



ELECTRONIC
TOLL SYSTEM

We are on the right track!

Introduction of HU-GO, the Hungarian distance based electronic toll system

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Hungary

- 35 919 mi²
- 9,9 million inhabitants
- Capital: Budapest



Road network:

Highways: 704,55 mi

Motorways: 127,13 mi

First class roads: 1 347,95 mi

Second class roads: 2 894,99 mi

Other roads: 14 285,36 mi

All together: 20 602,73 mi





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www.hu-go.hu

Tolling history of Hungary – 1999-2006

- Toll plazas
- Concessioners
- Demolish of toll plazas
- Standardized toll system for Hungary
- Time based vignette





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Tolling history of Hungary – 2006-2013

- 2006 SMS purchase
- 2008 No physical vignette, only AET
- 2011 e-business



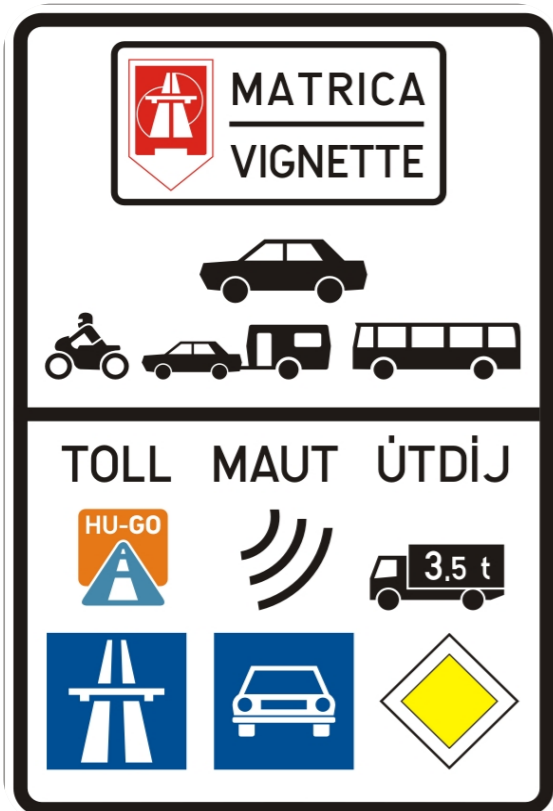


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Tolling history of Hungary – 2013-2014

- 2013 HU-GO
- Distance based AET



Toll road network until 1st July 2013



- 1 039,55 mi long toll domain

- 9 highways
- 42 main road sections

- 5,37% of the Hungarian road network is tolled

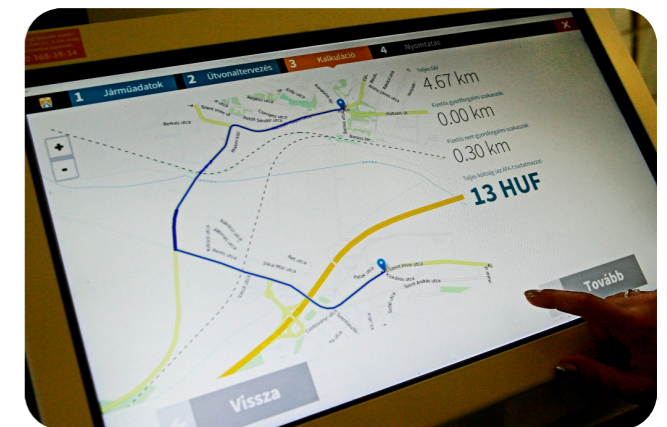
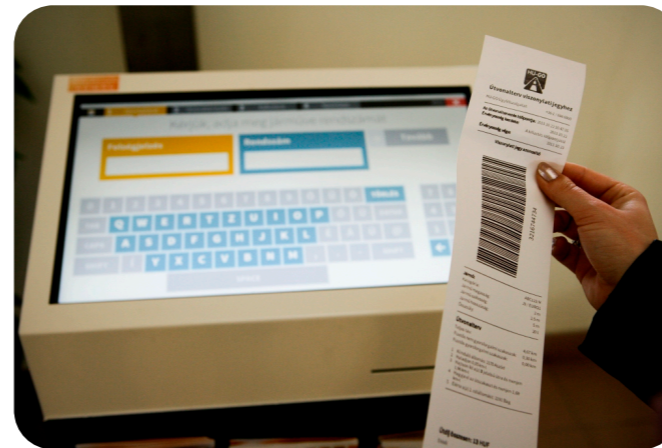
Toll road network - 2013

