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Electromobility in Prague

Learning from Europe's Best Practices and Outlining an Action Plan

April 2025

European Climate Foundation

The study is funded by European Climate Foundation.

Outline of The Study

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1 Introduction

The goal of the study is to develop suggestions for the city to consider in supporting the electrification of selected transport segments

Context and Motivation

- Modern cities aim to enhance the quality of life by supporting sustainable mobility while reducing traffic congestion and emissions.
- While limiting the total number of vehicles in cities is desirable, certain transport segments will always remain essential to urban mobility.

Focus of the Study

- This study does not seek to provide a comprehensive transformation plan for Prague's transport system but focuses on three key segments: **Private passenger vehicles, Taxis and Ride-hailing services, Delivery vehicles**.
- These segments constitute a significant share of Prague's traffic, and their electrification can have a tangible impact on air quality and the overall urban environment.

Key Benefits of Electrification

- The primary goal of electrification is to **eliminate exhaust emissions and improve air quality in cities**, directly benefiting public health.
- A secondary benefit is the **reduction of noise pollution**, contributing to a more liveable and comfortable urban space.

EV Adoption and Best Practices

- **Battery-electric vehicle technology has become significantly more affordable** and has already proven reliable other cities.
- Many international cities have successfully introduced measures to accelerate electrification in these transport segments, offering valuable insights for Prague.

Structure and Study Output

- This study provides **a summary of Prague's key conditions**, **examples of effective international policies**, and **a proposed an action plan framework**.
- The outcome is a **preliminary framework** that lays the groundwork for developing a comprehensive and actionable roadmap for Prague's transition to sustainable urban transport.

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Introductory notes for defining the scope of this study

i. Within the limited scope of this study, the goal was to prepare initial suggestions for the city to consider. The action plan, in the necessary scope and with greater detail, can build upon this study.

ii. The segment of municipal fleet vehicles is not classified separately. Incentives for electrifying vehicles in municipal fleets are addressed already in legislation. From the perspective of EV predictions, municipal fleet vehicles are included in categories Private passenger vehicles and Delivery vehicles.

iii. In this study, we focus solely on BEVs, as it is assumed that fully electric vehicles will represent the main development direction in the long term, while the share of PHEVs will decline.

iv. The study focuses on NO_X and PM emissions, which are the main pollutants mentioned in the context of their negative impact on the health of city residents.

v. When quantifying the positive impacts of electrification on local emissions in Prague, we rely on the methodology of the Ministry of Transport. It is possible that the real positive impacts will be even higher, considering the issue of exceeding emission standards of existing combustion vehicles.

vi. Electrification of selected transport segments is not in conflict with the broader goal of all developed cities (including Prague) to support alternative modes of transport (i.e. public transport, bicycles, car sharing) and reduce the use of private vehicles for city transport.

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2 Key Considerations for Developing the Action Plan Framework

Private vehicles, Taxis and Delivery vehicles play a crucial role in urban mobility, and they are also suitable candidates for electrification

	Private vehicles (i.e. individual electric mobility)	**Taxis** (incl. ride-hailing services)	**Delivery vehicles**[5] (light- and medium-duty vehicles)
Description	• Privately owned cars (M1) • Primarily for individual mobility, including commuting to work, shopping, and occasional longer trips	• Professionally operated vehicles (M1) used for passenger transport, including traditional taxis and app-based services (Uber, Bolt, etc.) • High-intensity, short-distance trips throughout the city	• Light commercial vehicles (N1) and medium-duty trucks (N2) used for parcel delivery, logistics, and urban freight transport • Primarily for last-mile deliveries, supplying businesses, and servicing urban distribution centres
Annual milage (typically)	• 10 000–15 000 km	• 60 000–100 000 km, significantly higher than private vehicles	• 20 000–40 000 km, depending on the type of delivery operations
Urban Mileage Share	• Highly variable; for some owners, the majority occurs within Prague, while for others, city driving represents lower portion of milage[1]	• The vast majority of driving, likely at least 90% or more	• Likely around 80–90%, based on the type of deliveries
Number of registered vehicles in Prague (approx.)	• 1 mil.[2]	• 17 ths.[3]	• 130 000 ths.[4]

Note: Although the number of taxis and delivery vehicles is relatively small, they are separated into distinct categories as they have different operational profiles, and the city can use specific tools to support their electrification.

(1) Some vehicles used for commuting travel extensively outside Prague, while on the other hand, many vehicles registered outside Prague are used for commuting into the city. These effects are not specifically accounted for in this study.
(2) The Statistical Yearbook 2023 of TSK reports 1,038,948 vehicles (link).
(3) Available sources specify the number of registered taxi licenses (needed for traditional taxi as well as ride-hailing services) in Prague to be between 16 and 17 thousand in years 2022 and 2024 (Department of Transport Administration, Prague City Hall).
(4) The Statistical Yearbook 2023 of TSK reports 112 090 N1 vehicles (link) and Ministry of Transport report 11 475 N2 vehicles in 2025 (link).
(5) In the projections, we employ only N1 vehicles . The National Action Plan (the source of the predictions) groups N2 and N3 vehicles and it is therefore not possible to obtain a precise prediction for N2 only. Furthermore, the proportion of N2 vehicles is Prague is only 10% of N1 vehicles.
(6) The Statistical Yearbook 2023 of TSK (link) combined with expert estimate considering the nature of each segment. .

