

Czech Republic – Spain Railways Business Forum

ERTMS Implementation on the Czech Railway Network

Radek Čech
Director of International Affairs Department

Praha, 21st May 2024

Strategy of ERTMS Implementation in Czechia (I/III)

National Implementation Plan 2022 – 2040



**ETCS
L2**

High-Speed lines

New HSLs and Fast Connections lines

**ETCS
L2**

TEN-T lines

Backbone and very busy main lines

Class B decommissioning

**ETCS
L1 LS**

Secondary lines

Important and less busy lines

**ETCS
STOP**

Regional lines

with low traffic intensity

- L2 with lineside signals
- L2 with interlocking optimisation without signals – capacity reasons

- L2 with lineside signals
- L2 with interlocking optimisation without signals – capacity reasons

- Level 1 Limited Supervision

- LEU and controllable Eurobalises

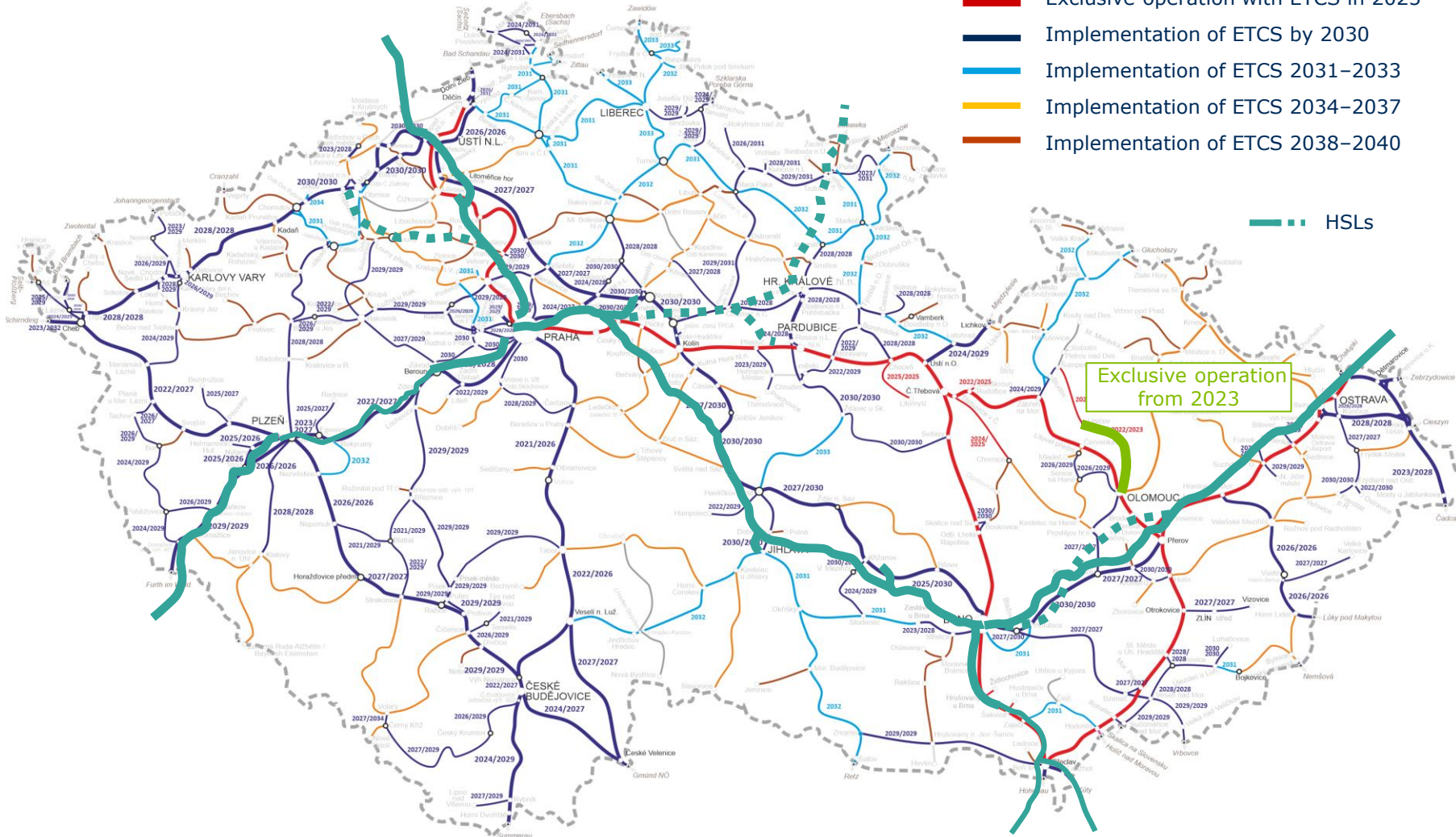
ETCS is the only target ATP system for all the Czech railway network
(user friendly, sustainable, economically viable)

