction
Spain has a long history of building motorways. There is a toll system in force on a large part of these motorways. Up to now it does not have a pricing system and does not have any Low Emission Zones (LEZ).

The national motorway network in Spain consists of motorways that are managed and built by the national government of Spain. Because many regions (comunidades) have a form of autonomy, there are also many major roads that are managed by the regions, or sometimes even by an urban province. A portion of the road network has been contracted out to external parties (e.g. Acesa) for them to operate the system.

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Type of organisation
Ministry
Website
http://www.fomento.gob.es/MFOM/LANG_CASTELLANO/

16.2 Description of the system(s)

16.2.1 Toll on major motorway network

The background and aim
Spain has a long history in developing its motorway network. Already in the 1980s, the country started upgrading local roads into motorways, under the direction of the government. As a result, the number of kilometres of motorway rose from 2,099 kilometres in 1990 to 8,784 kilometres in 2008, which is a total of 6,685 kilometres in 15 years or an average of 446 kilometres per year. With this, Spain has the highest number of motorway kilometres in Europe. The illustration on the left shows the major road network.

Organisation
The administration of many major roads has been contracted out to concession holders such as Acesa. Acesa is one of the largest infrastructure concession holders in Europe. Acesa builds, maintains and operates motorways under concession agreements and manages road concessions. Acesa also carries out work on transport infrastructure where its concessions are involved. In addition, it is involved in activities that complement motorway building, maintenance and operation. There are other concession holders as well: Acesa, Aucat, Aaulesa, Aumar, Avasa, Castellana and Iberpistas.
To be able to pay the tolls to the various concession holders, the following can be used:

This means that an OBU is fitted in the car, and the car can drive through a toll gate in free flow. A bill is then sent subsequently; this can also be sent electronically. Details of users’ records can be seen via a website.

Another possibility is what is known as a Bi-Model. Through this provider payment can be made both in France and in Spain. Bi-Model replaces both the TIS PL in France and the VIA T in Spain. This system is especially intended for goods traffic travelling both in France and in Spain.

**System description**

When driving onto the motorway, you receive a ticket at a toll gate. When leaving the motorway, this ticket has to be shown and paid for (or paid at an automatic payment machine). It can be paid in cash or with a credit card or use Via-T.

In cars or light vehicles, Via T must be placed at the centre and top of the inside of the windscreen around 5 cm from the top frame, behind the rear-view mirror. The holder should be left permanently installed on the vehicle’s windscreen. In the case of trucks or heavy vehicles, Via T must be placed at the centre and bottom of the inside of the windscreen in a vertical position.

VIA-T is an electronic toll payment system used on Spanish toll motorways to pay for the journey without having to stop the vehicle as. A device is located inside the car and an electronic reader located at the toll booths, the safety barrier is raised automatically. The system is valid for the whole of Spain’s motorway network and, in general, can be used by any vehicle.

**Tariff structure**

The toll rates of 2012, see the following website:

**Method of payment**

The toll can be paid in cash or with a credit card. If “ViaT” is used a bill is being send to the costumer.

**Enforcement**

At every toll gate there is a barrier, also for those using an OBU. You cannot drive on the motorway without paying the toll.

**16.2.2 Miscellaneous**

**SABA car parks**

Via T can be used to pay at SABA car parks. When entering the car park, take a ticket and park the vehicle. Leaving, take the vehicle and go to the exit indicated with the VIA T symbol. Put the ticket in the reader, the control system will do the rest: it will recognise the Via T and the exit barrier will be raised automatically.
There are four Toll Tunnels:

**Túneles de Artxanda**

Tolls payable by the types of vehicle listed, as authorised by the Regional Government of Bizkaia, January 2012

**Túnel del Cadí**

<table>
<thead>
<tr>
<th>Category</th>
<th>Working days</th>
<th>Holidays</th>
<th>Night rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars and motorcycles</td>
<td>1.00</td>
<td>0.60</td>
<td>0.00</td>
</tr>
<tr>
<td>Industrial vehicles, 2-axle / 4-wheel</td>
<td>1.00</td>
<td>0.60</td>
<td>0.00</td>
</tr>
<tr>
<td>Minibuses and 2-axle buses</td>
<td>1.00</td>
<td>0.65</td>
<td>0.00</td>
</tr>
<tr>
<td>Buses with more than 2-axles and lorries (exceptionally)</td>
<td>1.00</td>
<td>0.70</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Tariffs are between € 9.88 and € 32.03

**Túneles de Vallvidrera**

Tariffs are between € 3.09 and € 8.28, see http://www.tunelsdevallvidrera.com/ca/tarifes/tarifes
16.3 EETS
There are about 41 EETS Toll domains, for a complete list see the link.

EETS domains & EETS providers registers:
http://www.registroset.org/Dominios_SET.pdf

See also Annex

16.4 Development(s)
No information available

16.5 References/links
http://www.autopistas.com/abertisautopistas/index_acesa.html  Acesa website
http://www.fdeservicepartner.com  Bi Model provider
http://www.fomento.es/MFOM/LANG_CASTELLANO  Ministry of Transport
https://www.bsfactura.com  Billing information
http://www.tunelesdeartxanda.com  Túneles de Artxanda
http://www.tuneldelcadi.com  Túnel del Cadí
http://www.tunelsdevallvidrera.com  Túneles de Vallvidrera
http://www.aseta.es/Eng/index.php?Seccion=home  Asociación de Sociedades Españolas Concesionarias de Autopistas, Túneles Puentes y Vías de Peaje
http://www.viat.es/  Vía-T
Annex

National EETS domains (roads)

<table>
<thead>
<tr>
<th>Domain</th>
<th>TD-ID</th>
<th>Website or Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP-1 Burgos – Armillón</td>
<td>ES-01</td>
<td><a href="http://www.ap1europistas.es/pdf/SET.pdf">www.ap1europistas.es/pdf/SET.pdf</a></td>
</tr>
<tr>
<td>AP-2 Zaragoza – Mediterráneo</td>
<td>ES-02</td>
<td><a href="http://www.autopistas.com/site/declaracion.php">www.autopistas.com/site/declaracion.php</a></td>
</tr>
<tr>
<td>AP-51 Conexión con Ávila</td>
<td>ES-06</td>
<td><a href="http://www.iberpistas.es/dominio-set.html">www.iberpistas.es/dominio-set.html</a></td>
</tr>
<tr>
<td>AP-53 Santiago – Alto de Sto Domingo</td>
<td>ES-07</td>
<td><a href="http://www.aceca.es/media/DD5.pdf">www.aceca.es/media/DD5.pdf</a></td>
</tr>
<tr>
<td>AP-6 Villalba - Villacastín – Adanero</td>
<td>ES-08</td>
<td><a href="http://www.iberpistas.es/dominio-set.html">www.iberpistas.es/dominio-set.html</a></td>
</tr>
<tr>
<td>AP-61 Conexión con Segovia</td>
<td>ES-09</td>
<td><a href="http://www.iberpistas.es/dominio-set.html">www.iberpistas.es/dominio-set.html</a></td>
</tr>
<tr>
<td>AP-66 León – Campomanes</td>
<td>ES-10</td>
<td><a href="http://www.ausalas.es/docs/Declaracion_dominios_EETS.pdf">www.ausalas.es/docs/Declaracion_dominios_EETS.pdf</a></td>
</tr>
<tr>
<td>AP-7 Alicante – Cartagena</td>
<td>ES-12</td>
<td><a href="http://www.ausur.es/pantallas/declaracion_dominio_set.php">www.ausur.es/pantallas/declaracion_dominio_set.php</a></td>
</tr>
<tr>
<td>AP-7 Cartagena - Vera</td>
<td>ES-14</td>
<td><a href="http://www.ausur.es/pantallas/declaracion_dominio_set.php">www.ausur.es/pantallas/declaracion_dominio_set.php</a></td>
</tr>
<tr>
<td>AP-7 Circunnvación de Aliante</td>
<td>ES-15</td>
<td><a href="http://www.ciralca.es/Declaracion/DominioSET_CIRALCA.pdf">www.ciralca.es/Declaracion/DominioSET_CIRALCA.pdf</a></td>
</tr>
<tr>
<td>AP-7 Málaga – Guadiaro (Tramo 2)</td>
<td>ES-17</td>
<td><a href="http://www.autopistasdelclas.com/pdf/SET-Ausol2.pdf">www.autopistasdelclas.com/pdf/SET-Ausol2.pdf</a></td>
</tr>
<tr>
<td>AP-7 Montmeló – La Junquera</td>
<td>ES-18</td>
<td><a href="http://www.autopistas.com/site/declaracion.php">www.autopistas.com/site/declaracion.php</a></td>
</tr>
<tr>
<td>AP-7 Valencia – Alicante</td>
<td>ES-21</td>
<td><a href="http://www.aualas.es/site/pdf">www.aualas.es/site/pdf</a></td>
</tr>
<tr>
<td>AP-7 León – Astorga</td>
<td>ES-22</td>
<td><a href="http://www.audeasa.es/Pueblos/SET/pdf">www.audeasa.es/Pueblos/SET/pdf</a></td>
</tr>
<tr>
<td>AP-7 Ferrol – Frontera Portuguesa</td>
<td>ES-23</td>
<td><a href="http://www.audeasa.es/Pueblos/SET/pdf">www.audeasa.es/Pueblos/SET/pdf</a></td>
</tr>
<tr>
<td>M-12 Eje Aeropuerto</td>
<td>ES-24</td>
<td><a href="http://www.aeropuertodemadrid.es/declaraciones/SET/SET.pdf">www.aeropuertodemadrid.es/declaraciones/SET/SET.pdf</a></td>
</tr>
</tbody>
</table>

Regional EETS domains (roads)

