Legal Prerequisites For Road User Charging In Sweden

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ARENA REPORT 2014:03

2014-09-01

Publication: ARENA REPORT 2014-03
Published: 2014-09-01
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Preface

This report is the first in a series of document that forms the basis for the final report from the project *Strategic Analysis within ARENA 3*.

The purpose of the document is to provide a review and an analysis of the legislation and regulations that have been and will be put in place after the implementation of the propositions from the Swedish year 2011 governmental investigation on road tolls (i.e. “state-of-the-art”) into Swedish legislation. Attention is also given to the international developments. The report provides an analysis on whether the present and proposed regulations will cover also a situation that includes e.g. the replacement of the current vignette for heavy goods vehicles (HGVs) with a distance based charging scheme, which is found to be high on the agenda for European legislators.

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1 Introduction

Transport infrastructure is a major driver of economic development and enhances the competitiveness of a nation. Roads are traditionally financed through the state budget, but construction, operation, and maintenance of infrastructure is a capital-intensive business, and it has been found that the resources spent on the road infrastructure have been decreasing since the 1980´s. It is therefore of critical importance to find complementary ways to finance infrastructure development and maintenance[1]. Road charges, road tolls and congestion taxes provides important possible sources to infrastructure financing, and are at the same time important policy instruments that affect people's choice of transport mode and routes in response to policy goals[2].

Road tolls and user charge systems in various forms have been discussed in Sweden for decades but limited interest for use have been demonstrated until a few years ago. Now road user charges have been put forward for implementation at several locations. Today heavy trucks pay a road charge called Eurovignette, tolls for both light and heavy vehicles finance the bridges of Svinesund and Öresund, and are planned for Motala, Sundsvall, and Skurusund. Congestion charges are levied for both heavy and light vehicles in Stockholm and Gothenburg[3]. As a similar development with increased interest in the use of road user charges can be found in most European countries, the European Commission is putting much effort into harmonization and legislation around systems and services in support of the establishment of a coherent and effective European road transport system.

In the governmental investigation on co-financing[2], the government defines a question about how coherence and efficiency can be ensured in the application of user and congestion charges in Sweden. In response to this question, in an annex to the co-financing investigation, ARENA presents an outline proposal for a cohesive Swedish system for collection of fees in the road traffic. The aim of the proposal is to serve as guidance for the Swedish Transport Agency, the Swedish Transport Administration, and other stakeholders in their task to introduce road charges in Sweden for funding or taxation purposes. The goal of the strategy proposed is to establish a system that road users and customers perceive as an integrated national system for road charges. ARENA's work so far deals primarily with the practical question of **how** road charges are collected and less with the issue of in which contexts (**where** and **when**) charges should be used[2].

This is an important limitation as we believe that road user charges will play an increasingly important role ahead. Each application of road user charging is decided and designed independently of other applications and not as a part of a cohesive strategy. Hence the scope of this project is to outline such strategy, and to assess the possibilities given through the current national and international legislation, i.e. after the implementation of the 2011 governmental investigation on road tolls[4].

[1] Betänkande av Utredningen om vägavgifter på E6, SOU 2006:33, Stockholm, 2006
[2] Slutbetänkande av medfinansieringsutredningen, SOU 2011:49, Stockholm, 2011
[2] Slutbetänkande av medfinansieringsutredningen, SOU 2011:49, Stockholm, 2011
[3] Delbetänkande av 2011 års vägtullsutredning, SOU 2012:60, Stockholm, 2012
[4] Slutbetänkande av 2011 års vägtullsutredning, SOU 2013:3, Stockholm, 2013

1.1 Method

The analysis of EU regulations and legal conditions in Sweden has been based on the functional model for collection of toll charges that has been previously used in ARENA. It is presented below. Each function has been analysed and the problems that may arise due to regulations or legislative reasons are presented in chapter 3 Important Legal Conditions for Road Tolls in Sweden.

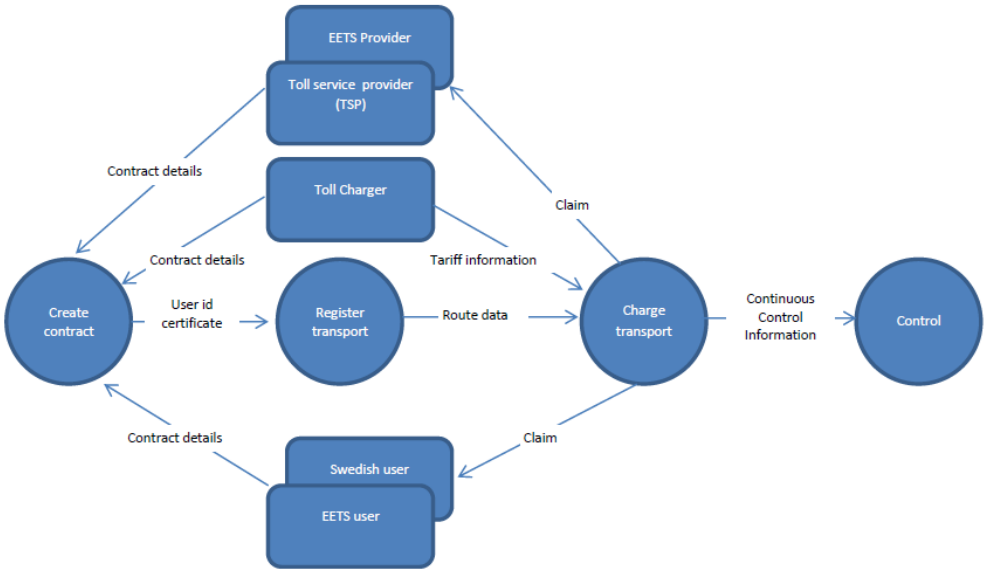

Figure 1: Main functions and processes in a toll system

The collection of toll charges can be divided into four functions; create contract, register transport, charge transport, and compliance control. The function of executing the practical payment is not included in the model (as commercial means are expected to be used), but any difficulties associated with the function are handled in the charge transport function. The list below summarizes the functions and their content.

Create contract: Create contract between road user and Toll Service Provider (TSP), e.g. EETS providers. The TSP will provide the road user with vehicle On-Board Equipment (OBE) or/and other necessary equipment. OBEs shall be linked to a specific vehicle and the TSP will keep a register that connects each OBE to a specific vehicle registration identity (e.g. license plate).

A contract is also established between the Toll Charger and the TSP in order to "sign up their clients" for use of the service.

Register transport: There are different ways to carry out this function:

a) The function registers a vehicle's passage of a toll station or a vehicles route in real time. The toll stations use free flow technology, which allows traffic to flow uninterrupted through the toll station. For user charges the toll stations will be equipped with DSRC[5] transceivers. The transceivers will register a vehicle by reading its OBE (equipped with DSRC transponders). Parallel to DSRC,

[5] Dedicated Short Range Communication

toll stations will video record images of licence plates and the Toll Charger will link each license plate to an account.

b) For autonomous distance-based road tolls the DSRC system must be supplemented by a satellite-based system that track and record vehicle movements of the road user. In this case the registration is carried out by equipment inside the vehicle.

Charge transport: Decisions regarding the amount to charge; the toll is calculated and debited. In a distance-based road toll system the road user is liable to submit a user declaration on a regular basis without active request from the Toll Charger or Toll Service Provider (this may be an automatic process). The calculation of the charge is then based on the road user's declaration and/or the registrations of the DSRC transceivers and debited accordingly.

Compliance control: Control of completed declaration and equipment function in real time, control of calculations and payments afterwards, and management of aberration such as appeals, irregularities and the recovery of unpaid tolls. Vehicles for which payment obligations have not been fulfilled are blacklisted, and will be subject to sanction procedures.

2 Legal Overview

2.1 Tax or Fee

It is not possible to provide a generally valid answer to the question of whether a charged fee for the right to use a road should be considered as a tax or fee. It depends on how the charge is designed in each case. The legislation must be regarded as unclear as to the distinction between taxes and fees. The question is essential when it comes to determining whether it is possible to delegate decision-making authority to municipalities or other authorities. The classification of either tax or fee is of significance in terms of how the revenues will be used, since a state tax benefit the public treasury and earmarking of state taxes may be assessed as unsuitable[6].

The constitution act offers no definitions of the terms tax and fee. The préparatoires states that a tax can be characterized as a forced contribution to the public **without a counter performance**. A fee is normally understood as an impost that is paid for a specified counter performance from the public[6]. This is (in Sweden) interpreted as a restriction regarding the possibility to levy a charge on an existing road (i.e. a public road that has been built through tax money).

