

## DOCUMENT PURPOSE

The purpose of this document is to familiarise the reader in brief with the current form, functioning and set-up of the systems to which the Questionnaire refers in relation to preparatory market consultations (the Questionnaire is a stand-alone document). This document has been processed using a method of maximin - the maximum volume of provided information with minimal text volume. If anything is unclear to the reader, or if additional information is needed, the reader may contact the mail sender.

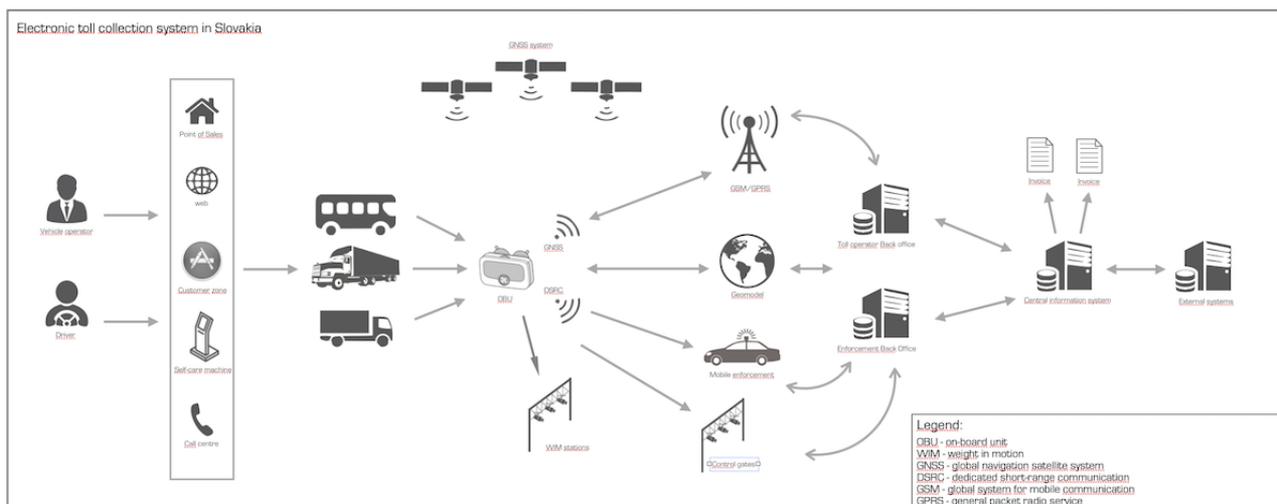
## ELECTRONIC TOLL COLLECTION

The electronic toll system (further also as "ETC") is an complex information and communication technological system consisting of multiple information subsystems and specific applications, which ensures all operating processes for the toll collection and verification of toll collection based on the distanced based charging principle.

Vehicles subject to toll duty<sup>1</sup> must, prior to entry into defined segments of roads, be registered in the electronic toll collection system and must also have a properly installed on-board unit, which must be used within the entire network of defined segments of roads<sup>2</sup>.

The on-board unit contains current geographical details about defined segments of roads subject to a toll duty (so-called GEO model). Following installation in the vehicle and proper configuration, the on-board unit starts working immediately. In the event of a change in basis data, the software is automatically upgraded. During a trip, the on-board unit monitors the position of the vehicle in the defined zones using GPS and compares the position with the data stored in the GEO model. If the algorithm of the on-board unit based on comparison of the data discovers that the vehicle has used a defined segments of roads subject to toll duty in its entire length, then a toll record of is generated (so called toll event). With the aid of assisting GSM/GPRS technology, the created toll events will be sent from the on-board unit to the central information system, which - based on the travelled distance of the vehicle within defined segments of roads and the toll rate<sup>3</sup> for a specific category of vehicle and type of defined segments of roads - will generate a toll transaction and subsequently calculate the due toll. The customer can pre-pay the toll (by topping up credit in advance) or pay using a post-paid arrangement (subsequent payment based on an issued invoice), and also has the option to use fuel cards for payment.

