Green Transport Plans in V4 – Czechia

Jan Svoboda - 22. 1. 2021

Overview of transport in Czechia

In 2019:

- Road infrastructure - 55 762 km (1276 km motorways)
- Railways - 9562 km (33% electrified)

Inland freight:

- road: 48 248 million tkm
- rail: 16 180 million tkm
- water: 569 million tkm

Passenger transport:

- cars: 81 179 million passenger km
- railways: 11 069 million passenger km
- bus lines: 10 345 million passenger km

What approach to clean mobility?

Vision for transport:

- reduce our dependence on oil in transport
- increase the proportion of alternative fuels
- build adequate infrastructure for vehicles with alternative powertrains (natural gas, electricity)
- maintain or improve public mobility

In terms of GHG emissions in Czechia, **transport** comes **2nd**, emitting about **20 mil. tons of CO_2** (15,7% from the total)

National Action Plan for Clean Mobility

3 main targets to **clean mobility**:

- reduction of energy consumption
- reduction of carbon dioxide emissions
- reduction of emissions of harmful substances

Vehicles	2030
electric cars	220 000 - 500 000
EV buses	800 - 1 200
CNG cars	20 000-44 600
CNG buses	1 740 - 2 650
LNG trucks	3 500 - 6 900
LPG	170 000 - 250 000
hydrogen cars	40 000 - 50 000
hydrogen buses	870
Charging points / filling stations	**2030**
electric	19 000 - 35 000
CNG	350 - 400
LNG	30
hydrogen	80

Table 1: Summary of objectives of the NAP CM

Railways and gas transport

Railway transport challenges:

- low electrification (33%)

- two traction systems

- lack of high-speed railway links powertrains (natural gas, electricity)

Gas vehicles:

The **NAP CM** targets for 2030:

- **35 000 CNG** vehicles; **350** to **400** public **CNG** filling stations

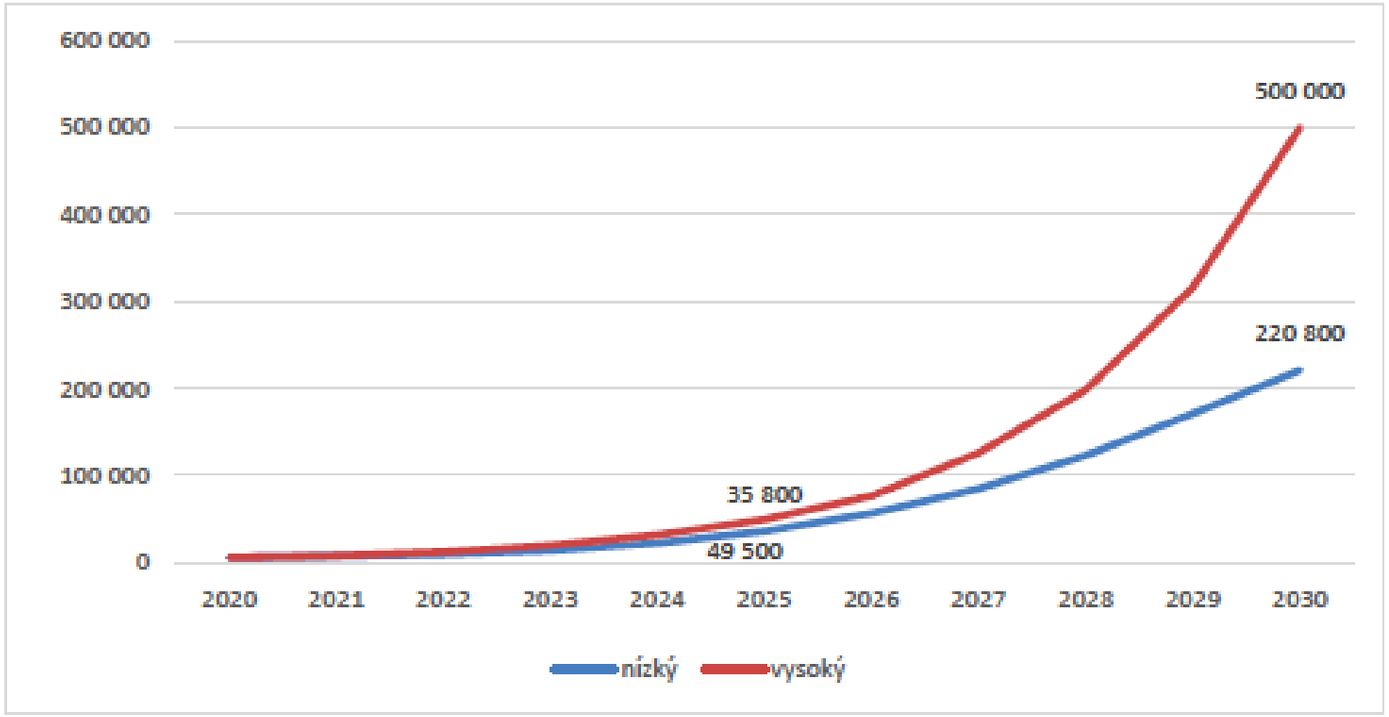
- **5,000 LNG** vehicles; **30** filling stations