The relevant provisions are stated in the constitution. According to chapter 8 § 3 of the constitution, regulations concerning the relationship between the individual and the community should if it concerns obligations of the individual or otherwise relates to interference with the individuals personal or economic circumstances, be reported by statute. Such regulations include regulations about taxes and burdensome fees, "forced fees". Notwithstanding this provision, the government can after empowerment by law through statute issue regulations other than tax if the regulation regards for example traffic.

According to Chapter 8 § 9 second part of the constitution, the government or a municipality can after granted authority by the parliament issue regulations on fees, that otherwise ought to be reported by the government. If Parliament authorizes the government to issue regulations on a particular subject, the Parliament may grant that the government leave to administrative authorities or municipalities to issue regulations on the subject. The Government may also, according to Chapter 8 § 13 of the Constitution, issue regulations on the enforcement of law[6].

Thus it is possible to delegate the right to issue regulations of fees to the government, municipality or administrative authority (e.g. municipality parking fees). For regulations of taxes there is no possibility for the parliament to delegate legislative powers[6].

2.2 Legal regulations in Sweden

From 29 § in the Road Act[7] it is clear that the government can determine that fees may be charged for the use of public roads. The Government reports the procedures for such fees. Fees may only be charged for public roads built after the act was established on July 1st in 1988. Before that date it was only possible to charge a fee for the employment of a ferry. Fees can also be used as a supplement to other types of financing for construction of new, larger bridges or tunnels. Permission to

[6] Betänkande av Utredningen om vägavgifter på E6, SOU 2006:33, Stockholm, 2006
[7] Väglag, SFS 1971:948, Stockholm, 1971

conduct road construction objects partly or wholly financed by fees from road users should in each case be determined by the Swedish government[8].

Today the only fee that is charged according to 29 § of the Road Act is a bridge fee for use of the new Svinesund Bridge, a connection between Sweden and Norway. Since the old Svinesund Bridge was financed through taxes, there was no possibility to charge a user fee for the bridge. Because the fee was not attached to a counterpart from the public it would be considered as a tax. A fee is therefor only charged at the Norwegian side of the bridge. The fee charged for passing the Öresund bridge is not considered as such fee intended in the 29 § in the Road Act, since the bridge is a private road. The charge is therefore not specifically regulated by a statute[8].

A recent governmental investigation[8,9] proposes new legislation on fees for the use of infrastructure. The investigation concludes that foreign vehicles should be liable to pay user charges and tolls for the use of Swedish infrastructure. By including foreign vehicles the system gains more acceptances among road users, especially hauliers[8 9]. The investigation proposes that foreign vehicles should pay tolls by the use of a transponder (OBE) or by Internet payment (a system that is used in Norway).

The Norwegian Internet payment method is primarilly developed for road users who visit Norway temporarily and do not have an Autopass[10] contract. Users register on the Internet by establishing a pre-paid account including name, vehicle information and credit card details. The user decides the contract period not exceeding three months. For this payment system the road user do not need a transponder (OBE). When the vehicle passes a toll station its license plate is photographed and the fee is deducted from the road users established account. The road user is able to register in advance or within 14 days after passing the first toll station. The governmental investigation proposes to copy the Norwegian system in Sweden.

Vehicles with a transponder should be able to pay road charges through this. According to the year 2011 road toll investigation, the transponder should be linked to a specific vehicle and the owner of the vehicle should be liable to pay charges. The investigation means that it would not be justified to require transponders for Swedish vehicles since it is possible to operate the system by reading license plates.

2.3 The right to stop vehicles

An important building block in a toll system is the authorities' right to stop vehicles and in connection to roadside inspections, issue fines on the spot with the threat of detaining vehicles until the debt is paid. Through regulation on drivers hours of service[11] this possibility was created:

5§ If a person who under chapter 9, §10 shall be imposed a sanction is not a resident of Sweden, should a police officer at the roadside control decide that financial sanctions shall be paid in advance. The advance shall be paid to the police.

6§ If the advance referred to in §5 is not paid immediately at the time of inspection, the officer may decide that the vehicle cannot continue its journey. A police officer may refuse to take such decision if there are exceptional reasons. A decision under the first paragraph is effective until the advance has been paid or if the sanction charge has been imposed without payment of the advance.

[8] Delbetänkande av 2011 års vägtullsutredning, SOU 2012:60, Stockholm, 2012
[9] Slutbetänkande av 2011 års vägtullsutredning, SOU 2013:3, Stockholm, 2013
[10] Autopass is a Norwegian electronic toll service, owned by the Norwegian Public Roads Administration
[11] SFS 2004:865, SFS 2009:1374, Förordning om kör- och vilotider samt färdskrivare, m m

The right to stop and fine on the spot goes to the police officer at the on-site inspection.

2.4 EU- regulations

The Eurovignette Directive[12] applies to vehicle taxes, time-based road charges and distance-based road tolls imposed on heavy goods vehicles, i.e. trucks that including its trailer has a maximum permissible laden weight of over 3.5 tonnes. The directive does not cover passenger cars and light trucks. The directives aim is to remove distortion of competition between freight carriers in the member states. The charging systems should therefore be harmonized for heavy trucks. The directive does not oblige member states to impose user charges or tolls, but for fees charged the terms must be followed. The first Eurovignette Directive was adopted in 1993, but was replaced in 1999 by a new directive that was amended in 2006 and 2011[13].

The directive defines a '**user charge**' as a payment of a specified amount conferring the right for a vehicle to use a certain infrastructure during a given period of time. The time-based user charges have been introduced in Sweden by the Act on charges for certain heavy vehicles[14] (the use of the *Eurovignette*). Likewise, the Directive's provision on minimum rates of vehicle tax has been taken into account in the Swedish legislation[15].

A **road toll** is defined as a specified amount payable for a vehicle based on the distance travelled on a given infrastructure and on the type of vehicle, comprising an infrastructure charge and/or an external-cost charge. Road tolls can incorporate either or both infrastructure charges and external-cost charges, where infrastructure charges is a fee charged to cover the member states costs of construction, maintenance, operation and development of infrastructure and an external-cost charge is regarded as a charge levied for the purpose of recovering the costs related to traffic-based air pollution and/or traffic-based noise pollution[15].

Also costs related to congestion and accidents can be included in the road toll as an infrastructure charge as the charge may be varied for the purpose of reducing congestion, minimising infrastructure damage and optimising the use of the infrastructure concerned or promoting road safety. In such case the variation should among other things be transparent, made public and available to all users[15].

The directive applies to the trans-European road network and the member states network of motorways. The network of motorways is not defined in the directive, but a motorway is defined as a road that is specifically designed for motor traffic, which is equipped with separate carriageways for the two directions of traffic and does not cross at grade with any road, railway track, bicycle path or footpath[13].

Member states may maintain or introduce tolls and/or user charges on the trans-European road network or on certain sections of that network, and on any other additional sections of their network of motorways under conditions specified in the directive. For roads not included in the directive a

[12] Directive 1999/62/EC of the European Parliament and of the Council of 17 June 1999 on the charging of heavy goods vehicles for the use of certain infrastructures

[13] Delbetänkande av 2011 års vägtullsutredning, SOU 2012:60, s 79, Stockholm, 2012

[14] Lag om vägavgift för vissa tunga fordon, SFS 1997:1137, Stockholm, 1997

[15] Directive 2011/76/EU of the European Parliament and the Council of 27 September 2011 and Directive 2006/38/EC of the European Parliament and the Council of 17 May 2006 amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures.

member state may apply tolls or user charges as long as they do not discriminate against international traffic or result in the distortion of competition between operators[16].

Member States shall not impose both tolls and user charges on any given category of vehicle for the use of a single road section. However, a member state which imposes a user charge on its network may also impose tolls for the use of bridges, tunnels and mountain passes[16]. This particular regulation is of key importance for Sweden as the application of the *Eurovignette* user charge hinders Sweden from applying road tolls on other road sections than bridges and tunnels. An exemption from this is the Congestion tax in place in Stockholm and Gothenburg, as also user charges related to congestion in urban areas can be accepted within the limitations given by the Eurovignette directive (see below).

For vehicles that are exempt from the requirement to install recording equipment, it is possible to derogate from the obligation to pay tolls or user charges. Vehicles with a maximum permissible laden weight of twelve tonnes may be exempted from such fees or duties if it would have significant adverse effects on the free flow of traffic, the environment, noise, congestion, health or road safety, or involve administrative costs of more than 30 percent of additional revenue[16].

