



Electrification of Heavy-Duty Vehicles (HDVs) in the Czech Republic

Basic projections

May 2023



Summary

1. The aim of this study is to outline basic projections for the electrification of freight transport in the Czech Republic in the next 10 years and to provide a basis for more detailed economic and technical considerations and planning.
2. The projection scenarios take into account the current EU legislation that aims to reduce emissions in HDV segment. In the medium scenario, a total of 6,000 registered eTrucks are expected in the Czech Republic by 2030.⁽¹⁾
3. The projections of the related charging infrastructure are based on the expectation that the electrification will be initially dominated by the urban and regional delivery HDV segment, and that these will use mainly non-public charging infrastructure.
4. In the medium scenario approx. 5,000 charging points is expected to be installed (considering a range of individual power outputs, from 20kW to >1MW), with a total power output of over 500 MW by 2030. Over 75% of this is expected to be operated as non-public charging.
5. It is suggested that direct subsidies for eTrucks as well as private charging stations are essential if the HDV electrification is to take off in the Czech Republic, which is already seen in some neighbouring countries.

The study was funded by European Climate Foundation



⁽¹⁾ For the purposes of this study, the term HDV (Heavy duty vehicles) is used to refer to the N2 and N3 vehicle categories. The term eTruck is used to refer to Battery energy vehicles (BEVs) in the N2 and N3 vehicle categories.

Agenda

- | | | | |
|---|----------------|---|---------|
| 1 | Background | <i>Global and EU perspective · Legislation · OEMs sales targets · Neighbouring countries · Current status in CZ</i> | Page 4 |
| 2 | Vehicles | <i>HDV categories · eTruck sales projections · TCO view</i> | Page 15 |
| 3 | Infrastructure | <i>Charging types · Infrastructure development projections · An eTruck fleet example</i> | Page 23 |
| 4 | Conclusions | <i>Vehicles · Infrastructure</i> | Page 30 |