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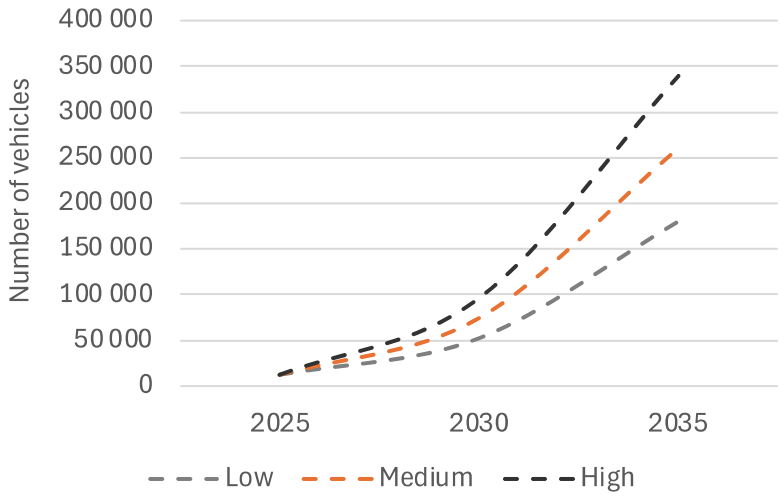
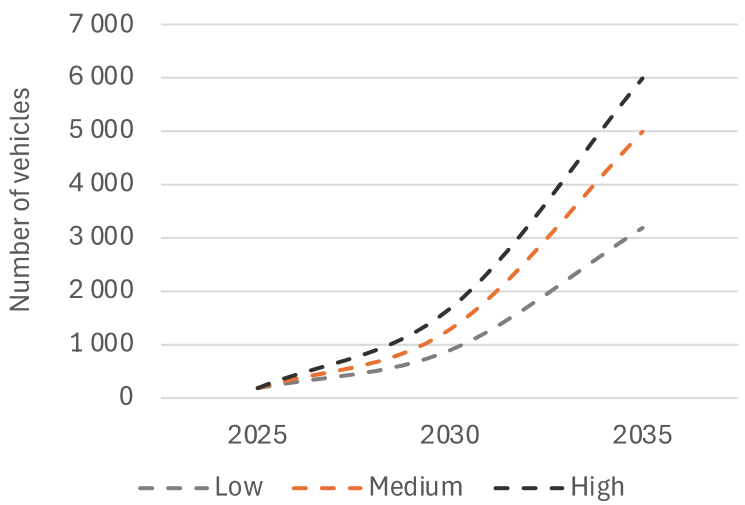
By 2035 there will be between 200 and 400 thousand EVs in Prague(1) which will collectively travel over one billion kilometres within the city annually

EV projection scenarios

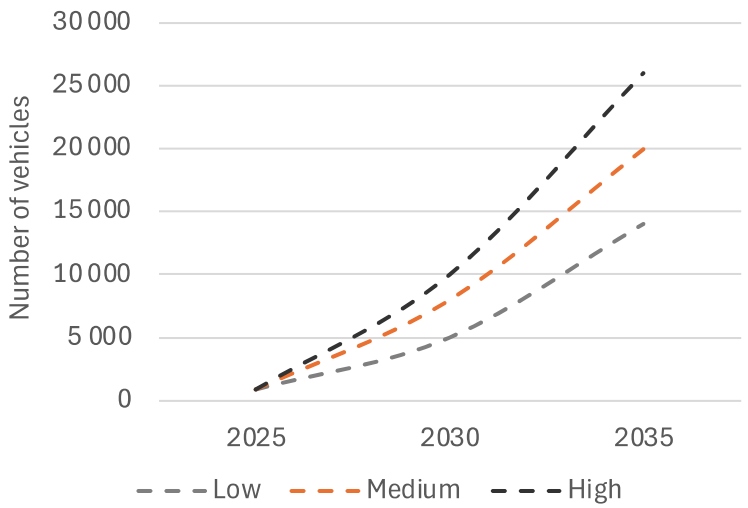
Private vehicles



Taxis



Delivery vehicles



Estimated annual milage of EVs in Prague(2)

2030	400 – 800	*million km/year*	**2030**	60 – 100	*million km/year*	**2030**	150 – 250	*million km/year*
2035	1 000 – 3 000	*million km/year*	**2035**	200 – 400	*million km/year*	**2035**	400 – 800	*million km/year*

(1) Provided EV projections are based on on National Action Plan for Clean Mobility (update 2024). The share of the number of vehicles in Prague compared to the total number in the Czech Republic reflects the current ratio of EV registrations in Prague and the Czech Republic. The total number of EVs in M1 category (i.e. private vehicles and taxis) is split into the two segments based on current number of registered vehicles.

(2) The calculations of annual mileage stem from an expert estimate of mileage for each segment: 7 500 vkm for private vehicles, 64 000 km for taxis, 32 000 vkm for delivery vehicles.