Infrastructure charges shall be based on the principle of the recovery of infrastructure costs. The weighted average infrastructure charge shall be related to the construction costs and the costs of operating, maintaining and developing the infrastructure network concerned. It may also include a return on capital or a profit margin based on market conditions. The costs taken into account shall relate to the network or the part of the network on which infra-structure charges are levied and to the vehicles that are subject thereto. Member states may choose to recover only a percentage of those costs. The calculation of costs should be based on a method described in Annex III to the directive. It also states that costs should be allocated to the heavy trucks based on their share of vehicle kilometres and the amortization period shall be no shorter than 20 years[17].

Member States shall vary the infrastructure charge according to the EURO emission class of the vehicle in such a way that no infrastructure charge is more than 100 % above the same charge for equivalent vehicles meeting the strictest emission standards. Exceptions may be made if the differentiated infrastructure charges would seriously undermine coherence in the tolling system within its territory, where it would not be technically feasible, if it would lead to diversion of the most polluting vehicles or if the toll includes an external-cost charge[16].

In the event of an inspection the driver or haulier should be able to present the vehicle documents necessary to ascertain the EURO emission class of the vehicle. If unable to do so member states may apply tolls up to the highest level chargeable[16].

Tolls and user charges shall be applied and collected and their payment monitored in such a way as to cause as little hindrance as possible to the free flow of traffic and to avoid any mandatory controls or checks at the Union's internal borders. The arrangements for collecting tolls and user charges shall not, financially or otherwise, place non-regular users of the road network at an unjustified disadvantage. In particular, where a member state collects tolls or user charges exclusively by means of a system that requires the use of vehicle on-board equipment (OBE), it shall ensure that all users can

[16] Directive 2006/38/EC of the European Parliament and the Council of 17 May 2006
[17] Delbetänkande av 2011 års vägtullsutredning, SOU 2012:60, Stockholm, 2012

obtain appropriate on-board equipment under reasonable administrative and economic arrangements[18].

If a Member State levies a toll on a vehicle, the total amount of the toll, the amount of the infrastructure charge and/or the amount of the external-cost charge shall be indicated in a receipt provided to the haulier, as far as possible by electronic means[18].

Two or more member states may cooperate to implement a common system for user charges. Sweden is a part of such cooperation, together with Belgium, Denmark, Germany, Luxemburg and the Netherlands called, the *Eurovignette* Cooperation. Similarly, two or more member states may work together to establish a common toll system[19].

Fees or taxation levied on registration of vehicles, on vehicles, or on loads of abnormal weights or dimensions are not precluded in the directive. Nor does the directive prevent parking fees. Furthermore, it does not prevent the non-discriminatory application by member states of regulatory charges specifically designed to reduce traffic congestion or combat environmental impacts, including poor air quality, on any roads located in an urban area, including trans-European network roads crossing urban areas[18].

According to the directive the infrastructure revenues should benefit the transport sector and be used to enable the entire transport system to function optimally.

Member States shall establish appropriate controls and establish a penalty system. The penalties must be effective, proportionate and dissuasive[18].

2.5 Eurovignette Cooperation

Sweden has together with Belgium, Denmark, Luxemburg, Germany and the Netherlands used the opportunity given in the Eurovignette directive to cooperate to establish a common system for user charges applicable throughout their contiguous territory, the Eurovignette system. Germany does no longer charge a fee, but remain for the time being in the collaboration. As of January 1st 2005 Germany is instead charging a kilometre-based toll for heavy trucks on their motorway network[20]. There are indications that other countries will leave the cooperation as well[21].

The charge applies to motor vehicles or membered combinations with a total weight of 12 tonnes or more if the vehicle is intended exclusively for road freight transport. Foreign-registered vehicles pay for the use of Swedish motorways. The fee also includes the whole of E10, E12, and E14 as well as parts of E4, E22 and E65. Swedish vehicles pay for the right to use the entire Swedish road network and the fee is charged for one year regardless of the extent of use. Foreign vehicles on the other hand pay for the calendar day, week, month, or year. The fee varies depending on the number of axles and the vehicles emission class. The variation does not apply to the daily fee, which is the same for any vehicle. All fees are adapted to the maximum level given in the Eurovignette directive[21].

[18] Directive 2006/38/EC of the European Parliament and the Council of 17 May 2006
[19] Delbetänkande av 2011 års vägtullsutredning, SOU 2012:60, Stockholm, 2012
[20] Skatteverket. www.skatteverket.se/foretagorganisationer/skatter/biltrafik/vagavgiftforsvenskatungafordon.4.18e1b10334ebe8bc8000899.html, [Online][Cited: September 3, 2014]
[21] Betänkande av Utredningen om vägavgifter på E6, SOU 2006:33, Stockholm, 2006

The payment is recorded in a central database after their collection. The database is available for all the partner countries and the police are able to control if the fee has been paid for a specific vehicle regardless of its nationality. A user charge paid in any of the partnering countries is valid for travel throughout the partners' contiguous territory. The common user charge is distributed among countries according to rules agreed upon[22].

2.6 EFC-directive

The EFC-directive[23] specifies conditions necessary to ensure interoperability of electronic toll systems within the union. The directive applies to electronic collection of tolls and user charges on the entire road network of the union including urban and interurban roads, motorways, major and minor roads, and various structures such as tunnels, bridges, and ferries. Toll systems that lack a system for electronic collection of user charges and tolls, electronic toll systems that does not require on-board equipment for collection, and small local toll systems are excluded from the directive. Hence, the congestion tax system in Stockholm and Gothenburg is not obliged to comply with the directive since it does not require the use of on-board equipment.

The directive requires member states that employ toll systems to take necessary actions in order to increase the use of electronic toll systems. They shall seek to ensure that at least 50 percent of the traffic flow in each toll station can use electronic toll systems. The directive states that a European electronic toll service (EETS) shall be established for all roads in the union where tolls and user charges are collected electronically.

EETS are designed to enable road users to easily pay tolls throughout the European road network by signing a single subscription contract for on-board equipment (OBE) with a payment intermediary (EETS provider) that offers the service. Toll operators shall claim the EETS provider, who in turn will claim the road users who subscribe to their service.

The Commission's decision on EETS[24] defined the European Electronic Toll Service closer. The aim of the service is to make it possible for road users to pay all tolls in the European Union with a single vehicle equipment and a single contract with a toll service provider (payment intermediary). Further, the service aim to facilitate free movement within the union. For national or local purposes, Toll Chargers may keep or set up their specific national or local services, with manual, automatic or electronic systems. EETS is a complementary service to the national or local electronic toll services of the Member States for the payment of tolls.

The following entities are defined in the decision:

- Toll Charger: a public or private organization that levies tolls for the use of infrastructure.
- EETS provider: gives the road user access to the equipment (OBE) necessary to pay tolls electronically, provides an account and billing systems, as well as the necessary agreements with Toll

[22] Skatteverket. www.skatteverket.se/foretagorganisationer/skatter/biltrafik/vagavgiftforsvenskatungafordon.4.18e1b10334ebe8bc8000899.html, [Cited: July 5, 2013]

[23] Directive 2004/52/EC of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community

[24] Commission Decision 2009/750/EC of 6 October 2009 on the definition of the European Electronic Toll Service and its technical elements

Chargers. The EETS provider has to fulfil requirements stated in Article 3 and be registered in a Member State where it is established.

- EETS user: means a company or a person that sign a contract with an EETS Provider in order to have access to EETS.
- On-board equipment (OBE): an electronic device, installed on board of a vehicle, that has the functionality and the information required to implement an electronic record for toll payment.

The EETS provider establishes a contract with the EETS user and provides it with necessary equipment such as an OBE. The EETS user installs the OBE in its vehicle. The OBE is logged at the Toll Charger's toll station and records data necessary to determine the toll charge. The Toll Charger signs contracts with EETS providers, who then pay tolls on account of the EETS user, who pays the toll fee to its EETS provider.

3 Important Legal Conditions for Road Tolls in Sweden

The Eurovignette directive does not permit collection of both user charges and toll charges on the same road section. A member state that collects user charges on its network can however impose tolls for the use of bridges, tunnels and mountain passes. It may also apply regulatory charges specifically designed to reduce traffic congestion or combat environmental impacts in urban areas.

Sweden collects user charges from heavy goods vehicles (HGVs) on its network of motorways through the Eurovignette cooperation, which hinders the collection of road tolls other than for bridges, tunnels and mountain passes. The Uppsala bypass could not be financed through road tolls due to its lack of bridges, tunnels and mountain passes. The Sundsvall and Motala bypasses on the other hand include bridges and can therefore be financed through road tolls. To be able to collect road tolls on a larger scale in Sweden a prerequisite is a termination of the collection of user charges through the Eurovignette cooperation.

