



# Policy and Knowledge Analysis on Road User Charging In Sweden



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Main author: Jonas Sundberg

Publisher: NetPort Science Park, Biblioteksgatan 4, 374 35, Karlshamn, Sweden

Phone: +46 454 572120, e-mail: [info@netport.se](mailto:info@netport.se), [www.netport.se](http://www.netport.se)

## **Preface**

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

The first report, *Legal prerequisites for road user charging in Sweden*, was presented in October 2013 and provided a review and an analysis of the legislation and regulations that have been and will be put in place after the implementation of the proposition from the *2011 Road Toll Investigation*. Attention was also given to the international developments.

This report investigates current policies relating to road user charging on the national and EU level, and reports on the results from a series of interviews with private and public stakeholders on their view on road user charging in Sweden. The conclusions are used to form the basis for the continued development of the concluding strategy.

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# **1 Introduction**

## **1.1 Background and scope of works**

In the first phase and its report<sup>1</sup> we studied the legal basis for road user charges in Sweden and the current development following from recent governmental propositions. The second phase, reported through this document, aims at studying policies, opinion and knowledge among stakeholders in road user charges and in particular in distance based charges for heavy goods vehicles.

The main purpose of the second phase is to establish the basis for the final strategy development, which will be reported through the third phase.

## **1.2 Methodology**

The work in this second phase has included studies in international and national transport policy and its development, but most prominently in-depth interviews with stakeholders in transport policy and road user charges in Sweden. The interviews have been carried out by Jonas Sundberg, Sweco and Per Ola Clemetson and Gunnar Fastén, NetPort Science Park.

The report has been written by Jonas Sundberg.

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<sup>1</sup> ARENA Report 2014:03 Legal prerequisites for road user charging in Sweden, NetPort Science Park, Karlshamn, 2014

## 2 Policies on road user charging

### 2.1 The European White Paper on transport policy

The view of the Commission is that many branches of transport are treated favourably in terms of taxation in comparison to the rest of the economy: tax treatment of company cars, VAT and energy tax exemptions on international sea and air transport, etc. Generally, these arrangements provide conflicting incentives with respect to the efforts to improve the efficiency of the transport system and reduce its external costs. This is the basis for the European transport policy, as expressed in the *White Paper; Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system*<sup>2</sup>, which highlights the use of user charges as a corner stone of the transport policy in order to mitigate negative effects from transport and support investments. There are three main rationals for using road user charges:

There is a tremendous need for investments in the European road transport network. The fundings required to match the demand for transport is estimated to more than € 1,5 trillion for 2010-2030. This cannot be solved through tax money alone; diversified sources of finance are required and road user charges (and other ways of supporting financing) is an important part of this.

Prices (hence cost) play a very important role for transport decisions. Transport charges and taxes should be restructured in the direction of wider application of polluter-pays and user-pays principles, and they should in a correct way support a fair competition between transport modes; if the modes of transport are associated with correct pricing an overall efficiency is gained in the transport system.

Application of road user charges as a direct way of internalizing external costs (noise, air pollution and congestion) has been promoted through the revision of the Eurovignette Directive. Pricing mechanisms can be used far more in order to achieve desirable effects on the traffic situation in terms of traffic load, distribution in time and selection of route.

### 2.2 Proposed European legislation

The European Commission is currently developing a proposal for a Directive on Fair and Efficient pricing as an amendment of the Eurovignette directive. The Directive was first adopted in 1999 mainly with the goal of eliminating distortions, establishing fair mechanisms for charging infrastructure costs to hauliers and making them non-discriminatory. The amending Directives 2006/38/EC and 2011/76/EU introduced an environmental dimension to the legal framework.

The background to the new proposed amendment is found in the transport policy (above) which was set after the previous amendment of the Eurovignette directive was made (considering that this process was initiated in 2008).

In short, the amendment of the directive aims at the following improvements:

- A better reflection of correct external costs of transport (improvements have been made since 2008)
- A need to reduce the complexity of the legislation (which has become more complicated with each amendment)
- An update reflecting new transport policy objectives:
  - Insufficient financing of transport infrastructure

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<sup>2</sup> European Commission, COM(2011)144, Roadmap to a Single European Transport Area, Brussels, 2011

- Growing road congestion
- Inconsistency and lack of interoperability between road charging systems in the EU, and
- Insufficient protection of the rights of the motorists which are subject to road charges.