1 Background

1.1 Global and EU perspective

1.2 Legislation

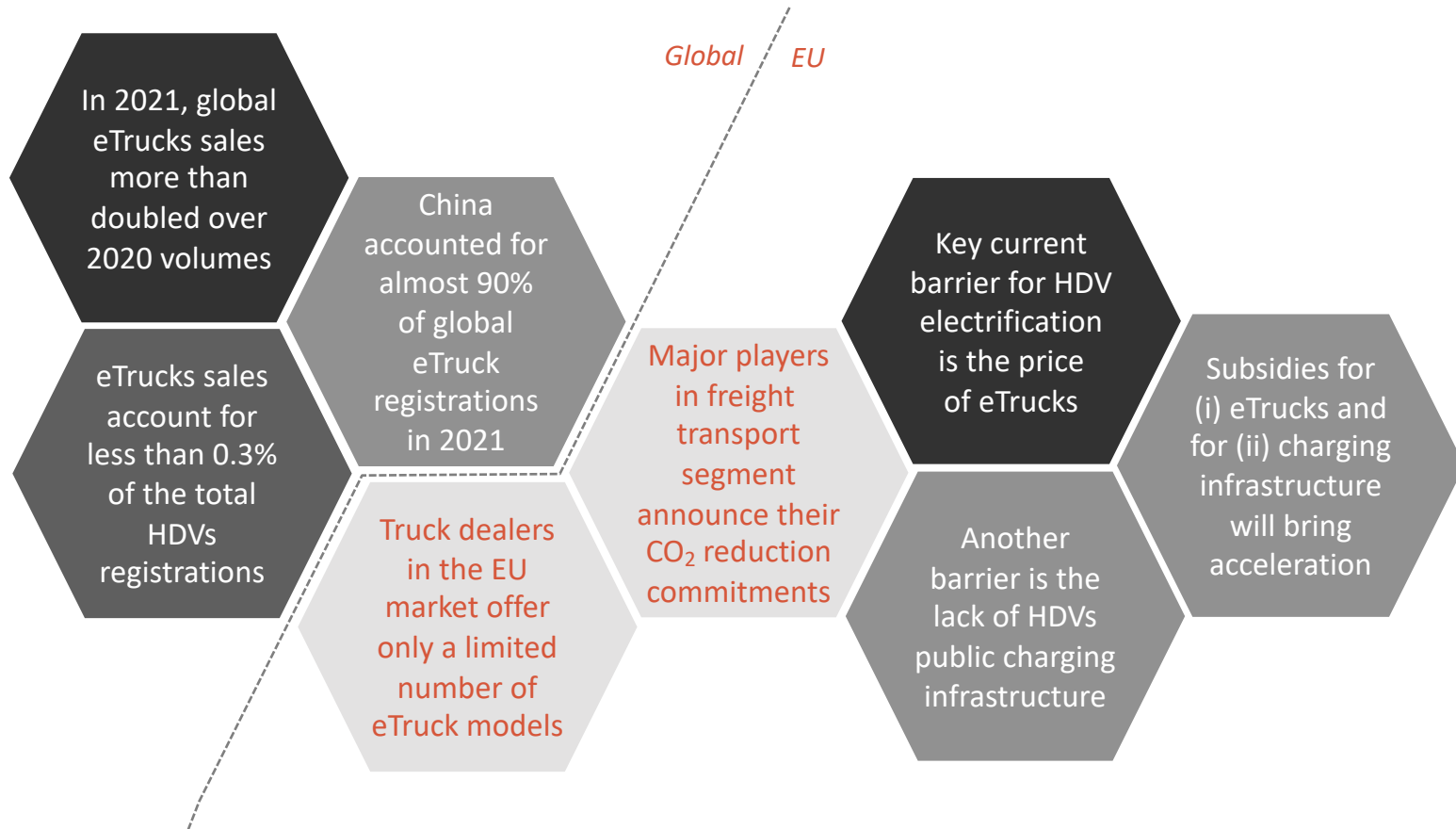
1.3 OEMs sales targets

1.4 Neighbouring countries

1.5 Current status in CZ



The HDV electrification is becoming a trend, both globally and in the EU



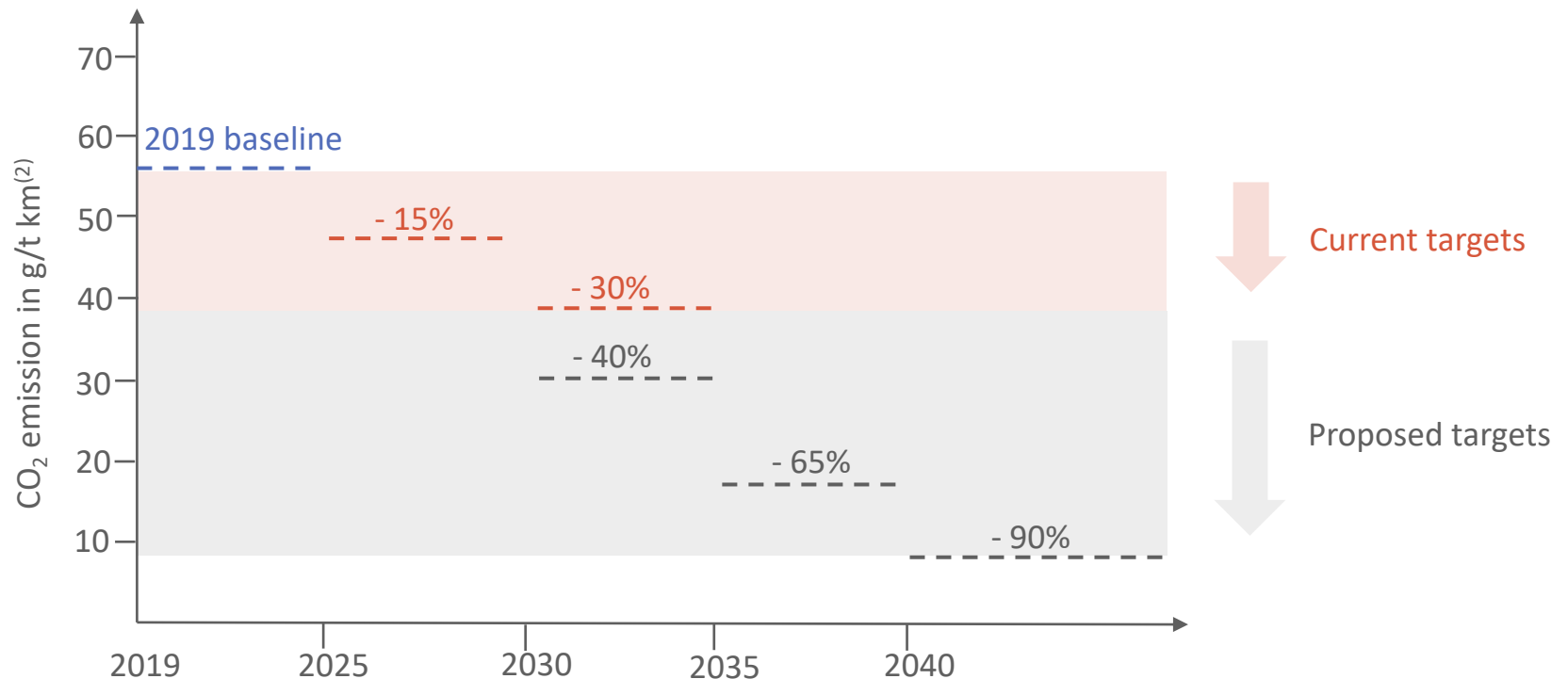
European legislation creates a complex system of regulations and incentives to accelerate the HDV electrification

<p>A CO₂ targets for HDVs</p> <ul style="list-style-type: none">OEMs⁽¹⁾ must reduce CO₂ emissions of new trucks in certain categories by 15% in 2025 and by 30% in 2030 (relative to a 2019 baseline) <p><i>In force (may be tightened)</i></p>	<p>B Public charging infrastructure</p> <ul style="list-style-type: none">AFIR⁽²⁾ sets mandatory targets for EU member states to deploy public charging hubs for eTrucks by 2026, 2028 and 2031 <p><i>In force (update 2023)</i></p>	<p>C Emissions Trading System (ETS)</p> <ul style="list-style-type: none">EU ETS⁽³⁾ II (to be established by 2027) will put a price on emissions for road transport (fuels) <p><i>Not yet in force</i></p>	<p>D Other Incentives and Regulations</p> <ul style="list-style-type: none">Direct and indirect subsidies and financial instrumentsEurovignette DirectiveEuro VIIESG⁽⁴⁾ ratings <p><i>Implemented gradually</i></p>
--	--	--	---

(1) OEM = Original Equipment Manufacturer
(2) AFIR = Alternative Fuelling Infrastructure Regulation
(3) ETS = Emissions Trading System
(4) ESG = Environmental, Social, and Corporate Governance

A: CO₂ targets for HDVs

- In addition to the current CO₂ targets for HDV for 2025 and 2030 (entered into force in 2019⁽¹⁾), the European Commission proposal is currently under discussion to tighten the 2030 target while setting targets for 2035 and 2040.
- Targets are reported at the level of each OEM's total sales in the EU market. Failure to meet CO₂ limits will expose OEMs to penalties.



7 (1) Regulation (EU) 2019/1242
 (2) CO₂ emissions based on [PWC, 2022](#)

B: Public charging infrastructure for HDV

Document	About	Status
AFIR - Alternative Fuelling Infrastructure Regulation	<ul style="list-style-type: none"> • Sets mandatory targets for the member states to deploy infrastructure for charging and hydrogen refuelling for both light- and heavy-duty vehicles. • Member States will transpose regulation into national legislation. • The regulation is a part of 'Fit for 55' package. 	Final approval took place in March 2023.

Summary of relevant AFIR objectives

Agreed compromise		
Scope	Specification	Requirement
TEN-T⁽²⁾ core and comprehensive network	15% of <i>core and comprehensive TEN-T</i> (every 120 km ⁽¹⁾ in each direction of travel)	1,400 kW by 2026
	<i>TEN-T core</i> – Minimum charging power of highest-power charging station per hub	350 kW (2 charging points) by 2028
	50% of <i>core and comprehensive TEN-T</i> (every 120 km ⁽¹⁾ in each direction of travel)	2,800 kW core / 1,400 kW comp. by 2028
	<i>TEN-T core</i> (every 60 km in each direction of travel)	3,600 kW by 2031
	<i>TEN-T comprehensive</i> (every 100 km in each direction of travel)	1,500 kW by 2031
Urban nodes⁽³⁾	Minimum charging power of highest-power charging station per hub	150 kW by 2028
	Aggregated power output	900 kW by 2026 / 1,800 kW by 2031
Safe and secure parking⁽⁴⁾	Minimum number of charging stations with at least 100 kW	2 stations by 2028 / 4 stations by 2031

Source: eur-lex.europa.eu

(1) Additional conditions apply

(2) TEN-T is Trans-European Network for Transport. The *core TEN-T* includes the most important connections linking major cities and nodes in EU. The *comprehensive TEN-T* connects all regions of the EU to the core network.