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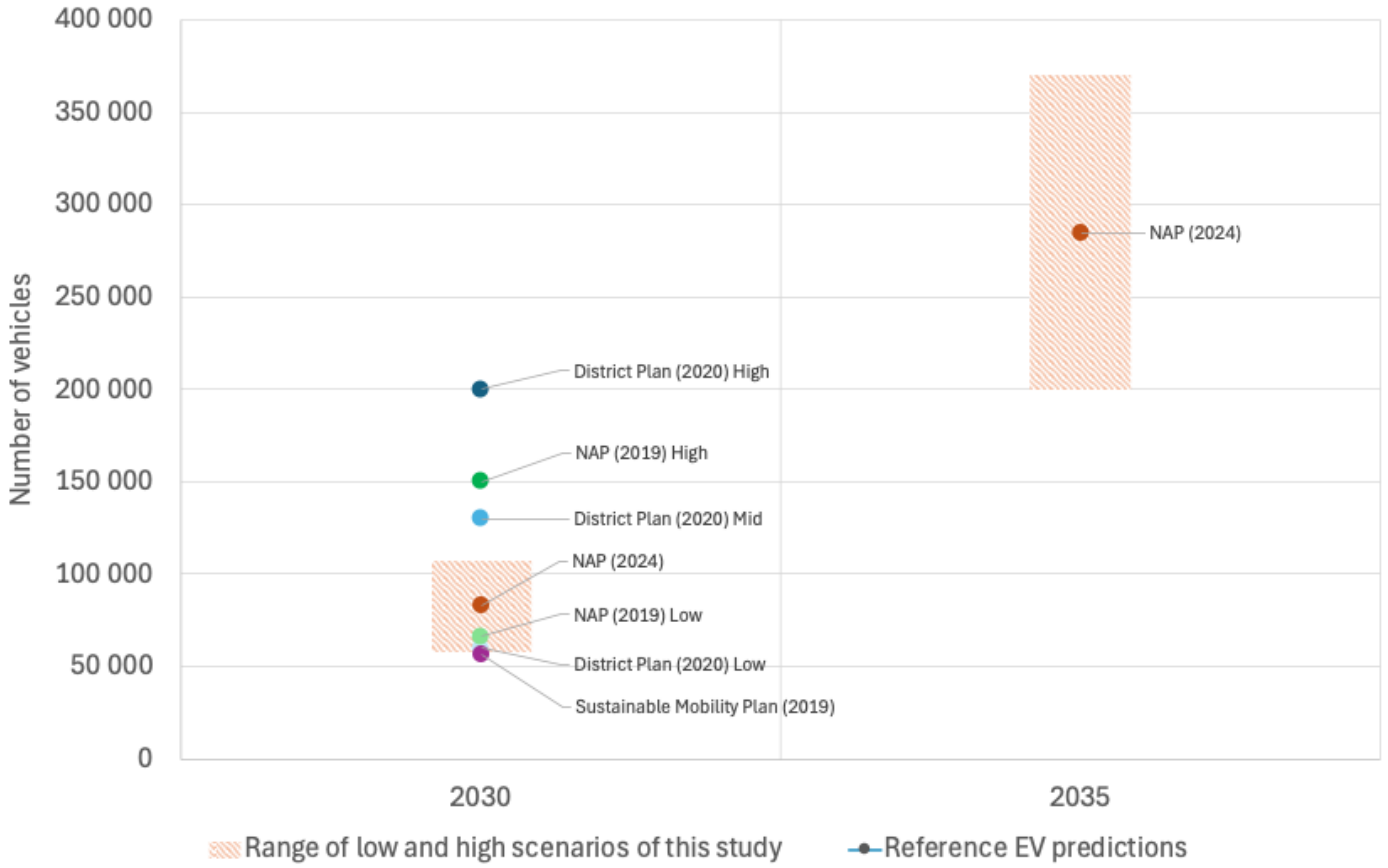
The above prediction scenarios align with the last update (2024) of EV projections in the National Action Plan for Clean Mobility

Comparison of the EV projections in this study with the reference projections(1)



- The projections of EVs in selected segments in Prague presented in this study are based on the current national projections for the Czech Republic (NAP 2024) (2) and show values between approx. 50 000 and 100 000 EVs in 2030 and between approx. 200 000 and 350 000 EVs in 2035.
- For the year 2030 these predictions prove to be on the conservative side compared to the selected reference predictions.
- Figures in graph also show that the current projections for 2030 are lower than the previous predictions made in 2019-2020.
- Despite the lower values in 2030, a more dramatic increase is expected between 2030 and 2035.

(1) The prediction spread of this study shown in graph shows the sum of all three segments. The reference predictions for the Czech Republic (NAP 2019, NAP 2024) have been transposed to Prague EV predictions using ratios of actual registered BEVs cars in Prague compared to the total amount or registered BEVs in the Czech Republic. District Plan (2020) and Sustainable Mobility Plan (2019) are described in more detail on slide 20.

(2) National Action Plan for Clean Mobility is a key strategic document in the Czech Republic. NAP 2019 refers to the 1st update of NAP, NAP 2024 refers to the 2nd update of NAP. NAP 2019 predicts number of EVs 220 000-500 000 for Czech Republic in 2030, while NAP 2024 show only 250 000 of private vehicles and 20 000 commercial vehicles by 2030.

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Electrification is associated with the need for EV charging, there are several types of public and private charging with varying locations and use

	Charger Type	Location and use	Charging Speed	Typical investors and operators
PRIVATE	**Private residential**	• Charging points located in private garages or parking spaces for personal use • Primarily used for overnight charging of personal electric vehicles	**Slow** full charge in 4-12 hours	**Investor**: Homeowners or property developers **Operator**: Private individuals or residential property management companies
	Business and Depot	• Found at company premises or depots for fleet vehicles • Used during off-hours to maintain the operational readiness of business vehicles	**Slow to Fast** full charge in 2-8 hours	**Investor**: Companies or logistics providers with fleet operations **Operator**: Businesses or fleet management companies
PUBLIC	**Public Parking**	• Located in public parking lots or street-side spaces, accessible to all electric vehicles • Commonly used for charging while running errands or working	**Slow to Fast** full charge in 2-8 hours	**Investor**: Local municipalities or private parking operators **Operator**: Public or private parking service providers
	Opportunistic	• Charging stations at locations like retail centres or cafes for intermittent use • Used when convenient during daily activities	**Slow to Fast** based on dwell time	**Investor**: Retailers, cafes, or property owners with high foot traffic **Operator**: Retail businesses, cafes, or property management companies
	Fast Charging Hubs	• Positioned along highways or busy urban areas • Used for quick top-ups	**Fast to Ultra-Fast** full charge in 20-60 minutes	**Investor**: Energy utilities, specialized charging network operators **Operator**: Charging network providers, energy companies

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Besides the development of parking charging, the city can significantly help by providing locations for the development of urban fast charging hubs

	Charger Type	Důležitost jednotlivých typů dobíječek pro segmenty			Typical role of the city
		Private vehicles	Taxis	Delivery vehicles	
PRIVATE	**Private residential**	Essential	Not relevant	Not relevant	No direct involvement, may provide regulations or incentives for residential charging installations.
	Business and Depot	Not relevant	Essential	Essential	No direct involvement, may provide permissions, incentives, or infrastructure support for installations
PUBLIC	**Public Parking**	Essential	Not relevant	Not relevant	**Key role** in approving locations, may support with the development, sometimes providing zoning permissions and harmonization with the city parking system
	Opportunistic	Useful	Not relevant	Not relevant	No direct involvement, may support installation through permits or incentives, and encourage private businesses to offer charging solutions
	Fast Charging Hubs	Useful	Essential	Essential	**Key role** in approving or renting locations, providing zoning permissions

Note: To some extent, all types of vehicles can use all types of charging. Taxis and delivery vehicles can, outside of working hours, be treated and charged as private vehicles. However, the purpose of this table is to simply illustrate which types of charging are most important for each segment.