Strategy of ERTMS Implementation in Czechia (II/III)

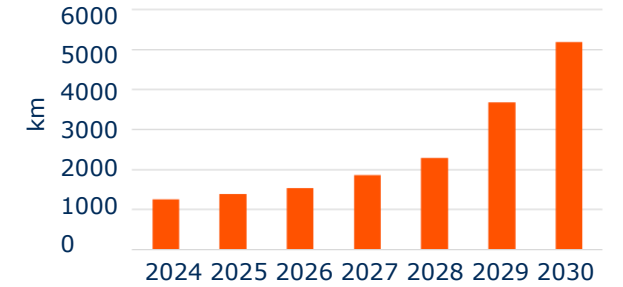
National Implementation Plan 2022 – 2040

- Exclusive operation ETCS from 2023
- Exclusive operation with ETCS in 2025
- Implementation of ETCS by 2030
- Implementation of ETCS 2031–2033
- Implementation of ETCS 2034–2037
- Implementation of ETCS 2038–2040

- - - HSLs



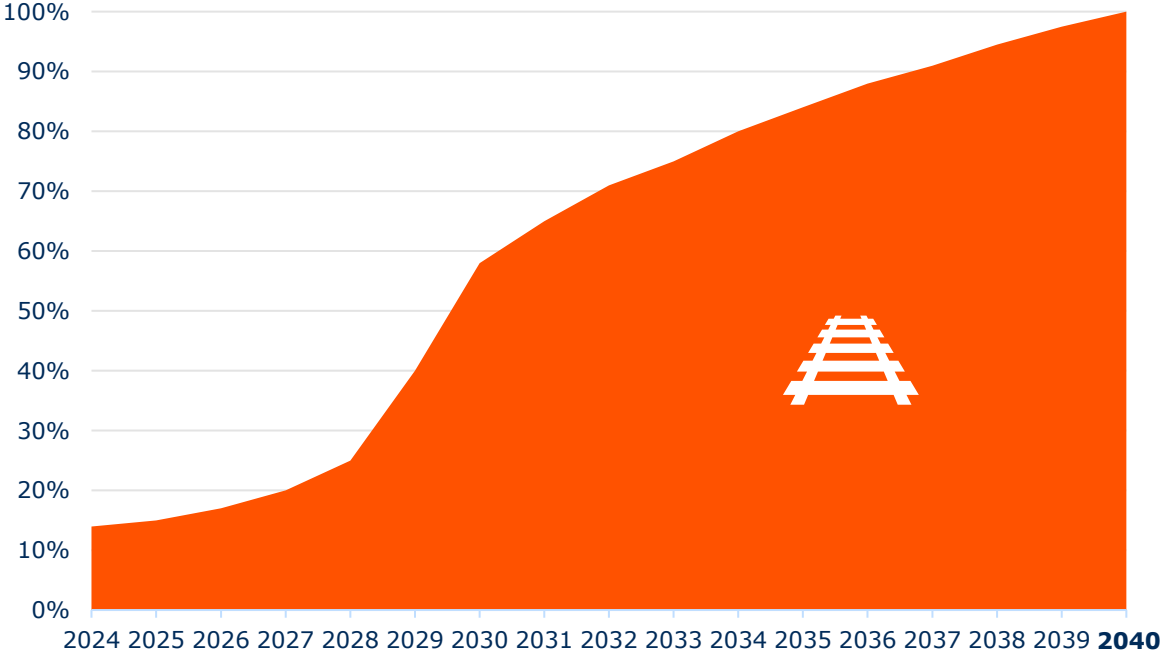
Length of lines equipped with ETCS by 2030