- 4 039,53 mi long toll domain
- 2 243 tolled road sections
- 20,87% of the Hungarian road network is tolled

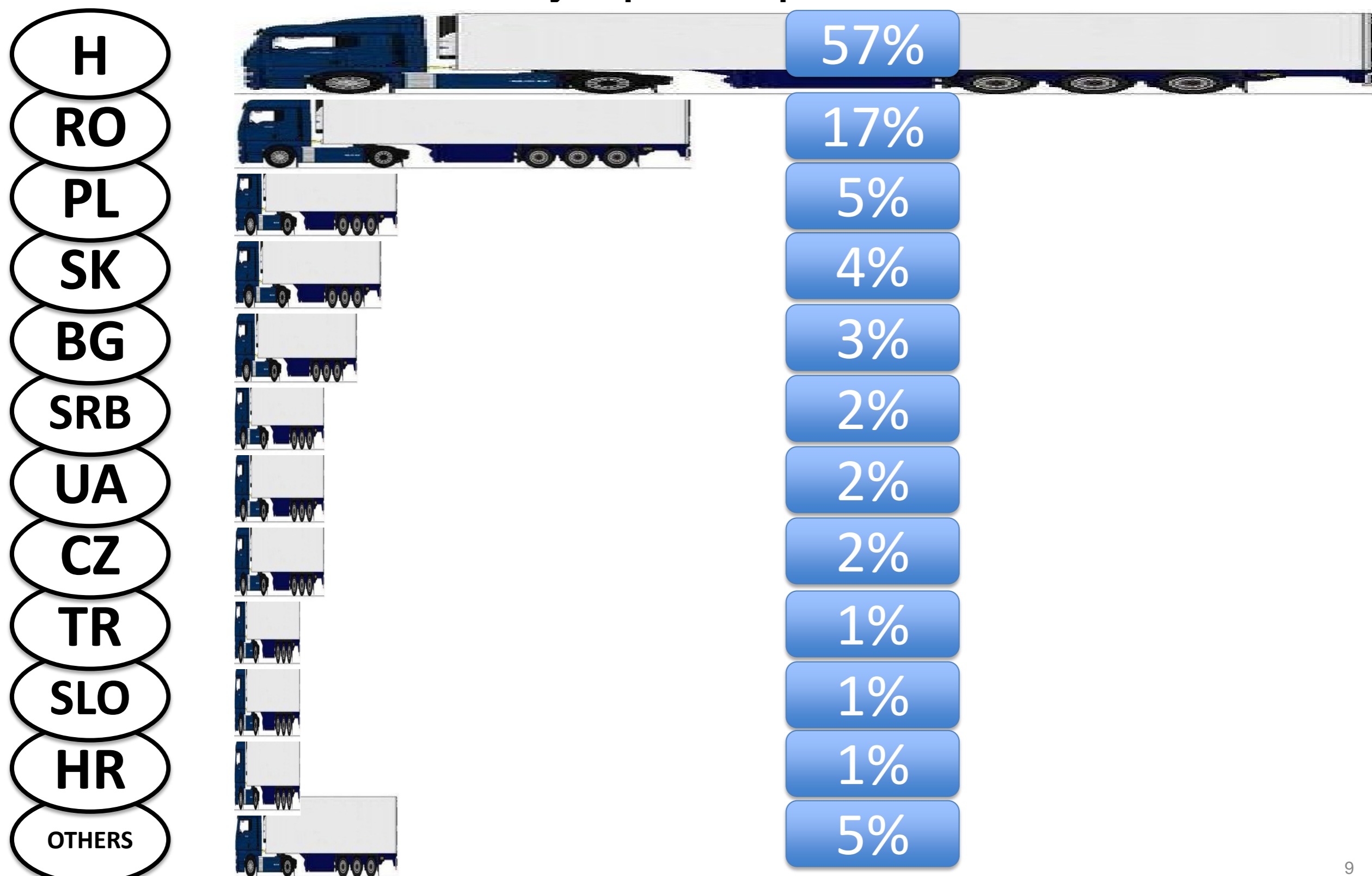


HU-GO toll declaration modes

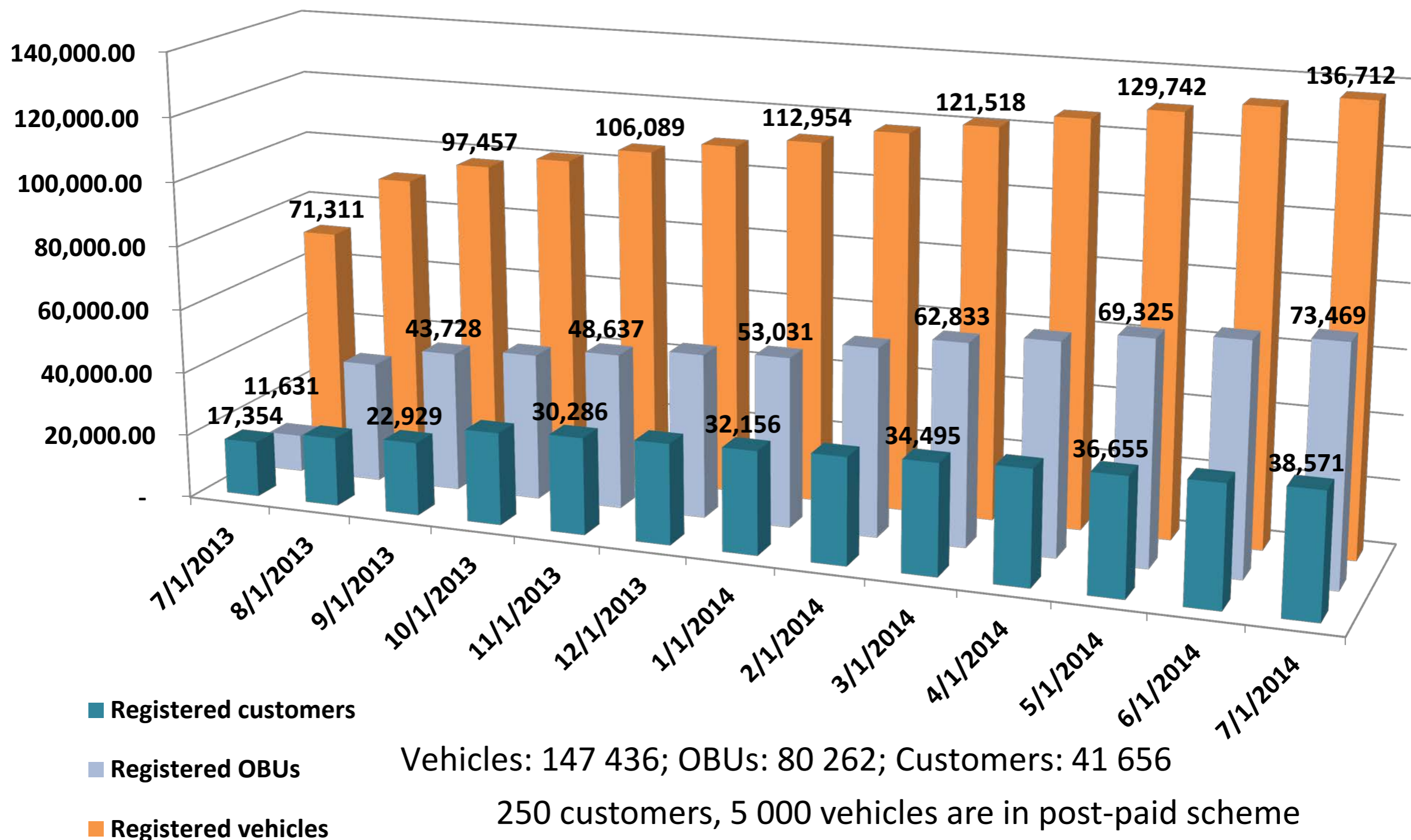
- **Self-declaration!**
- **Route ticket:**
recommended for ad-hoc
users
- No registration
- **On board unit:**
recommended to frequent
users
- 22 audited Toll Declaration
Operators (TDO)