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Air Pollution from road transport is harmful to air quality and public health

- Road transport is the largest source of local air pollution in Prague.(1)
- Key pollutants: nitrogen oxides (NO_x), particulate matter (PM_{10}/$PM_{2.5}$), and VOCs – harmful to air quality and public health. Health impacts include asthma, cardiovascular disease, and premature deaths.
- $PM_{2.5}$ is considered the most harmful pollutant for human health due to its ability to penetrate deep into the lungs and bloodstream. NO_2 is also particularly harmful to children and people with pre-existing respiratory conditions.
- In Prague, transport-related NO_2 and PM exposure may cause up to 1 000 premature deaths per year, which is 50 times more than traffic accidents.
- Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe was adopted in 2024, tightening emission limits. Achieving target air quality levels for 2030 in Prague will require a proactive and coordinated approach.
- Electric vehicles produce do not produce tailpipe particulate emissions.(2)
- Scaling up electromobility can significantly reduce urban air pollution and improve public health.

(1) Portál životního prostředí hlavního města Prahy, 2025 (link)

(2) EVs produce no tailpipe emissions, but their overall impact depends on how the electricity is generated. If fossil fuels are used, emissions of NO_x and particulate matter (PM) may be associated with electricity production. Our projections reflect the current Czech grid emission factor and its expected decline under national renewable energy targets. Electric vehicles produce particulate emissions from wear and tear.

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The new EU Directive tightens air quality limits and introduces a legally enforceable right to clean air

- In October 2024, the EU adopted a new Ambient Air Quality Directive aimed at achieving the long-term goal of zero air pollution by 2050
- The directive sets stricter limit values for key pollutants such as NO_2, and $PM_{2.5}$, which must be transposed into national law by 2028 and will come into force from 2030
- The directive recognizes the right to clean air as enforceable by law – allowing individuals and NGOs to take legal action if air quality plans are deemed insufficient.
- It also mandates more monitoring stations, real-time public access to pollution data, and improved transparency and enforcement tools.
- However, it is important to note that WHO recommendations remain even stricter, highlighting the continued gap between legal standards and optimal health protection.

Pollutant	Current EU Limit (until 2030)	New EU Limit (from 2030)	WHO Guideline (2021)(2)
NO_2	40 µg/m³	20 µg/m³	10 µg/m³
$PM_{2.5}$	25 µg/m³	10 µg/m³	5 µg/m³
PM_{10}	40 µg/m³	20 µg/m³	15 µg/m³

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(1) Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe, 2024 (link).
(2) Global Air Quality Guidelines: Particulate Matter ($PM_{2.5}$ and PM_{10}), Ozone, Nitrogen Dioxide, Sulphur Dioxide and Carbon Monoxide, 2021 (link).