(3) Urban node is an urban area where the TEN-T is connected with the infrastructure for the region.

(4) Safe and secure parking is a certified parking area with certain conditions applied.








C: EU ETS II

- In December 2022, MEPs⁽¹⁾ and EU governments agreed to reform the Emissions Trading System to further reduce industrial emissions and invest more in climate friendly technologies.
- EU ETS II for fuel emissions from the building and road transport sectors will put a price on emissions from these sectors and will be established by 2027. (Could be postponed until 2028 to protect citizens, if energy prices are exceptionally high.)
- It can be anticipated that EU ETS II will increase the price of fossil fuels by up to about € 10 cents per litre of petrol and € 12 cents per litre of diesel. Emission allowances must be bought in auctions, and paid for by fuel suppliers, such as petrol station owners.
- A new price stability mechanism will be set-up to ensure that if the price of allowance rises above 45 €, 20 million additional allowances will be released. This implies that the EU will make an effort to avoid exceedingly high prices.

D: Other incentives and regulations

Incentive/regulation	Description
Direct and indirect subsidies and financial instruments	<ul style="list-style-type: none"> • Most EU countries have started supporting HDV electrification beyond what is directly required by EU legislation. The countries differ in their approach and support generosity substantially (see below). • Direct subsidies as well as indirect support such as tax and tolls exemptions are among the mechanisms etc.
Eurovignette Directive (1999/62/EC)⁽¹⁾	<ul style="list-style-type: none"> • From 2026, new road toll rates based on CO₂ emissions for trucks and buses. • Vignettes for HDVs will have to be phased out across the core trans-European transport network from 2030 and replaced by distance-based charges (tolls). • The categorization based on Euro class will be replaced by a mandatory categorization based on CO₂ emissions, following the 2019 CO₂ standards (while air polluting emissions will be covered by external cost charging). Initially, it will apply to the largest trucks but it can gradually be extended to other HDVs, following technological progress.
Euro VII	<ul style="list-style-type: none"> • For HDVs, emission limits are set lower than they were in the previous Euro VI standards. • According to the Commission's proposal, the date for the entry into for new HDVs is 1 July 2027. • Not a CO₂ regulation but it does incentivise electrification of road transport.
ESG ratings	<ul style="list-style-type: none"> • To manage risks, create long-term value, meet stakeholder expectations, comply with regulations, and contribute to sustainable development. • Fleet electrification improves companies' ESG ratings, which improves the external corporate image.

Major OEMs have already set their own targets for zero-emission truck sales for 2030 (some of them also for 2025)

OEM	HDV market share in EU (total)	HDV market share in EU (electric)	Zero-emission truck sales targets
 Mercedes-Benz	20%	10%	<ul style="list-style-type: none"> • 60% of total vehicle sales volumes should be ZEV by 2030
	17%	10%	<ul style="list-style-type: none"> • 40% of long-haul trucks and 60% urban and regional delivery vehicles will be zero-emission in 2030
	16%	25%	<ul style="list-style-type: none"> • 50% of total vehicle sales volumes should be ZEV by 2030 (7% by 2025)
	14%	9%	<ul style="list-style-type: none"> • 30% of total vehicle sales volumes should be ZEV by 2030
	9%	7%	<ul style="list-style-type: none"> • 50% of total vehicle sales volumes should be ZEV by 2030 (10% by 2025)
	9%	14%	<ul style="list-style-type: none"> • 35% of total vehicle sales volumes should be ZEV by 2030 (10% by 2025)
	9%	4%	<ul style="list-style-type: none"> • 20% of total vehicle sales volumes should be ZEV by 2030 (10% by 2025)

Most EU countries have started supporting HDV electrification, but they differ in approach

Targets and/or financial support

- Countries with own targets and financial support (e.g. Austria and the Netherlands).
- Countries with financial support (e.g. Poland and Germany).
- Countries with no or minor financial support so far (e.g. Czech Republic and Slovakia).

Direct subsidies

- For Infrastructure: as % of eligible costs (grid connection etc.).
- For vehicles: as % of eTruck costs or % of the difference between eTruck and Diesel Truck costs.
- Some countries are more generous to SMEs (the Netherlands, Spain).

Indirect support

- Typically a reduction in acquisition tax or ownership tax. Most countries provide tax reductions for one or the other.
- Examples: i) reduced VAT on electricity in Belgium, ii) lower road tax in Sweden, iii) annual circulation tax exemption in Germany, iv) administrative tax reduced to 50 % in the Netherlands, etc.

Neighboring countries mostly already have defined direct subsidy programs for the purchase of eTrucks and related private charging infrastructure

HDV infrastructure subsidies: PRIVATE

Germany



Up to 80% of the costs of a charging station and an additional maximum of 100k € per charging location to connect charging hubs.

Poland



Up to 50% of the eligible costs of new charging station and no more than 32k € per >22 kW station.

Austria



40% to the net acquisition costs. Requires a prove of eTruck purchase.

Slovakia, Netherlands

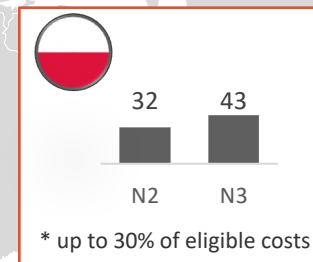
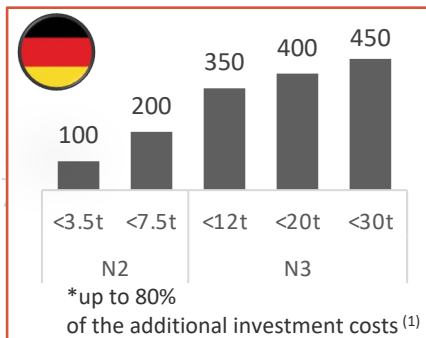


No subsidy program yet.