<table>
<thead>
<tr>
<th>Domain</th>
<th>TD-ID</th>
<th>Website or Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-8 Ermua – Behobia</td>
<td>ES-29</td>
<td><a href="http://www.audeasa.es/webauroras/SET/SET.pdf">www.audeasa.es/webauroras/SET/SET.pdf</a></td>
</tr>
<tr>
<td>C-32 Castelldefels – Vendrell</td>
<td>ES-32</td>
<td><a href="http://www.audeasa.es/Pueblos/SET/pdf">www.audeasa.es/Pueblos/SET/pdf</a></td>
</tr>
<tr>
<td>C-33 Barcelona – Montmeló</td>
<td>ES-33</td>
<td><a href="http://www.audeasa.es/Pueblos/SET/pdf">www.audeasa.es/Pueblos/SET/pdf</a></td>
</tr>
<tr>
<td>C-34 San Cugat – Manresa</td>
<td>ES-34</td>
<td><a href="http://www.autma.com/pdf/SET/AUTEMA.pdf">www.autma.com/pdf/SET/AUTEMA.pdf</a></td>
</tr>
</tbody>
</table>

Other EETS domains (tunnels)

<table>
<thead>
<tr>
<th>Domain</th>
<th>TD-ID</th>
<th>Website or Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Túneles de Artxanda</td>
<td>ES-38</td>
<td><a href="http://www.tuneldesellung.com/pdf/SET/SET.pdf">www.tuneldesellung.com/pdf/SET/SET.pdf</a></td>
</tr>
<tr>
<td>Túnel de Sóller</td>
<td>ES-41</td>
<td><a href="http://www.tuneldesollera.cat/pdf/SET/SET.pdf">www.tuneldesollera.cat/pdf/SET/SET.pdf</a></td>
</tr>
</tbody>
</table>
17 Sweden

17.1 General introduction
An amendment to the Swedish Road law in 1988 created a possibility for financing new infrastructure by using road fees. These possibilities have been used for road charging on the Öresund bridge between Sweden and Denmark as well as on the Svinesund bridge between Sweden and Norway. An additional three bridges that are under construction right now will partly be financed with road fees. There are also in a more long term perspective, plans for ten more road charging systems in Sweden.

In 2007 we introduced a system for congestion tax in Stockholm city. A similar system is now under construction in the city of Gothenburg, planned to be in service by January 2013.

The following starting points apply today in the design of the Swedish road charging system:
- Road charging systems designed as unmanned free-flow systems
- Vehicles are identified via automatic number plate recognition
- The charge is paid afterwards
- The charge must be able to be differentiated
- The toll charger that is also responsible for back-office and the national vehicle registration department is a government authority. From a customer perspective, the road charging areas are perceived as “a system”. The customer must encounter an interface irrespective of the road charging area he passes and receive a single invoice for all road charges.

As more and more free-flow based road charging systems are planned and introduced, a question has arisen. Will foreign vehicles also be subject to the requirements for road charging?

With the introduction of congestion tax in Stockholm it was discussed as to whether foreign vehicles would be covered. The decision to exempt them was based on the relatively limited number of foreign vehicles using the zone but also on the administrative difficulties of identifying the owners of these vehicles.

In the similar system currently under construction in Göteborg the starting point here was also to exempt foreign vehicles. The Göteborg zone differs from Stockholm by the significantly greater number of foreign vehicles using the zone. The same applies to the bridges that are now subject to road charges. If the government decides that foreign vehicles are also to be subject to the bridge charge requirement, it is also likely that the Stockholm and Göteborg systems will be subject to this requirement with a view to avoiding special solutions. Within a few years in Sweden, road tolls will include congestion taxes, bridge tolls and road charges. Road users should experience an integrated road charging system with a common interface to the various features of the system and be able to use the same equipment and methods for all payments. If foreign vehicles are also going to pay, which is the aim, it is understood that DSRC technology is to be introduced in the Swedish road charging systems.

In Sweden road charging are handled by two different authorities, The Swedish Transport Agency and The Swedish Transport Administration.

The Swedish Transport Agency and The Swedish Transport Administration has an agreement when it comes to dividing the responsibility between the two agencies.
The Swedish Transport Administration is responsible for handling all agreements with local and regional parts when it comes to co-financing projects of infrastructural character with road charging. The Transport Administration is also responsible for the tender-process, as well as maintenance when it comes to the roadside equipment of the toll stations.

The Swedish Transport Agency is responsible for, based upon the roadside information that the Transport Administrations supplies, via an automatic handling issue the user fee and possible surcharges for each tax or fee area.

**Contact details**

Name: The Swedish Transport Agency
Address: Transportstyrelsen
601 73 Norrköping
Visiting address: Vikboplan 7, Norrköping
Opening hours: Weekdays 08.00–16.30
Fax: 011-415 22 50

E-mail: kontakt@transportstyrelsen.se
Type of organisation: Public Body under the Ministry of Enterprise, Energy and Communications
Website: http://www.transportstyrelsen.se/en
Department: Ministry of Enterprise, Energy and Communications
Contact person document: Lars Carlsson
Lars.Carlsson@transportstyrelsen.se
Operator -
Offices -

**17.2 Description of the system(s)**

**17.2.1 The Stockholm Congestion Charging System**

*The background and aim*

On 2 June 2003 Stockholm City Council adopted a proposal to conduct a trial with environmental charges/congestion charging – “the Stockholm Trial”. On 16 June 2004 the Swedish parliament passed the Congestion Charging Act (SFS 2004:629). This act permits the collection of a congestion tax in Stockholm up to and including 31 July 2006. On 28 April 2005 the government decided that the trial period with environmental charges/congestion charging in Stockholm should commence on 3 January 2006. The main parties involved are the City of Stockholm, the Swedish Road Administration and Stockholm Transport (SL). The trial was financed by the state. Revenue goes to the national budget, which can then be devoted to investments in the region for infrastructure and public transport. Parliament decides on this.

There were three elements to the Stockholm Trial:
- the expansion of public transport;
- environmental charges/congestion charging, and
- more park-and-ride sites in the city and the county.
The objectives of the trial were as follows:
- To reduce the number of vehicles passing in or out of the congestion-charge zone during the morning and afternoon/evening peak periods by 10–15%;
- To improve the flow of traffic on the busiest streets and roads in Stockholm;
- To reduce emissions of carbon dioxide, nitric oxides and other particles into the air in the inner city;
- To improve the urban environment as experienced by Stockholm residents.

The results of the trial were thoroughly investigated. A short summary:
- Vehicle traffic fell more than expected. For an entire day’s charging period (24 h), the fall was about 22%, equivalent to 100,000 passages into the charging area.
- Accessibility improved.
- Falls in the volume of traffic result in less damage to the environment and better health due to reduced emissions of both carbon dioxide and particles. The reduction in carbon dioxide is approximately proportionate to the fall in vehicle kilometres travelled, which means that the effect of traffic on exhaust emissions dropped by 2-3% in Stockholm County and about 14% in the inner city.
- Public transport is an important part of the Stockholm Trial. Public transport travel was about 6% higher in spring 2006 than in spring 2005. The congestion tax seems to have increased travel by public transport by about 4.5%, while higher petrol prices and other external factors are probably responsible for the rest of the increase (about 1.5%). Congestion on public transport (measured by the number of standing passengers) increased somewhat on the Underground and decreased on commuter trains.
- Road safety improved as a result of reduced traffic.
- Difficult to judge whether residents of Stockholm think the city environment has improved.
- The technical system did work.

A referendum on the implementation of congestion charges in the City of Stockholm was held in conjunction with the general elections on 17 September 2006. The final result from all 461 boroughs in the City of Stockholm was that 51.3% voted Yes, and 45.5% voted No. Apart from the City of Stockholm 14 other municipalities in the county of Stockholm also held referendums on the implementation of congestion charges in the City of Stockholm on 17 September 2006. The results from these referendums were different. A large majority voted No (about 2/3rds of the votes).

The Swedish government decided to reintroduce congestion charging some time in 2007. The final decision on continued congestion charging in the City of Stockholm was taken by the Swedish national parliament. The system was re-introduced on the 1st of August 2007.

**System description**
The system is based on control points on all roads that lead to the inner city. There are 18 of these control points. The map below shows the control points around central Stockholm. Passages into and out of central Stockholm are automatically registered at control points during the periods when the congestion tax is charged.
At each control point vehicles are registered and identified automatically by a photograph of their number plate being taken. The flow of traffic is not affected as drivers do not have to stop or slow down. Payment is made at a later stage; there is no need to pay at the roadside.

There is a sign displaying the word ‘Betalstation’ (control point) at the control point, in addition to a road sign for ‘betalväg’ (toll road) and a sign displaying the tariffs (see figures below). There is also a digital illuminated sign at the control point showing the current amount of the congestion tax.

These illuminated signs display the website address of the Swedish Transport Agency at weekends, on holidays, in the evenings and at night, as no congestion tax is charged during these times.

**Technology**

Laser detectors sense when a vehicle is passing through a control point. The laser then triggers cameras that take photographs of the vehicle’s number plates, first from the front and then from the rear. The camera crops the image so that only the number plate and the area nearest to the plate are shown. The vehicle’s registration number is immediately identified in the camera using OCR technology (Optical Character Recognition).

1. The vehicle passes a laser detector (B) which triggers cameras (D) and (A).
2. An antenna for identification using transponders (no longer used) (C).
3. A camera takes a photograph of the vehicle’s front number plate (D).
4. A camera takes a photograph of the vehicle’s rear number plate (A).

Information registered at control points (date, time, control point, registration number and amount) and the tax decision are stored until the tax has been paid and the processing of the transaction has been completed.

A vehicle’s tax decision is a public document. However, information about which control point the vehicle has passed and the time of the passage is classified. Classified information is only issued to the owner of the vehicle and may, following a special request, be sent by post to the address of the vehicle owner in the population register.