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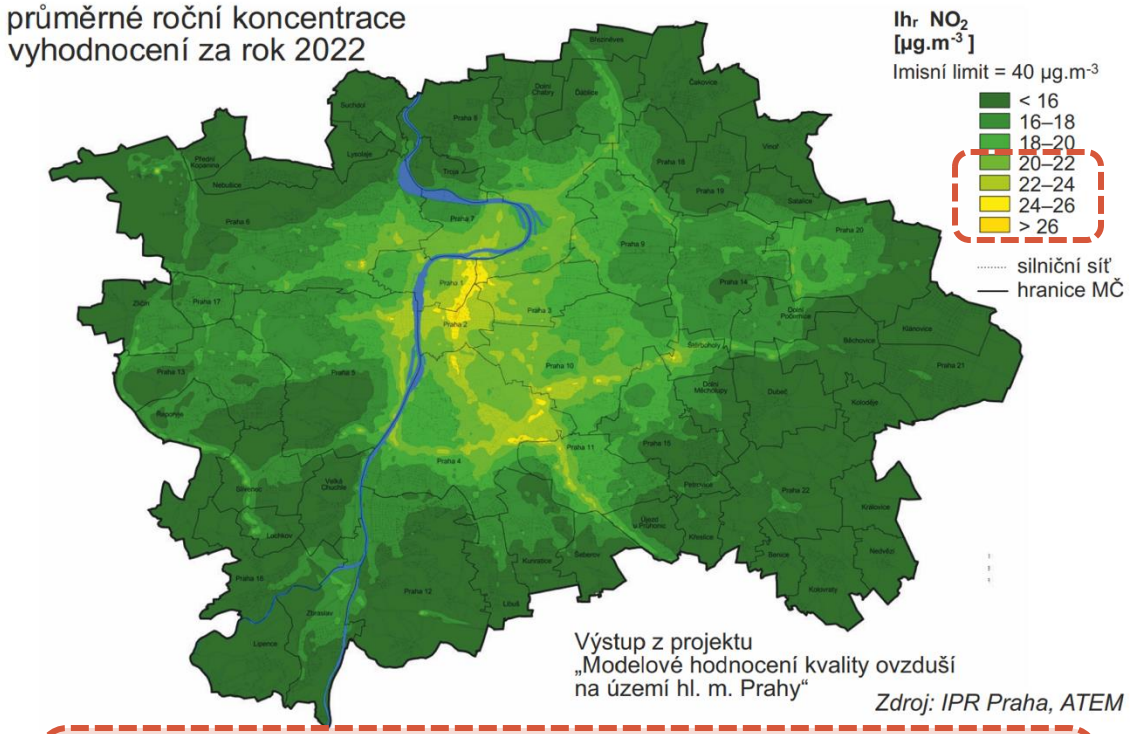
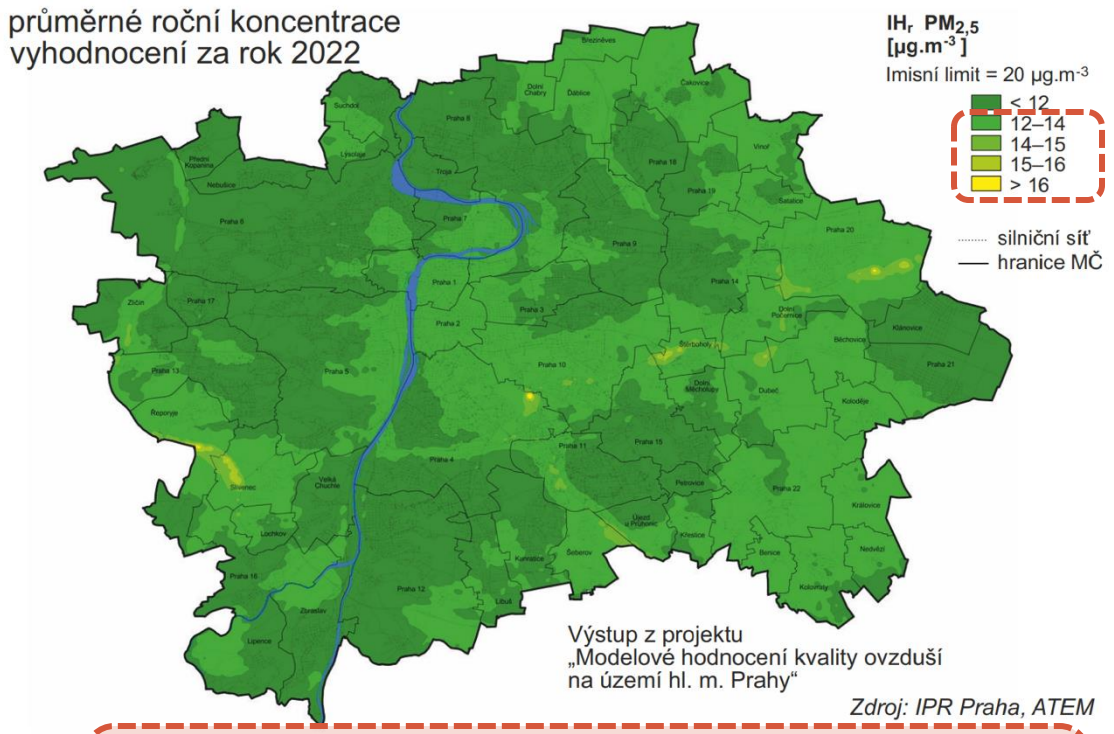
New pollution limits exceeded in over half of Prague's area

NO_2 (Average annual concentrations, 2022)(1)



Values over 20 µg/m³ will exceed the legally binding limits after 2030 - this applies to almost the entire city centre.

PM 2.5 (Average annual concentrations, 2022)(1)



Values over 10 µg/m³ will exceed the legally binding limits after 2030 - this affects more than half of Prague's area.

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(1) Portál životního prostředí hlavního města Prahy, 2023 (link).

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Key air pollutants: $PM_{2.5}$ most harmful; NO_2 risky for children

	Pollutant	Main source in transport	Effects on Health (according to EEA)(1)	Impact on health
Focus of this study	**Nitrogen Oxides (NO_2)**	Combustion engines, especially diesel	Causes respiratory issues, asthma, cardiovascular diseases. Impacts on liver, spleen, reproductive system.	⚠ ⚠
Focus of this study	**Particulate Matter ($PM_{2.5}$, PM_{10})**	Exhaust, brake dust, tire wear	Can enter the lungs and the blood stream. Impacts the central nervous system.	⚠ ⚠ ⚠
	Carbon Monoxide (CO)(2)	Gasoline engines	Binds to haemoglobin, reducing oxygen delivery – especially dangerous in closed areas.	⚠
	Volatile Organic Compounds (VOC)(2)	Fuel evaporation, incomplete combustion	Contributes to ozone formation, some compounds (e.g. benzene) are carcinogenic.	⚠
	Carbon Dioxide (CO_2)(3)	Fuel combustion (petrol, diesel, CNG)	Causes headaches, dizziness, difficulty breathing, elevated blood pressure.	Global warming impact
	Sulphur Dioxide (SO_2)(2)	Burning of low-quality diesel and other sulphur-containing fuels	Causes respiratory irritation, cardiovascular diseases, headache and anxiety.	⚠
	Ozone (O_3)(2)	Formed in the atmosphere from NOx and VOCs under sunlight	Irritates the respiratory system, reduces lung function, aggravates asthma.	⚠

(1) EEA. 2024 (link)
(2) Onwards the study focuses on the local emissions that have the most health impact – NO_2 and PM.
(3) Since the study is focusing on local emissions, CO2 will not be included in further predictions.