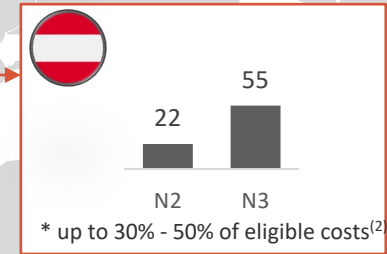
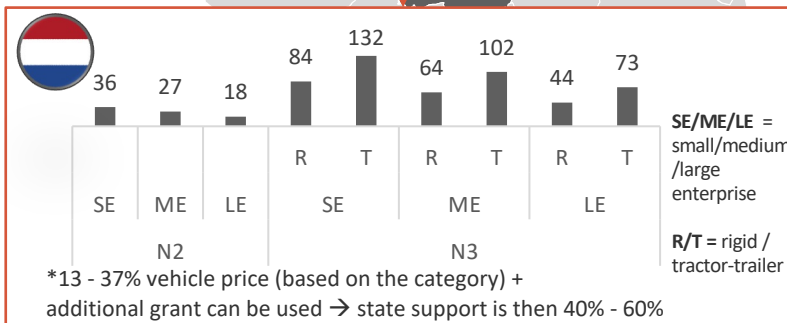
HDV infrastructure subsidies: PUBLIC

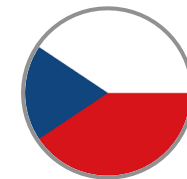
Most countries will have subsidies to meet AFIR targets. Subsidy as % of eligible costs.

eTruck subsidies (in thousands EUR)



No funding program yet





Supporting incentives for electrification of HDVs in the Czech Republic are being setup

	Current status
eTrucks projections/targets	<ul style="list-style-type: none"> The forthcoming update of NAP CM⁽¹⁾ (to be released in 2023) will include HDVs segment for the first time. The projections introduced the update of NAP CM should be then followed by various supporting activities/projects.
Public charging infrastructure	<ul style="list-style-type: none"> Existing subsidy tool (OPD⁽²⁾) focused on public charging infrastructure development. The first OPD call focused on HDVs charging is expected to open in 2023.
Private sector	<ul style="list-style-type: none"> A specific sub-programme of the Modernisation Fund (TRANSCoM) is being developed to support purchase of HDV ZEVs and private charging infrastructure in the private sector.
Public sector	<ul style="list-style-type: none"> First subsidy calls were introduced to support the purchase of ZEVs in the public sector⁽³⁾ (mainly for light vehicles but also for N2). A specific sub-programme of the Modernisation Fund (TRANSGov) is being developed to support purchase of HDV ZEV and private charging infrastructure in the public sector.
Other (indirect) incentives	<ul style="list-style-type: none"> Lower eTrucks OPEX (registration charges, road toll). Shortening of the depreciation period for charging stations (from 10 to 5 years).

(1) National Action Plan of the Clean Mobility from 2015 required by Directive 2014/94/EU and updated in 2020.

(2) Operational Program Transport, Funded from (i) the European Regional Development Fund (ERDF) and (ii) the Cohesion Fund (CF), managed by Ministry of Transport.

(3) National environmental program ("Národní program životního prostředí") call 3/2022, allocation of 600 Mil CZK.

2 Vehicles

2.1 HDV categories

2.2 eTruck sales projections

2.3 TCO view



Weight and operating mode categories used in the projections

	Categories	Description		
Weight ⁽¹⁾	N2	3.5 – 12 tones		
	N3	> 12 tones		
		Daily distance	Annual avg. distance	Daily return home
Operating mode ⁽²⁾	Urban Delivery (UD)	< 150 km	30,000 km	Yes
	Regional Delivery (RD)	150 – 300 km	80,000 km	Yes/No
	Long haul (LH)	> 300 km	120,000 km	No

(1) Weight categories (N2, N3) are standardized in the EU.

(2) Operating mode categories (UD, RD, LH) are defined in Regulation (EU) 2019/1242. The parameterisation of the individual categories (as shown in the table) is an estimates by LEEF and verified with freight companies.

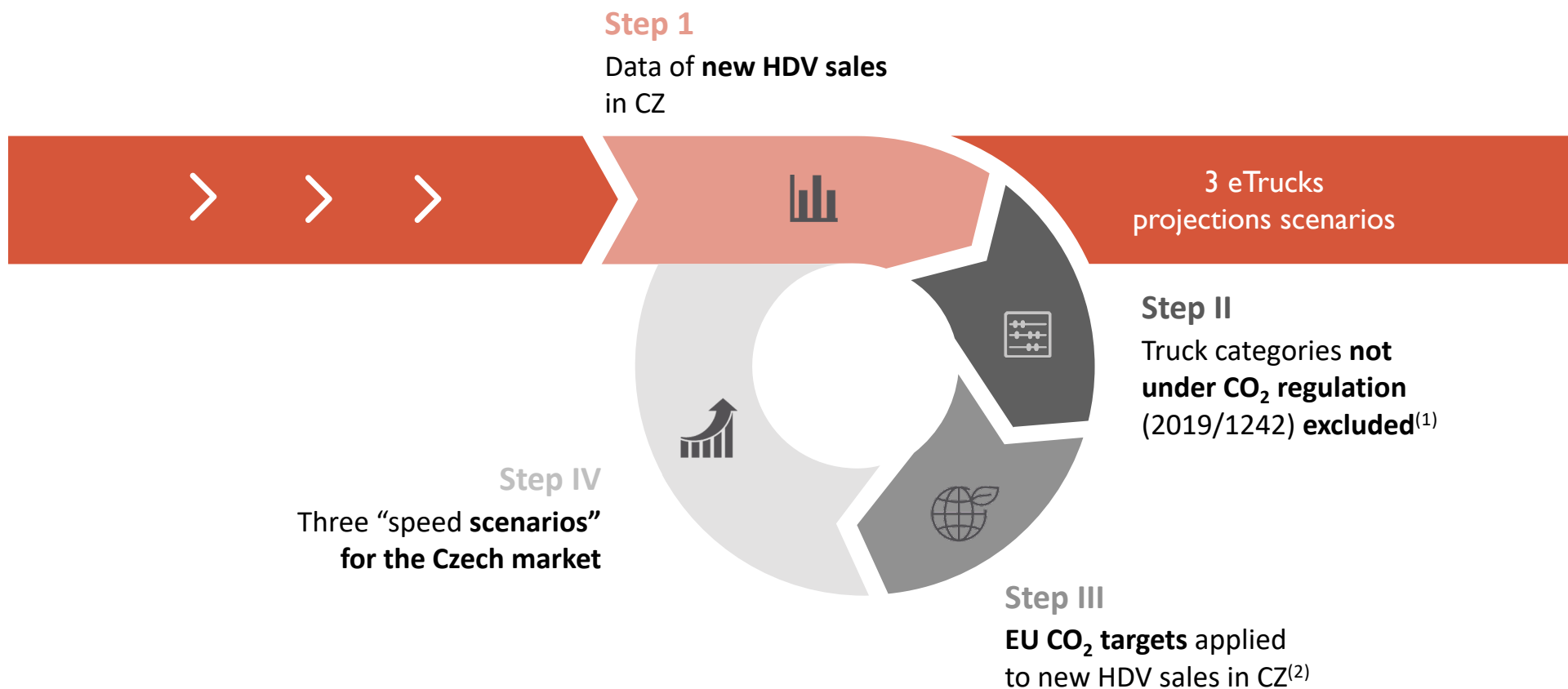
HDV Trucks in the Czech Republic based on the selected categories