The central information system consists of additional subsystems, which provide complete functionality of the toll collection process. Besides evaluating toll events and figuring toll transactions, they also include generation of invoices, reminders, management of relationships with customers and suppliers, logistics, operation of the customer zone on the internet portal, calculation of discounts for individual vehicles based on travelled kilometres, etc.



<sup>1</sup> which are specified in Act No. 474/2013 Coll., on toll collection for the use of defined zones of terrestrial roadways and on amendment and supplementing of certain other legislative acts

<sup>2</sup> The zones are defined by Decree of the Slovak Ministry of Transport and Development No. 475/2013 Coll.

<sup>3</sup> Toll rates are specified by Slovak Government Regulation No. 497/2013 Coll.

By 30<sup>th</sup> of November 2019, the defined zones consisted of 2,366.26 km of terrestrial roadways with tolls charged at rates divided up as follows: 463.45 km of highways, 272.15 km of high-speed motorways, 1,630.66 km of 1st-class roadways. Another 15,233.4 km of terrestrial roadways have tolls charged at a zero rate, which is divided into: 2,074.62 km of 1st-class roads, 3,633.84 km of 2nd-class roads, 9,524.93 km of 3rd-class roads.

### **ETC control system**

Verification of toll collection is ensured by the service operator in cooperation with the toll enforcement police. Embedded microwave (DSRC) technology of the on-board unit enables communication with a special subsystem as part of the electronic toll system intended for verification of toll collection. Its role is to verify fulfilment of the requirement to pay tolls and other requirements defined by toll collection legislation, including documentation of toll incidents and resolution of toll infractions.

The stationary and portable control gates verify technical data of each vehicle and compare them with the registered data for the vehicle in the central information system, and they also verify whether the on-board units are configured properly. Suspicious findings (toll incidents) detected by the control gates are automatically sent to the central monitoring workplace, where they are processed, sorted and reverified. Confirmed incidents are reclassified as toll infractions and subsequently resolved in accordance with valid legislation in administrative proceedings.

Toll enforcement police vehicles are equipped with verification technology similar to that used by the control gates. The technology is intended for non-stop 24-hour mobile control of vehicles with the obligation to pay tolls in various locations within defined travel zones. Besides this verification, the toll enforcement police also pursue specific vehicles based on information from the central monitoring workplace.

### **E-VIGNETTES**

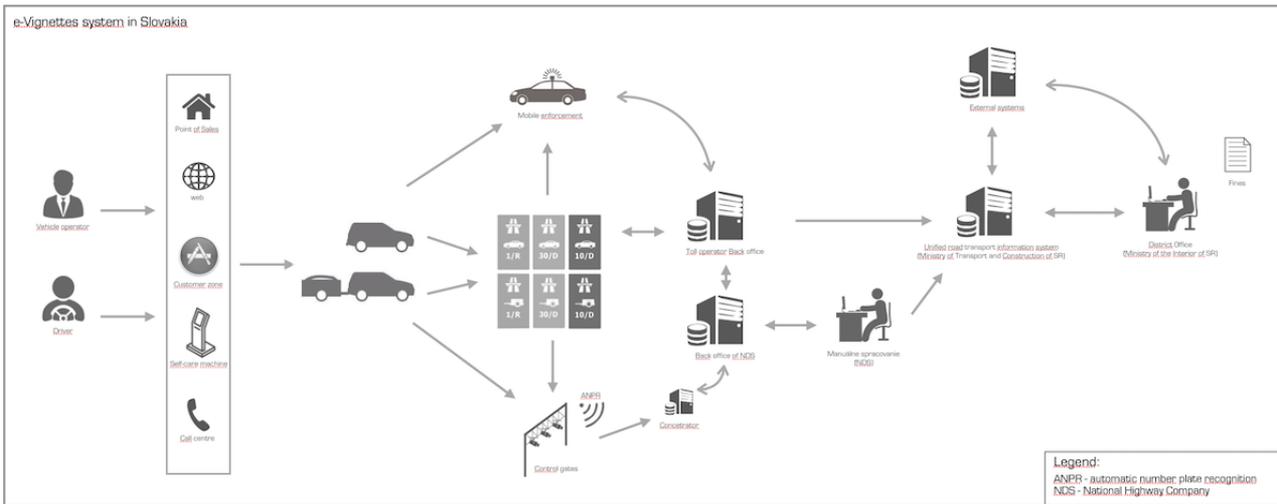
The service of collection and recording of payments for e-vignettes for the use of defined segments of roads ensures permanent, flawless and continuous provision of the service, which results in increased comfort for customers when using defined segments of roads, which can be used after the e-vignette is paid for in the name and to the account of the toll collection administrator associated with e-vignette payment collection.