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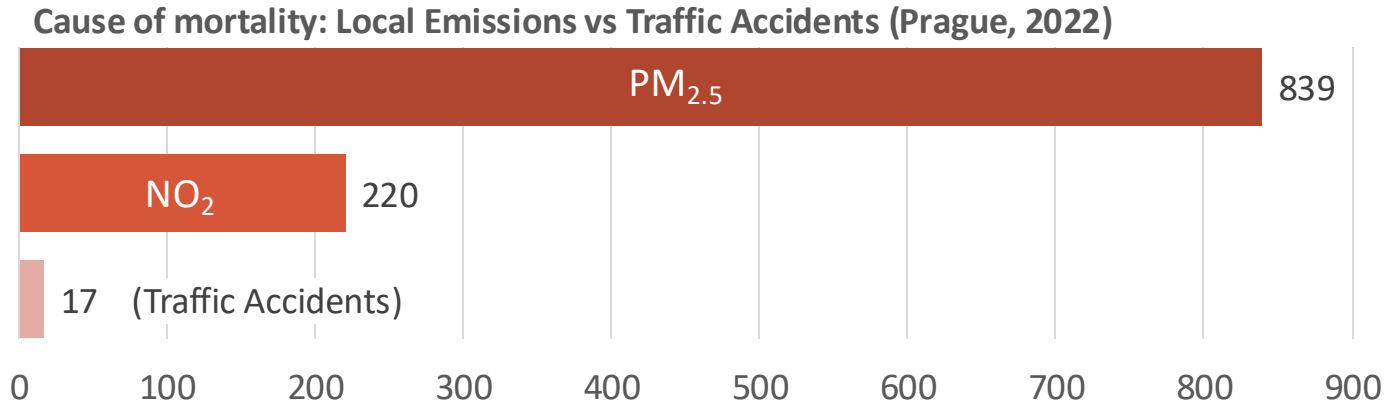
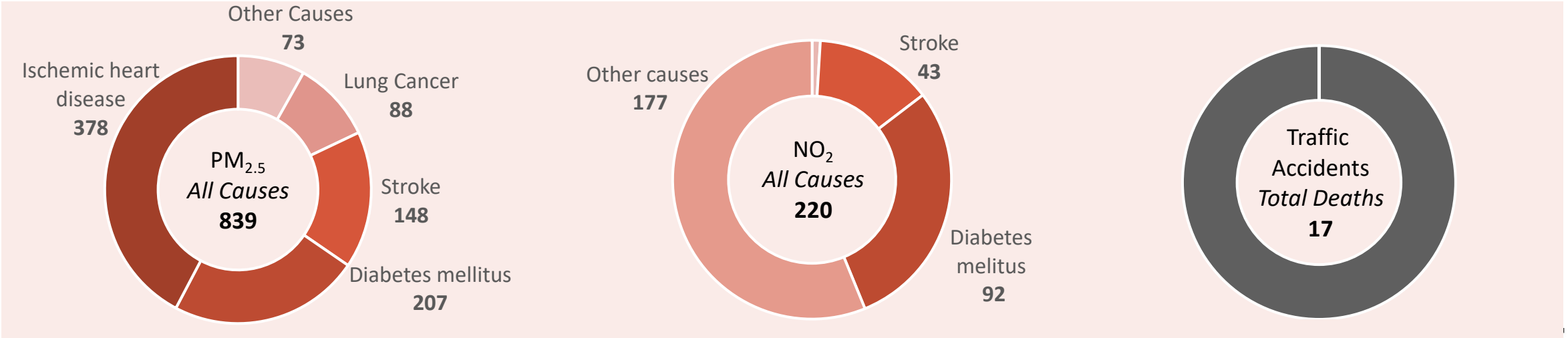
Local air pollution causes over 50 times more deaths than traffic accidents in Prague



- $PM_{2.5}$ is widely recognized as the most harmful pollutant to human health, as its microscopic particles can penetrate deep into the lungs and even enter the bloodstream.
- NO_2 is especially dangerous for children and individuals with existing respiratory illnesses, aggravating conditions such as asthma and reducing overall lung function.

Attributable deaths for different causes of mortality (Prague, 2022)[(1),(2)]



(1) According to the European Environmental Agency (EEA), 2022 (link) are these deaths attributable to exposure to $PM_{2.5}$ concentrations exceeding the WHO guideline of 5 µg/m³ and NO_2 levels above the recommended threshold of 10 µg/m³.

(2) TSK Praha, 2023 (link)

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Annual savings of NOx and PM emissions in Prague based on the above EV projections would amount to over 1 billion CZK per year in 2035

Annual emissions savings achieved by the purchase of electric vehicles according to the above projections
(the range of values reflects the spread between the low and high scenario projections)[1]

		2030			2035		
Segment	**Unit**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**
Private vehicles	*tonnes per year*	100 - 300	3.3 - 6.7	3.3 - 6.7	300 - 800	7.4 - 22.3	8.3 - 24.8
Taxis	*tonnes per year*	20 - 30	0.5 - 0.8	0.5 - 0.8	60 - 110	1.6 - 2.9	4.0 - 7.7
Delivery vehicles	*tonnes per year*	70 - 120	0.9 - 1.6	0.2 - 0.4	200 - 400	2.6 - 4.7	0.6 - 1.2
Economic value of emission savings[1]	*CZK per year*	**200 - 400 million**			**500 - 1 200 million**		

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(1) Calculation based on a Methodology to evaluate economic efficiency of a transport projects by the Ministry of Transportation (Rezortní metodika pro hodnocení ekonomické efektivnosti projektů dopravních staveb), 2024 (link)

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The above-calculated targets are likely conservative and underestimate the overall positive impact of electromobility on air quality in Prague

- The true impact of switching to BEVs can become even more apparent when looking at how internal combustion engine vehicles perform in real-world city conditions. The general arguments for this statement are as follows:
  a. **Cold starts:** The most harmful emissions happen when the engine is cold – often right after startup, during short urban trips.
  b. **Idling & Short Trips:** Engines continue to emit pollutants while standing still – during school drop-offs, deliveries, or taxi queues.
  c. **Lab tests vs Urban Reality:** Emission standards are based on lab conditions that do not reflect stop-and-go traffic, hills, or winter driving.
  d. **Taxis are high impact:** Due to long daily operation, idling, taxis emit disproportionately more in cities.
- Besides general arguments, a specific issue in the Czech Republic is the falsification of values during regular emission tests of older vehicles. According to various estimates and measurements, the formal standard may be violated in 5-10% of vehicles with internal combustion engines.(1)

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(1) Field measurement results according to the press release from the Ministry of Transport, 2019 (link).

