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Kapsch Telematic Services, Czech Republic

GENERAL REPORT

PREAMBLE

The Consortium Kapsch is the General Supplier of the Toll Collection System on Roads and Provider of Services Related to the Operation of the Toll Collection System.

The Road and Motorway Directorate of the Czech Republic is the Operator of Toll Collection System on Roads. RMD is the organizational organ of the Ministry of Transport of the Czech Republic.

CGI (earlier LogicaCMG) is the independent auditor that measures the efficiency of the toll collection.

Introduction

The Czech Government discussed the introduction of the road toll shortly after the country joined the European Union (EU) in 2004. The primary reasons for this were:

- Change of time-based taxation to a more just performance-based charging where a user pays for the number of kilometres travelled
- Increase of funds flowing into road management;
- Attempt to balance the conditions for road and railroad transport as well as the related eventual reduction of increased truck traffic in the Czech Republic;
- Possibility to introduce telematic services.

The EU membership of the Czech Republic and the related expectations of highly increased transit truck traffic resulted in a demand for specifying an electronic toll collection system that would offer maximum user comfort.

The considered systems should not discriminate international carriers who occasionally use the chargeable road network in the country compared to the domestic carriers, who use it frequently. This is the reason why the competitors in the tendering process for the toll only included those who offered a system based on the microwave (DSRC) communication. One of the benefits of the microwave toll system is the use of low-cost and easy-to install on board units (OBU), which can be very easily distributed, installed and uninstalled into a vehicle. That this requirement was justified and confirmed by the experience from the first months of the system operation, primarily by the continuously growing number of active OBUs. If we compare this system with the satellite-based one, there is no doubt that the acquisition costs of the first one are higher. However the savings on acquiring more affordable low-cost and easy-to install OBUs have entirely eliminated the extra cost by now. They have proven to be the right decision.

The Czech Government decided to cover the costs for upgrading and maintenance of the transport infrastructure by introducing a distance-based truck toll. This road toll applies to Czech and foreign road users alike. On January 1, 2007, the Czech nationwide electronic toll collection system for heavy vehicles with a maximum permissible laden weight of 12 tons and above started commercial operation. As mentioned above, the system is fully electronic, using DSRC technology to achieve multilane free flow toll collection.

Within nine months from the date of contract signature, Kapsch, as the chosen supplier, was able to design, develop, manufacture, erect, integrate and implement this complex toll collection system, including setting up a nationwide distribution network for OBUs with pre-pay and post-pay capabilities, as well as establish multilingual services and a support network to enable technical and commercial operation of the system.

Since the year 2007, when the electronic tolling system started, several changes and adjustments have been brought into operation in the Czech electronic tolling system.

Since 1st January 2010 the tolling system was extended for vehicles over 3,5 tons within the nationwide tolled road network.

In August 2011 a new category "Bus" was introduced and deployed into the system, providing discounted tariffs for the carriers operating public passenger service.

The increase of road transport led to implementation of toll Discount System in year 2012, which was destined for big vehicle operators with a high amount of paid electronic toll. Some vehicles may achieve up to 13% discount from the whole sum of paid toll per year.

The Czech government has decided about increasing the toll rates since 1st January 2015 and about implementing a new emission category Euro 6. The best toll rate was applied onto the new category Euro 6 as a preference of vehicles with emission level EEV and Euro 6. This should have a big ecological effect, influence on decreasing of the environmental contamination and on air pollution - through higher toll rates for old vehicles which goes hand in hand with renewal of vehicle fleet.

From the past year clients of Czech tolling system have a possibility to use free Mobile App MYTOCZ, available for mobile platforms Android, iOS and Windows, which displays on a cellphone an overview of vehicle registration data, prepaid toll balance, information about the toll system and relevant news.

On 28 August 2016 the prolongation of the 10 year tolling contract was signed by Ministry of Transport. The contract with Kapsch is closed for up to max next 3 years. It includes the operation of tolling system itself, delivery of OBUs and incorporation of EETS to the system upon to client's needs, maximal 195 million Eur.

The efficiency of the toll collection -which is measured by an independent auditor - is long-standing on a high grade, in the past year it was 99,54 %.