The following sections gives the legal conditions in connection with each step in the functional model presented in chapter one.

3.1 Create contract

In this phase, the road user establishes a contract with an EETS provider or other toll service provider. In the Swedish congestion tax system it is not necessary to establish a contract since the system use of the Swedish vehicle register. In a distance based system it would be necessary to use an OBE and there would hence be a need for a contract. An OBE should in principle be compulsory for all vehicles that use the tolled road network, in a distance based toll system.

In order to increase the acceptability of road tolls the toll system should be designed to include foreign vehicles as well as domestic. A system is needed to make it possible for vehicles that lack a functioning OBE to pay toll in Sweden. This matter will be discussed further in chapter 4.

The EFC-directive allows for local and national systems and hence does not oblige for the use of an EETS provider. Local and national payment intermediaries might not have the same overhead costs as an EETS provider and would therefore be able to offer the service to road users at a lower price. Hence, the local or national service providers will have a competitive advantage over EETS providers on the national market. If the national or local system uses OBE, the toll charger is obliged by the EETS directive to be able collect user charges and/or tolls also through EETS providers.

3.2 Register transport

The Swedish toll charger does not have access to all complete details of potential clients (both domestic and foreign road users). In order to obtain the required functionality, it will be necessary to establish a client register of all the vehicles that are expected to pay tolls within a specified timeframe. The register should consist of basically all active domestic and foreign vehicles liable to pay road charges and can be seen as an extension of the Swedish vehicle register.

Hence, in a distance based toll system, it is necessary to register vehicles entering and leaving the toll domain in order to know which vehicles that are expected to provide a road usage declaration. If

Sweden's entire road network is to be tolled, vehicle registration needs to be done at the border. The vehicle can be registered either by recording the OBE (if such exists) or by photographing the vehicle. Such camera-based registration might cause violation of a person's privacy.

Privacy is protected through the European Convention, the Constitution Act, Swedish Personal Data Act (1998:204) and the Secrecy Act (1980:100). Before the introduction of congestion tax in Stockholm the issue of the protection of the privacy of individuals was discussed in detail. The conclusion was that it should be acceptable to carry out camera registration in the congestion tax system. This matter will be handled further in chapter 4.

3.3 Charge transport

The distance-based toll is particular since the charging of tax is made on the basis of usage declarations submitted by vehicle owners. Toll service providers compiles data from its customers and sends this data to the Toll Charger, who use the data as the basis for calculation of the tax and issues a tax decision that is submitted to the toll service provider[25]. The matter of declarations will be handled further in chapter 4.

The toll service provider will act as a representative and have an obligation to pay its clients fees. The road user will then have a payment obligation towards his associated toll service provider. This means that claims from Swedish authorities shall not be directed towards the vehicle owner as long as the vehicle is associated with an EETS or other toll service provider account and not subject to enforcement of unpaid fees.

In order to enable efficient sanctions a basic responsibility of awareness for vehicle owners and drivers of fees charged is needed. The vehicle owner also needs control of the vehicles status in regard to unpaid fees.

Following EETS, the toll service provider will invoice its clients in local currency and will probably also request from the Toll Charger to define the tax due in the local currency in order to avoid a deviation between claim and payment.

3.4 Compliance control and enforcement

This function includes the control of the payments made, and the recovery of unpaid fees. Control of payments is done in two ways: by roadside control and by comparison with the entry and exit points.

Road side control is done by observations of a vehicle (e.g. by a camera) at a certain time and place. The observations are later compared with finalized payments in order to verify that payment has been made and that the declaration covers the observed attendance. This control action might adhere to problems associated with violation of privacy and as mentioned above this issue will be discussed further in chapter 4. The comparison with entry and exit points control refers to a check that all vehicles that entered or exited the country have reported a usage declaration during their stay.

The key to efficient enforcement is the possibility to identify and enforce vehicle owners that have not paid fees due. For domestic vehicles available records provide all the opportunities that may be needed. For foreign vehicles such records are not easily accessible. Exploiting a professional collector like the British EPC is tied to fairly high administrative costs. It is therefore deemed as a better solu-

[25] The toll may also be provisionally calculated by the toll service provider

tion to establish bilateral registry partnerships with selected countries in our vicinity (about 5-6 of them), which will provide a very good coverage of visiting vehicles from abroad. Professional collectors will then be used in those cases where no bilateral agreement exists.

4 Remaining Legal Issues and proposed actions

The EFC directive allows local or national toll systems that compete with the EETS providers. The EETS providers will often have higher overhead costs since EETS systems have mandatory use of OBEs whereas a national or local system often doesn't. This creates a competitive disadvantage for the EETS provider, which might explain why the market driven approach to an interoperable EETS service have failed. There is a need for a more specific regulation of the EETS in order to achieve a fully interoperable system in the European Union.

The legal issues for electronic collection of user charges are solved by the 2011 Road Toll Investigation[26]. The investigation proposes a system for collection of user charges that is in line with current legislation and proposes new legislation for remaining issues. However, the investigation does not regard issues related to the collection of distance-based road tolls.

4.1 Distance-based road tolls

In order to not hinder the establishment of EETS providers in Sweden it should be mandatory (by law) to use OBE in a distance-based road toll system. A requirement of OBEs would make for more equal terms of competition for all toll service providers.

As mentioned in the previous chapter the issue of privacy remains. The issue was evaluated before the implementation of congestion tax in Stockholm and it was at the time determined acceptable to record images of vehicles' licence plates[26]. In a toll system with varied charges depending on vehicle type, the image needs to give more information than solely the licence plate, which is considered as more of a violation of privacy. Camera recording is permitted for automatic speed surveillance. In this system the image is larger and covers the driver as well as the licence plate[27]. The purpose of surveillance in this case is to detect speeding, a criminal offence, which might explain why a larger image is permitted. In the Swedish congestion tax system the purpose of surveillance is to gather information required as a basis for a tax decision and therefore an image of the licence plate is deemed sufficient.

The purpose of image recording in a tolling system is to enable control of user declarations and as a basis to sanction vehicles that lack a functioning OBE (the system will take a photo if an OBE is not detected). The later applies given that it is required by law to use an OBE. Image recording for sanction purposes can be compared to automatic speed surveillance, since the purpose of both is to detect a criminal offence (i.e. not using an OBE). The purpose of image recording to control user declarations is to gather observations of a vehicle on different locations in order to control that the user declaration was done correctly. Past studies and reports does not mention the privacy issue in connection with this purpose.

Another way to determine the vehicle type is to use technology that can visually identify what type of vehicle that is passing. Such a system is used at the Öresund Bridge and at the Great Belt Bridge in Denmark[28]. These systems, however, does not comply with the European legislation as only physical

[26] Delbetänkande av 2011 års vägtullsutredning, SOU 2012:60, Stockholm, 2012
[27] Regeringen, Prop. 2003/04:145, Stockholm 2004
[28] Betänkande av Utredningen om vägavgifter på E6, SOU 2006:33, Stockholm, 2006

characteristics can be measured, not emission-class which shall be applied in the toll definition. Denmark has negotiated an exemption from the application of this European legislation.

In order to have a basis for a tax decision in a distance-based toll system, road users need to be accountable to provide a usage declaration. The declaration should be provided without request from the toll charger. In the distance-based toll system that was employed in Sweden between 1974 and 1993 a declaration procedure was used to determine the kilometer tax for foreign vehicles. This suggests that there are no legal obstacles to require usage declarations from road users.

There needs to be a payment system for vehicles that lack a functioning OBE. The internet solution proposed by the 2011 Road Toll Investigation will require modification to be compatible with a distance-based toll system. For example, it will not be possible to determine the amount to charge to an established account if the user has not provided a user declaration, or the amount has to be defined on a “maximum basis” which is currently employed in several public transport systems. Hence, the road user has to provide a user declaration to the toll charger in order to establish the correct amount to be charged. Germany solved this problem by putting out a number of kiosks for manual declaration of the planned route. The German system with kiosks adheres to large overhead costs and it is determined feasible to perform manual declarations over the Internet without the same overhead costs. In order for the toll charger to know which vehicles that are expected to provide a user declaration, vehicles have to be registered when entering the toll domain.

It is taken for granted that the toll charger has the right to perform random spot checks on vehicles using the tolled road network. The supervising authorities must have legal rights to stop vehicles and perform roadside controls and demand road usage declarations and payment on the spot if unpaid debts are found.

5 International overview

5.1 CURRENT EC Policy development

EU is currently giving great attention to issues related to the application of road charges and road tolls, as well through the Parliament as through European Commission initiatives.