Electromobility

- 6 million passenger cars, 5500 BEVs, 2000 plug-in/hybrids

The **NAP CM** targets for 2030:
- between **220 000** and **500 000** BEVs (about 3 to 7% of the fleet)
- charging points **19 000 - 35 000**

Graf 2 Vývoj počtu elektromobilů s výhledem k roku 2030



Zdroj: propočty MPO

Graphic 1: Projection of the number of EVs until 2030

Hydrogen

- the first H_2 bus in 2009 in Neratovice

The **NAP CM** targets for 2030:
- between 40 000 and 50 000 fuel cell vehicles
- 80 filling stations

Graf 4 Cíle vývoje osobních vodíkových vozidel do roku 2030

Zdroj: propočty MPO

Graphic 2: Projection of the number of H_2 vehicles until 2030

Summary

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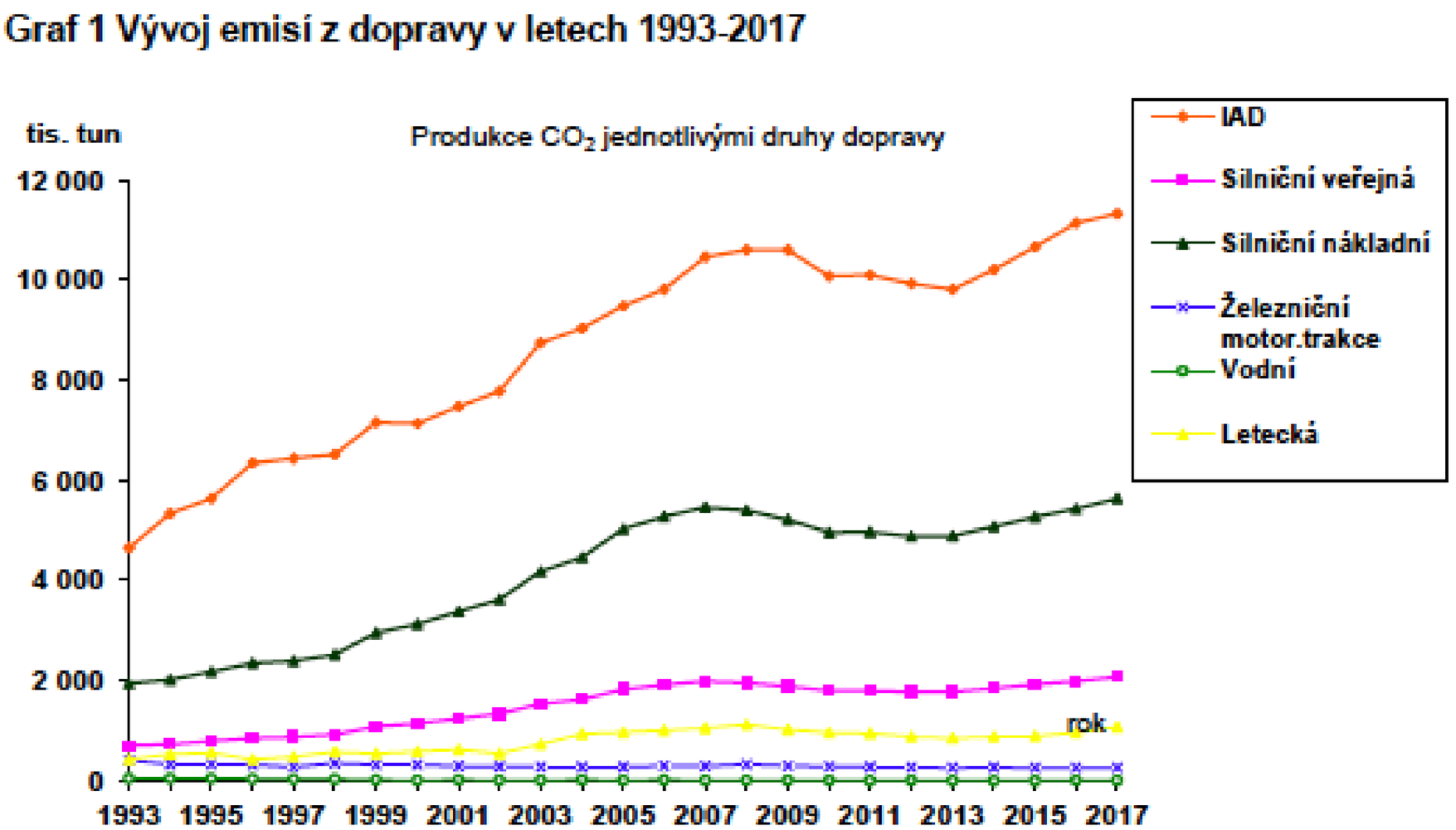
Annex