Number of HDVs in the Czech Republic						
		New Registrations (annual) ⁽¹⁾		Total Registrations ⁽²⁾		% of Total
N2	Urban Delivery	2,000	1,100	70 000	38,000	21%
	Regional Delivery		600		21,000	11%
	Long Haul		300		11,000	6%
N3	Urban Delivery	9,000	1,350	110 000	17,000	9%
	Regional Delivery		4,500		55,000	30%
	Long Haul		3,150		38,000	21%
Total			11,000		180,000	

(1) 8 years average. N2 and N3 total values from dataovozidlech.cz, distribution to operating mode categories are estimates by LEEF, checked with freight companies.

(2) Total registration according to Ministry of Transport. Distribution to operating mode categories are estimates by LEEF, checked with freight companies.

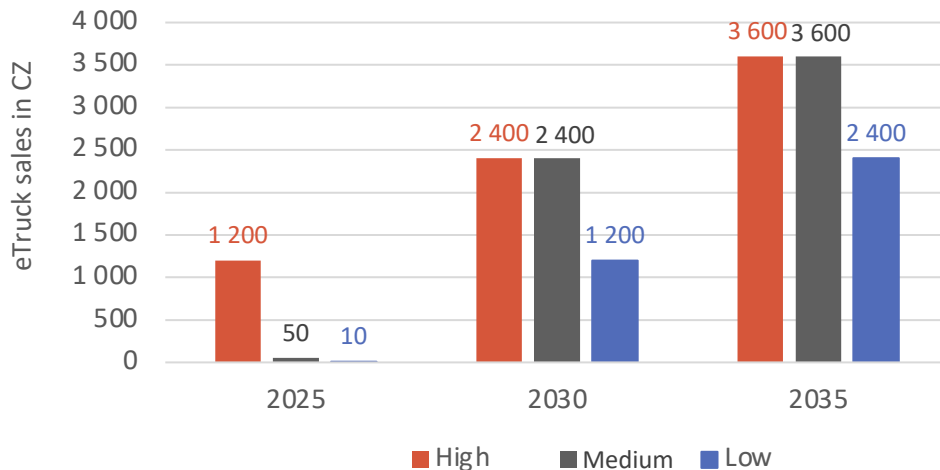
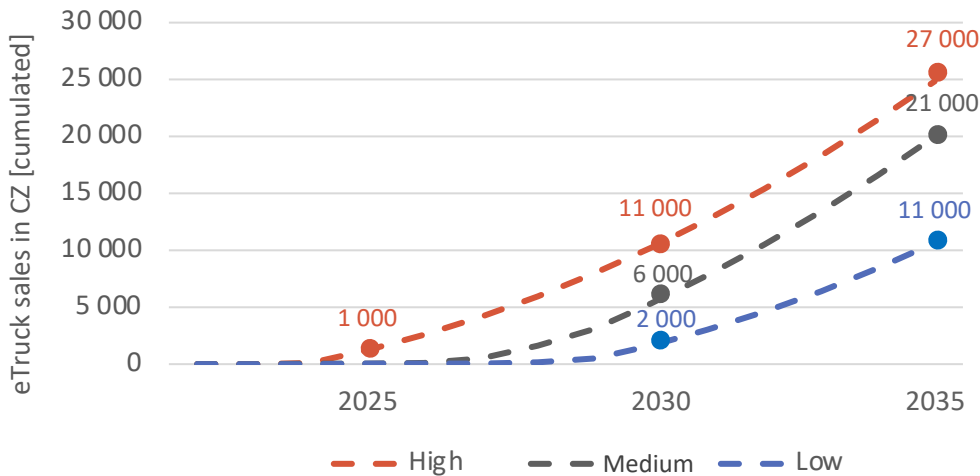
eTruck projection scenarios are based on EU CO₂ targets for HDVs, taking into account the Czech market specifics



(1) Emission regulation covers about 73% of new vehicle sales.

(2) OEMs should decrease CO₂ emissions of new trucks sold in 2025 by 15% and in 2030 by 30%, both relative to a 2019 baseline.