**Organisation**

The system was built by a consortium consisting of many different companies (18), with the main contractor IBM. It was a build and operating contract with the ministry as the principal. The contract had a period of three years and could be extended for one year. During this period some of the activities were sourced from the vagvarket (Swedish Road Administration). SRA and the tax authorities are the public implementing authorities.

**Tariff structure**

Each passage into or out of Stockholm costs SEK 10 (€ 1.00), 15 (€ 1.50) or 20 (€ 2.00), depending on the time of day; see the table on the right page.
The maximum amount per day and vehicle is SEK 60 (€ 6.00).

<table>
<thead>
<tr>
<th>Time</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>06.30 – 06.59</td>
<td>SEK 10</td>
</tr>
<tr>
<td>07.00 – 07.29</td>
<td>SEK 15</td>
</tr>
<tr>
<td>07.30 – 08.29</td>
<td>SEK 20</td>
</tr>
<tr>
<td>08.30 – 08.59</td>
<td>SEK 15</td>
</tr>
<tr>
<td>09.00 – 15.29</td>
<td>SEK 10</td>
</tr>
<tr>
<td>15.30 – 15.59</td>
<td>SEK 15</td>
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<tr>
<td>16.00 – 17.29</td>
<td>SEK 20</td>
</tr>
<tr>
<td>17.30 – 17.59</td>
<td>SEK 15</td>
</tr>
<tr>
<td>18.00 – 18.29</td>
<td>SEK 10</td>
</tr>
<tr>
<td>18.30 – 06.29</td>
<td>SEK 0</td>
</tr>
</tbody>
</table>

Congestion tax is charged on Swedish registered vehicles that are driven into or out of central Stockholm, on Mondays to Fridays between 06.30 and 18.29. The tax is not charged at weekends or on public holidays, on a day before a public holiday or during the month of July. Some vehicles are exempt from congestion tax. The following vehicles are automatically exempt from congestion tax:
- emergency vehicles;
- buses having a total weight of at least 14,000 kg;
- diplomat-registered vehicles;
- motorbikes;
- foreign-registered vehicles;
- military vehicles;
- vehicles that according to details contained in the Swedish Road Traffic Registry of the Swedish Transport Agency are equipped with technology for being run: completely or partly on electricity or a gas other than liquefied petroleum gas (LPG), or on a fuel blend that predominantly comprises alcohol.

**Method of payment**

The congestion tax cannot be paid at the control point. A bill is sent to the vehicle owner at the end of each month, with the tax decisions for the preceding month’s control point passages. The bill must be paid before the end of the next month. The payment slip will also include information about the number of passages and the amount per day. The vehicle owner is responsible for paying the tax, even if the bill does not arrive! A surcharge of SEK 500 will be made if the tax is not paid on time. The bill can be delivered in three different ways. By default, delivery is by post to the vehicle owner’s registered address. The owner can also opt for electronic delivery to the vehicle owner’s Internet bank, or opt for a direct debit arrangement called Autogiro (Direct Debit) that allows the tax to be automatically deducted from the vehicle owner’s bank account when the bill is due.

**Legal basis for collecting the toll**

The toll is collected on the basis of a law adopted by the Swedish parliament.

**Enforcement**

The enforcement is done on the payment of the bill. Failure to pay the tax within the allotted time results in a reminder bill being sent with an added 500 SEK (€ 50.00) fee. If the tax along with the reminder fee is still not paid within 30 days after the reminder bill was sent, the case is forwarded to the Swedish Enforcement Administration, which adds an additional fee of at least 600 SEK (€ 60.00), and the vehicle owner will be noted in the Enforcement Register unless payment is made.
17.2.2 Eurovignette
Sweden uses the Eurovignette. For a description of the Eurovignette, see Section 4.2.2.

17.2.3 Miscellaneous
*The Øresund Bridge. This bridge is located between Denmark and Sweden.*

The construction of the Øresund Bridge began in 1995. It was completed on August 14, 1999. Initially, the crossing was not used as much as expected, probably because of the high tolls. Since 2005 there has been a rapid increase in traffic. This may have been caused by Danes buying homes in Sweden – to take advantage of lower housing prices in Malmö – and commuting to work in Denmark. In 2008, to cross by car, it cost DKK 260, SEK 325, or € 36.30, although discounts up to 75% are available for regular users. In 2007, almost 25 million people travelled over the Øresund Bridge: 15.2 million by car and bus, and 9.6 million by train.

The cost for the entire Øresund Connection construction, including motorway and railway connections on land, was calculated at DKK 30.1 billion according to the 2000 year price index, with the cost of the bridge paid back by 2035. In 2006 Sweden began spending a further SEK 9.45 billion on the Malmö City Tunnel as a new rail connection to the bridge; it is due for completion in 2010.

The connection will be entirely user financed. The owner company is owned half by the Danish government and half by the Swedish government. This owner company has taken loans guaranteed by the governments to finance the connection, and the user fees are the only incomes for the company. After the increase in traffic these fees are enough to pay the interest and begin paying back the loans, which is expected to take about 30 years. The tax payers have not paid for the bridge and the tunnel.

However, tax money has been used for the land connections. Especially on the Danish side the land connection has domestic benefit, mainly connecting the airport to the railway network. The Malmö City Tunnel has the benefit of connecting the southern part of the inner city to the rail network and allowing many more trains to and from Malmö.

### Toll tariffs

<table>
<thead>
<tr>
<th>Fee per single trip</th>
<th>Rates in € including 25% VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorcycle</td>
<td>21.00</td>
</tr>
<tr>
<td>Car up to 6 metres</td>
<td>39.00</td>
</tr>
<tr>
<td>Car up to 6 metres with trailer/caravan</td>
<td>78.00</td>
</tr>
<tr>
<td>Bus over 9 metres</td>
<td>161.00</td>
</tr>
<tr>
<td>Lorry 9-20 metres</td>
<td>134.00</td>
</tr>
<tr>
<td>Lorry over 20 metres</td>
<td>201.00</td>
</tr>
</tbody>
</table>

The method of payment is by cash or by installing a ProBizz transponder. This transponder can be used for some bridges in Denmark as well. To make it easier for users, a cooperation called EasyGo can be used for different toll stations. Interoperable Electronic Fee Collection in Scandinavia. The EasyGo service is a joint venture between 40 toll chargers in the three Scandinavian countries.
The EasyGo service includes the AutoPASS system in Norway and the BroBizz system in Sweden and Denmark. The EasyGo service is offered to customers by their local toll service provider. The customers may use their AutoPASS or BroBizz in all toll collection systems in the Scandinavian countries:
- The Øresund Bridge
- Storebæltsbroen (The bridge over Great Belt)
- Scandlines (Helsingore-Helsingborg, Rødby-Puttgarden, Gedser-Rostock)
- HH-Ferries (Helsingore-Helsingborg)
- Mols-Linien (Odden-Ebeltoft, Odden-Århus)
- AutoPASS (Norwegian toll stations)

### Toll tariffs

<table>
<thead>
<tr>
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<td>Car up to 6 metres with trailer/caravan</td>
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</tr>
<tr>
<td>Bus over 9 metres</td>
<td>161.00</td>
</tr>
<tr>
<td>Lorry 9-20 metres</td>
<td>134.00</td>
</tr>
<tr>
<td>Lorry over 20 metres</td>
<td>201.00</td>
</tr>
</tbody>
</table>

The method of payment is by cash or by installing a ProBizz transponder. This transponder can be used for some bridges in Denmark as well. To make it easier for users, a cooperation called EasyGo can be used for different toll stations. Interoperable Electronic Fee Collection in Scandinavia. The EasyGo service is a joint venture between 40 toll chargers in the three Scandinavian countries. The EasyGo service includes the AutoPASS system in Norway and the BroBizz system in Sweden and Denmark. The EasyGo service is offered to customers by their local toll service provider.

The customers may use their AutoPASS or BroBizz in all toll collection systems in the Scandinavian countries:
- The Øresund Bridge
- Storebæltsbroen (The bridge over Great Belt)
- Scandlines (Helsingore-Helsingborg, Rødby-Puttgarden, Gedser-Rostock)
- HH-Ferries (Helsingore-Helsingborg)
- Mols-Linien (Odden-Ebeltoft, Odden-Århus)
- AutoPASS (Norwegian toll stations)

### The Svinanesund Connection

The Svinanesund Connection project runs from Nordby in Sweden to Svingenskogen in Norway, and includes two kilometres of motorway in Sweden, 4.3 kilometres of motorway in Norway and a 700-metre long bridge between the two countries. The Norwegian-Swedish border is also an EU border, and customs stations have been built on either side of the bridge. In addition, there are toll stations situated at both the old and the new bridge. The entire project is funded by toll fees.
People in this region have always crossed the Norwegian-Swedish border – both north and south, due to trade and the prospects of work. There has never been as much traffic as there is now. Most of the traffic is regional. Many people travel to shopping centres just south of the border, but an increasing number of people commute to work. Long-haul transport in passenger cars and heavy goods vehicles is also increasing. The E6 road is Norway’s most important road to Europe, and traffic between the port of Gothenburg and western Sweden and Norway is extensive. The old road had more than its fair share of accidents, which has influenced the decision to speed up the building of a four-lane motorway on the E6 road in Bohuslän in Sweden and Østfold in Norway.

The Svinesund Bridge is 60 years old. It was not built for today’s high volumes of heavy goods traffic, and it has therefore been replaced – or more correctly, supplemented – with a new bridge. When the old bridge was opened in 1946, a total of 6,300 vehicles crossed it in the first year. Now an average of 15,000 vehicles cross it – every day. The cost of the crossing is 20 NOK (€ 2.50) or 100 NOK (€ 12.50) for traffic > 3,500 kg.

17.3 EETS
EETS domains & EETS providers registers:

Swedish: http://www.transportstyrelsen.se/sv/Vag/Fordon/Vagavgifter/eets


The following two toll chargers are registered in Sweden. In both cases, they charge tolls on bridge connections. The bridges link Sweden with Norway and Denmark.