Nationality split of paid tolls



Registered users, vehicles and OBUs

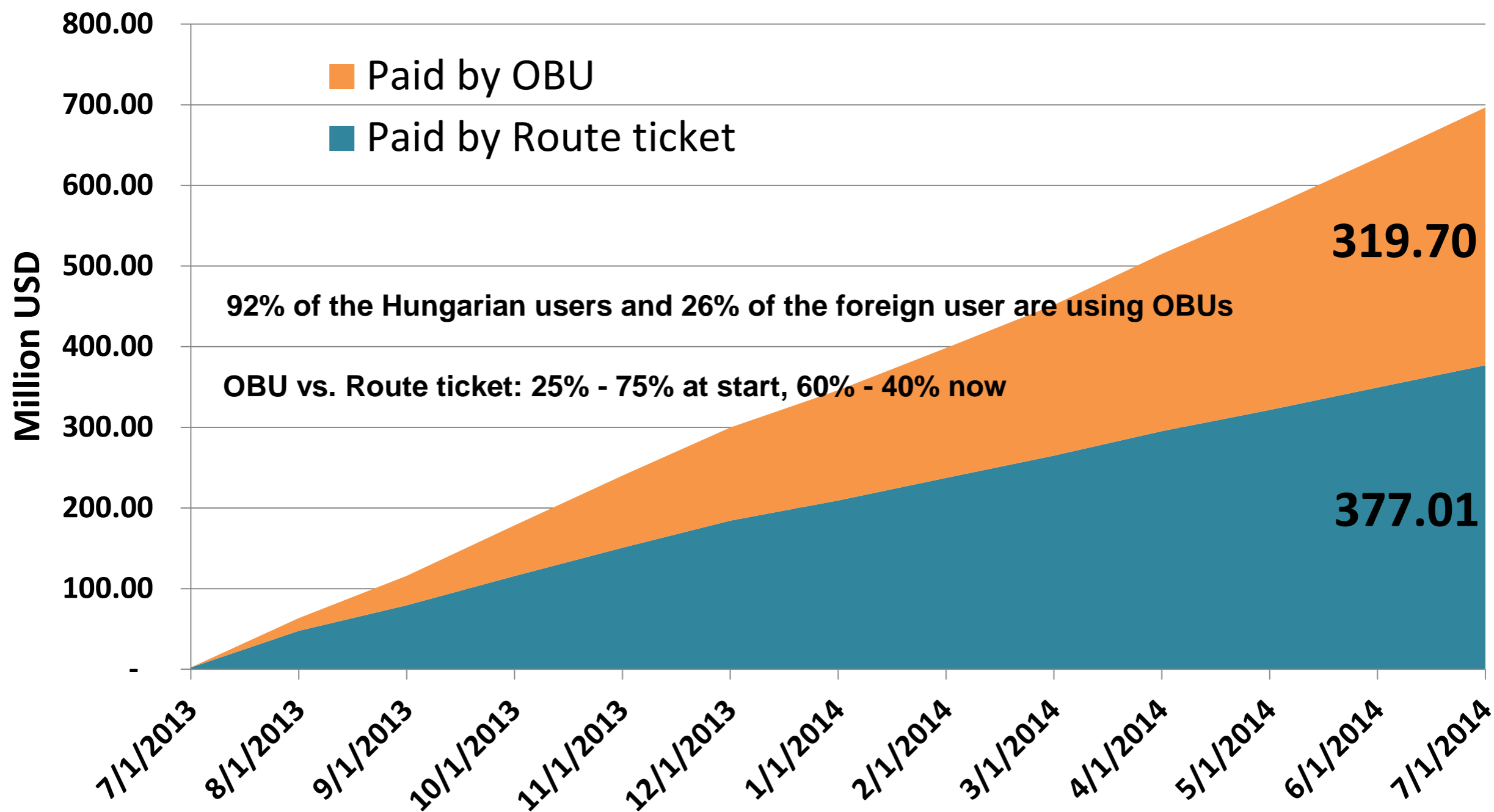




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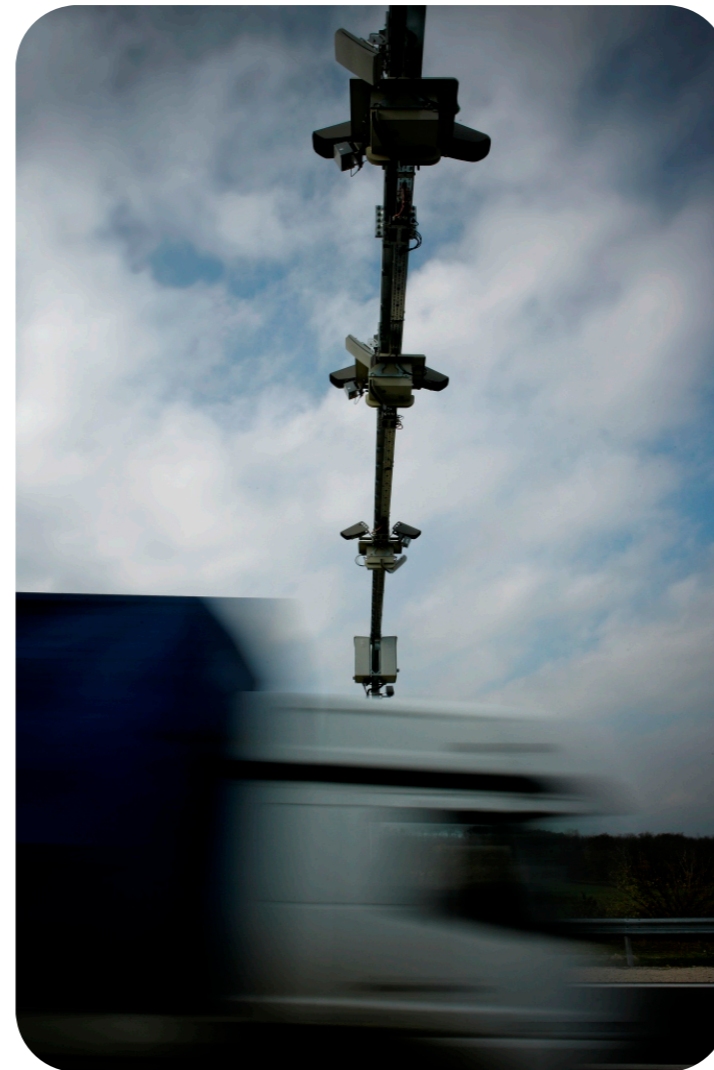
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Toll income



Enforcement

- Without stopping
- Continuous (0-24) inspection
- With the help of fixed gantries and mobile vehicles
- Supplying real-time data towards the central system
- Continuous online connection with the central system



Mobile enforcement support vehicles

- 45 mobile units (currently)
- Currently ~500 check points countrywide
- 7/24 inspection in 3 shifts
- Flexible, random appearance anywhere on the tolled sections