Graphic: Emissions from transport between 1993 and 2017



Annex

Graphic: Scenarios of development for hydrogen cars

Table 48: *Main conclusions of the updated Study of Hydrogen Mobility Development in the Czech*

Table 48: *Main conclusions of the updated Study of Hydrogen Mobility Development in the Czech Republic – basic scenario of development of hydrogen mobility in the Czech Republic (September 2018)*

	2020	2025	2030
Number of hydrogen cars	**53**	**12 782**	**117 169**
Number of hydrogen buses	**2**	**119**	**1 091**
Additional costs per car (CZK thousand)	686	417	84
Additional costs per bus (CZK thousand)	6 037	3 617	2 053
Differential costs compared to conventional fuels, in aggregate – hydrogen cars (CZK million)	37	6 006	25 853
Differential costs compared to conventional fuels, in aggregate – hydrogen buses (CZK million)	12	470	2 999
Avoided CO_2 emissions (thousands of tonnes)	**1**	**35**	**308**
Number of filling stations	3	12	117
Aggregate costs of infrastructure support (CZK million)	86	386	3 936

Source: Use of hydrogen drive in transport in the Czech Republic

[75] The study 'Use of Hydrogen Powered Vehicles in Transport in the Czech Republic' is available at: https://www.mdcr.cz/Dokumenty?lang=en-GB&mssfd=Strategie