6000 eTrucks are expected in the Czech Republic by 2030 in the medium scenario



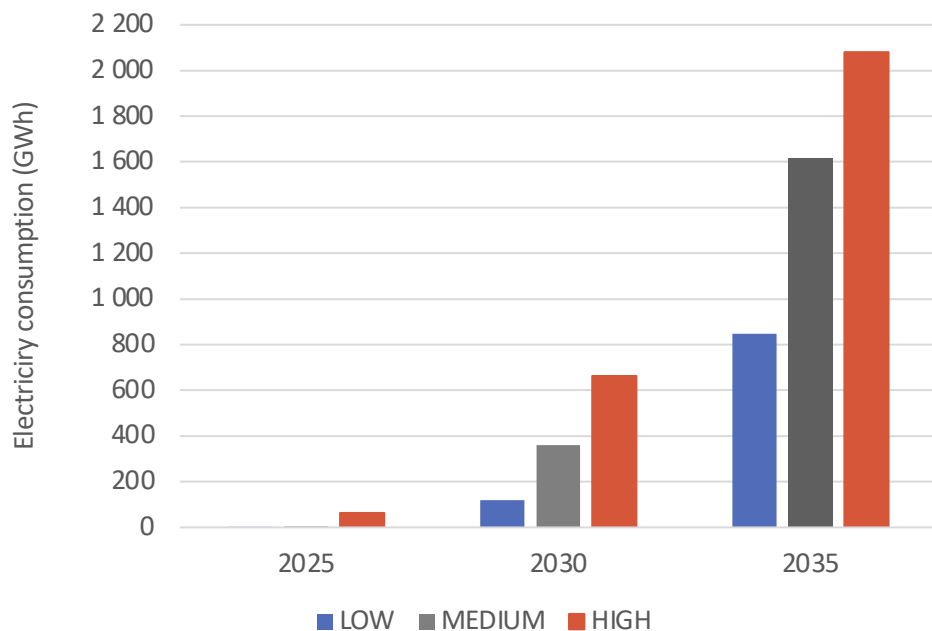
- In the **High** scenario, the projection of eTrucks in Czech Republic is in line with the targets of OEMs on EU market
- In the **Medium** scenario, the 2025 target is 3 years behind; then accelerated sales meet the 2030 target on time
- In the **Low** scenario, both 2025 and 2030 sales targets are 5 years behind

Scenario	Meeting the EU 2025 target in CZ ⁽¹⁾	Meeting the EU 2030 target in CZ ⁽¹⁾
High	in line	in line
Medium	3 years behind	in line
Low	5 years behind	5 years behind

19 (1) According to EU CO₂ regulation (2019/1242), OEMs should decrease CO₂ emissions of new trucks sold in 2025 by 15% and in 2030 by 30%, both relative to a 2019 baseline.

Assumptions for scenarios: 11 eTrucks in CZ in 2022, the gradual growth of eTruck sales YoY, CO₂ emissions decrease exclusively by selling battery eTrucks (other ZEV technologies and technological progress of ICE neglected).

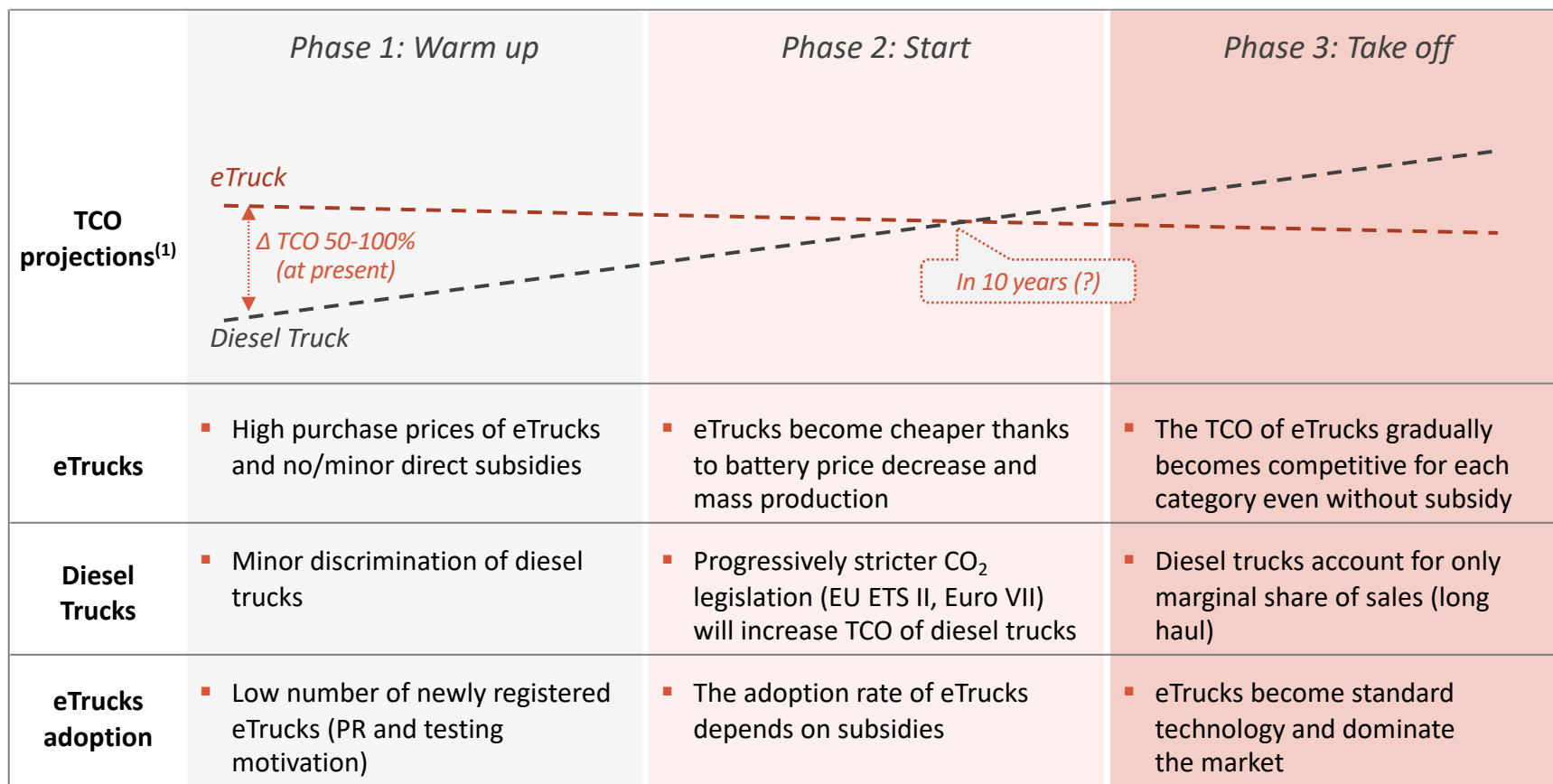
eTrucks electricity consumption in 2030 corresponds to about 0.5-1% of the total annual electricity consumption in the Czech Republic