Network length

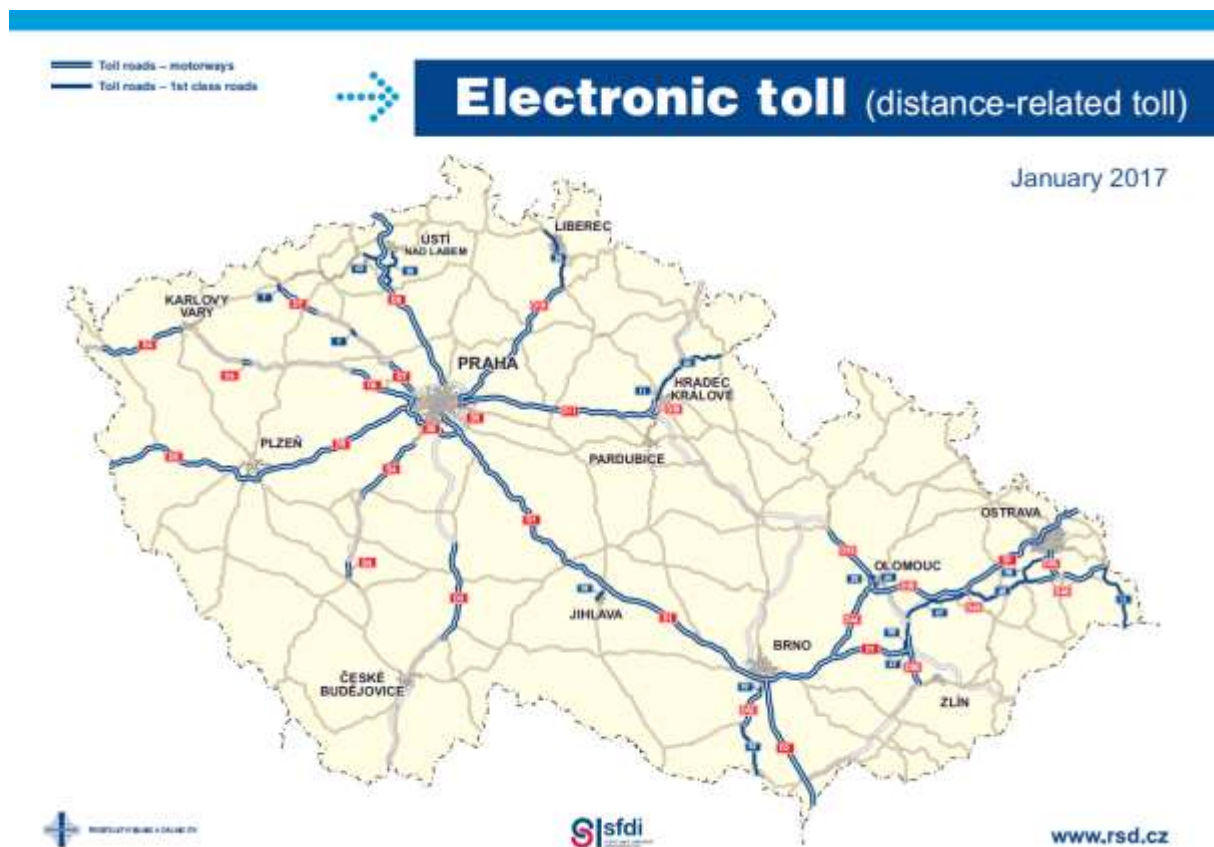
The length of the Czech tolled network has increased from 1429,2 (as for 1.1.2015) to 1433,3 km (as for 1.1.2016) and up to 1447,3 km in the beginning of the year 2017. The total length of all roads in the Czech Republic comes up to nearly 56.000 km.

Since 1st January 2016 expressways turned into motorways, which means in Czech Republic we have now only motorways and selected segments of state roads (1st class roads) tolled in comparison to the previous years.

Also roads and motorways have been re-measured – due to this some of tolled sections are shorter than in previous years.