The Öresundsbro Consortium
Kalkbrottsgatan 141, Box 4278, S 203 14 Malmö
Tel +46 40 676 6000 (Mon-Fri 8:00 - 16:00)
Fax +46 40 676 6580
E-mail: info@oresundsbron.com
Website: http://www.oresundsbron.com/eets

Svinesundforbindelsen AS, co/ Bro- og Tunnelselskapet AS
Box 2623 Møhlenppris, 5836 Bergen
Tel +47 815 68 021
Fax +47 850 28 262
E-mail: svinesundforbindelsen@brotunnel.no
Website: http://www.svinesundforbindelsen.se/eets.htm

17.4 Development(s)

The Gothenburg Congestion Charging System
The congestion tax in Gothenburg will start in January 2013. The tax will be charged for Swedish registered vehicles that are driven into and out of central Gothenburg, on Mondays to Fridays between 06.00 and 18.29. The tax will not be charged on Saturdays, at weekends or on public holidays, on a day before a public holiday or during the month of July. Some vehicles are exempt from congestion tax.
Vehicles are automatically registered at ‘control points’ during the periods when congestion tax is charged. Each passage into or out of central Gothenburg will cost SEK 8, 13 or 18, depending on the time of day. The maximum amount per day and vehicle will be SEK 60.

*Tollbridge Motala*
To be opened in the year 2013 (estimated). Bridge toll until the project costs has been entirely repayed (26 years).

*Tollbridge Sundsvall*
To be opened in the year 2014 (estimated). Bridge toll until the project cost has been entirely repayed (30 years).

*Tollbridge Skuru*

17.5 References/links
http://easygo.com

http://www.oresundsbron.com/eets
The Oresund bridge

http://www.svinesundsforbindelsen.se/eets.htm
The Svinesund bridge

Stockholm Congestion Charging System

http://www.transportstyrelsen.se/en/
Swedish Transport Agenc

http://www.trafikverket.se/Om-Trafikverket/Andra-sprak/English-Engelska/
Swedish Transport Administration

EasyGo is an interoperable service where you can use your BroBizz or AutoPASS tag as a means of payment at payment facilities in Norway, Denmark and Sweden.
18 Switzerland

18.1 General introduction

Three main national road pricing systems exist in Switzerland:
- Vignette: On most national motorways a time-based fee applies to motor vehicles and trailers up to an admissible total weight of 3.5t
- Performance-related LSVA: On all roads* a distance-related fee applies to goods vehicles with an admissible total weight of over 3.5t
- Lump-Sum heavy vehicles fee: On all roads* a time-based fee applies to other vehicles with an admissible total weight of over 3.5t a time-based fee applies (i.e. transportation of persons, traction engines, tractors, motor vehicles for the carney industry and circuses as well as motor vehicles for the transportation of goods with a maximum speed of up to 45 km/h)

Additionally, there are two small tunnel schemes:
- Great Saint Bernard Tunnel: a passage fee applies to all vehicles (Swiss-Italian border)
- Munt la Schera Tunnel: a passage fee applies to all vehicles (Swiss-Italian border)

* including all roads in Liechtenstein

Contact details

Name
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Type of organisation
Ministry

Website

Department
-

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Position
-

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-

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Contact person document
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Bruno Hofstetter
+41 31 325 09 94
bruno.hofstetter@ezv.admin.ch
http://www.a-mobilitynetwork.com/switzerland-directorate-general-of-swiss-customs

Operator
Swiss Customs Authority

Offices
-
18.2 Description of the system(s)

18.2.1 Vignette

The background and aim

In Switzerland, the use of motorways with motor vehicles and trailers with an admissible total weight up to 3.5 tonnes each has been subject to tax since 1985. The fee is based on Article 86 para. 2 of the Federal Constitution and a separate law (Nationalstrassenabgabe SR 741.71). The length of the motorway network is 1801 kilometres (per 2011). The net revenue is used - together with the revenue from the fuel fees - mainly for financing the national motorways (other purposes defined in specific law SR 725.116.2).

Figure 1: The national motorway network in Switzerland

System(s) description

All motor vehicles and trailers up to a admissible total weight of 3.5 tonnes which use the national motorways are subject to this tax. Each liable vehicle needs to be equipped with a toll sticker, called Vignette, before entering the tolled network.

Trailers need an additional sticker. The sticker must be stuck on the inside of the front windscreen (special rules apply for trailers and motorbikes), clearly visible from the outside. The transfer of a sticker to another vehicle is not allowed. Non-mounted or damaged stickers are not valid.

There is a special administrative procedure for the replacement of the vignette in case of a broken windscreen.

The vignette belongs to the vehicle and neither to the registration plate nor to the registration plate holder or driver. This means that several vehicles with a transferable registration plate cannot share a toll vignette. Every vehicle must have its own toll vignette, apart from exceptions.
Road pricing in Europe

Technology
The design of the sticker includes several security measures which complicates the de- and reattachment as well as to duplicate it. The toll vignette is placed on the inside of the front windscreen. The vignette must be clearly visible from the outside for the purposes of enforcement.

Organisation
The Directorate General of Customs is responsible for the levying of the tax at the border and abroad. The vignette is available at all border crossing stations. Customs gives some 3rd parties the right to sell the vignette abroad (e.g. gas stations, automobile clubs etc.). Within Switzerland the Cantons are responsible for levying the tax. The vignette is available at different locations (e.g. post offices, gas stations, other shops).

Tariff structure
There is only one tariff class. Every vehicle with an admissible weight of up to 3.5t needs a vignette. Trailers or caravans pulled by these vehicles must have a separate vignette. A trailer behind a motorbike is exempt.
The vignette costs CHF 40 (around €32.50) and is valid from 1 December of the preceding year to 31 January of the following year. Vehicles that are exempt from this tax are listed on the website of the Swiss Federal Department of Finance http://www.vignette.ch

Method of payment
Only prepayment is accepted. At most selling points the most popular payment means are accepted. Border stations with high traffic volumes (i.e. motorway) have also people from third parties selling the vignettes directly at the roadside, at least in peak hours. They normally only accept cash.

Enforcement
The vignette has several security means which make it difficult to copy the vignette or transfer it to another vehicle. The enforcement is done by visual inspections at motorway exits or on the motorways itself. Violations are defined in the dedicated law and allows to fine violators on the spot. Violators have to buy a vignette and to pay a fine of 200 CHF (around €160). Enforcement within Switzerland is conducted by the individual cantonal police forces. At the border it is done by the Customs. Forgery of motorway tax stickers (i.e. forging of official stamps) is a punishable crime, as is the use of such forgeries. Prosecution is done by the individual cantons within Switzerland and by the Customs at the border.

18.2.2 Distance-related Heavy Vehicle Fee (LSVA)
The background and aim
The distance-related heavy vehicle fee (LSVA) was introduced in Switzerland on 1 January 2001. This fee replaced the flat-rate heavy vehicle charge that had been levied since 1985 and is based on a law approved by a clear majority of the electorate in September 1998 (SR 641.81). Overall responsibility for levying the new fee was assigned to the Federal Customs Administration (FCA), because the LSVA is a legal duty from the fiscal point of view.

External costs of heavy goods traffic in 2005
In contrast to the Vignette, the LSVA is levied on all public roads within Switzerland, and not on motorways only. Liechtenstein decided to participate in the scheme from the beginning.

The LSVA has many goals. For the first time in Europe, the external costs of freight transport are being internalised. It will also help to finance large-scale railway projects. At the same time it is an important instrument for encouraging the transfer of goods to rail. In the law it is defined that 2/3 of the net revenue is dedicated to the Federal State and has to be used for financing the new Alpine Railway Tunnels and to cover the external costs of HGV traffic. 1/3 of the net revenue is dedicated to the Cantons with the aim to cover the external costs of HGV traffic.

**System(s) description**

In Switzerland the LSVA applies on all public roads (around 72,000km) for all heavy goods vehicles with an admissible total weight of more than 3.5 t. Swiss goods vehicles have to be mandatory fitted with an On Board Unit (OBU), while most foreign heavy goods vehicles use the manual registering system.

The amount charged is based on
- the kilometres driven,
- the admissible total weight of the vehicle combination as well as
- the emission value (Euro class) of the towing vehicle.

The kilometres driven on Swiss territory are taken from the tachograph. The tachograph is mandatory equipment for all heavy goods vehicles in Europe. Although not overly accurate, it has the advantage of being a legally recognised instrument.

The weight relevant for the fee determination corresponds to the maximum weight that is permissible for the actual vehicle combination on Swiss roads. Trailers are not separate fee objects, but are assessed together with the respective pulling vehicle. Therefore the presence of a trailer changes the relevant weight for the fee calculation.

The fee collection is based on the principle of self-declaration. The liable person is obliged to participate actively. For Swiss vehicles (vehicles registered in Switzerland) the declaration is due at the end of every month while for foreign vehicles it is when leaving Switzerland again. The operating procedures for Swiss and foreign vehicles have be considered separately.

**Swiss Vehicles**

- In principle equipped with OBU
- In approved exceptional cases: logbook and TAG

**Foreign Vehicles**

- In principle use of ID Card at the terminal
- Voluntary equipped with OBU
Swiss vehicles
All Swiss vehicles that are subject to the LSVA must be equipped with an On Board Unit (OBU), which is mounted permanently on the inside of the windscreen. Exceptions may be granted by the FCA. The OBU records the declaration data for the charge of the LSVA. In approved exceptional cases the collection of mileage can be done with a logbook. These vehicles are equipped with a TAG for their electronic identification in the course of enforcement.