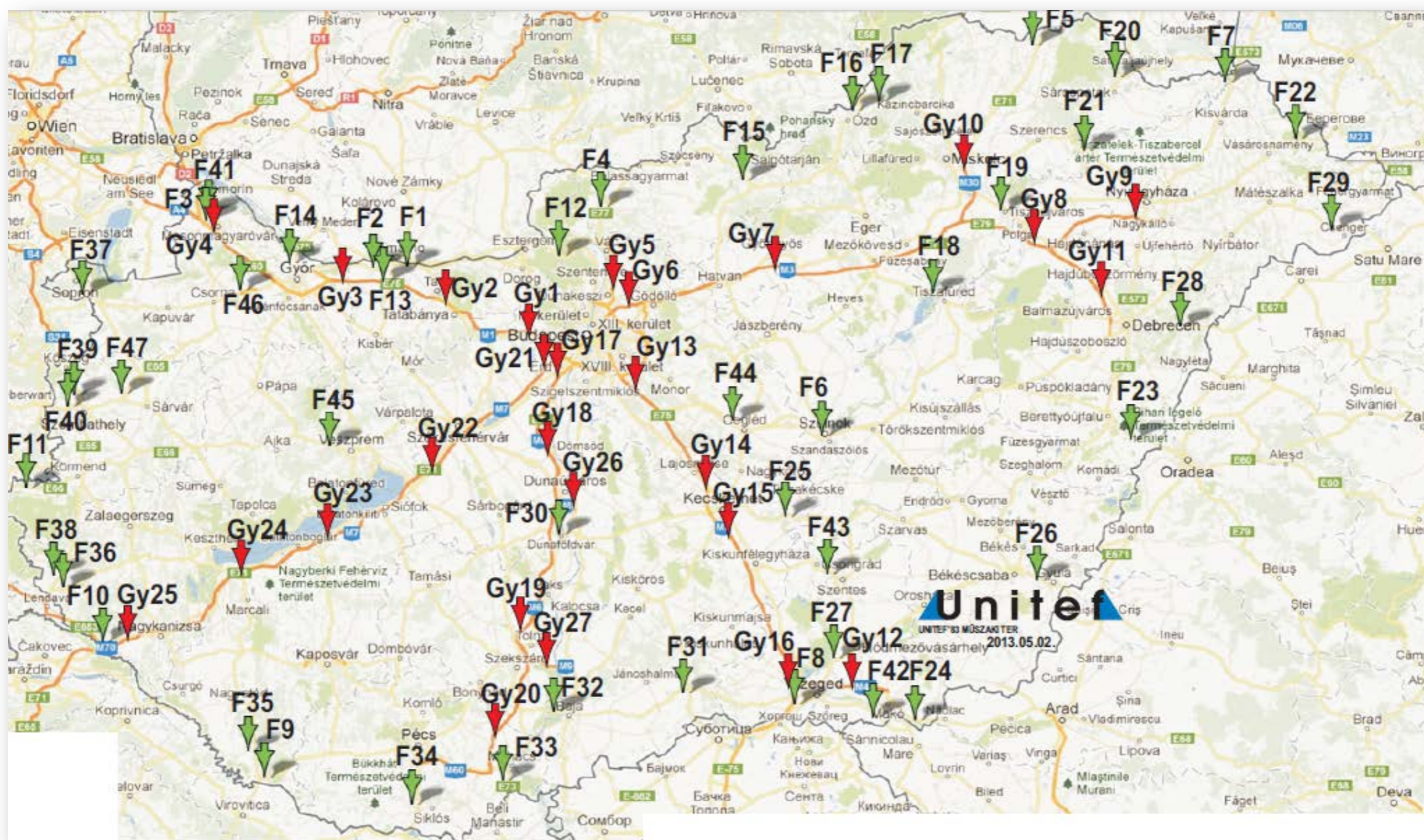


Fixed toll enforcement gantries

- 74 stationary cross sections (101 gantries)
- 47 along main routes
- 27 along expressways
- 24-hour operation
- License plate recognition on the front and the back, overview picture
- Side camera picture to determine the number of axles of the vehicle category (see photo)



Fixed toll enforcement gantries



Enforcement

- Commenced by the Hungarian Police
- Unauthorized road usage
- Administration of penalty
- On the spot activity, foreigners
- Without stopping, objective responsibility
- Range of penalties
140 000-165 000 HUF
(600-700 USD)