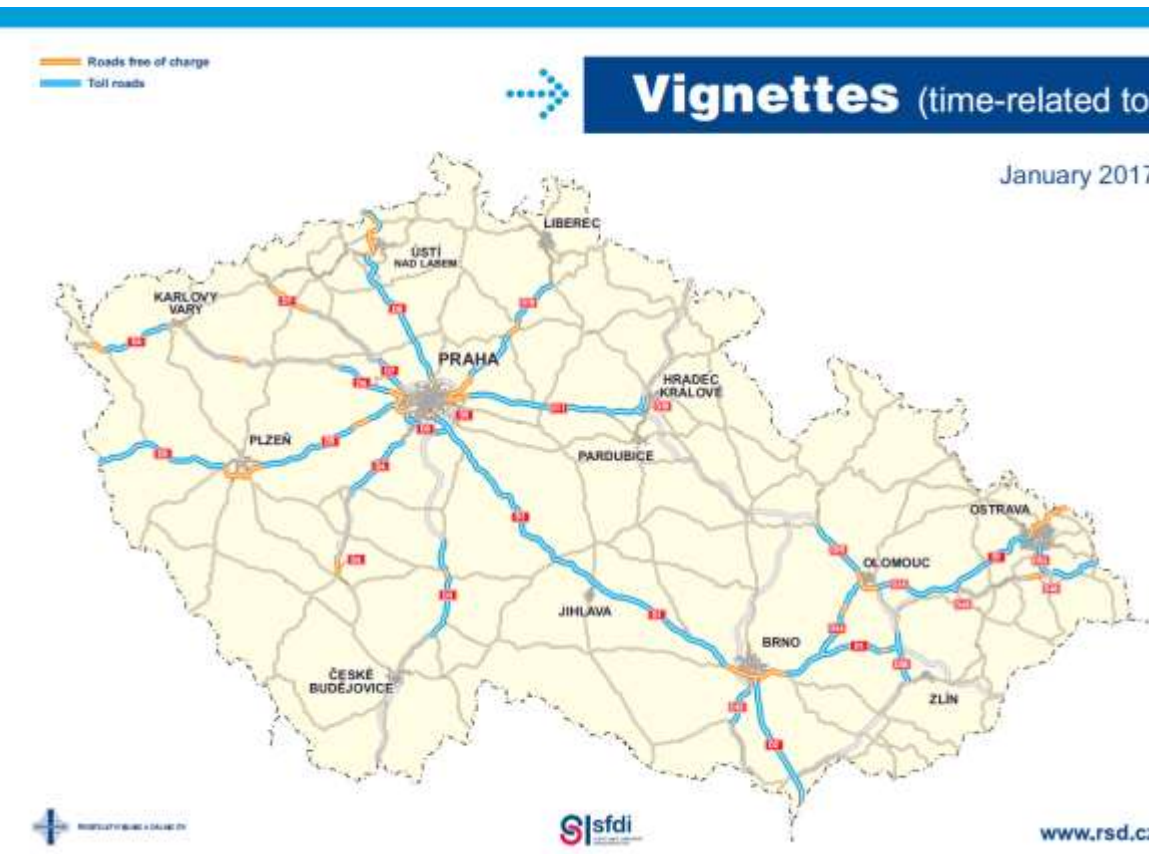
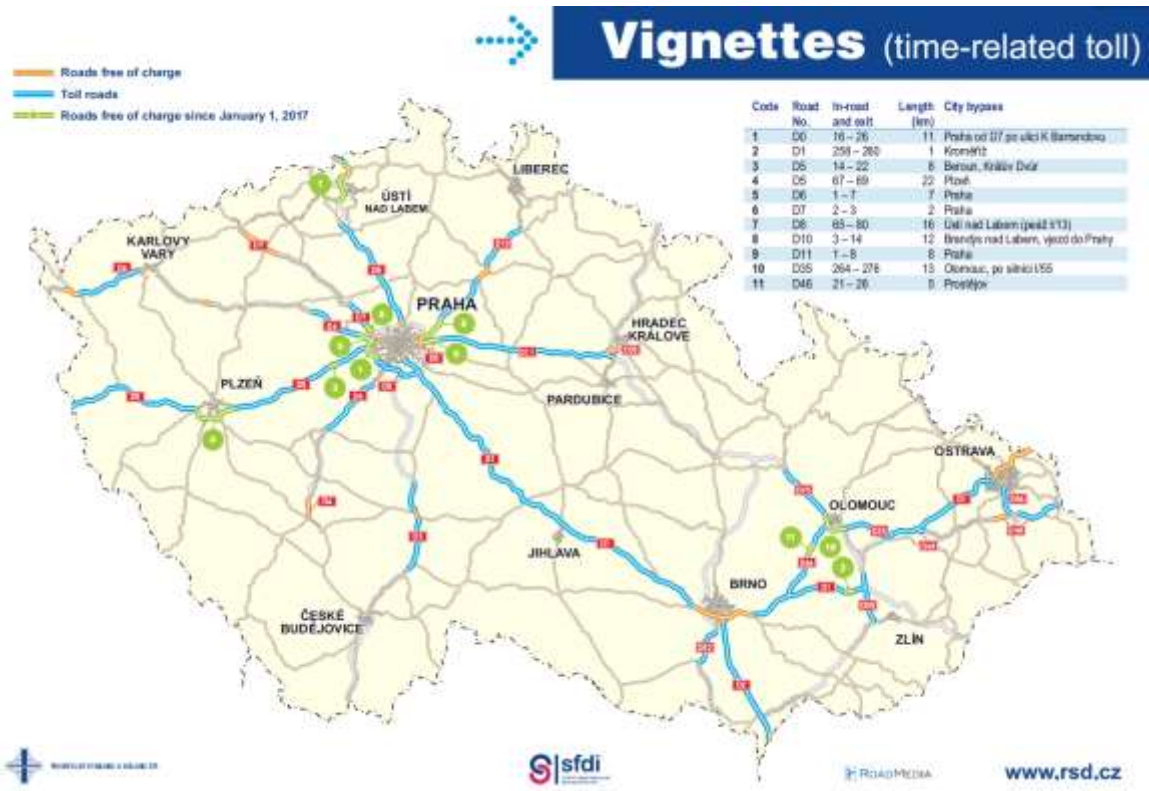
The most motorways in Czech Republic are 2x2 lanes, the type of lane 3x2 were put to use only in in three locations – in big traffic nodes of national importance and big cities. From overall length 1447,3 km of motorways are 40,8 km of them built as 3x2 lanes.