The log entries stored in the OBU must be read out monthly by entering a dedicated chip card (“vehicle via chip card”) or Bluetooth. The data can be supplemented by additional information (e.g. forgotten trailer declaration, wrong weights) and has to be transmitted to the FCA, either by post or via the Internet. This transfer is called the declaration, which forms the basis for the assessment of the vehicle.

Foreign vehicles
All foreign vehicles with subject to the LSVA use an identification card (ID-Card) that is issued on first entrance into Switzerland after registering the vehicle. For the registration the admissible total weight and the vehicle documents are necessary (master data). Once registered, drivers must declare their entrance at a terminal with the ID-Card every time when entering Switzerland. This process consists of declaring the mileage and the admissible weight of the trailer (if any). At the same time the desired payment method is selected. The driver receives a printed receipt which is carried along until leaving Switzerland again.

When leaving Switzerland, the current mileage is recorded on the receipt. Any possible change of the trailer must be documented, either on the receipt and/or with evidence of execution in a controlled environment (Form 56.10). This information combined with the registered master data forms the basis for the assessment of the vehicle.

Foreign vehicles can be voluntarily equipped with an OBU.

Technology
Swiss vehicles (equipped vehicles)
The OBU records the distance covered by the vehicle in order to determine the charge. In fact, the charge is not calculated in the OBU but in the central system using the OBU records and the fixed vehicle data. Also every event of significance to the fee collection process is recorded with the date, time and details of the event. Data on cards is protected with digital signatures, using asymmetric cryptography. To measure the distance, the device in the vehicle is connected to the same distance pulse sensor like the mandatory tachograph. The distance recording is complemented with a satellite positioning system (GPS) and with a movement sensor to make sure that the tachograph signal is not intentionally interrupted or falsified.
The (de-)connection of a trailer has to be declared manually by the driver. Nevertheless a trailer sensor records automatically if a trailer is detected. This information can be used in the assessment to identify non-declarations of trailers.

When the vehicle crosses the border the mileage counter is automatically registered. This function is activated by a dedicated short-range communication (DSRC) link using beacons installed above the road at the border crossing points.

---

**Technical components of the OBU**

The OBU costs about € 1000.00. The recording device can only be fitted in authorised assembly points. The installation costs of up to about € 300.00 to € 700.00 have to be borne by the owner of the vehicle.

With a separate user contract with ASFINAG the Swiss OBU can also be used for the LKW-Maut scheme in Austria (one way technical interoperability).

Aspects concerning privacy are deliberately avoided because the system does not know exactly where the vehicle is being driven, only that it is being driven.

**Foreign vehicles (Non-equipped vehicles)**

The entry declaration has to be done at self-service terminals or manned counters. Both are equipped with card readers and a connection to the central information system.

The exit declaration is processed later in the central system.
Road pricing in Europe

**Organisation**

Organisation is entirely in public hands, but the law does however form a legal basis for implementation by private and decentralised parties (cantons). However, this provision is not used in practice.

**The distribution of tasks is as follows:**

The Ministry of Transport creates the policy (legislation, basis, referenda) regarding the system for levying the LSVA. The Federal Customs Administration (FCA) in conjunction with cantonal highways offices, transport companies and authorised assembly points looks after the levying of the LSVA. In addition, the FCA provides for enforcement and the contracting of equipment. The FCA is directly supervised by the Federal Ministry of Finance.

**Tariff structure**

The LSVA is a federal tax levied on the basis of admissible total weight, the level of emissions and the kilometres driven in Switzerland and the principality of Liechtenstein.

The tariff is differentiated for emission classes (since 1.1.2012):

<table>
<thead>
<tr>
<th>Category</th>
<th>Euro category</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Euro 2, Euro 1, Euro 0 and previous</td>
<td>3.07 cents/tkm</td>
</tr>
<tr>
<td></td>
<td>Euro 2 with particle filter</td>
<td>2.76 cents/tkm</td>
</tr>
<tr>
<td>II</td>
<td>Euro 3</td>
<td>2.66 cents/tkm</td>
</tr>
<tr>
<td></td>
<td>Euro 3 with particle filter</td>
<td>2.39 cents/tkm</td>
</tr>
<tr>
<td>III</td>
<td>Euro 4, Euro 5, Euro 6 and subsequent</td>
<td>2.26 cents/tkm</td>
</tr>
</tbody>
</table>

An inflationary adjustment is planned for mid-2012.

**Example:**

<table>
<thead>
<tr>
<th>Charge category</th>
<th>Kilometres driven in CH</th>
<th>Relevant weight of towing vehicle + trailer</th>
<th>Amount of LSVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.07 Cts/tkm</td>
<td>x 300 km</td>
<td>x 40.0 t</td>
<td>= 368.40 CHF</td>
</tr>
<tr>
<td>2.26 Cts/tkm</td>
<td>x 4,500 km</td>
<td>x 7.5 t</td>
<td>= 762.75 CHF</td>
</tr>
</tbody>
</table>

Information about the rates as from 2012 can be found on www.lsva.ch.

The revenue 2010 was 1.5 billions CHF (around 1.2 billion Euros). The collection costs are between 5-7% of the total revenue.

**Exceptions**

The following vehicles licensed in Switzerland and abroad are exempt from the tax:

- Military vehicles with military number plates or civil number plates and the M+ sticker
- Vehicles of the police, fire brigade, oil and chemical emergency unit, civil protection and ambulances
- Vehicles used for the concessionary transport of persons
- Agricultural vehicles (green number plates)
- Swiss short-term number plates
- Vehicles that are not currently licensed and have dealers’ number plates (except for vehicles intended for export)
- Driving school vehicles, provided that they are used for teaching purposes and are licensed for an approved driving school
- Veteran and vintage cars that are identified as such in the vehicle licence
- Electrically-powered vehicles
- Trailers for persons and goods used by the travelling show industry and circuses
Road pricing in Europe

- Crawler-type vehicles
- Transport axles
- On previous application to the Directorate General of Customs:
  Vehicles used for humanitarian, non-profit or non-commercial purposes

Special regulations (reductions and reimbursements) apply for the certain vehicles and transports (Unaccompanied combined traffic, timber transports, bulk milk transport, transports of productive livestock)

**Method of payment**

**Swiss vehicles**

For Swiss vehicles the fee is due 60 days after the registration period and the bills have to be paid within 30 days. The usual payment means for business processes are accepted. The assessment is done by the FCA taking into account the data from the OBU and if available any other data (e.g. data from the enforcement system). The recorded data is sent to the central information system of the FCA. At the beginning of each calendar month the files have to be sent to the FCA either by chip card (by mail) or electronically (by modem or via internet). At the FCA, the data (declaration of the vehicle owners) is fed into the information system (IS), where it becomes subject to plausibility tests. The checked and corrected data will form the basis for the calculation of the fee.

**Foreign vehicles**

For foreign vehicles the fee is due and has to be paid on the spot when leaving Switzerland. The driver has to select on arrival a payment method. Most fuel and credit cards are accepted and checked online during the declaration procedure at the entry. Having selected this payment mean, except of handing back one of the print-outs with the handwritten exit mileage, no other procedure is needed by the driver at the exit. It is also possible to open a special LSVA account at customs.

Another possibility to pay the fee is by cash. This requires an additional stop at the exit. For the assessment plausibility tests are performed by the central system taking into account data from the enforcement system – either done immediately at the exit (cash payment) or later in the back-office.

**Enforcement**

The law sets a minimum fee of 100.- CHF for detected violations. The maximum is three times the evaded amount for negligent non-compliances, 5-times for deliberate non-compliances. Negligent non-declaration of a trailer is not a violation.

Because the fee is levied on all roads, it would not be efficient only to have roadside measures.

Therefore the OBU has been designed with several security measures and redundancies, e.g.:
- The status of OBU (function, trailer, DSRC) is displayed by LED visible from the outside of the vehicle.
- Any opening of sealed OBU, disconnections of power supply and sensors are reported in the logfile and broken seals can be detected by inspection.
- Movements of the unit can be detected even if the power supply and tachograph are disconnected (internal power supply for reduced computing capacity)
- Measured distance from tachograph is compared with measured distance by GPS
- Attachment of a trailer is recognised by a sensor (but the manual declaration is used for the assessment in first place).
In addition to that several roadside measures have been introduced, either to check the current status of the vehicle or to support the assessment of the fee in the central system:

- Automatic multilane free flow enforcement stations identifying the passage time, presence of a trailer, the front and rear licence plates as well as reading the status of the OBU (currently 23 units on motorways)
- Mobile enforcement unit
- Manual spot checks

The data collected by the fixed and mobile enforcement units are sent back to the central LSVA IT system, where it is processed further. Non-compliances are detected either directly by comparing the measured data with the declared data of a passage or by plausibility checks like distance between entry and exit points via several enforcement stations. Identified violations are checked manually.

### 18.2.3 Lump-Sum Heavy Vehicle Fee

Before the introduction of the LSVA all heavy vehicles had to pay the lump-sum heavy vehicles fee. When introducing the performance-related LSVA, it was decided to charge most exemptions (see above) and all coaches with the lump sum heavy vehicles fee.

The lump-sum fee is a time-based charge. For Swiss vehicles the fee is assessed and collected by the Cantons. Foreign vehicles will be charged at border stations with a paper based system.

### 18.2.4 Miscellaneous

#### Great Saint Bernard Tunnel

There is a separate toll for the Great Saint Bernard Tunnel at the border with Italy. For tax reasons there are two price tables – one for north-south (entering on the Swiss side, collected by Switzerland) and one for south-north (entering in Italy, collected by Italy).

Toll charges as from 1 January 2011 - south-north in € (including 20 per cent VAT) and north-south in CHF (no VAT).