### 2.2.1 Analysis from a Swedish perspective

Looking at the three rationales for use of road user charges presented above (2.1), it is clear that these are reflected in current Swedish policy:

The first rationale is reflected in the co-financing of e.g. the bridges in Sundsvall, Motala and Skurusundet. Albeit not frequently used, it is clear from the interviews that the Swedish Ministry of Transport is aiming at providing the legal tools necessary for municipalities, regions and the Transport Administration to use user charges as a means to support financing new infrastructure.

The second rationale has recently been brought up by the Ministry of Transport and is reflected in the task given to VTI<sup>3</sup> to “sort out” the situation concerning congestion, infrastructure wear, costs etc. in relation to the transport modes. A basic problem seen is that there is no European consensus on how to estimate costs, and if each country finds its own way then little is gained. This is underlined in the EC White Paper<sup>4</sup> where the need to establish common EU wide practises for cost calculation is pointed at.

The third rationale is best illustrated by the congestion tax in Stockholm and Gothenburg, and the application of track access charges in the rail system. Also this question will be elaborated upon in the VTI study.

As concern the proposed changes in the directive, Sweden has specifically argued against two elements of the proposed text:

#### Earmarking revenues

A substantial share of the revenues (**at least 70%**) from road charges is earmarked to the transport sector. This is a *sine qua non* condition for ensuring that road charging serves the goal of sustainable financing of transport systems and infrastructure.

(Paragraph in bold proposed to be eliminated by Sweden)

Justification given by Sweden: *In several national legal frame-works external cost-charges are considered as taxes rather than charges, because there is no direct link between the charge paid and the benefit or service provided to the user. Because such charges are classified as taxes, the revenues they generate cannot be earmarked, in line with the principle of the universality of the budget.*

#### Phasing out time based vignettes

Vignettes should therefore be gradually replaced by distance-based charges which are fairer and more efficient. **Except for countries where distance-based charges are inefficient due to a vast road network and sparse traffic.**

(Swedish proposed addition in bold text).

Justification given by Sweden: *Some Member states have long distances to the customers/consumers whilst the industry is dependent on solely road transport. If distance-based charges are implemented they will create a financial burden which the industry cannot bear (such as for example the forest industry).*

<sup>3</sup> The Swedish National Road and Transport Research Institute

<sup>4</sup> European Commission, COM(2011)144, Roadmap to a Single European Transport Area, Brussels, 2011

While Sweden has a long tradition of fighting against earmarking of taxes, the position on the phasing out time-based vignettes is more controversial. Sweden has always claimed the rationality behind “polluter pays” and “costs shall be carried by those causing them” while in this case Sweden takes an opposite position and points on the fact that shift of transport from road to rail, which is the driver behind the principle, cannot be achieved as there are no railways available in large parts of Sweden. Hence the rationale behind distance-based charges is regarded as a threat to e.g. the forest industry.

## **2.3 Swedish policies on road user charging**

### **2.3.1 The national transport policy**

The overall goal of Swedish transport policy is to ensure socio-economically efficient and sustainable transport for citizens and businesses throughout the country. Under this overall goal, the government has also established functional and consideration goals, each with a number of priority areas<sup>5</sup>.

### **2.3.2 Functional goal**

The functional goal is about creating accessibility for travel and transport. The design, function and use of the transport system shall contribute to giving all a basic accessibility with appropriate quality and usability and contribute to economic growth throughout the country. In addition, the transport system shall offer equal opportunities for men and women in response to their transport needs.

### **2.3.3 Consideration goals**

These goals concern safety, security, environment and health. These are important elements of a sustainable transport system. The transport system shall be designed to ensure that no one is killed or severely injured. It shall also contribute to improved health and contribute to achieve environmental targets.