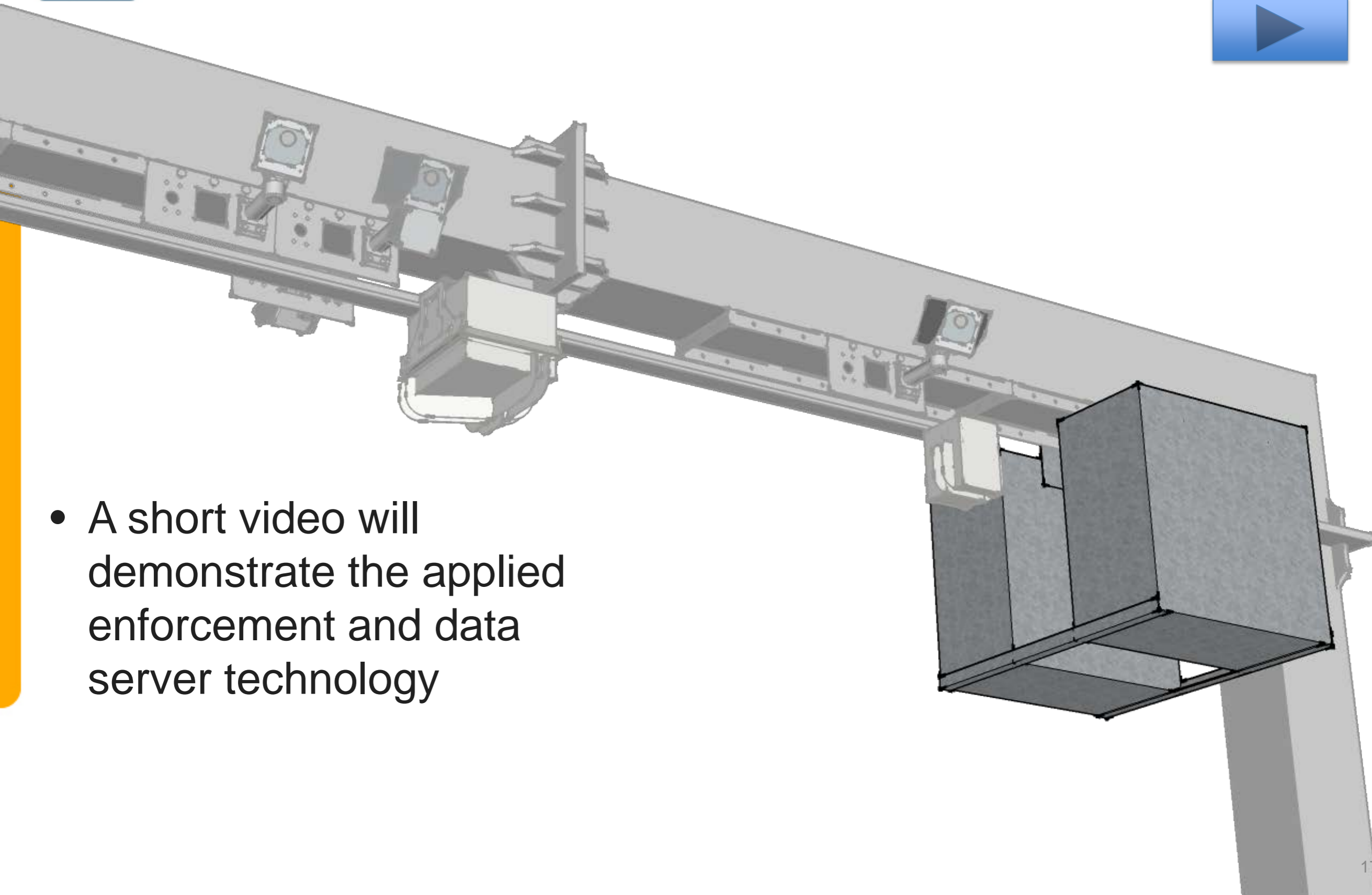


TI fotó - Bruzák Noémi

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- A short video will demonstrate the applied enforcement and data server technology



THE SYSTEM

HU-GO innovations

Route ticket

- Flexible purchase solutions
- Flexible route planning solutions
- No need for registration
- On-line access



On Board Unit platform

- Already installed GPS trackers can be used
- No need to pre-finance the OBUs by the state
- Open platform for all GPS based fleet management providers

Enforcement with ANPR

- 98.5% on ANPR and category recognition
- Supporting road safety, traffic and transportation management, violation management, vehicle control and crime prevention



Facts & figures

- **100 million USD** one time investment – **14,3%** of the annual toll revenue
- **2,5 month** of implementation – **2,5 month** return of investment
- **45 million USD** annual operational cost – **6,5%** of the annual toll revenue
- Monthly average sales volume of route tickets:
645 500 pieces
- Monthly average number toll declarations of route section (total):
31 500 000 pieces
- Monthly average vehicle checks done by enforcement support:
2 600 000 cases

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