<table>
<thead>
<tr>
<th>Class</th>
<th>One way</th>
<th>Return</th>
<th>10 transits</th>
<th>20 transits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>14,30 €</td>
<td>19,40 €</td>
<td>98,00 €</td>
<td>131,00 €</td>
</tr>
<tr>
<td></td>
<td>17,20 CHF</td>
<td>23,20 CHF</td>
<td>117,50 CHF</td>
<td>157,00 CHF</td>
</tr>
<tr>
<td>A2</td>
<td>24,30 €</td>
<td>39,00 €</td>
<td>98,00 €</td>
<td>131,00 €</td>
</tr>
<tr>
<td></td>
<td>29,20 CHF</td>
<td>46,70 CHF</td>
<td>117,50 CHF</td>
<td>157,00 CHF</td>
</tr>
<tr>
<td>B1</td>
<td>37,90 €</td>
<td>60,60 €</td>
<td>228,00 €</td>
<td>303,00 €</td>
</tr>
<tr>
<td></td>
<td>45,40 CHF</td>
<td>72,80 CHF</td>
<td>273,50 CHF</td>
<td>364,00 CHF</td>
</tr>
<tr>
<td>B2/B3</td>
<td>67,00 €</td>
<td>108,00 €</td>
<td>498,00 €</td>
<td>868,00 €</td>
</tr>
<tr>
<td></td>
<td>80,50 CHF</td>
<td>130,00 CHF</td>
<td>597,00 CHF</td>
<td>1.042,00 CHF</td>
</tr>
<tr>
<td>3A/3B</td>
<td>97,50 €</td>
<td>155,50 €</td>
<td>729,00 €</td>
<td>1.260,00 CHF</td>
</tr>
<tr>
<td></td>
<td>116,50 CHF</td>
<td>187,00 CHF</td>
<td>874,00 CHF</td>
<td>1.512,00 CHF</td>
</tr>
<tr>
<td>4</td>
<td>147,50 €</td>
<td>236,00 €</td>
<td>1.112,00 €</td>
<td>1.905,00 €</td>
</tr>
<tr>
<td></td>
<td>177,00 CHF</td>
<td>283,00 CHF</td>
<td>1.335,00 CHF</td>
<td>2.286,00 CHF</td>
</tr>
</tbody>
</table>

**Legend:**

A1 Motor bike, motor bike with sidecar, motor bike with trailer
A2 Vehicles with 2 or more axles, height measured at front axle, lower than 1.30m and total height lower than or equal to 2 m.
B1 Vehicles with two or more axles with height exceeding 2 m, lower than or equal to 3 m.
B2/B3 Two axle truck, total height over 3 m; two axle bus with total height over 3 m
3A/3B Three axle truck, total height over 3 m; three axle bus, total height over 3 m
4 Vehicles with four or more axles with total height over 3m
As no VAT is charged on the Swiss side, no invoices are issued; it is, however, possible to request a receipt on purchase of a ticket.

To request an invoice for tickets purchased on the Italian side, a form available on the website has to be used.

Further information about changes in the amount of the toll, a single journey and the varying validity of payment cards can be found on the website of the Gran-Saint-Bernard, tunnel: http://www.letunnel.eu/

**Organisation**

The two concessionary companies, Societa’Italiana per il traforo del Gran San Bernardo of St-Rhemy-en Bosses, Italy and Société Tunnel du Grand-Saint-Bernard SA of Bourg-Saint-Pierre, Switzerland have equal holdings in SISEX SA.

The Italo-Swiss company SISEX SA, held equally by the two concessionary companies, plays a largely commercial role, administering the division of revenue between the two concessionary companies and dealing with matters specifically regarding tolls and special offers.

By agreement with the two concessionary companies, since January 2006 SISEX SA has played an important role in coordinating and monitoring matters of common interest such as safety, management and investments.

**SISEX SA – Société Italo-Suisse d’exploitation du Tunnel du Grand-Saint Bernard**

**Italy:** Tunnel tollgate - 11100 Saint-Rhemy-en-Bosses (AO)  
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Switzerland: PO Box 2, CH - 1946 Bourg-Saint-Pierre (VS)  
Tel. +41 (0) 27 787 12 06  
Fax +41 (0) 27 787 12 19  
E-mail: info@letunnel.com

**SITRASB SpA - Società Italiana Traforo Gran San Bernardo S.p.A.**

**Director, Management and Administrative Office**

via Chambéry n° 51- 11100 Aosta  
Tel. +39 0165 363641 / +39 0165 363642  
Fax +39 0165 363628  
E-mail: sitrasb@sitrasb.it

**TGSB SA - Tunnel du Grand-Saint-Bernard S.A.**

**Administration**

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Tel. +41 (0)21 617 72 90  
Fax +41 (0)21 617 77 80  
E-mail: administration.suisse@letunnel.com

**The Munt la Schera Tunnel**

A charge is also made for using the ‘Munt la Schera Tunnel’ which is a single track tunnel of 3.5km on the border to Italy.

More information about opening times and charges can be found from the link below:  
18.3 EETS
Interoperability has been introduced with Austria EFC system. The Swiss OBU can be used in the Austrian network because it uses the same technical standards and agreements have been reached with the Austrian toll company. A separate contract with ASFINAG is necessary. Currently no foreign OBU can be used in Switzerland as distance recording is not implemented in another system yet, but required for Switzerland. Although the EETS Directive does not concern Switzerland directly, it is planned to accept the EETS also in Switzerland. The FCA is currently preparing the necessary EETS data in order to provide it to EETS providers.

18.4 Development(s)
Currently the second generation of On-board units is introduced. The roadside system (beacons) has been switched to the second generation.

Studies to introduce an electronic fee collection system for the light vehicle vignette system have been carried out, but no change in the system is currently planned.

18.5 References/links
http://www.i-mobilitynetwork.com i-Mobility Network
http://www.vignette.ch Toll vignette Switzerland
http://www.letunnel.eu/ Great Saint Bernard Tunnel
http://www.lsva.ch Federal Customs Administration
19 United Kingdom

19.1 General introduction
This section covers the United Kingdom, where there have been plans and discussions concerning the introduction of charges for using the road network in urban areas since the 1970s. In October 2002, Durnham became the first place in the UK to introduce Congestion Charging, followed by the London congestion charge in February 2003. The government’s principal reasons for this are to improve reliability and the flow of traffic on the roads and to tackle congestion problems.

Contact details
Name: Department for Transport
Address: Great Minister House
76 Marsham Street
London SW1P 4DR

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Department -
Contact person -
Position -
Telephone -
E-mail -

Contact person document: Department for Transport
Kitty Vernon
Kitty.Vernon@dtf.gsi.gov.uk

DVA - Driver & Vehicle Agency
Stanley Duncan
stanley.duncan@doeni.gov.uk

Operator: LCC: Transport for London (TfL)
Offices: London

Organisation
There are about 7,754 km of motorways and main roads in the road network of the United Kingdom. The network is administered by the Highways Agency (HA), an executive agency of the Department for Transport (DfT). The DfT is responsible only for roads in England. Responsibility for roads in Scotland, Wales and Northern Ireland is devolved to the appropriate national authority. The Highways Agency (HA) is responsible for administering the roads (the strategic network) in England. The tasks are devolved into 14 areas and are managed in 7 regions.

The HA is one of the six Executive Agencies of the Ministry of Transport. The HA is responsible for administration and maintenance and also for improving and extending the road network in the United Kingdom. For a number of years the HA has made a great deal of use of performance contracts with private parties (Managing Agent Contractors, MACs). Each area has one performance contract with an MAC. These contracts set out the requirements and aims concerning the management, maintenance and improving of the road network. The MACs receive a lump sum for administration and maintenance and as such have an incentive to carry out these tasks as efficiently as possible. However, efficiency must not be at the cost of the quality of the administration and maintenance. This is monitored closely by the HA. The HA contracts out about 90% of all of its administration and maintenance activities.
This means that the HA can focus effectively on its core tasks:
- strategic extending of the road network,
- traffic management (some of which under its own control) and
- monitoring performance contracts.

19.2 Description of the system(s)

19.2.1 The levying of tolls and local charges

The introduction of a national distance-based road pricing system will become a reality in the United Kingdom in the long term. The government is encouraging decentralised authorities to take measures to relieve congestion, combined with the introduction of a local charge. A number of projects have already meant that a charging policy has been put into practice, namely the M6 Toll road and the London congestion charge (LCC). The city of Edinburgh has also tried to introduce a local charge, but a referendum was organised for this. In this referendum 74 per cent voted against the plans of the city council, as a result of which the project did not go ahead. This section will first of all examine the LCC and then the congestion charges in other UK cities.

London congestion charge (local charges)

The background and aim

The London congestion charge (LCC) is the best-known example of an (urban) congestion measure combined with the introduction of a local charge and has been in operation since 17 February 2003. The scheme was almost doubled in size with the Western Extension Zone which went live on 19 February 2007. The Western Extension Zone was discontinued at the end of December 2010.

The Transportation Act in 2000 made it possible for local authorities to introduce charges; this because the Ministry of Transport has to approve local levies. In addition, the Greater London Authority Act passed in 1999 made it possible for a local charge to be introduced in London. In 2002 the average driving speed in London had fallen to about 15 km per hour. On 26 February 2002 the final decision to introduce the LCC was made by the mayor Ken Livingstone. This was a part of his election manifesto for which he had been given a mandate by the voters. The LCC was introduced after an intensive consultation process.
The effect of the LCC has been, among other things, that within the charging zone in 2010 congestion fell by 30 per cent compared with the period before the charge. Also, the volume of traffic has fallen and average driving speeds have increased. In fact it is a charge for entering the zone, and does not have to be paid for a vehicle that does not move for the whole day.

The aims of the charge are:
- to reduce congestion in London,
- to improve bus transport,
- to improve the reliability of journey times for drivers,
- to improve the reliability, sustainability and efficiency of the distribution of goods and services.