In its 2011 White Paper "Roadmap to a Single European Transport Area"[29] the Commission has outlined possible measures to accelerate the development and the harmonization of road use charging. It stressed that the European Electronic Toll Service (EETS) can be instrumental in the promotion of road charging strategies that contribute to a sustainable transport system and in facilitating road charging acceptance by users.

5.1.1 The Eurovignette Directive

Similarly on the occasion of the recent amendment of the Eurovignette directive[30], the European Parliament and the Council have asked the Commission to "monitor progress made [in the framework of the Directive] to implement within the agreed dates a genuine European Electronic Toll Service" and "to promote cooperation between Member States that may prove necessary to ensure the interoperability of electronic toll collection systems at European level."

In January 2013 the European Commission presented its ex-post evaluation of the Eurovignette directive[31]. In this report the Commission concludes that the revised Directive provides important possibilities for member states to apply fair and technically interoperable charging systems, which they have in general failed to do. Instead, Europe sees that "…international haulers currently need 11 different on-board units as well as 5 vignettes to be able to drive unhindered on European roads."

In addition, the European Commission sees that "*great disparities in national road charging policies exists, which largely can be attributed to a slower than expected move from time-based user charges to integrated network-wide electronic tolling. Consequently, users do not receive, across the EU, consistent price signals capable of steering them towards a more sustainable use of the infrastructure*."

5.1.2 The EFC Directive

In its mid-term review of the implementation of the EFC directive, the European Commission provides several explanations as to why the implementation of the directive and its following Decision has been delayed beyond the starting date defined by the legislation, and most explanations points at failures in member states and commercial actors activities. The European Commission ends by concluding:

Lastly, it can be noted that the White Paper on transport has indicated that if, despite all these efforts, its assessment shows that no substantial progress has been achieved by mid-2013, with no

[29] European Commission, COM(2011)144, Roadmap to a Single European Transport Area, Brussels, 2011
[30] Directive 2011/76/EU of the European Parliament and of the Council of 27 September 2011 amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, Brussels, 2011
[31] European Commission, SWD(2013)1, Ex-post evaluation of Directive 1999/62/EC, Brussels, 2013

availability of an interoperable electronic toll service on a substantial scale, the Commission reserves its right to present a new initiative to the European Parliament and the Council[32].

Following the mid-term review (above), The European Parliament, through its Committee on Transport and Tourism in April 2013 provided an initiative; "Motion for a European Parliament Resolution on a strategy for an electronic toll service and a vignette system on light private vehicles in Europe"[33].

The Parliament Committee agree with the Commission that the EETS is a failure to date and in need of a new direction. The Committee is not satisfied with the conclusions expressed by the Commission and states that the market-driven approach favoured by the Commission has failed to bear fruit and that political action is therefore needed in order to speed up the implementation of the EETS and translate it into reality in the immediate future. It also concludes that the measures proposed by the Commission are not sufficient to reach the goals set.

The concluding statement by the Committee rapporteur Jim Higgins states that: "*The Commissions "carrot and stick" approach is far too little, far too late. The Commission needs to dialogue with the Member States, in order to highlight the benefits of a fully functioning EETS. I believe a regulation is the only way to tackle this issue.*"

5.1.3 DG MOVE development

In light of this process, in an interview published in the July/August 2013 edition of ITS International[34], Christos Economou, deputy head of unit dealing with land transport at the European Commission's DG MOVE outlines the EU way forward.

The interview is based on a public consultation on elements of a possible new legislation on road charging that was launched by the EC in August 2012. A wide majority of respondents agreed with the Commission's diagnoses on the state of infrastructures and the social costs of congestion. The EC claims that the consultation also showed strong support for road tolling as the fairest and most efficient tool with which to address these problems. Respondents to the consultation called upon the EU to come up with more operational solutions to foster the development of an EETS.

Economou: "*Living up to the identified challenges will require considerable changes to the legislation. Deployment of new tolling schemes needs to become less burdensome for Member States but coherence and interoperability of tolls must increase. Current rules on congestion charging must be reviewed because they are blatantly ineffective. And finally, as users rather than taxpayers are increasingly called upon to pay for the infrastructure they use, legislation must make sure that this happens in a fully transparent and non-discriminatory manner.*

"New road charging schemes will not help bridge the funding gap in the maintenance of the infrastructure unless an appropriate proportion of revenues from tolls and vignettes are earmarked to the transport sector. This condition is also crucial from the point of view of fairness and effectiveness….

[32] European Commission, COM(2012)474, Implementation of the European Electronic Toll Service, Brussels, 2012
[33] European Parliament, 2012/2296(INI), European Parliament Initiative, 2012-05-14
[34] ITS International, www.itsinternational.com/sections/comment-interview/interviews/dg-moves-christos-economou-on-the-eus-vision-for-road-transport/, [cited: 2013-08-13]

"The Commission might present its proposal in autumn this year. Whilst we cannot prejudge the content of a legislative proposal before it has been formally adopted by the Commission, we can nevertheless present some of the measures being considered in the preparatory work."

The key measures as expressed by Economou are:

Phasing out HGV vignettes

Time-based charges – vignettes – are a crude tool and a missed opportunity to charge road users for the true costs they generate, as most of the infrastructure and external costs in road transport are distance related.

"The natural tendency observed in the Member States is therefore a move away from HGV vignettes and towards distance-based charges. The most recent examples include Poland, Slovakia and the Czech Republic, with Belgium and Hungary likely to follow in the near future," Economou continues*. "The role of the EU should be to accompany the other Member States in the passage from vignettes to fair and efficient tolls for HGVs, possibly setting up a date in the future after which tolls will become the only legal way of charging lorries for the use of roads."*

Congestion charging

The idea of genuine congestion charging was abandoned in the final compromise reached by the co-legislators in 2011[35]. Current legislation does not apply to cars and vans, which are responsible for some 80% of traffic jams. It comes as no surprise therefore that, so far, the uptake of congestion charging on Europe's trunk roads has been minimal. An amendment of the legislation is necessary to change this current uptake level.

"The perception of what constitutes unacceptable congestion is subjective," Economou notes*. "Each Member State or even regional authority should have full discretion in deciding where congestion charging can help solve problems caused by excessive rush hour traffic, and where other measures such as implementation of ITS solutions will be more appropriate. It would go against the very principle of subsidiarity if the EU imposed congestion charging schemes that have a clearly local dimension."*

Making the Directive more "user friendly"

Directive 1999/62/EC is an enormously complex piece of legislation. It imposes heavy administrative requirements upon Member States wishing to deploy road tolls, which can constitute a disincentive to act. At the same time, the Directive provides for exemptions (such as for existing concession contracts) and exceptions which contribute to a patchwork of inconsistent arrangements across the EU. It may not be possible to abandon all notification requirements for Member States, and some of the exceptions are perhaps justified. However, the specific provisions of the Directive must be screened in search of simplification.

More transparency, better protection

"Since 2004, the EU has developed a fairly complete body of legislation protecting passenger rights. The only mode of transport where passengers do not benefit from any rights guaranteed by law is

[35] Concerning the revision of the Eurovignette Directive

personal road mobility. In a Communication adopted in 2012, the EC depicted how motorists are discriminated by existing national vignette schemes which apply to passenger cars. Further research showed that tolling schemes can also violate the rights of the users through abuse of the dominant position or discriminatory practices," Economou continues.

"It is crucial that wider application of the 'user pays' principle does not happen to the detriment of the basic rights of citizens. As a first step, the EU should guarantee that users are not discriminated against on grounds of nationality and that they have a fully transparent insight into the structure and the rationale behind charging schemes."

ETC interoperability

The nine years which elapsed since the adoption of the 'EETS Directive' did not take Europe any closer to an EETS realisation. In reality, many new electronic tolling schemes appeared but only few, limited interoperability agreements followed.

"The result is a lot of redundant costs and administrative burden for hauliers, estimated at some €300 million per year. These costs will increase in the future as ETC deployments mushroom within the EU and in neighbouring countries. In a couple of years, there might be as many as 23 different electronic tolling systems in wider Europe," Economou says.

"The market-based approach to EETS, which was followed by Directive 2004/52/EC, has not yielded the expected results. The European Parliament has recently called for regulatory measures to enforce interoperability into existing and future electronic tolling schemes."

Long-term vision

"The upcoming proposal is part of a strategy to restructure the way in which we pay for mobility and transport. There is a need to move away, in a stepwise approach, from distortionary taxes and subsidies and to replace them with fair and efficient pricing."