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Electromobility has been in an early stage, reflected in the city's initiatives, but will require a more active role of the city in the coming years

Electromobility in Prague 2025 in numbers

12 500
BEV M1 vehicles(1)

900 BEV N1
14 BEV N2 vehicles(1)

950
public charging points(2)

Implemented regulations and ongoing city projects stimulating low-emission vehicles and electromobility

Regulations

Free Parking for EVs in City Parking Zones

Emission zones in the Prague 1&2 for trucks and buses (EURO 6+)

Ongoing projects

Installation of EV-ready streetlamps
(in cooperation with PREdistribuce)

Installation of 1 500 public parking charging stations
(subsidy has already been approved)

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(1) Open database of registered vehicles, Ministry of Transport, 2025 (link).
(2) TSK, 2023 (link).

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Prague has approved several strategic documents related (to some extend) to electromobility development

District Plan (2020)	▪ **District Plan for the Development of Charging Infrastructure in the Capital City of Prague by 2030** aims to expand public charging, ensure grid capacity, and support up to 4 500 public charging stations (AC).
Prague's Climate Commitment (2019)	▪ **Prague's Climate Commitment** details Prague commitment to reducing CO_2 emissions by at least 45% by 2030 (compared to 2010) and achieving climate neutrality no later than 2050. The plan include addition of 10 000 publicly accessible charging stations/points.
The Sustainable Mobility Plan (2019)	▪ **The Sustainable Mobility Plan** details planned measures to promote electromobility and specifies the investments costs of 504 million CZK for the measures. The document also mentions a prediction of 56 000 BEVs in 2030.
The Air Quality Improvement Action Plan (2020)	▪ **The Air Quality Improvement Action Plan (PZKO) 2020+** outlines measures to reduce air pollution, primarily from transport and heating. Electromobility is included as a supportive measure, encouraging expansion of EV use and charging infrastructure to help lower transport emissions.
The Strategic Plan (2016)	▪ **The Strategic Plan** is envisioning the city's development goals up to 2030. It positions electromobility as a tool to reduce environmental burdens, improve air quality, and modernize the city's transport system in line with climate and health goals.

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3 Lessons from Other EU Cities

Overview of measures applied in EU cities

Category of Measures	Private vehicles (i.e. individual electric mobility)	Taxis (incl. ride-hailing services)	Delivery vehicles (incl. light duty and medium-duty vehicles)	General
Financial Instruments	• Discounted parking fees • Discounted charging fees	• Grants for transitioning taxi fleets to EVs • Reduced license fees • Discounted parking fees • Discounted charging fees	• Subsidies for purchasing EVs in corporate fleets • Reduced fees for entering low emission zones	• Tax incentives • Grants towards retrofitting • Compensation for the scrappage of an old vehicle • Differentiated parking fees by emission level
Regulatory Instruments	• Restrictions on conventional vehicle entry	• Mandatory use of e-taxis in certain areas or stands • Strict emission standards for newly licensed vehicles	• Progressive tightening of emission limits for delivery firms • Mandatory electric deliveries in city centres (at certain times/always)	• Low-emission zones • Congestion charges for city centre access
Infrastructure Measures	• Building public charging stations for residents (parking garages, on-street locations)	• Creation of charging hubs for taxi services	• Fast charging hubs for logistics companies • Designated routes for zero-emission deliveries	• Citywide network of charging points • Mandatory pre-installation of charging infrastructure in new buildings
Accompanying Measures (awareness, training)	• Information campaign on EV benefits and real costs • Support for (EV) car-sharing	• "Green taxi" city campaign • Training for EV drivers (eco-driving, charging management)	• Information seminars for logistics companies • Promotion of total cost of ownership (TCO) of EVs • Last Mile Delivery: Promotion of cargo bike deliveries	• City advisory centre for EV transition • Public events and test drives for various segments
Organizational and Data Support	• Mapping charging demand in residential areas and on-demand densification to improve efficiency • Central reservation system for charging stations	• System for optimizing taxi fleets (routes, available charging)	• Data-sharing platform for delivery routes (optimization, charging windows)	• Municipal database of charging stations and occupancy • Smart mobility platform (real-time traffic data) • Adapting building and zoning codes

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Cities promote electromobility to improve lives and health of their residents

- Reduce Air Pollution
- Improve Public Health
- Promote Innovation, More Public Space
- Reduce Noise Pollution
- Reduce Odor
- Reduce Greenhouse Gas Emissions
- EU's commitment to low-emission development