Annex

Graphic: Possible No_x emission savings related to NAP CM targe

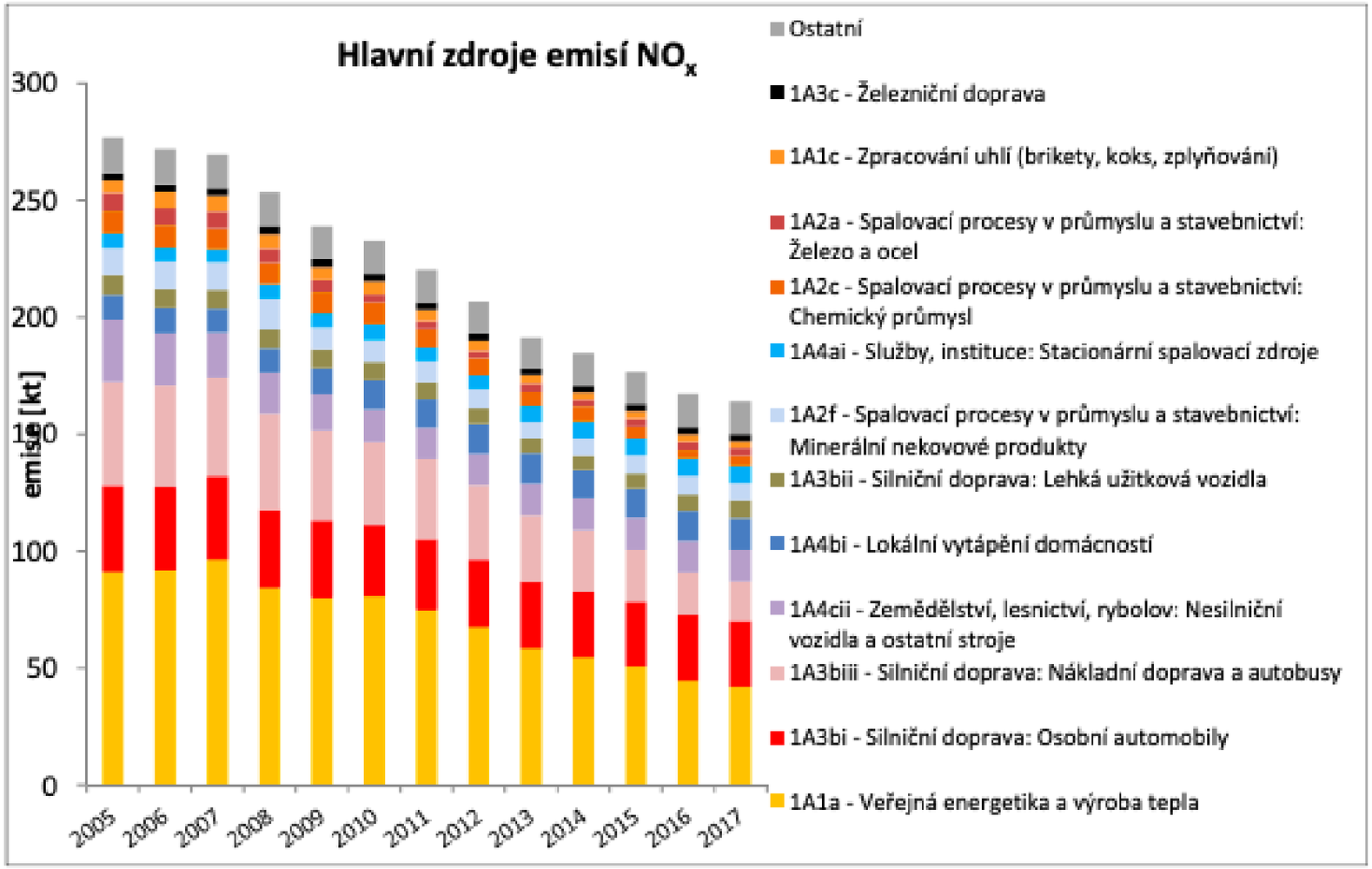
Tabulka 2 Přínos NAP ČM k dodatečnému snížení emisí NO_x požadovaného NPSE v roce 2030

Druh vozidla	Počet vozidel dle scénáře NPSE WM	Počet vozidel dle NAP ČM		Úspora emisí NO_x [t/rok]*	
		Minimální počet	Maximální počet	při min. počtu vozidel	při max. počtu vozidel
OA BEV	60 169	220 000	500 000	189	521
OA H_2	0	40 000	50 000	47	59
BUS BEV	409	800	1 200	7	14
BUS H_3	0	870	870	16	16
BUS CNG	1 535	1 740	2 600	3	13
NA LNG	6 634	3 500	6 900	-38	3
Úspora celkem				**224**	**626**

Annex

Graphic: Main sources of NO_x emissions (2005-2017)

Obrázek 1: Zdrojová struktura emisí oxidů dusíku v letech 2005 až 2017



Zdroj: ČHMÚ