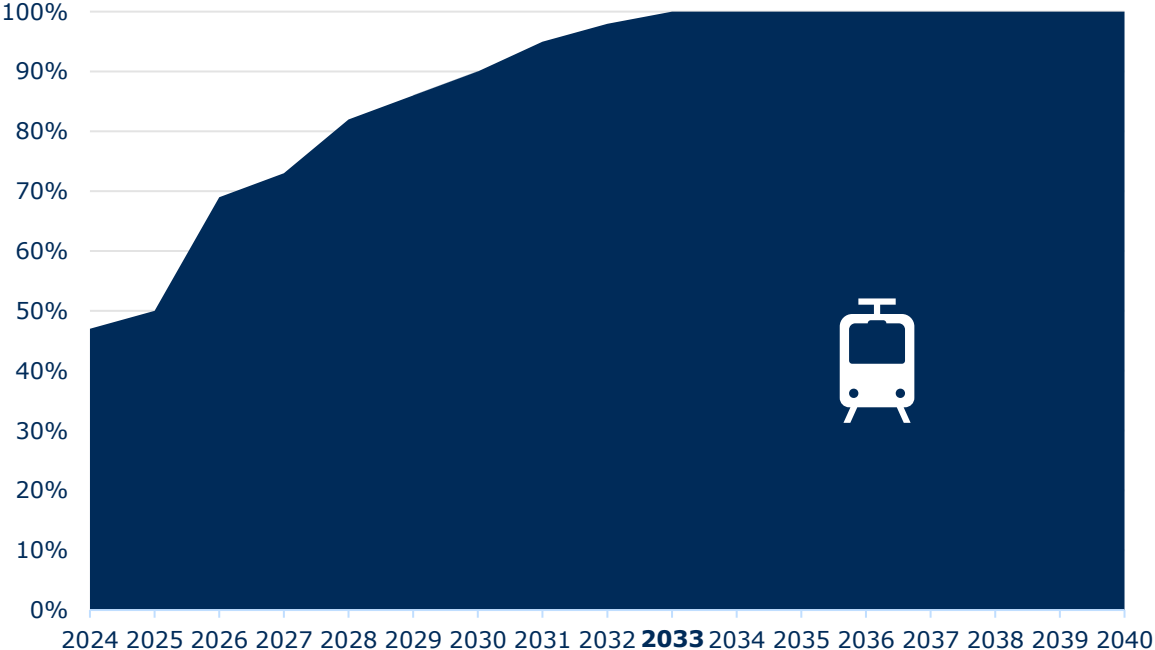
Strategy of ERTMS Implementation in Czechia (III/III)