In year 2016 the overall length of bridges in Czech Republic was 406,5 km and we had 33 tunnels in operation.



Map No.1

Our first map shows actual toll duty on roads for vehicles over 3,5 t. As you can see in the map No.2 about the time-related toll from the beginning of the year 2017 there were added another 11 motorway sections that are free of charge for vehicles under 3,5 t. On the Map No.3 you can see the actual vignettes duty situation.



Openings in 2017

In the year 2017 several sections are foreseen to be newly opened. On the motorway D3 are 2 sections that are planned to be open: Veselí nad Lužnicí – Bošilec (5,1 km) and Borek – České Budějovice-sever/Úsilné (3,2 km). On the motorway D4 is planned a new section Příbram-sever/Skalka – Háje (4,8 km), and the last section which should be brought into operation is Sedlice – Hradec Králové-západ/Kukleny (4,4 km). This year the total length of motorways will increase about 17,5 kilometers.

Investments

The total amount of investments spent on modernization, road construction and maintenance of in year 2016 was more than 748,5 mil €.

In this year it is assumed, that the amount of money investments increases with more than 35 % to the sum of 1.157 Million €.

This amount will be used to build new toll roads, the rest of the investments will be used for example on the project of « Modernization of D1 », which is still in progress. (The motorway D1 as the longest and main arterial motorway in Czech Republic is step by step being modernized. Nowadays we have 4 sections in overall length of 26,6 km on the motorway D1 which are under reconstruction.), or on the Crocodile project, etc.

