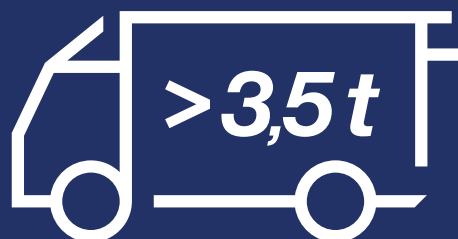


ELECTRONIC TOLL SYSTEM IN THE CZECH REPUBLIC



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On 1 December 2019, the Czech Republic commissioned a new electronic toll system replacing the original microwave system provided by Kapsch after 13 years of service. Unlike previous years, when tolls were collected using toll stations (gantries), the new system by the consortium of SkyToll and CzechToll is based on a satellite technology. The built system is also fully prepared for the European Electronic Toll Service (EETS). The world's first generational replacement of a toll system took place under full operation of the original system with no expected queues or other transport restrictions in the course of commissioning the new one. Thanks to the new satellite system, the government's operating costs for toll collection will decrease from the original 1.5 billion CZK to one third of that amount. The government's investment in the new toll system will thus be repaid in the form of significant savings for operation and increased revenues from toll collection on newly charged 1st category roads, which extend on the total of 867 km, already in the first year of its operation.

In the Czech Republic, more than 2,400 kilometres of motorways and 1st category roads are currently subject to toll payment. The toll payment obligation applies to vehicles over 3.5 tonnes. Its amount depends on the vehicle category, the number of axles, the emission class and the distance travelled on a toll road according to its category.

Every vehicle subject to toll payment must be equipped with an on-board unit, which records the passage of the vehicle through the detection zones located on toll sections. The toll is levied to carriers on the basis of data received from this unit. For this purpose, the on-board unit uses three interoperable technologies:

- Global Navigation Satellite Systems (GNSS) for precise positioning, namely GPS, GLONASS and Galileo;
- dedicated short-distance communications (DSRC) for monitoring compliance with the toll payment obligation by means of control stations and enforcement vehicles;
- GPRS technology of the GSM mobile communication system.

The on-board units used in the new electronic toll system were completely developed and manufactured in the Czech Republic.

Carriers can obtain on-board units at more than 220 points of sale in the Czech Republic and near the borders of neighbouring countries, or they can order delivery of on-board units to their address in the Czech Republic when registering online.

Control gantries and enforcement vehicles check the compliance with the toll payment obligation by vehicle operators or drivers. Enforcement vehicles are equipped with similar technical devices as control gantries and serve the Customs Administration staff to perform control activities in the electronic toll system.

When a vehicle passes through a control gantry, the gantry establishes communication with the on-board unit and produces a front and side (overview) photo of the vehicle. Using the optical character recognition (OCR) method, the control gantry reads the LPN and the country code of the vehicle registration. Using classification lasers, it also determines the dimensions, the number of axles and the category of the detected vehicle. The gantry sends all collected data to the monitoring office with trained staff. In case of identifying non-compliance, the vehicle is placed on the so-called black list and the offence is forwarded to the Customs Administration staff for resolution.



The electronic toll system is a complex information system consisting of several information subsystems, which include a number of specific applications, to provide for all operational processes of toll collection and enforcement. The delivery of the electronic toll system in the Czech Republic consisted of the following solutions and services:

1. production and delivery of on-board units in the total number of 600,000;
2. development, commissioning, operation and maintenance of information systems located in two data centres;
3. construction of communication infrastructure and provision of related telecommunications services;
4. technological renewal of existing control stations and construction and commissioning of new control stations on motorways and 1st category roads (a total of 60 control stations are in operation);
5. design, manufacture and delivery of 40 new enforcement vehicles;
6. equipping more than 220 Points of Sale, including staff training;
7. integration of 16 fuel card issuers;
8. implementation of extensive system tests;
9. development of an organisation providing for
 - a) invoicing, payments and receivables management, handling of client submissions;
 - b) operation of a central warehouse, logistics of on-board units to all contractual POSs and distribution to vehicle operators within the Czech Republic;
 - c) operation of a call centre for the provision of information to carries in 7 languages;
 - d) operation and maintenance of control gantries and systems located in data centres;
 - e) maintenance of enforcement vehicles;
 - f) operation of the POS network;
 - g) manual identification of records from control stations;
 - h) renovation of operated components for a period of 10 years;
10. implementation of an information campaign (in the Czech Republic and abroad) in order to ensure timely registration of carries in the new toll system;
11. ensuring the smooth operation of the system using temporary and mobile registration offices to minimize queues at the moment of launching the new system.

„Thanks to the cutting-edge satellite technology, the Czech Republic has acquired an advanced system that will allow us to better manage traffic and to manage the transport infrastructure more efficiently at a significantly lower cost than in the previous system. We are satisfied with the course and the results of the cooperation with SkyToll and CzechToll.“ confirmed Mgr. Hana Hellová, the Head of the Electronic Toll Administration and Supervision Department of the Road and Motorway Directorate of the Czech Republic.

The consortium of Skytoll and CzechToll designed, built and commissioned a complete and fully operational electronic system within 14 months of signing the contract.

Ředitelství silnic a dálnic ČR

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