National Implementation Plan 2022 – 2040

Lines equipped with ETCS by 2040



Vehicles equipped with ETCS by 2040



The Reality in 2024

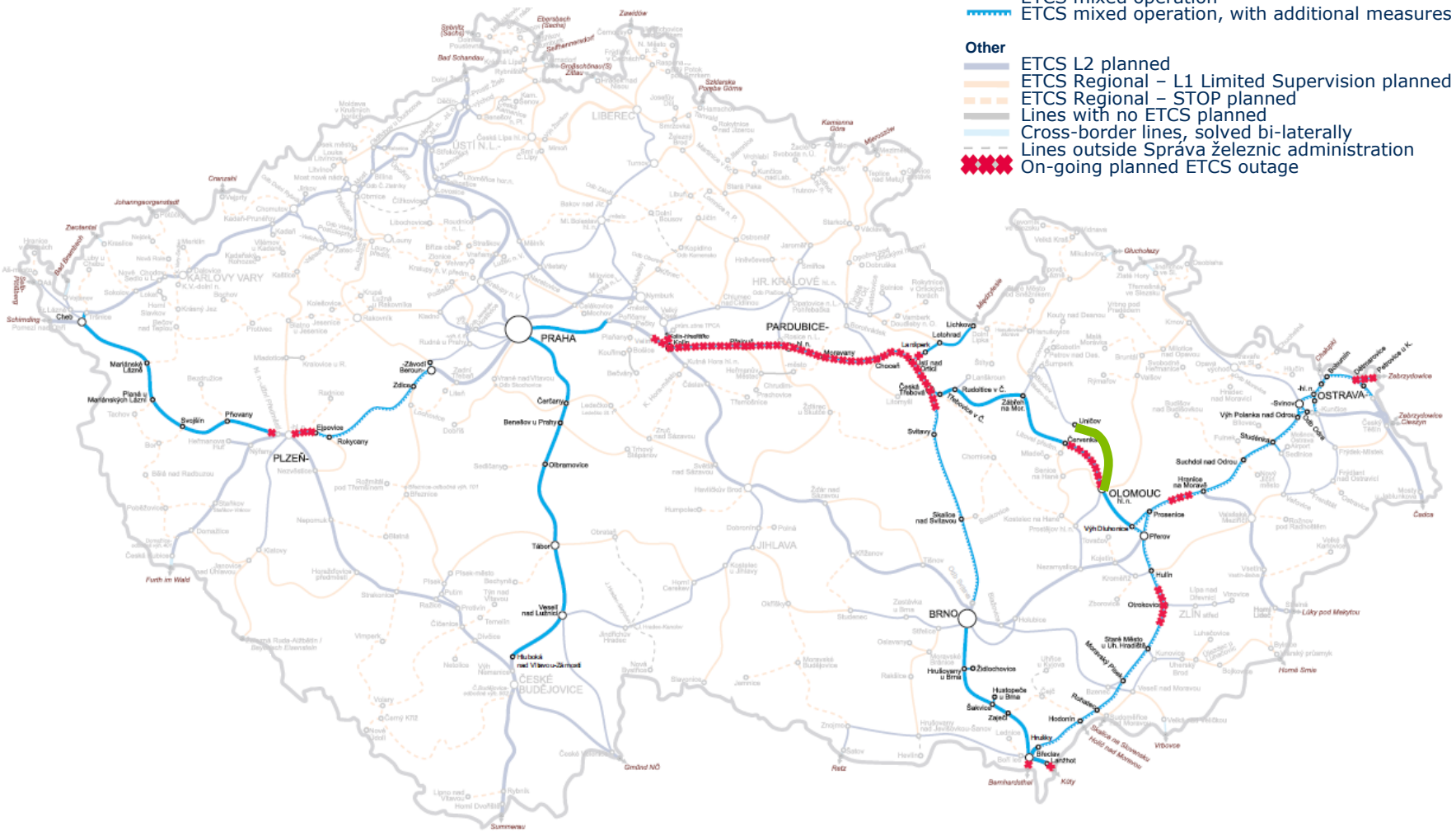
- ETCS L2 Trackside operation**
(rolling stock with BL 2 or higher)
- █ ETCS exclusive operation
 - █ ETCS mixed operation
 - █ ETCS mixed operation, with additional measures
- Other**
- █ ETCS L2 planned
 - █ ETCS Regional – L1 Limited Supervision planned
 - █ ETCS Regional – STOP planned
 - █ Lines with no ETCS planned
 - █ Cross-border lines, solved bi-laterally
 - █ Lines outside Správa železnic administration
 - █ On-going planned ETCS outage

29 km

of lines with exclusive operation ETCS

1 100 km

of lines equipped with ETCS



First year of exclusive ETCS operation
(Olomouc – Uničov)



Initial frequent outages and emergency stops of trains
→ **non-communication** of stationary and on-board parts



Now **100% reliability**
→ on-board part modification

The Czech Fleet Overview



More than **120 operators** in Czechia



High number of **different loco types** of small series
(lower tens of locos in a serie in best cases)

▶ The costs of prototypes are divided in small number of locos what results in very high costs for operators