### **2.3.4 Application of Swedish Policy instruments**

The starting point in the discussion on Swedish RUC policies must be the national transport policy which differs considerably from the European in its perspective. The Swedish Parliament decided in 2005 on five guiding principles for selection of policy instruments and making priorities, which still remain<sup>6</sup>:

- The users shall be given a large degree of freedom in decisions on how they want to travel and how a transport shall be carried out
- Decisions on transport services provision should be decentralized accordingly
- Collaboration within and between transport modes shall be supported
- Competition between transport operators and transport alternatives shall be supported
- Socio-economic costs shall be a starting point in the design of transport policy instruments

In the development of policy instruments and regulations, the principle of socio-economic efficiency is at centre. Decisions related to adoption of these instruments must however always take into account all dimensions of the transport policy.

One of the basic principles for the transport policy is that socio-economic costs from transport shall be a starting point in the design of policy instruments.

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<sup>5</sup> Regeringens proposition, 2008/09:93, Mål för framtidens resor och transporter, Stockholm 2009.

<sup>6</sup> Regeringens proposition, 2005/06:160, Moderna transporter, Stockholm 2005.



## **3 Knowledge and opinions on road user charges in Sweden**

### **3.1 Investigation through interviews**

A Swedish RUC strategy, further developed in section 4, must be based on the actual and foreseen situation in Sweden and Europe (and also to some extent in neighbouring countries). Furthermore, a strategy needs broad support to qualify as a national strategy.

The view from ARENA has been developed within a context of national and international road user charging experts. In order to widen the basis for the strategy development presented in this report, ARENA has carried out a series of interviews with representatives of private and public organizations in order to get their views.

The interviews were carried out as in-depth interviews lasting 1-2 hours, on telephone or through physical meetings. The respondents included groups as:

- Politicians (from the parliaments standing transport committee)
- Hauliers (transport service providers)
- Shippers (transport service users)
- The Ministry of Enterprise, Energy and Communications
- Officials in Governmental authorities
- Representatives of regions and municipalities

The following questions were raised in the interviews:

- For what purposes should road user charges be used in Sweden?
- Can you rank the importance of the alternative scopes in terms of revenue?
- Which are the perceived most and least relevant scope, and why this?
- Considerations on time-based vignettes and Swedish participation in the Eurovignette cooperation
- Why are Swedish policy makers hesitant to use road user charges?
- What forces (stakeholders) are acting in favour of or against use of road user charges for different purposes?

Below you will find a summary of the findings from the interviews and the summary conclusions that forms the backbone for strategy development within ARENA Report 2014:05.

### **3.2 Outcomes of the interviews**

The findings from the interviews have been grouped under seven headings:

- Policy evolution
- Opinion
- The scope of road user charging
- Toll or tax financing of infrastructure?

- The need and willingness to steer
- The need for strategy
- Requirements on road user charges

Summaries and conclusions from the interviews are presented below.

### 3.2.1 Policy evolution

It is important to understand that current Swedish policy is growth-oriented. Principles like “user pays” are in general looked upon in favour, but implementation of policy instruments must not interfere with the growth policy. There is a general consensus that all traffic should carry its own costs, but there are very different views on the costs that different types of traffic actually cause and whether they pay for themselves. Any charge that is motivated by e.g. external costs must be based on knowledge of the actual cost. This is not the case today, why e.g. VTI has been commissioned to study costs related to wear, congestion etc for all transport modes.

In the future road user charges are expected to be used as a policy instrument more frequently than today. There is a general understanding that fees are efficient instruments to steer towards the desired development and as a means of distributing costs in a fair way. But the base for this development will (should) be the European Union rather than Sweden, and an important aspect will be the competitiveness of Swedish and European industry.

However, the Ministry of Finance is well acquainted with economic theory which resulted in green light for the congestion tax which could be motivated from a demand perspective: It was needed to solve a practical problem with congestion. And it worked. There is however no similar problem on the national road network. Climate change is a problem, but there is no obvious link between a Swedish kilometer<sup>7</sup> tax and a safe climate. A major part of the political opposition thinks otherwise, and argues in favour of a kilometer tax. This is also, even though for different reasons, considered to be politically rational. The green party believes that it is possible to develop a comprehensive strategy that includes all fees on transport as part of a climate policy agreement.