**Organisation**

The LCC is operated by Transport for London (TfL), the transport authority for London and the operator of the LCC. TfL manages the Congestion Charging Scheme, and manages the public transport system, including the underground system. While TfL is responsible for the scheme, the operation is sub-contracted to a number of outside companies. Since 2009, IBM has been responsible for the day-to-day operation of the charging system, while Siemens Traffic Solutions provides and operates the physical enforcement infrastructure.

Near or at the start of the zone, the sign on the right says ‘Central zone Congestion charging’, and also says when the zone operates.

**System(s) description**

No information available

**Technology**

As far as the technology for collecting the charge is concerned, in London proven technology was chosen – an electronic registering system. For enforcement, there are cameras fitted with Automatic Number Plate Recognition (ANPR) technology, made using PIPS technology. Vehicles that enter the zone are followed by two types of cameras – a monochrome camera (black and white) with a lens aimed at the number plate, and a colour camera with a wide-angle lens that provides proof of the position of the vehicle on the road. Also, infrared technology is used to recognise the number plate. At present the cameras are at 331 sites.

**Tariff structure**

As stated above, the LCC has been in operation since February 2003. From that date the owner of a vehicle pays a fixed rate per day for the vehicle being present in central London. At the start the fee for this local charge was 5 pounds sterling per vehicle per day. In 2005 this charge was increased to 8 pounds. Now in 2010 there is a charge of 15 pounds per day (on working days between 7.00 and 18.00 hours) for entering a zone in central London, which was extended to areas in West London in 2007. The Transportation Act 2000 provides that the charging authority itself draws up the details of its own schemes and therefore also proposes the rates. The scheme, including the charges, then has to be approved by the Secretary of State. In London, TfL has the authority to collect the levy.
A request can be made for an exemption from the congestion charge. Some vehicles, such as buses, minibuses (of a certain size), taxis, emergency vehicles (ambulance, fire brigade, police), motorbikes, vehicles that run on clean fuel (environmentally-friendly vehicles) and bicycles are exempt from the charge. In terms of legislation, the exemptions are discounts of 100%; in addition, registration is still a requirement. Also, residents in the charging zone get a 90 per cent discount on the charge, if the charge is paid singly for a week or more.

On working days (except on public holidays) between 7.00 and 18.00 hours, vehicles that enter the central zone (the Inner Ring Road) have to pay 15 pounds sterling per day. On these days the zone can be left without any restrictions and entered again. The charge can either be paid in advance (90 days before the date of travel) or on the day of travel itself. A higher charge has to be paid by drivers who do not pay until the day after. Non-payment results in a penalty. There is no charge at the weekend and on public holidays.

The rates for the various zones and periods can be seen on the website of Transport for London.

Road map showing the congestion charging zone in London:

The revenue from the local charge is spent by the Transport for London (TfL) authority, which is responsible for the planning and delivery of all the transport facilities in London (buses, underground, trams, bicycles, cars, taxis, etc.). With the London Congestion Charge road users pay directly to improving transport facilities in London, which is a statutory obligation arising under the Transportation Act 2000. Most of the revenue is invested in improving public transport, safety and facilities for walking and cycling.

Net revenue for:
2003/2004 was about 66 million pounds sterling,
2007/2008 was 137 million pounds sterling.

2010:
Capital: 36 million pounds sterling per year for 8 years.
Operating: 64 million pounds sterling per year for 8 years.
Revenue: Originally forecast to be 130 million pounds sterling per year, now revised downwards to 68 million pounds sterling per year.
Every week about 550,000 successful payments are made through various channels and about 35,000 demands are sent.

Congestion in the charging zone has fallen by 30%, the volume of traffic has fallen by 18% and average driving speeds have increased. But the number of people travelling into Central London has stayed the same. 50 to 60% have switched to public transport. Also, emissions have been reduced. These positive results increase public support for charging.

**Method of payment**

Road users can pay by SMS, the internet, at kiosks, by telephone, post and at self-service machines and by paying employees. The charge can either be paid in advance (90 days before the date of travel) or on the day of travel itself. A higher charge has to be paid by drivers who do not pay until the day after.

The Auto Pay congestion charge system, an automated payment system, starts on 4 January 2011.

The number of days per month that a vehicle travels in the charging zone is recorded automatically. The charge is billed automatically to the debit card or credit card. Some of the advantages of this new payment system are that there is automatic authorisation, the charge is lower (9 pounds rather than 10 pounds as from 4 January 2011), and there is protection against receiving Penalty Charge Notices provided that the vehicle is registered and the CC Auto Pay account is active.

**Enforcement**

Enforcement takes place using cameras (at 331 sites, fixed cameras and a number of mobile cameras) and number plate recognition (ANPR) for checking that the tickets have been bought. There are no OBUs, toll portals or other obstacles.

The cameras are mounted over access roads and the exits and around the zone for reading the number plates. They check the number plate against a database to establish whether a payment has been made or whether there is an exemption or a 100 per cent discount. The database keeps checking until midnight on the following charging day. If there is a match, the images of the vehicle will automatically be deleted from the database. If there is no match, all the images will be checked and validated and a Penalty Charge Notice will be sent to the registered keeper of the vehicle.

The system is able to register successfully about ninety per cent of the vehicles. Attempts to commit fraud with number plates or camera devices are criminal offences. Closed Circuit TV (CCTV) monitoring is entirely in compliance with the Data Protection Act. Only if number plates do not match the information in the database are photographs kept for the enforcement procedures. Photographs of a vehicle for which the charge has not been paid are kept in a database until the fines have been paid, or the case has been closed. This database is managed by the Driver and Vehicle Licensing Agency (DVLA).

TfL has the authority to remove ‘habitual offenders’ anywhere in London, including outside the charging zone. Foreign vehicles are also checked, and the checks are carried out on the basis of agreements between TfL and similar authorities abroad. Drivers of hire cars are responsible for paying the charge and the car rental companies are entitled to pass on the details of the drivers.
There is an administrative penalty system for the LCC. Penalties that have not been paid are pursued by the civil courts, and in the most extreme cases the matter is referred to the bailiff if the payment is not made. Non-payment of the charge results in a fine of 80 pounds sterling. If this is paid within 14 days, the fine is reduced to 40 pounds.

If the zone is entered without a confirmation of payment having been received, then a daily charge of 15 pounds has to be paid. Otherwise there is a fine. Once a Penalty Charge Notice (PCN) has been issued, the owner is immediately liable to pay 100 pounds. If payment is made within 14 days, this is reduced to 50 pounds. If it is not paid within 28 days, the penalty is increased to 150 pounds.

**M6 Toll road near Birmingham (toll levy)**

_The background and aim_
The M6 Toll road is an example of pricing policy on new infrastructure, and has been in operation since December 2003. The M6 is a privately funded and operated road. The levying of a toll has been used here as the instrument for financing a new motorway as an alternative to the toll-free M6 near Birmingham. A DBFO (Design, Build, Finance & Operate) concession was awarded for 53 years to a private company, Midland Expressway Limited (the toll company). The road was built to relieve the region of congestion.

_organisation_
The toll company is Midland Expressway Limited, a private company.

_System(s) description_
The tag, an electronic device, has to be attached to the front windscreen. When entering a dedicated Tag lane (identified by the Tag symbol above the lanes), the Tag is read and provided that the vehicle owner’s account is in credit the Tag will bleep once. The toll barrier will rise, a green light will appear and the driver will be able to drive through without the need to stop. The system records the journeys and debits the driver’s account automatically.

Tags constitute electronic pre-payment for the M6 Toll system. Usually the driver does not have to stop and also he can save money for each journey made. For a monthly lease payment the driver gets a discount of 5% per journey.

_Technology_
Toll portals when joining the motorway.

_Tariff structure_
The concession stipulates that Midland Expressway Limited carries out the design, construction, financing, maintenance and operating of the M6 at its own account and risk. The revenue therefore goes to cover these costs. The tariff for using the M6 Toll road is based on:

- A variable system; it puts vehicles in different categories and charges different rates for each category,
- The prices vary depending on the time of day; the system has day-time prices and night-time prices.

The price can also vary at each toll station.
Road pricing in Europe

Method of payment
Payment can be made when leaving the M6 or at one of the Toll stations situated along the 27-mile route. Payment can be made in an attended lane, using credit/debit cards or fuel cards or in cash or at an automatic booth, using credit/debit cards or fuel cards or coins only (no change is given). Drivers can also pay in advance of their journey using the M6 Toll’s electronic Tag system. The Tag sits in the windscreen and allows drivers to just cruise through the toll lane without having to stop.

Enforcement
The M6 cannot be used until the drivers have paid. Non-payment of the toll is a violation. Midland Expressway then issues an ‘Unpaid Toll notice’ with instructions on how to pay.

Durham (toll levy)
The background and aim
In October 2002 a charging system was implemented in the city of Durham, whereby drivers have to pay to use a road to a peninsula with a number of historic sights. From Monday to Saturday from 10.00 to 16.00 hours road-users have to pay 2 pounds sterling. For details, see the Durham County Council website (http://www.durham.gov.uk).

11.2.2 Miscellaneous
Charges are also levied for certain tunnels and bridges. These are for four sections of road. For the other routes and the charges that apply, see the ANWB website (The Royal Dutch Touring Club (http://www.anwb.nl), or the DfT website (http://www.dft.gov.uk/pgr/roads/statutorytolled/tolledundertakings).

- The Dartford Tunnel, 1.50 pounds sterling  http://www.dartfordrivercrossing.co.uk
- The Humber Bridge, 2.70 pounds sterling  http://www.humberbridge.co.uk
- Severn River Crossing, 5.40 pounds sterling  http://www.severnbridge.co.uk
- Mersey Tunnel, 1.40 pounds sterling  http://www.merseytunnels.co.uk

19.3 EETS
EETS domains & EETS providers registers:
http://www.dft.gov.uk/pgr/roads/statutorytolled/eets-register
19.4 Development(s)
The drawing up of the ‘Future of Transport’ and plans for national road pricing. The possible introduction of a national road pricing system has been under consideration since June 2005. In the ‘Future of Transport’ the British government says that it is seriously considering introducing another way of paying for using roads. With the adopting in general terms of the recommendations of the steering group, the introduction of a national road pricing system is the provisional objective. The London congestion charge, a local charge in Durham and the M6 toll road are seen as projects that provide important experience from which to learn.