"In the long term, distance-based charging, varying according to the time and place of use and the vehicle characteristics, should become the norm, both for HGVs and for other vehicles. The revenues from the charges will need to be channelled to the maintenance of transport infrastructure and transport-related projects leading to an efficient and economically viable transport network."

5.1.4 Conclusions on European development

When considering the activities and statements referred to above, and taking into account the possibilities that have been created through the ITS Directive[36] in the light of the Lisbon treaty, we can expect the European Commission to proceed with regulatory measures supported by the European Parliament.

Even if the ITS Directive creates a usable framework, it is likely possible for the European Commission to proceed with legislation without using the ITS Directive procedures. The rationale could be that the EC is, through the directive, forced to proceed with the implementation of legislation on other

[36] Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport

priority actions in advance of EFC until year 2017. Amended legislation could be forwarded within the framework of as well the EFC as the Eurovignette Directives.

Considering that the Commission has the intention (the possibility) to present a proposal as close as in the autumn 2013, and that the European Parliament is pressing for legislation, we can expect advanced legislation on road tolling to come in place around 2014/15 with mandatory implementation around 2017. Elements of this legislation could be:

- Stop for time-based vignettes. This is a priority for as well the Commission as the Parliament.
- An ease on the possibility to combine pricing measures on a certain infrastructure (e.g. the Swedish situation)
- An end to complex road-toll discount schemes etc (as they discriminate temporary users)
- Harder requirements on technical harmonization will be imposed. The EETS will be mandatory farther than today.
- Open up the possibility for congestion charging on trunk roads within the framework of the Eurovignette Directive.

5.2 Analysis of the French Ecotax

5.2.1 Overview

Why?

The aim of the tax is to establish a fair taxation that affects all HGVs regardless of nationality, and above all to promote a shift in thinking among shippers. This is to encourage them to favour other modes of transport such as sea and inland waterways or rail freight. The proceeds from the HGV tax will be allocated to the French Transport Infrastructure Financing Agency and to the local and regional authorities. Part of the proceeds from the traffic tax will be invested in developing infrastructures and projects put forward by the Grenelle Environnement multiparty group, to protect the environment and promote sustainable development.

Where?

The taxable road network consists of:

A. Motorways and roads located in Metropolitan France and belonging the national public road network with the exception of:

a) toll motorway and road sections;

b) low traffic itineraries not belonging to the Transeuropean network

B. Regional or local roads when those roads have to or are liable to deal with a significant migration of traffic from toll motorways and other taxable roads mentioned above, or motorways or roads located outside the metropolitan territory and liable to pay tolls, fees or similar taxation applicable in neighbouring countries (e.g. congestion charges).

In all, the network subjected to the heavy goods vehicle eco-tax comprises around 10,000 km of national network and 5,000 km of local network.

When?

Following extensive test, a National Experimentation Phase was carried out between July and October 2013. This pilot phase was carried out with participation on voluntary basis and with no tax collection in operation. The Ecotax was planned to be in operation 1 October 2013 but is now postponed until January 2014.

Which vehicles are subject to tax?

The tax is due for all vehicles registered in France or abroad, jointly by the owner, lessee, sub-lessee, driver or any user of the heavy goods vehicle or vehicle combination whose maximum permissible weight is three and a half tonnes or above (or twelve tonnes or above for vehicles subject to the Alsace Experimental Heavy Goods Vehicle Tax).

The following are exempt:

- All vehicles with a tractor maximum weight permissible rating less than or equal to 3.5 tonnes
- Passenger transport vehicles (coaches, buses, etc.)
- Priority general interest vehicles
- Utility vehicles, owned by state or local authorities, for road operations and maintenance works
- Agricultural vehicles and equipment, as regulatory defined, and tank trucks for food products exclusively used for collecting milk from farms
- Military vehicles

Where do the money go?

Revenue produced by tax collected on the national road network will be allocated to the French Agency for Financing Transport Infrastructure and revenue collected on local networks, minus management costs, will go to regional authorities managing taxed roads.

5.2.2 Tax rates

The tax rate is in the order of 10 cents/km during 2013, with a 10% raise in 2014. The tax is differentiated according to vehicle class, i.e. number of axles and maximum laden weight (+/- 20%) and emission class (+/- 20%). The differentiation is planned to increase with an additional 10% in 2014, i.e. we can see a fairly rapid increase in the tax level as well an increased differentiation.

Scale environmental taxes

Year	1st category 2 axles < 12t	2nd category 2 /3 axles > 12t	3rd category 4 axles and over
2013	8 ct/km	10 ct/km	14 ct/km
2014	8,8 ct/km	11,1 ct/km	15,4 ct/km

These rates will be adjusted according to the environmental performance of vehicles as follows:

Year	EURO 1 & before	EURO 2	EURO 3	EURO 4	EURO 5 EEV	EURO 6	Electric
2013	+ 20%	+ 15%	+ 10%	0%	- 5%	- 15%	- 15%
2014	+ 20%	+ 15%	+ 10%	0%	- 5%	- 15%	- 40 %

Table: Ecotax rates

Concerning the emission class, the rate varies according to the EURO class of the vehicle as set out in appendix 0 of the Eurovignette Directive (1999/62/ EC), and if relevant, according to the congestion levels of the charging section. A decree stipulates the conditions under which the congestion levels in the charging section are taken into account. As of 1 October 2013 no such decree seems to have been stipulated, but the current French legislation obviously opens for the inclusions of congestions charges.

Tax reductions

However, the Ecotax opens for important geographical variations. The decree of 2 March 2011 specifies the most peripheral departments with respect to their distance from major European urban centres with a population of one million and more. The tax for the use of roads subjected to the eco-tax in regions comprising at least one so-called "peripheral" department will lead to the application of a rate which is reduced by 30% (35%?). This is the case for Aquitaine (Bordeaux) and the Midi Pyrenees (Toulouse) regions. When regions do not have a toll motorway, the rate is reduced by 50%. This is the case for Brittany.

Also, subscribers to the Ecotax system will gain a 10% discount when paying through the subscription. Temporary users (foreign vehicles without subscription) will have to make a considerable deposit in order to get the OBE, and will not receive a 10% discount.

5.2.3 System overview

Compulsory OBE

All vehicles travelling on taxed road network must be equipped with a special on-board unit. This is compulsory. French vehicles must have an on-board unit permanently installed. The person/entity liable for tax needs to register (this is a joint responsibility, see above). This consists of declaring information relating to the taxable vehicle and providing documentary proof of the declared data. Subscribers liable for tax will provide this information to the commissioned contractor (Toll Charger), *Ecomouv*, via a Toll Service Provider (TSP), whereas non-subscribers liable for tax will provide this information directly to Ecomouv. When registering the taxable vehicles, the person registering defines the person/entity liable for tax that is to receive all communications relating to payment and amounts of tax due. The amounts to be paid and the amount of the tax will be communicated by means of a payment instruction, and if relevant, a settlement advice.

The key point is that at the moment of registration, there is always an appointed responsibility, which can be either the driver, the owner or someone else. This person/entity liable for tax also have the responsibility to ensure that the OBE is complete and works properly, that the correct number of axles are presented and immediately report to Ecomouv or the appropriate TSP in case of malfunction.

Registration and installation of OBE

Before installed in the vehicle, the on board unit will be registered and programmed with the following information:

- Vehicle registration number
- Number of axles
- Maximum laden weight for the truck and truck + trailer combination
- Euro emission class
- Details of the owner

The registration will be carried out either by the owner or an approved representative (lessee/sub-lessee, driver, etc.) with:

- A Toll Service Provider if a subscription has been signed
- Ecomouv, at one of the distribution points or terminals if no subscription has been signed

The on board unit does not need to be fitted by an approved installer. It can be connected to the vehicle's electrical circuit by a fixed connection or via the cigarette lighter.

Tax calculation

The French government has given the Ecomouv consortium responsibility for calculating and collecting the tax. The French Customs Code states that the increase in the cost of transport due to this tax must be borne by the customer company, and the amount charged for this tax must appear on the invoice.

The taxable network is divided into sections, i.e. taxed road segments between two adjacent intersections with other public roads. When these sections are very close to each other, charging sections

can be grouped together. Each section is linked to a charging point. Charging sections as well as their associated charging points are defined by a joint order issued by the ministers of transport and budget. Crossing a charging point makes tax payable on the taxable distance corresponding to that section. The maximum length of a charging section is five kilometres.

Compliance control

173 fixed and 500 mobile checkpoints have been located across the entire taxed network and will be able to tell if the unit is correctly installed and operating normally and therefore detect any omissions.