Financing

As of 11 July 2007, after only 6 months of operation the total amount of the tolls collected reached the total capital expenditure. This excellent indicator is in addition amplified by the fact that the system was built using the contractor's method, meaning that the general contractor bears the initial costs related to the construction – which is a type of PPP project. The state reimburses the general contractor for those costs gradually within a horizon of 30 months after the launch of the system.

Traffic

As an universal indicator of traffic of vehicles over 3,5 tons in Czech republic we consider the traffic volume (average daily vehicles which means the result of the ratio between the summation of vehicles-km and the summation of the lengths of the motorways axis as for the year 2016) which makes 4.689.

In comparison to previous years, we can observe an increasing tendency of the traffic volume. In year 2015 this indicator was 4.466, only

few years ago – in year 2013 the average daily traffic got through the limit 4000, so we can see a perceptible progress the last few years. The information about traffic volume for vehicles under 3,5 tons isn't available.

Tolling system and tolling technologies used

This is a multi-lane free flow system which uses antennas mounted on gantries above the highway which communicate with OBUs installed on the windscreen of passing trucks. Changing lanes while passing beneath the gantries does not influence the tolling transaction. The tolling process is fully automatic and requires no intervention on the part of the driver.

Technology used: DSRC 5.8 GHz microwave technology and DSRC-MLFF technology. In horizon of few years there is no change in this domain expected.

Toll rates

Electronic toll rates haven't changed since 01st January 2015 and it isn't expected any price increase for this year in the moment.

The main vehicle categories over 3,5 tons are:

Category M: motor vehicles, which have at least four wheels and are used for transport of persons. (category BUS)

Category N: motor vehicles, which have at least four wheels and are used for transport of goods. (category TRUCK)

Toll rates as for 01/01/2017

Emission class	EURO 0-II			EURO III-IV			EURO V			<i>tarif Euro6</i> EURO VI, EEV		
	2	3	4+	2	3	4+	2	3	4+	2	3	4+
Motorways	3,34	5,70	8,24	2,82	4,81	6,97	1,83	3,13	4,52	1,67	2,85	4,12
-- Friday 15-20 h	4,24	8,10	11,76	3,58	6,87	9,94	2,33	4,46	6,46	2,12	4,05	5,88
1st class roads	1,58	2,74	3,92	1,33	2,31	3,31	0,87	1,50	2,15	0,79	1,37	1,96
-- Friday 15-20 h	2,00	3,92	5,60	1,69	3,31	4,74	1,10	2,15	3,07	1,00	1,96	2,80
Busses	1,38			1,15			1,04			0,80		

Time-based toll charge (vignette)

The fees for 2017 for the use of motorways and expressways by road motor vehicles of total weight under 3,5 tons (motorbikes are free of charge) were set by Government Directive No. 354/2011 Coll., which came into effect on 1st December 2011 (there is no change since the year 2012).

Time/Period	Within 3,5t
10 days	12 EUR
One month	17 EUR
One year	57 EUR

Revenues

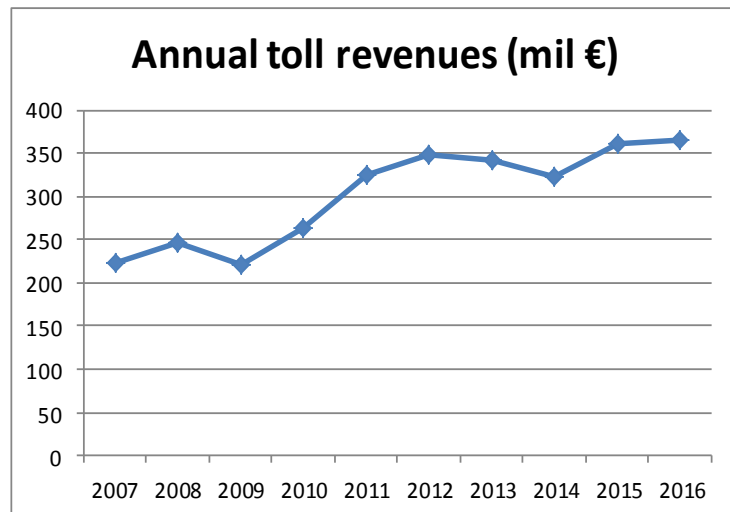
The year 2016 was the most successful year for the Czech electronic tolling system since the beginning of operation in sight of toll revenues.