19.5 References/links
http://www.london.gov.uk Greater London Authority
http://www.dft.gov.uk/pgr/roads/statutorytoll/tolledundertakings Department for Transport
http://www.m6toll.co.uk M6 toll
http://www.durham.gov.uk Durham County Council
http://www.sparksproject.org Sparks Network
http://www.dartfordrivercrossing.co.uk The Dartford Tunnel
http://www.humberbridge.co.uk The Humber Bridge
http://www.severnbridge.co.uk Severn River Crossing
http://www.merseytunnels.co.uk Mersey Tunnel
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Term</th>
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<tbody>
<tr>
<td>€</td>
<td>Euro</td>
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<tr>
<td>ABMG</td>
<td>The German Motorway Toll Act for Heavy Commercial Vehicles</td>
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<tr>
<td>ABvM</td>
<td>Anders Betalen voor Mobiliteit/Dutch project for introducing road pricing in the Netherlands</td>
</tr>
<tr>
<td>ACEA</td>
<td>The European Automobile Manufacturers Association</td>
</tr>
<tr>
<td>ACS</td>
<td>Automatic Control System</td>
</tr>
<tr>
<td>AG</td>
<td>Joint-stock company</td>
</tr>
<tr>
<td>ANAS S.p.A.</td>
<td>National Autonomous Roads Corporation</td>
</tr>
<tr>
<td>ANPRT</td>
<td>Automatic Number Plate Recognition</td>
</tr>
<tr>
<td>ANWB</td>
<td>The Royal Dutch Touring Club</td>
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<tr>
<td>ASECAP</td>
<td>European Association with tolled motorways, bridges and tunnels</td>
</tr>
<tr>
<td>ASFA</td>
<td>Association des Sociétés Françaises d’Autoroutes</td>
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<tr>
<td>ASiFINAG</td>
<td>Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft</td>
</tr>
<tr>
<td>AWSA</td>
<td>Autostrada Wielkopolska S.A.</td>
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<tr>
<td>BAG</td>
<td>Federal Office for Goods Transport in Germany</td>
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<tr>
<td>BAS</td>
<td>Federal Highway Research Institute</td>
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<tr>
<td>BMVBS</td>
<td>Bundesministerium für Verkehr, Bau und Stadtentwicklung</td>
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<tr>
<td>CC Auto Pay</td>
<td>Congestion Charging Auto Pay</td>
</tr>
<tr>
<td>CCTV</td>
<td>Closed Circuit Television Cameras</td>
</tr>
<tr>
<td>CE-marked</td>
<td>Conformance mark</td>
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<tr>
<td>CEN standard</td>
<td>European Committee for Standardization</td>
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<tr>
<td>CHF</td>
<td>Swiss franc</td>
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<tr>
<td>CKZ</td>
<td>Czech Koruna</td>
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<tr>
<td>CO2</td>
<td>Carbon dioxide</td>
</tr>
<tr>
<td>DBFO</td>
<td>Design, Build, Finance &amp; Operate</td>
</tr>
<tr>
<td>DEM</td>
<td>Electronic Registration Device</td>
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<tr>
<td>DETEC</td>
<td>The Federal Department of the Environment, Transport, Energy and Communications</td>
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<tr>
<td>DFT</td>
<td>Department for Transport</td>
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<tr>
<td>DGMo</td>
<td>Directorate-General for Mobility</td>
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<tr>
<td>DIR</td>
<td>Interdepartmental Roads Directorate</td>
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<tr>
<td>DKK</td>
<td>Danish Krone</td>
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<tr>
<td>DSRC</td>
<td>Dedicated Short Range Communication</td>
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<tr>
<td>DVLA</td>
<td>Driver and Vehicle Licensing Agency</td>
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<td>e.g.</td>
<td>for example</td>
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<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>ED</td>
<td>Electronic Device</td>
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<tr>
<td>EEA countries</td>
<td>European Economic Area countries</td>
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<tr>
<td>EETS</td>
<td>The European Electronic Toll Service</td>
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<td>EEV</td>
<td>Enhanced Environmentally friendly Vehicles</td>
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<tr>
<td>EFC</td>
<td>European Fee Collection</td>
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<tr>
<td>EFTA</td>
<td>European Free Trade Association</td>
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<tr>
<td>EGNOS</td>
<td>European Geostationary Navigation Overlay Service</td>
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<tr>
<td>EP</td>
<td>EETS Provider</td>
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<tr>
<td>EPC</td>
<td>Euro Parking Collection</td>
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<tr>
<td>EReg</td>
<td>Association of European Vehicle and Driver Registration Authorities</td>
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<tr>
<td>ETSI</td>
<td>The European Telecommunications Standards Institute</td>
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<tr>
<td>Abbreviation</td>
<td>Term</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>FCA</td>
<td>Federal Customs Administration</td>
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<td>FEDRO</td>
<td>Federal Roads Office</td>
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<tr>
<td>GDDKiA</td>
<td>General Directorate for National Roads and Motorways</td>
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<tr>
<td>GHz</td>
<td>Gigahertz</td>
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<tr>
<td>GmbH</td>
<td>Company with limited liability</td>
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<tr>
<td>GNSS</td>
<td>Global Navigation Satellite Systems</td>
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<td>GPRS</td>
<td>General Packet Radio Service</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>GSM</td>
<td>Global System for Mobile Communications</td>
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<tr>
<td>HA</td>
<td>Highways Agency</td>
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<td>HGV</td>
<td>Heavy Good Vehicle</td>
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<td>HVF</td>
<td>Heavy Vehicle Fee</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technologies</td>
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<tr>
<td>ID-Card</td>
<td>Identification card</td>
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<td>IR beacon</td>
<td>Infrared beacon</td>
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<tr>
<td>IRF</td>
<td>The International Road Federation</td>
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<td>IRU</td>
<td>International Road Transport Union</td>
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<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
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<tr>
<td>IT</td>
<td>Information technology</td>
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<tr>
<td>ITS</td>
<td>Intelligent Transport System</td>
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<tr>
<td>KBA</td>
<td>Kraftfahrt-Bundesamt</td>
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<tr>
<td>kg</td>
<td>Kilogram</td>
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<td>km</td>
<td>Kilometer</td>
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<td>KMP</td>
<td>Dutch project for introducing road pricing in the Netherlands</td>
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<td>Kpa</td>
<td>Kilopascal</td>
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<tr>
<td>LCC</td>
<td>London congestion charge</td>
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<td>LED</td>
<td>Light-Emitting Diode</td>
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<td>LEZ</td>
<td>Low Emission Zones</td>
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<td>LKW</td>
<td>Truck</td>
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<td>LPG</td>
<td>Liquefied Petroleum Gas</td>
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<td>LPG</td>
<td>Liquefied Petroleum Gas</td>
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<td>LSVA</td>
<td>Distance-related Heavy Vehicle Fee</td>
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<td>LTZ</td>
<td>Limited Traffic Zone</td>
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<td>m</td>
<td>meter</td>
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<td>MAC(s)</td>
<td>Managing Agent Contractor(s)</td>
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<td>MIDAS</td>
<td>Motorway Incident Detection and Automated Signalling</td>
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<td>MMI</td>
<td>Man Machine Interface</td>
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<tr>
<td>NERI</td>
<td>National Environmental Research Institute</td>
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<td>NID</td>
<td>National Infrastructure Directorate</td>
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<td>NO2</td>
<td>Nitrogen dioxide</td>
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<td>NoBos</td>
<td>Notified Bodies</td>
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<td>NOK</td>
<td>Norwegian Krone</td>
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<td>NOK</td>
<td>Norwegian Krone</td>
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<td>NOx</td>
<td>Nitrogen oxides</td>
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<tr>
<td>NPRA</td>
<td>Norwegian Public Roads Administration</td>
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<td>OBU</td>
<td>On-Board Unit</td>
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<tr>
<td>OCR</td>
<td>Optical Character Recognition</td>
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<td>OZD</td>
<td>Oberzolldirektion</td>
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<td>PC</td>
<td>Personal computer</td>
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<tr>
<td>PCN</td>
<td>Penalty Charge Notice</td>
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<td>PLN</td>
<td>Polish zloty</td>
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<tr>
<td>PMK</td>
<td>Particle reduction systems of Class</td>
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<tr>
<td>PR</td>
<td>Public Relations</td>
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<tr>
<td>RCC</td>
<td>Regional Control Center</td>
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<tr>
<td>RSE</td>
<td>Roadside Equipment</td>
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<tr>
<td>SBG</td>
<td>Strassenbenutzungsgebühr</td>
</tr>
<tr>
<td>SCUT</td>
<td>Sem Custo para o Utilizador (without cost for the user)</td>
</tr>
<tr>
<td>SEK</td>
<td>Swedish Krone</td>
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<tr>
<td>SGP</td>
<td>Stability and Growth Pact</td>
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<td>SISEX SA</td>
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<td>SITRASB SpA</td>
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<td>SKD</td>
<td>Monitoring Service Division</td>
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<td>SL</td>
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<tr>
<td>SMS</td>
<td>Short Message Service</td>
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<td>SO2</td>
<td>Sulphur dioxide</td>
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<td>Société wallonne de financement complémentaire des infrastructures</td>
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<td>TD</td>
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<td>Value-Added Service</td>
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<td>VIFG</td>
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<td>VMS</td>
<td>Variable Message Signs</td>
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<tr>
<td>WAN</td>
<td>Wide Area Network</td>
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</table>
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Notes