Hence it can be added that application of road user charges is not only a transport policy measure. Also climate (environment), regional and industry policy may be drivers in policy evolution affecting the application of road user charges.

It is interesting to see that the government considers rail charges much less controversial than road user charges. This is due to the fact that there is an important lack of capacity on the rail network, similar to what we saw concerning the congestion tax. This illustrates the fact that the government is not opposing demand management through road user charges as such.

In the longer term, reduction of fuel tax and carbon dioxide tax through electrification and increased energy efficiency will bring the need for new tax income from road transport, but that is perceived to be many years ahead and calls for no action now.

### 3.2.2 Opinion

A conclusion is that the political counter-forces against road tolls are not particularly strong. The key adversary point is that the economy in toll roads in Sweden is not good enough. Sweden has a long tradition of regional policy including building road and rail infrastructure in parts of the country

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<sup>7</sup> Kilometer should here be understood as “based on selected travel path”

where there is no particular traffic demand. There is no counter-strategy in the government, evident from the PPP initiative that faded out: There were simply no projects good enough. The Swedish National Road Administration in fact already concluded this in the 1980's<sup>8</sup>.

There is no strong opinion against road user charges as a means to support financing infrastructure (even if the state is expected to provide financing as default). When there is a clear advantage, when everyone is a winner, it is easy for business and public to accept road tolls, such as the Öresund Bridge. The key point is that the ministry of finance is looking for the most efficient way of getting revenues at each occasion. The state borrows at low cost and road tolls costs 15-20% of the revenues.

From the perspective of being competitive, business is against all kinds of extra costs and transport costs are quite important, especially for the primary industry. This means that it is, from a political perspective, very sensitive to pursue the issue of e.g. distance-based charges where resistance is strong, particular in the forest industry and in the northern part of Sweden. There is also a fear that politicians, considered to have a preference for rail before road, will put additional taxes on road transport, which will bring additional (perceived) unfairness in the competition between e.g. road and rail and lower the overall efficiency of the transport system.

To summarize, business organizations are a restraining force for development of road user charges. They want to maintain a low cost of transport, but through their actions they actually counteract the competitive neutrality in the transport industry. An industrial policy action from the government to come to terms with the situation is also missing.

The *Swedish Association of Road Transport Companies* is discussing how to respond to the question concerning distance-based road toll systems. If they cannot prevent it, they must ensure a good and competitive neutral system. Used correctly, road toll systems have many applications such as serving as enforcement of different regulatory systems. In the long run, it may be better to be involved and influence in order to enable good solutions that lead to fair prices and not only be an opponent to the introduction of distance-based tolls. Each transport mode should pay for their costs themselves in a fair system.

### **3.2.3 The scope of road user charging**

Sweden is not different from the rest of Europe: The needs for investments and maintenance of infrastructure are rapidly growing and this is also the core interest in terms of applying road user charges. They are applied as regional measures within more comprehensive infrastructure development packages.

However, many infrastructure investment projects have a very weak budget and the current trends even indicate that we can expect the collected fees to be lower than anticipated due to less traffic than predicted. Sundsvall and Motala are good examples, and these two are the (very rare) projects selected for infrastructure charging. This is probably a generic Swedish problem: Most roads have very little traffic, which makes toll-financed investments less interesting. Hence we can expect that infrastructure charges will increase in use (at least through current projects) but they will never be very important. As of today, there are no evident request for additional projects beside Sundsvall, Motala and Skurubron. Ahead, we can expect the new planning method, with a rolling planning horizon to bring a more continuous inflow of potential projects, but the numbers will remain very low. The rolling horizon will probably also bring better knowledge into the decisions, more accurate and more recent estimates on demand etc.

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<sup>8</sup> Vägverket, Vägavgiftsutredningen. System med avgifter på motorvägar, trafikleder och större broar m m. 1989.

Now, it has been found that scopes can be combined, whereas the evolution of the congestion tax in Stockholm and Gothenburg are good examples. Hence the work in favour of implementing road user charges is carried out in cooperation between those that consider charges as efficient policy instruments, and those that see a need for supporting infrastructure investments.