More than 366,21 mil € paid vehicles over 3,5 tons past year. That means increase of electronic toll revenues of more than 5,76 mil €.

Annual toll revenues (million EUR)

Year - Revenues

2007 – 222,61
 2008 – 245,77
 2009 – 221,73
 2010 – 262,98
 2011 – 325,04
 2012 – 347,20
 2013 – 342,20
 2014 – 322,78
 2015 – 360,45
 2016 – 366,21



The annual toll revenues in year 2016 increased by 1,6 % in comparison to year 2015.

This annual increase was caused by the higher traffic – especially as a result of the economic boom in our country and in neighbouring countries in Europe.

Safety

	Definition and method of calculation	In number for one billion kilometres travelled in 2016	Variation in % in 2015/2016
Personal injury rate	Number people with injured persons on motorways	N/A	2016: 937 + 31,4 %
Fatal accident rate	Number of accidents with fatalities (deaths) on motorways	N/A	2016: 39 + 35,9 %
Rate of dead	Number of deaths on motorways	N/A	2016: 42 + 28,6 %

The increase of number of accidents and injured persons between years 2015 and 2016 is distorted – this is related to the fact that since 1st January 2016 expressways turned into motorways (the observed motorway network lengthen about 463 km), but other statistics parameters stays the same and thus currently we cannot provide a relevant comparison in this field.