5.2.4 Users

The system distinguishes between subscribers (i.e. vehicles that are associated with a TSP) and non-subscribers (i.e. vehicles that get a temporary OBE directly from Ecomouv).

Conditions for non-subscribers

Before the issue of the electronic on-board unit, the non-subscriber liable for tax must validate the registration document featuring registration information and the service contract describing the issuing terms, the use and return of the on-board unit.

The non-subscriber liable for tax must pay the commissioned contractor, Ecomouv, a deposit which is defined by order of the Minister in charge of Customs, prior to the issue of the on-board electronic unit and, if applicable, any additional accessories.

The non-subscriber liable for tax must prepay a credit amount on tax prior to the use of the taxable network by the vehicle. The non-subscriber liable for tax is responsible for monitoring the prepaid credit amount on tax and must refill it before the amount becomes insufficient to cover the journeys made.

Conditions for subscribers

Subscribers sign a subscription contract with a registered Toll Service Provider whom they authorise to register their vehicle and to pay the tax due to Ecomouv. In this case, the tax is paid after use of the network: the tax is paid by the TSP, on behalf of the person/entity liable for tax, by the tenth day of the month following the issue of a statement. The person/entity liable for tax is said to be a "subscriber liable for tax" and can benefit from a reduction (i.e. 10%).

Subscribers liable for tax must give their Toll Service Provider a direct authorisation to declare the taxable vehicle to Ecomouv, and to pay the amount of the tax on their behalf.

Conclusions on users obligations

With a subscription:

- Sign a contract with a TSP which provides an automated toll payment service
- Fit a permanent interoperable OBE inside the vehicle
- Pay tax via the TSP
- Receive a 10% discount on the amount of tax due

Without a subscription:

- Register with the Ecomouv terminals or distribution points to get an OBE
- Pre-pay the tax
- Return the box at the end of the journey to get back the deposit and the account balance
- Repeat this procedure for each journey
- Receive no discount
- Do not get access to other networks

5.2.5 General conclusions on Ecotax from a Swedish perspective

There are four aspects of the Ecotax that is of particular interest for Sweden:

The application of compulsory OBE´s

The Ecotax system does not only require a compulsory OBE, but it also gives a 10% discount to subscribers and requires pre-payment of tax from non-subscribers. The system is designed to be really complicated for temporary users, and much more expensive.

Geographical discount - differentiation

It is obviously OK to give as much as a 50% discount to geographical regions. The system is also designed to include a congestion charge, which would increase the locational price differentiation.

In addition, the vehicle characteristics will add an additional 40% variation in tax, which will end up with a rather substantial differentiation of the tax.

The use of charging points

Similar to Germany, the system is based on registration of certain “charging points” defining the end of a charge segment along the route. By passing such a point, the user will pay a fee in relation to the length of road segment passed. This strategy has been heavily discussed in ARENA, and is also employed in e.g. Germany.

Compliance control

Control is made by 173 fixed and 500 mobile checkpoints. A total of 673 checkpoints give approximately one checkpoint each 20 km.

5.2.6 Ecotax legal framework

European Community framework

- Directive 2004/52/EC of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community, known as “EFC directive”
- Directive 2006/38/EC of the European Parliament and the Council of 17 May 2006 modifying Directive1999/62/EC concerning the taxation of heavy goods vehicles for the use of certain infrastructures, known as "Eurovignette directive"

- Commission Decision 2009/750/EC of 6 October 2009 on the definition of the European Electronic Toll Service and its technical elements, known as the "EETS decision".

Transposal into French law

- Decree n° 2011-812 of 5th July 2011 relating to the market launch, withdrawal or ban on interoperability elements of the European electronic toll service.
- Decree n° 2011-813 of 5 July 2011 relating to the terms of registration in France of Electronic Toll System Companies.
- Order of 2 November 2011 relating to applications to register as a European Electronic Toll System company.
- Order of 29 June 2011 relating to EC marking of the interoperability elements of the European electronic toll system.

5.3 Analysis of the Slovak Skytoll

Since 1 January 2010 motor vehicles and vehicle combination with the maximum laden weight of 3.5 tonnes or more determined for the transportation of goods and motor vehicles enabling the transportation of more than nine persons including a driver must pay electronic toll when driving in Slovakia. These vehicles must be equipped by the on-board unit with the key function of obtaining the data needed for the toll calculation[37].

Information about this obligation is stated by a traffic sign on each border crossing. Generally all trunk roads, highways, roads parallel to them and shortcuts are charged.

A company named SkyToll A.S., runs the system based, on a combination of GPS, GSM and DSRC technology. Each driver has to stop at one of the distribution points located on each border crossing used by heavy traffic and register the vehicle. The driver obtains an electronic on-board unit.

5.3.1 On-board unit

The on-board unit is a medium sized box containing all the equipment needed for correct calculation of the toll. The driver has to ensure, that it is always plugged into the cigarette lighter socket and online. This is indicated by a lit green triangle symbol and number of axles indication. On the front side of the unit, there are 5 LEDs (2 of it are used as buttons, as well).

- Triangle symbol (LED and button)
- Number 1 - (LED and button)
- Number 2 - (LED)
- Number 3 - (LED)
- Number 4 - (LED)

Triangle symbol represents the status of the unit. Green means okay and ready, blinking green means that your credit is getting low and you should stop at a distribution point and recharge. Finally, red means that the unit is not operational, your credit is below zero or the unit is blocked.

[37] Until 30 September 2013 there has also been an option for "ticketing", i.e. buying transit tickets for specific routes across Slovakia. This option is now coming to an end.

Numbers 1, 2, 3 and 4 represent the size of the vehicle and number of axles. Pressing the triangle symbol repeatedly configures the number of axles. The number 1 button can be used to turn on and off the sound indication of the unit.

Picture: Skytoll OBE

5.3.2 Compliance and enforcement

Police also frequently control the correct usage of the electronic toll. Specialized enforcement units drive through Slovakia looking for those who don´t pay the toll correctly. If a vehicle is found that doesn´t pay the toll at all or drives with an on-board unit with the red triangle symbol, the police will charge the driver with a cash fine of EUR 700. If incorrect data is set in the on-board unit (e.g. number of axles, emission class), the fine is EUR 120.

The penalty has to be paid in cash immediately; otherwise the driver's license will be impounded until the payment is made. The driver can also be charged a toll surcharge. If he fails to pay the surcharge, the license plates of the vehicle are impounded and not returned until the payment is made.

Technically, the side of the OBE facing the windscreen has a led signal directed outwards which facilitates control.

5.3.3 Tariff rates

The tariff structure is similar to the French; it distinguishes between number of axles (implying maximum laden weight) and the emission class, although with less resolution. Typically, the toll is in the order of 10 cent per kilometer, ranging between 5 and 20 cents. See graph below.

Toll rates for the use of specified sections of motorways / expressways

Vehicle category			Emission class		
			EURO 0 – II	EURO III	EURO IV. V. EEV
Lorries	from 3.5 t – to 12 t		0.093 €	0.086 €	0.083 €
	12 t and more	2 axles	0.193 €	0.183 €	0.179 €
		3 axles	0.202 €	0.193 €	0.189 €
		4 axles	0.209 €	0.199 €	0.196 €
		5 axles	0.206 €	0.193 €	0.189 €
Buses	from 3.5 t – to 12 t		0.060 €	0.050 €	0.030 €
	12 t and more		0.110 €	0.100 €	0.060 €

Figure: Skytoll rates

5.3.4 Pre- or post-paid accounts

The contract on the use of charged road sections under the pre-paid toll regime may be made by the vehicle operator, its authorized representative or by the driver, at any contact or distribution point. This means that also the driver at short notice may establish temporary contracts. When driving under the pre-paid regime, the driver will be alerted by the OBE when the account balance is running low. When balance is out the OBE will signal this and the driver is then at risk of enforcement.

The contract on the use of charged road sections under the post-paid toll regime may be made by the vehicle operator or its authorized representative at any contact point or by means of fleet cards issuers. In one contract made under the post-paid toll regime there can be several vehicles registered; in such instance it is required to provide all the required registration data for every vehicle. Before signing the contract it is needed to secure the toll payment liability by the instalment of a bank guarantee lasting for at least 12 months, with a guarantee of at least 600€ per vehicle.

5.3.5 Conclusions from a Swedish perspective

Slovakia also applies compulsory usage of OBE´s (since 1 October 2013), and it is also evident that it is possible to make it quite complicated for users to obtain OBE´s (loads of information and financial guarantees required for contracts). Also the application of pre-paid accounts comes with up-front payment by the users.