Even if the “user pays” principle cannot compete with the rationale of financing investments today as the only rationale behind road tolls<sup>9</sup>, if we take into account the development of fees on rail transport where congestion is an evident problem, we can expect a more dynamic development also on roads but in a longer perspective. Before this happens there is a need for evidence on capacity shortage on the road network besides a few limited spots where congestion tax already plays an important role.

### **3.2.4 Toll or tax financing of infrastructure?**

Firstly, it can be concluded that there is a general opinion behind that the state is responsible for the infrastructure in Sweden and that tax money shall constitute the basis for infrastructure development and maintenance. Road user charges should not be used in order to collect money (as a general tax), it is far too inefficient.

It is in exceptional cases business and public can be involved in co-financing when there is a clear advantage for the companies or the citizens and the alternative would be a long wait.

From this perspective it is clear that the toll financing of infrastructure projects we see today are “questionable” as they in general mean that we charge people for driving where we want them to and thereby create exactly the same problem that we see in countries with a lot of toll roads (e.g. France).

The question about supporting financing is mainly an issue for the municipalities and the Swedish Transport Administration through bilateral agreements. The role of the government is to provide an enabling legislation. It is however important to observe that the state can borrow at lower interest rates than any concessionaire which limits the socio-economic value of toll financed investments. It should be noted that the government cannot easily intervene in a project (e.g. as a guarantee) where competition between modes of transport is at stage. If the government intervenes in a project in order to bring down the interest rate, we can see the market react<sup>10</sup>.

### **3.2.5 The need and willingness to steer**

There is a general understanding that the most relevant use of road user charging (and also charges in other modes of transport) is to create fairness – to ensure that each (road) transport carries its costs, and that the competition between transport operators is fair and efficient. This is the optimum solution.

It is perceived important to allocate costs in a competitively neutral manner, but it will probably not be a priority. Road tolls are an excellent tool to accomplish competitive neutrality. It is acceptable to pay if everyone is contributing its fair share!

But in reality several problems appear:

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<sup>9</sup> Financing is the first hand goal, fighting congestion a good second

<sup>10</sup> Scandlines, offering ferry transport Helsingborg – Helsingör sued the government for illicit government support to Öresundsbron as this happened.

- There is not knowledge available and agreed that allows for computation of “fair share”
- Even if this was the case, it would be “in average”, or result in a very complicated system for calculating charges for individual transports
- Infrastructure investments are also motivated from regional, industrial and other policy perspectives
- Industrial growth and regional development are more important than fairness...

In the end, there is probably a low interest from policymakers and shippers to really ensure competitive neutrality by only looking at the transport service and ignoring all other policy aspects.

It is also important to remember that our own legislation with a requirement for clear countermeasures in return for fees that makes differentiation difficult. The EU legislation is more tolerant.

### **3.2.6 The need for strategy**

It is evident that there is no strategy today on the application of road tolls, as “anything can happen”. Authorities, e.g. the Swedish Transport Agency, have a strategy based on expected increased use of road user charges, and that they are expected to have an important role in collecting these charges, for whatever purpose. This means that they need to develop and maintain a robust system that is of flexible scale allowing for introduction of whatever charge.

Several stakeholders state that it would be appreciated if there was a common view on the application of road tolls. Today it is perceived to be used without any thought or planning behind. In essence this perception has more to do with the question as to whether infrastructure shall be financed through taxes or fees from the users than to whether road tolls or other co-financing measures are applied.

Furthermore stakeholders also call for measures needed to bring order to the competition between transport modes and to get a better structure of the transport industry (e.g. concerning the conditions for domestic and foreign haulers). For these purposes imposing tolls may be a useful tool if used properly. The competition needs to be fair and overall social conditions for the drivers good.

In essence these examples call for an elaborated transport policy, which seems to be of low priority, rather than policies on road user charges.

In addition, stakeholders consider it as a typically technocratic attitude to develop a strategy on the application of road user charges (technology centric). In particular politicians do not work this way (the European Commission typically does) as strategies means tying up your hands.