Electricity Consumption (GWh/year)			
	2025	2030	2035
LOW	1	120	847
MEDIUM	3	361	1,617
HIGH	63	662	2,079

Share of eTrucks Electricity Consumption ⁽¹⁾			
	2025	2030	2035
LOW	0.0%	0.2%	1.2%
MEDIUM	0.0%	0.5%	2.3%
HIGH	0.1%	0.9%	3.0%

TCO difference between eTrucks and Diesel Trucks will gradually decrease; eTrucks subsidies + capex decrease, and Diesel Truck discrimination are key



The purchase price and the fuel/energy costs contributes 70% to the TCO of Diesel Trucks and 90% to the TCO of eTrucks

	Diesel Truck	eTruck	Outlook
	Costs weights		
Purchase price⁽¹⁾	30%	40%	<ul style="list-style-type: none"> Prices of Diesel Trucks probably to grow, prices of eTrucks to fall, break even should be expected during next decade
Energy/fuel	40%	50%	<ul style="list-style-type: none"> The price of diesel will increase due to the reintroduction of fuel excise duty and the implementation of the EU ETS II
Maintenance	15%	5%	<ul style="list-style-type: none"> Maintenance costs remain lower for eTrucks due to the simpler power train
Insurance	5%	5%	<ul style="list-style-type: none"> Insurance price relates to the purchase price
Other costs	10%	<5%	<ul style="list-style-type: none"> Road tax and toll fees expected to be lower for eTrucks initially, later to grow

The price weights correspond to the average of all the eTruck categories introduced above, the specific cost weights for individual categories may vary.

3 Infrastructure

3.1 Charging types

3.2 Infrastructure development projections

3.3 An eTruck fleet example



eTruck charging options are diversified, both in terms of charging speed and access (public/non-public)

Type of charging	Charging power (connector) ⁽¹⁾	Average charging time	Public / Non-public	Use type
Slow/Fast charging	20 - 100 kW (Type 2/CCS)	>8 h	Non-public	<ul style="list-style-type: none"> Charging in depots or during planned breaks at customer sites, logistics areas, etc. The cheapest type of charging, almost exclusively private
Ultra-fast charging	150 - 350 kW (CCS)	<2 h	Public / Non-public	<ul style="list-style-type: none"> Charging in various locations (mix between private locations and public recharging along highways) Guarantee of availability (via reservation systems) will be key to achieve high utilisation and low prices of charging
Mega-fast charging	~ 1,000 kW (MCS)	<0.5 h	Public	<ul style="list-style-type: none"> Charging mainly for long haul eTrucks along the backbone road network The fastest and the most expensive method of charging

Categorisation of eTruck charging can be done in several ways, the most common ways are in terms of charging power or as a division between public and non-public charging (often called “depot charging”). The rest of this analysis looks primarily at the charging power categories. In the initial stages of the market development there will be a tendency for the non-public charging to employ slower charging technologies while the public charging will be based more on the ultrafast chargers.

24 (1) Type 2 and Combined Charging System (CCS) are standard AC and DC charging connectors in EU. CCS can provide power up to 350 kW. Megawatt Charging System (MCS) is a charging connector standard under development. MCS should be able to provide charging power up to 3,75 MW (3k A at 1,250 volts direct current (DC)).

The infrastructure projections follow from the projections of eTruck sales (previous section) and the assumed types of charging

Step I

eTruck sales projections in CZ
(three scenarios)



3 charging infrastructure projection scenarios

Step V

Utilization rate of charging points
in each charging type



Step II

Distribution of eTrucks projections into HDV categories



Step IV

Use of different charging types
for each HDV category



Step III

Specification of 3 types of charging for eTrucks



The calculation is made on the assumption that HDV electrification will be most significant in the urban and regional delivery categories⁽¹⁾

I eTruck cumulative sales projections in CZ (previous section)

	2025	2030	2035
Low	20	2,000	11,000
Medium	70	6,000	21,000
High	1 000	11,000	27,000

II Distribution of eTrucks projections into HDV categories⁽¹⁾

		2025	2030	2035
N2	Urban Delivery			
	Regional Delivery			
	Long Haul			
N3	Urban Delivery			
	Regional Delivery			
	Long Haul			

III Specification of 3 types of charging for eTrucks

	Slow/Fast	Ultra-fast	Mega-fast
Power (kW)	20 - 100	150 - 350	~ 1,000

IV Use of different charging types for each HDV category⁽¹⁾

		Slow/Fast	Ultra-fast	Mega-fast
N2	Urban Delivery			
	Regional Delivery			
	Long Haul			
N3	Urban Delivery			
	Regional Delivery			
	Long Haul			

V Utilization rate of charging points in each charging type

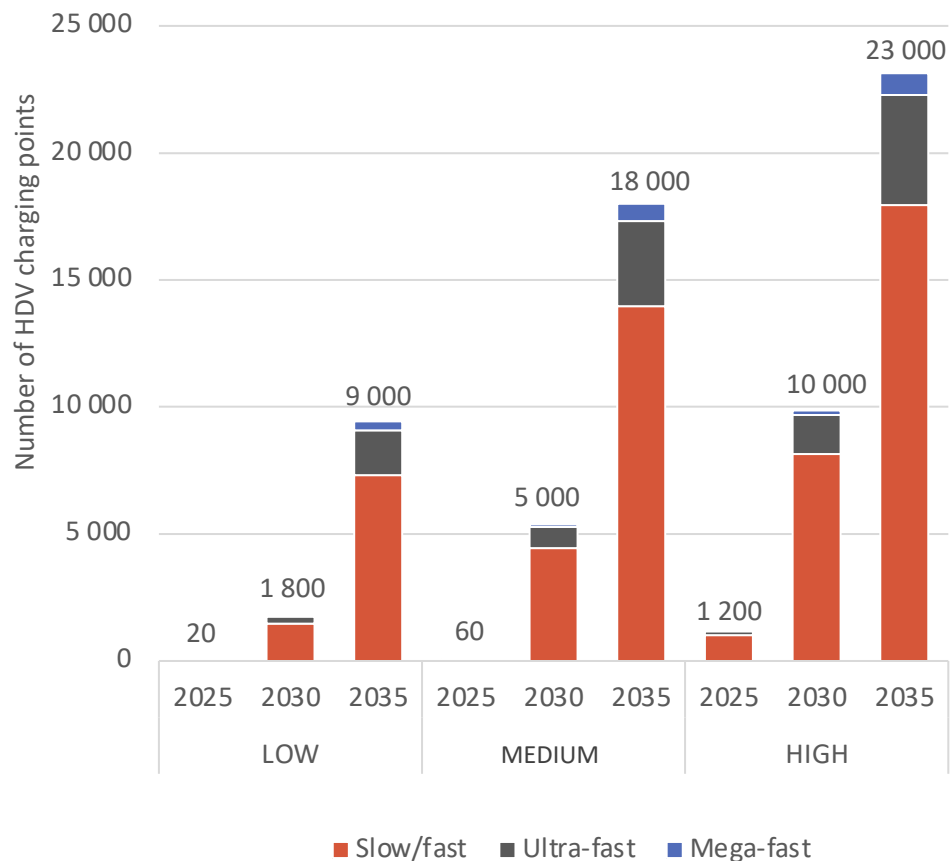
	Slow/Fast	Ultra-fast	Mega-fast
eTrucks per one CP ⁽²⁾	1	1.5	3