Technically, similar to France, Slovakia has decided to use cigarette lighter power outlet for the OBE and to remove requirements for workshop installations (with the exception for vehicles lacking power outlets). This means that the whole process of installing equipment can be made without any physical contact between a “representative of the vehicle” and the authorities concerned.

6 Conclusions and recommendations

6.1 Summary of conclusions

Previous work in ARENA has identified a set of key stumbling blocks and prerequisites for the introduction of "a national road user charge system" that also may include distance-based charges.

Following the result of e.g. the 2011 Road Toll Investigation and accounting for recent international development, European and other, the following important conclusions can be drawn with reference to the key issues that have been under discussion within ARENA:

Sweden needs to abort the use of time-based vignettes to be able to implement certain types of road user charges - Confirmed

In order to be able to introduce other types of road charges in Sweden than those presently implemented (e.g. a distance based charge) a prerequisite is to leave the Eurovignette cooperation. This follows from the application of the Eurovignette directive which bans multiple charges on the same road segment except in the case of tunnels, bridges etc.

This conclusion has been confirmed by e.g. the 2011 Road Toll Investigation.

Compulsory use of on board equipment - OK

Previous analysis within ARENA has resulted in the conclusion that compulsory use of OBE´s brings important advantages. The 2011 Road Toll Investigation does not deal with this issue, but it concludes that use of electronic equipment facilitates charging of foreign vehicles.

The development in France and Slovakia clearly shows that it is possible to implement compulsory usage even if this means administrative burden for the drivers and vehicle owners. It is equally clear that this requirement must be accompanied with a technical solution that enable "do it yourself installation" without any technical support as applied in e.g. France and Slovakia, opposite to Germany.

We also know that Sweden applied compulsory use (for Swedish vehicles) of an odometer in the "old" kilometer tax system, which could function as a model here.

An extended vehicle / client register – Likely OK

It is clear that the 2011 Road Toll Investigation has considered it viable to take pictures of foreign vehicles in connection with congestion tax and infrastructure charging (all kinds of road tolls). This means, technically speaking, the registration and management of images including foreign vehicles.

Whether accounts are established, i.e. the capacity to link several recordings of the same foreign vehicle to each other, or not is unclear and needs to be studied. It is likely so.

Registration at toll domain border crossings - Remains

In connection with a distance based charge ARENA has concluded the need to register vehicles entering and leaving a toll domain in order to know which vehicles that are expected to provide a road usage declaration. This issue has not been resolved by the current investigations, except from the fact that the 2011 Road Toll Investigation concludes the need for image recording of foreign vehicles at the congestion tax points, and the use of these images as the basis for charging.

Users responsibility for payments - OK

In order to enable efficient sanctions there needs to be a basic responsibility for vehicle owners/drivers to be aware of which fees that shall be paid, and also for the vehicle owner to have control of the vehicles status as regard unpaid fees.

Although Sweden remains with a fairly strict vehicle owner responsibility, the French solution addresses this through a joint responsibility. Nevertheless, our analysis has shown that this is not a critical issue for any type of road user charge, if the right to stop, make roadside inspections and enforce a vehicle on site is available.

Deputy payment responsibility - OK

For the congestion tax and other road user charges that include foreign vehicles according to EETS or EasyGo, the Toll Service Provider will act as a representative and have an obligation to pay his clients fees up front. Then the account holder will have a payment obligation towards his assigned Toll Service Provider. This means that claims from Swedish authorities shall not be directed towards the vehicle owner as long as the vehicle is associated with a TSP account and not subject to enforcement of unpaid fees.

The 2011 Road Toll Investigation has adopted this basic principle (although questioned later), which means that an important stumbling block has been removed.

Account holder - OK

An addition to the payment responsibility carried by an associated Toll Service Providers, the account related to a specific vehicle (and defined through the use of a specific OBE) can be connected to someone else than the formal vehicle owner. This means that registration through e.g. DSRC may point at another person than the vehicle owner identified through video recording of the registration plate. DSRC registration is proposed to precede license plate registration when identifying the account to charge.

This solution has been adopted by the 2011 Road Toll Investigation as the primary way forward as regard foreign vehicles.

Tax decisions (for a kilometer tax) are based on road usage declaration – probably OK

In connection with a distance-based tax it has to be compulsory for the vehicle concerned to report their movements without being requested to do so, as the basis for calculation of the tax and the tax decision.

This is a fully automatic operation that follows with compulsory OBE usage. Whether or not the fee is calculated within the OBE does not really matter, as this can be referred to as a delegation from the tax authority as seen in e.g. France.

Currency issues in relation to taxation - OK

Following EETS, the Toll Service Provider will invoice his clients in local currency, and will probably also request from the Toll Charger to define the tax due in the local currency in order to avoid a deviation between claim and payment.

This issue has been covered and resolved by the 2011 Road Toll Investigation.

The right to inspect vehicles – Unclear

It is taken for granted that the Toll Charger has the right to perform random spot checks on vehicles using the tolled/taxed road network. This right must include the right to take pictures of vehicle license plates from the roadside, and verify these against performed payments.

This is to some extent the same issue as the right to register vehicles entering and leaving a toll domain above. The 2011 Road Toll Investigation has only partly covered it, and the results need to be confirmed.

The right to stop vehicles and require payment on the spot – Probably OK

The supervising authorities must have legal rights to stop vehicles, perform roadside inspections and demand road usage declarations and payment on the spot if unpaid debts are found (compare Toll Collect, France and Slovakia).

The supervision of Hours of Service regulations requires substantial roadside inspections of all vehicles concerned (i.e. above 3,5 tons maximum gross weight). It has been concluded that Swedish authorities now have the right to perform on-the-spot checks of vehicles and demand penalties on the spot, thus stopping from continued driving. It needs to be verified whether the right to stop vehicles also applies to unpaid road toll debts.

International and bi-lateral cooperation on registers - OK

The key to efficient enforcement is the possibility to identify and enforce vehicle owners that have not paid fees due. There is a need for bi- and multilateral agreements with key neighbour countries (5-6 to Sweden) in order to obtain a sufficient coverage of visiting foreign vehicles.

The 2011 Road Toll Investigation has concluded this need, and the Swedish Transport Agency is engaged in the task to establish this cooperation as a solution to identifying and debiting foreign vehicles in Swedish road toll installations.

The possibility to geographical differentiation of road tolls – Probably OK

Strict reading of the Eurovignette Directive gives the impression that the EU member states have little possibility to differentiate the fee, except from the vehicle environmental characteristics where differentiation is required by law. This limitation has been seen as one of the major obstacles towards a distance-based road user charge in Sweden.

The application of the French Ecotax shows that geographical differentiation of at least 50% is possible simply due to “distance to metropolitan areas” and “limited availability to alternative roads”. This should be explored further from the perspective of e.g. the Swedish forestry industry.

6.2 Remaining work

In order to get a complete picture of applicable possibilities and restrictions, Sweden needs to further investigate:

Registration at toll domain borders

For the application of distance-based charges, the right to register arriving and departing vehicles at toll domain borders (entry and exit points which may be at national borders) must be confirmed.

Image recordings for compliance and enforcement purposes

Spot-checks are required as a basis for compliance control. Automatic, random, recording by roadside cameras are valuable for this purpose. ARENA proposes integration of cameras with the automatic speed control system, but the possibility to do this must be confirmed.

Roadside inspections

We also need to confirm that Swedish authorities are willing to include management of un-paid road user charges as part of roadside inspections of HGV drivers' hours of service and vehicle inspections.

The possibility to geographical differentiation

As this seems to be possible, we should start the process of outlining a fee differentiation that takes into account the specific situation of certain Swedish regions. The work should also include an investigation of the legal base for differentiation.

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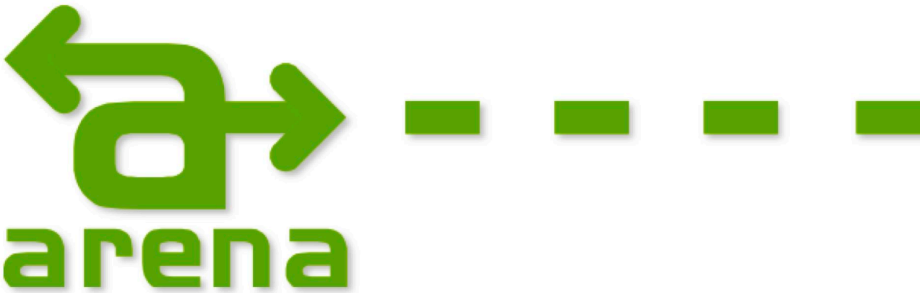

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