### **3.2.7 Requirements on road user charges**

The current time-based Eurovignette is expected to be replaced by a more functional and precise tax on road transport in Sweden as well as in other European countries. The current vignette cooperation will likely exist in three to five years, but gradually disappear. After five years from now, a replacement of the vignette with a distance-based tax may be relevant in Sweden. A rapid and well-functioning introduction in Denmark can speed up the process, but there is little (policy) rationale in doing this together with Denmark (or other countries). Efficiency is not argument enough.

It is very important that a road user charge system is designed in a way that enables follow up of costs in association with a specific transport (as well before as after the transport). Today this is very complicated, which brings a situation where road tolls are treated as a “general overhead”. This means that a lot of the potential steering capacity is lost.

Politicians (and authorities) expect that the road users perceive charges and fees as the same thing. The legal differences between taxes and fees shall not be perceived. It would also be very good if there were no difference in how these charges were managed.

An effective sanction regime, with large sanctions for those who are guilty of misconduct and fair levels of fees is vital in order to get competitive neutrality. The issue of privacy must be resolved, otherwise a wider implementation of road tolls will be difficult.

### 3.3 Conclusions summary

The following conclusions can be summarised from the interviews;

- **Road User Charges will increase in usage**, but tolled infrastructure will not appear as it does for example in Norway. Singular projects will emerge from time to time, but at a slow pace.
- **The time-based vignette is expected to disappear** in 3-5 years, and will most likely be replaced by a distance-based tax for heavy goods vehicles.
- **Politicians** want to retain their discretion to act in response to policy challenges, and look upon road user charges as a means to reach specific goals (e.g. environmental, infrastructural etc.)
- **Transport companies and shippers** want clear and homogenous rules that provides predictable and low transport costs and fair competition between providers of transport services and between transport modes
- **Government offices** wants a legislation in place that allows for road user charges to be used for various purposes, at the discretion of other stakeholders
- **Municipal and regional services** thinks that the government in essence has the responsibility for developing and maintaining the infrastructure (outside their realms), and they asks for clear rules of play
- **Government** looks upon road user charges as tools in their toolbox, and expect to have an important task in levying charges when applied through robust solutions
- **All stakeholders** need access to knowledge on transport operations and the design of road user charge systems

## 4 Strategy outline

Given the policies, opinions and the general situation we can start outlining a strategy.

### 4.1 The scope of a national strategy

The work in ARENA takes its start in the absence of a comprehensive national strategy on the application of road user charges. The position from ARENA has been that such strategy would be beneficial as the basis for a design of a “national road user charging system”, which in essence is one of the objectives of the ARENA project.

The study shows that there are many unanswered questions in relation to a national strategy. There is for example not one organization, authority or group of stakeholders that can be considered as its natural host. The continued governance of the strategy would then be very difficult. Hence it can indeed be questioned as to whether a “national strategy” is something that can or even should be established.

This brings an additional dimension to the work of ARENA. The study has shown that a strategy, normally understood as the goals set (for an organization) and the process to reach these goals, on a national basis is not a realistic ambition. The stakeholders concerned all share the opinion that Sweden could not have a national strategy on the application of road user charges. There are too many stakeholders involved, too many and too different objectives behind the use of road user charges, and no natural relevant body to adopt or host a strategy.

For the ARENA project this provides an important insight. It is clear that road user charges are used and will be used for various purposes (more or less) independent from each other, and not as a result of an overall strategy. It is also clear that such lack of common framework creates a risk for fragmented and uncoordinated solutions, which is not a driver for interoperability.

Thus it is also clear that all stakeholders concerned see the value in facilitating collection of road user charges in order to simplify the process for the road users, which also will bring higher efficiency and reduce the risk for loss of income due to “friction” in the fee collection.

The message to ARENA (and other stakeholders in facilitating the use of road user charges) is quite clear: Please provide a generic system that can be used when needed for collection of road user charges of different kinds. But do not expect us to tell you well in advance when and for what purpose the solution will be used.

### 4.2 ARENA Strategy content

Based on the conclusions above, we can formulate a basis for an *ARENA Strategy for road user charges*.