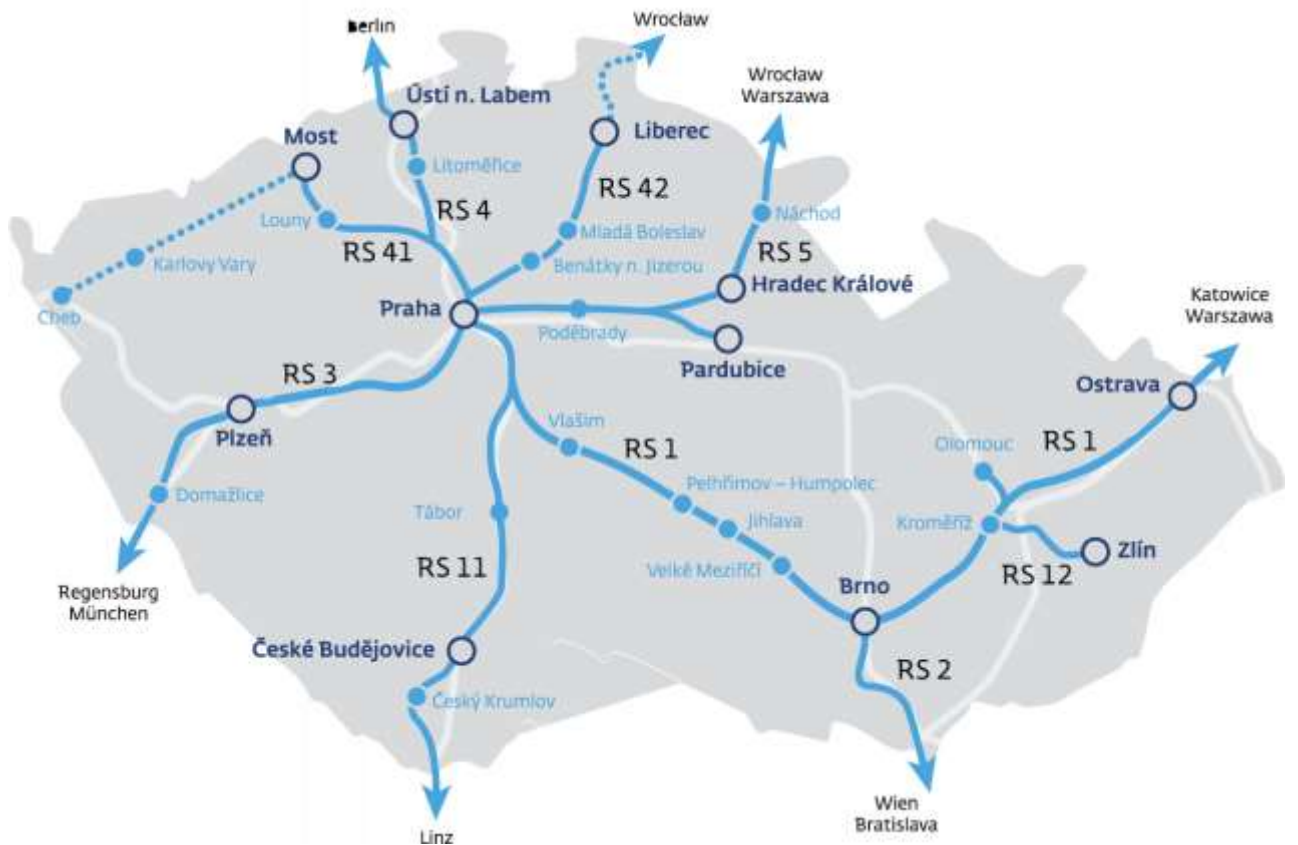
Long-term forecasts and tendencies

As we can see in next two pictures, the main tendency is to develop a complete network of motorways which will connect the main big cities and to allow the transit of vehicles through Czech Republic to other countries of European Union.

The high-speed railway network (forecast for the next year you can see in the second map) is tracing the main motorway network to disburden the motorway transport.



Long-term forecast development of the tolled and non-tolled network in Czech Republic



Long-Term forecast for the development of high-speed railways in Czech Republic

Significant actions already started (and/or to be achieved in 2016) and foreseen for 2017.

New adjustment of Czech truck tolling system software was implemented in connection with the Amendment of Road traffic Act No. 268/2015 Coll. - Since 1st January 2016 expressways turned into motorways, which mean that in Czech Republic we have now only motorways and selected segments of state roads (1st class roads) tolled in comparison to the previous years.

A new free Mobile App MYTOCZ is available for mobile platforms Android, iOS and Windows, which displays on a cellphone an overview of vehicle registration data, prepaid toll balance, information about the toll system and relevant news since this year.

Beside the electronic toll collection KTS participates on projects of V2X and WIM. Project RODOS - Dynamic Mobile Model of the Czech Republic (DMM) - will support promotion of city tolling systems, electronic vignettes and other ITS projects.

MAIN ASECAP KEY FIGURES

Country: Czech republic	Indicate below how you calculate each figure provided in the “2016” column	2016 Figure
Network length (Km).....		1447,3 km
2 x 2 lanes (Km).....		1406,5 km
2 x 3 lanes (Km).....		40,8 km
2 x 4 lanes (Km).....		0 km
Number of km in construction	motorways	17,5 km
Forecasts of opening motorways section		4
Annual toll revenues* (in millions of Euros)	vehicles over 3,5 t	366,21
VAT % (Indicate the VAT % percentage to the toll revenues)	Electronic Toll is a type of tax	0%
Permanent staff		144
Average daily traffic (light vehicles)		N/A
Average daily traffic (heavy vehicles)		4.466
Average daily traffic (total = light + heavy vehicles)		N/A
Total number of accidents	motorways (light + heavy vehicles)	4.247
Number of personal injury accidents	motorways (light + heavy vehicles)	601
Number of dead	motorways (light + heavy vehicles)	42
Fatality rate		N/A
Kilometres travelled (10 ⁶ x km)	vehicles over 3,5 t	22,95

	Indicate below how you calculate each figure provided in the “2016” column	2016
Number of toll transactions (Total)		N/A
Number of toll transactions (light vehicles):		N/A
Number of toll transactions (heavy vehicles):	vehicles over 3,5 t	412 065 048
Number of toll stations		271
Number of toll lanes		N/A
Number of ETC lanes		N/A
Number of ETC subscribers (Total):		449.400
Number of ETC subscribers (light vehicles):		0
Number of ETC subscribers (heavy vehicles):		449.400
Number of service areas (equipped with petrol stations)		114
Number of rest areas		131
Number of restaurants		104
Number of hotels		12

*please provide the figure VAT and other taxes excluded.