Average age of the rolling stock
is approximately **30 years**

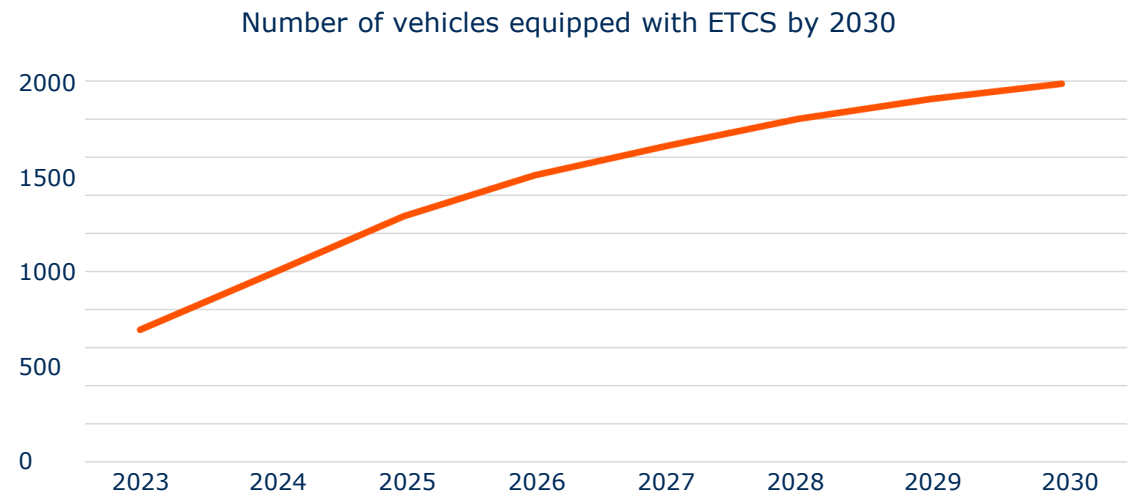


Vehicles to be retrofited

▶ **EV locos:** from 90s and newer

▶ **Diesel locos:** locos modernised after 2000

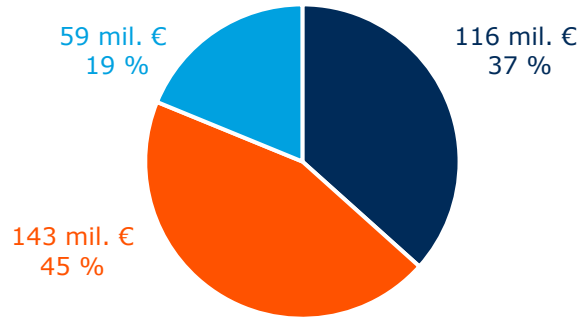
▶ **Units:** from 90s and newer



OBU ETCS State of Play

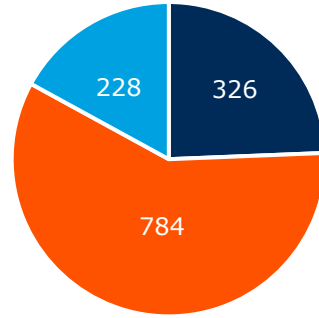
Including not yet Approved Subsidy Projects

Sorted by public sources



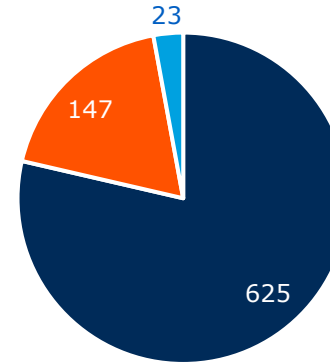
- Operation Programme Transport 2
- CEF
- National fund - SFDI

Sorted by no. of vehicles by public sources



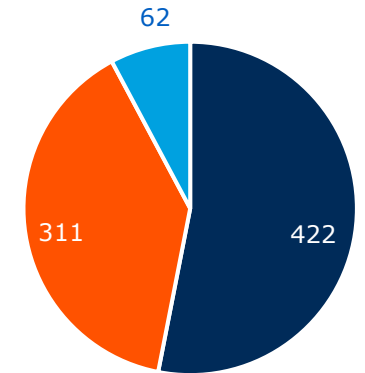
- Operation Programme Transport 2
- CEF
- National fund - SFDI