The defined segments of roads can be used after payment for a e-vignette by users of motor vehicles and/or sets of vehicles weighing up to 3.5 tonnes and specific sets of vehicles regardless of the maximum allowed weight thereof<sup>4</sup>. The selected vehicles are relieved of the requirement to pay for motorway stickers. The law also specifies a group of vehicles exempt from a requirement for payment for a motorway sticker, which holders are required to register in the electronic system operated by the motorway sticker payment collection administrator prior to the use of defined travel zones.

Payments for e-vignettes are currently made for an entire calendar year, for 30 days or for 10 days regardless of the number of trips taken for which fees are chargeable based on time (time-based charging). As of 2020, there will be a new type of e-vignette, which will apply for 365 consecutive days from their purchase.

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<sup>4</sup> Detailed information can be found in Act No. 488/2013 Coll. On motorway stickers and on amendment of certain other legislative acts.



By 30<sup>th</sup> of November 2019, the entire network of highways and motorways will amount to 648 km, whose use is conditioned on payment of the e-vignettes.

**e-vignette control system**

The e-vignette control system ensures automation of the entire process of verifying payments for e-vignettes for use of defined segments of roads, from detection of an incident directly on a roadway to sending of directives for intervention. The control system functions based on multilateral connections via (though not exclusively) information technology between the National Highway Company, the Slovak Ministry of Transport and Development and the Slovak Ministry of Interior.

The verification will be carried out through stationary control, using equipment above and along routes as well as portals of the “gantry” type, which send data to a concentrator. The concentrator is a set of computer hardware and software capable of receiving data about motor vehicle traffic from control stations and equipment, including their relevant context and identification details, which are aggregated and indexed. Those details are then sent to the control system back office. In the event of a discrepancy or non-conformity of an evaluation parameter associated with the control system, the data are sent to the operator for manual checking.

Records of vehicles identified as vehicles breaching the requirement for payment for e-vignette for use of defined segments of roads and fulfilment of an evaluation parameter of the control system are prepared in accordance with the principle of fee charging for objective responsibility for sending of automated or direct instructions in the name of the responsible official of the relevant district authority, based on the seat/address of the operator, and/or of the vehicle owner to the particular operator and/or owner of the vehicle.

**EXPECTED DESIGN OF THE NEW SYSTEM**

The resulting design that will also be determined by evaluation of the questionnaire assumes the development and operation of a single and unified system that ensures comprehensive functionality, which today is divided among multiple systems, specifically: an electronic toll collection system, a system of records and payments for e-vignettes, the ETC control system, the e-vignette control system, the fuel card payment system and the system for implementation of the European electronic toll collection system<sup>5</sup>.

<sup>5</sup> The European electronic toll collection system (EETS) is based primarily on Directive of the European Parliament and of the Council 2004/52/EC of 29 April 2004, on the interoperability of electronic road toll systems in the Community, and Commission Decision 2009/750/EC of 6 October 2009, on the definition of the European Electronic Toll Service and its technical elements, based on which toll collection administrators shall gradually implement in individual countries the European electronic toll collection system for lorries and buses with weight exceeding 3.5 tonnes, in order to ensure interoperability of toll collection within EU member states where tolls are collected electronically. The EETS service is intended to enable payment of tolls in all toll domains of the EU via a single contract with a single EETS provider and a single on-board unit. A vehicle operator interested in the EETS service may enter into a contract with any EETS provider, who will settle the liabilities of its customers owed to toll authorities in individual countries and shall then bill its customers a summed price for provided services.