3 charging infrastructure projection scenarios

(1) LEEF estimates, discussed with representatives of the freight transport market.

(2) Utilisation of charging points (CP) is determined by the number of eTrucks per one CP. Slow/fast CP are expected to be dedicated to a single eTruck, while “faster” charging types will have multiple vehicles taking turns.

Approx. 5,000 CPs is expected to be installed by 2030 (medium scenario), over 75% of this is expected to be non-public charging



- Slow/fast charging accounts for more than 75% in all scenarios by 2035
- Relevance of the other two types of charging grows after 2030
- Ultra-fast charging could reach 20% in 2035
- Mega-fast charging could reach 5% in 2035

Other factors that may change the estimated structure of the charging infrastructure...

- CZ as a transit country may mean increased demand for Ultra-fast and Mega-fast charging infrastructure*
- Other ZEV technologies⁽¹⁾ may (on the other hand) theoretically decrease the demand for Ultra-fast and Mega-fast charging infrastructure*

Example: Freight company plans electrification of 10 trucks (one of a number of imaginable use cases)



Offer for the customer

- The freight company offers the customer zero emission transport with **10 eTrucks (12t)**
- eTrucks run a regular route **500 km 3 times a week**



What the offer means for the freight company

- Purchase of **10 eTrucks (12t)** with a range of min. 300 km (i.e., battery approx. 400 kWh)
- Own depot charging: each eTruck needs to charge for 8 hours, which requires **10 x 50 kW DC charger**
- Charging at the customer as fast as possible, say **2 x 350 kW DC charger** for charging 2 trucks at the same time for 1 hour



Investments⁽¹⁾

- 10 x eTrucks (12t): 10 x 4.5 M = **45 M CZK**
- 10 x 50 kW DC chargers + related costs⁽²⁾: 10 x 1 M = **10 M CZK**
- **2 x 350 kW DC charger** + related costs⁽²⁾: 2 x 2.5 M = **5 M CZK**

} ~ **60 M CZK**



Other agenda

- Processing the subsidy application for the purchase of eTrucks and charging stations
- Meeting all conditions of the subsidy program⁽³⁾
- Ensuring trouble free operation: requires IT system and/or outsourcing to a specialized provider (i.e. additional costs)
- Power contract

4 Conclusions

4.1 Vehicles

4.2 Infrastructure



Conclusions: Vehicles

1 The projection scenarios of HDV electrification show that the impact of European emission targets in freight transport may lead to around 6,000 battery-powered eTrucks registered in the Czech Republic by 2030 (medium projection scenario). 6,000 eTrucks represents about 3% of the current 180,000 registered vehicles (N2 and N3).

2 The annual consumption of 6,000 eTrucks is expected to be around 400 GWh, which corresponds to about 0.5% of the annual electricity consumption in the Czech Republic.

3 The TCO of eTrucks is still significantly higher than the TCO of Diesel Trucks. As much as 90% of the eTruck TCO is the vehicle price and the cost of charging.

4 Over the next ca 10 years, the electrification of HDVs will require direct subsidies for vehicles. The current study has not analysed the volume of subsidies (per truck or in total) which might be needed but they can be estimated based on examples in neighbouring countries where the subsidies currently range from 20 to 130k EUR per truck.

5 The amount of direct purchase subsidies can (will) be later gradually reduced as the TCO of Diesel Trucks grows relatively to the TCO of eTrucks.

Conclusions: Infrastructure

- 1 The charging infrastructure projections are based on the expectation that the HDV electrification will be driven by the urban and regional freight transport segment. These vehicles will be charged dominantly on non-public charging infrastructure.
- 2 The reason for the relatively small role of public charging infrastructure in the early stages of the market is that until it is sufficiently dense, freight companies will not be able to rely on it (a factor more significant for HDVs than for cars).
- 3 The current study suggest that the non-public charging (up to 100kW per point) will take of more than 75% of the total charging in the next ca 10 years.
- 4 The current projections suggest that it would be helpful for the electrification of HDVs in the coming years if government support were to focus on the development of both public as well non-public charging infrastructure.
- 5 Government subsidy support for public charging infrastructure is an important complement and a key condition for the electrification of long-distance transport in the medium/long time horizon.



Filip Vančura

Project Manager

Filip.vancura@leeftech.com

(+420) 606 037 665

LEEF Technologies s.r.o

Forum Karlín

Pernerova 51

186 00, Praha 8

www.leeftech.com

Disclaimer

The services and materials provided by LEEF Technologies are subject to LEEF Technologies' standard terms and conditions or other agreement previously entered into with LEEF Technologies. LEEF Technologies does not offer legal, accounting or tax advice. The client is responsible for obtaining independent advice on these matters.

LEEF Technologies has made no commitment to update these materials after the date of publication, although the information may become outdated or inaccurate.

The materials may not be copied or given to any person or entity other than the client ("Third Party") without the prior written consent of LEEF Technologies. These materials are for discussion purposes only; they are incomplete without accompanying oral commentary and should not be relied upon as a stand-alone document.