#### 1. Background - Policy

Road user charges will be used for various purposes in Sweden, in order to finance infrastructure investments, to combat congestions in larger cities, as a general tax base etc.

The government will make available a legal framework that provides opportunities, within its limits, for stakeholders to apply road user charges when this is found to be relevant. This legal framework takes into account (is based on) European legislation. Decisions to apply road user charges will in general be based on local or regional needs (congestion, infrastructure financing) but national initiatives can also appear (e.g. a new tax is always subject to a parliament decision).

## **2. Outlook**

Experience from e.g. EasyGo has demonstrated the great value in interoperability within not only Sweden but also with systems in neighbouring countries and based on standardized solutions on the European level. It seems like the European Commission has also adopted the principle of regional clustering as a basis for building international interoperability.

It is of critical importance that the development in Europe is closely monitored with the objective to influence the international development and also to bring home knowledge and solutions when this supports Swedish aims.

## **3. Primary objectives**

The first hand objectives (of ARENA) must be to:

- Support the provision systems and services for collection of road user charges that ensure high efficiency, low cost and a high level of user friendliness. The drivers, clients to the road user charge systems, shall perceive the use of a singular well coordinated system regardless of its location and scope.
- Support the build-up of knowledge on transport in Sweden as the basis for design of road user charge systems and estimation of their effects.

## **4. Activities needed**

In order to meet the objectives a range of activities are needed:

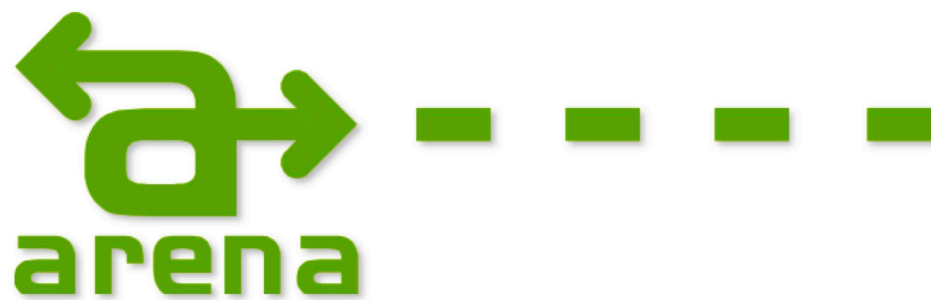
- i. A continuous build-up of knowledge based on research and innovation activities; studies, experimentation and demonstration, workshops and seminars etc, is required.
- ii. As initiatives to apply road user charges may appear "at any moment" ARENA need to make available a guideline on design of road toll systems, or a similar tool, that is continuously updated and made available to various stakeholders in order to ensure that "best practise" is fed into each project at a very early stage.
- iii. ARENA needs to continue its work as a centre for provision of information and news on the evolution and developments in the field of road user charges.
- iv. ARENA also needs to exchange knowledge and information specifically with neighbouring countries in order to support cross border harmonization. This will maximize the extent of the interoperability offered to the clients and bring user friendliness at the same time as it will lower cost for implementation and operation of systems. This activity will include the structured build-up of a network of experts and contact points in the countries concerned.



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2008:11	Kilometerskatt för tunga lastfordon i Sverige – Kostnadsbedömning
2008:10	ARENA Demo
2008:09	Kilometerskatt för tunga lastfordon – Legala förutsättningar
2008:08	A Criteria-Based Approach to Evaluating Road User Charging Systems
2008:07	Hotanalys för positionsangivelsekedjan
2008:06	Dimensioning study for Road User Charging
2008:05	A market based approach to achieve EFC interoperability in Europe
2008:04	A New Approach to Control in the ARENA concept för HGV kilometre tax in Sweden
2008:03	A kilometre tax for heavy goods vehicles in Sweden – A conceptual system design. Part 2 Proposal for system design
2008:02	A kilometre tax for heavy goods vehicles in Sweden – A conceptual system design. Part 1 Requirements and preconditions
2008:01	Kilometre tax for Heavy Goods Vehicles in Sweden (summary report)
2008:01	Kilometerskatt för lastbilar – ett konceptförslag (sammanfattande slutrapport)



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Project coordinator:



Financial partners:



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