Sorted by projects type



- retrofit
- fitment (new vehicles)
- upgrade

Sorted by type of vehicles



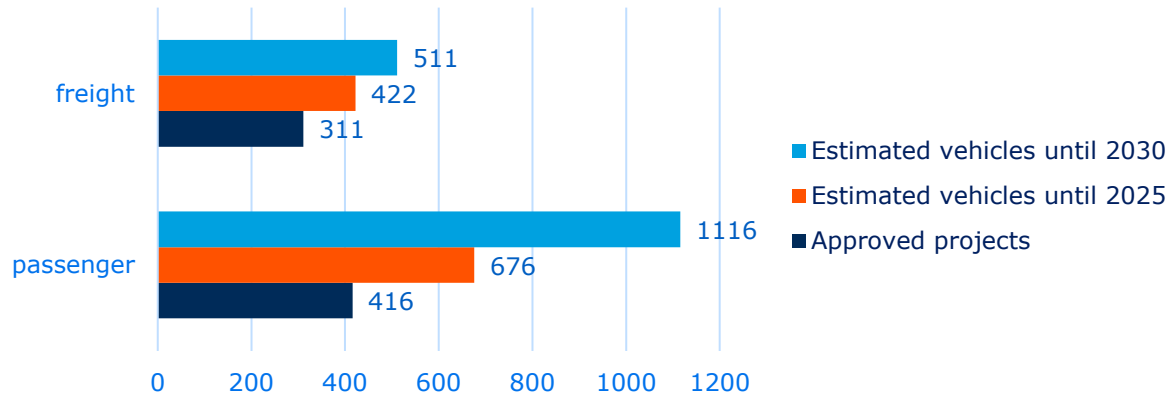
- passenger
- freight
- maintenance

- ▶ Approved **subsidy projects** must fulfil given **criteria**
- ▶ Decision on what vehicles will be **retrofitted is fully on applicants**
→ In the event of a high number of applications, priority is given to newer vehicles
- ▶ From the begging **MoT** offer possibility to **subsidy both of projects** – retrofit and fitment

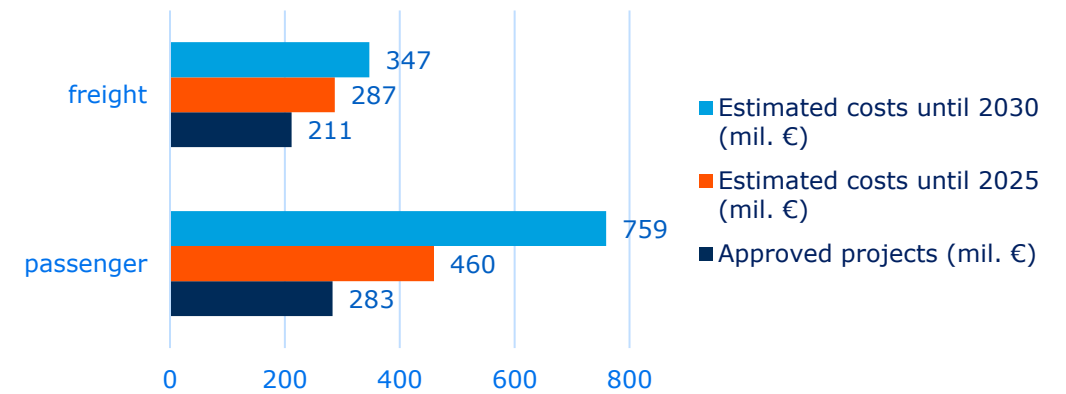
OBU ETCS State of Play

Estimated need for OBUs and Overall Costs

Total need for vehicles with OBU by 2025 and 2030



Overall estimated costs for vehicles (mil. €)



Vehicles already equipped Q1/2023

	Retrofit	New instalation
Freight	187	91
Passenger	80	80

Czech Experience on ERTMS Implementation



Current Issues

- ▶ **Instability and frequent TSI changes**
- ▶ **Interoperability** issues between ETCS versions and vehicles vs. infrastructure
- ▶ **There is no emphasis on protecting the investments** of RUs and IM
- ▶ **Uncentralised management of ERTMS on EU level**
- ▶ **No clear requirements for operation in emergency situations** → natural disasters, conflicts
- ▶ **The communication system (FRMCS)** must be developed soon and then remain stable
- ▶ No **cost efficient solution** for **non-TEN-T** lines
- ▶ Very costly and lengthy **approval process**

Digitalization

Centralised Traffic Control

Increase of the safety and efficiency of railway traffic management

Significant savings on operating staff



Centralised traffic control (CDP) Praha



636 km
lines are controlled by CDP Praha

550 km
lines are controlled by CDP Přešov

2,000 km
lines will be controlled by CDP in the future

Thank you for your kind attention

ERTMS Implementation on the Czech Railway Network

Radek Čech
Cech@spravazeleznic.cz