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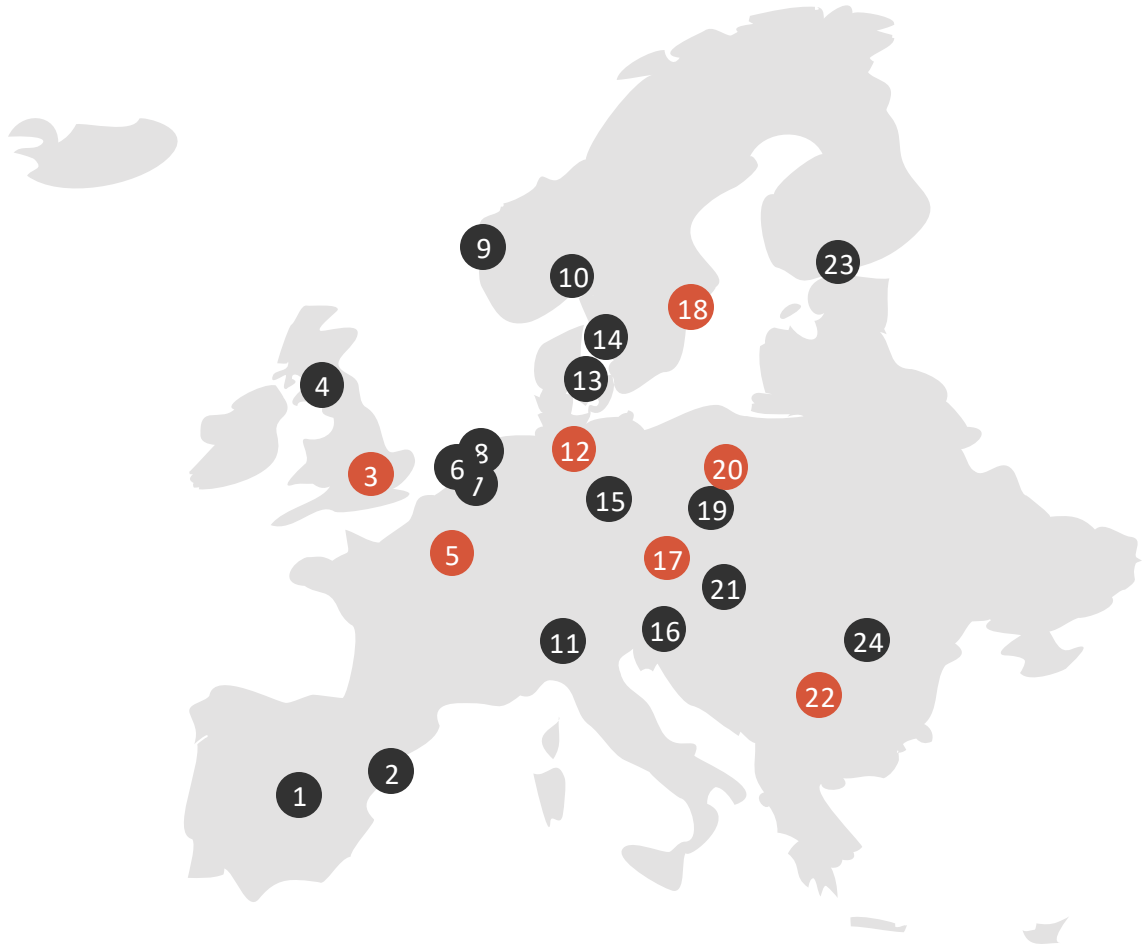
Cities reviewed for good practices in electromobility



1.	Madrid	13.	Copenhagen
2.	Barcelona	14.	Göteborg
3.	London	15.	Berlin
4.	Glasgow	16.	Ljubljana
5.	Paris	17.	Vienna
6.	Rotterdam	18.	Stockholm
7.	Amsterdam	19.	Krakow
8.	Utrecht	20.	Warsaw
9.	Bergen	21.	Budapest
10.	Oslo	22.	Sofia
11.	Milan	23.	Helsinki
12.	Hamburg	24.	Bucharest

Orange highlighted cities were chosen for deeper investigation and are detailed in the following slides.

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Vienna, Austria: Structured support for taxi fleet electrification and charging

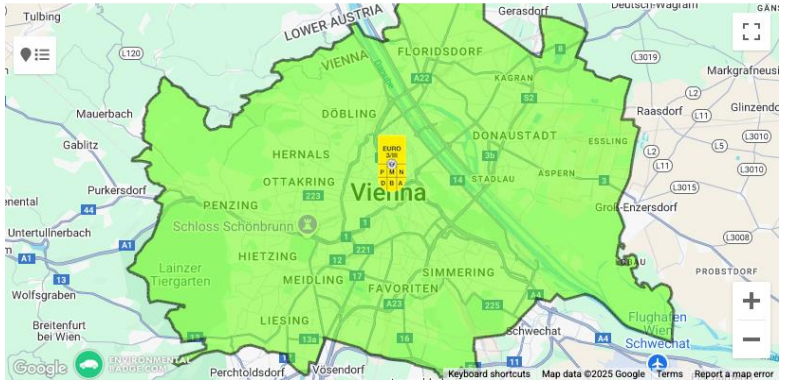
- The majority of public charging infrastructure is operated by Wien Energie, the city's municipal energy company.
- The network is fully integrated into Wien Energie's app and smart card system, allowing easy access for users.(1)
- Larger institutions like Post AG, ÖAMTC, and TÜV Austria are actively transitioning their fleets to electric vehicles.(2)

- The city participates in the eTaxi Austria project, which introduced automated wireless charging pads at 8 taxi stands, serving a fleet of 56 electric taxis. Vehicles are charged using contactless inductive technology, improving ease of use and turnaround time.(3)

- Since 2016, the city has introduced emissions-based access restrictions for commercial vehicles (N1, N2, N3) – allowing only vehicles that meet at least EURO 3 standards.

Vienna, Austria

Environmental Zone Vienna Map



(1) Wien Energie, 2021 (link)
(2) Austrian Academy of Sciences, 2019 (link)
(3) tbw Research, 2019 (link)

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Warsaw, Poland: National incentives, low emissions zones, and infrastructure

- In 2024, Warsaw introduced Poland's first Low Emissions Zone in one district.
  - The first stage introduced restrictions based on vehicle emissions standards (at least Euro 2 for petrol, Euro 5 for diesel vehicles)
  - Subsequent stages will progressively tighten these requirements.(1)
- The charging infrastructure is expanding through collaboration between the city and private operators.
- National programs offer various incentives for electric vehicle buyers, including tax exemptions, free parking in designated zones, and access to bus lanes until 2025.(2)
- The city is establishing urban micro-hubs to facilitate last-mile deliveries using low emissions vehicles like cargo bikes and electric vans.(3)

Warsaw, Poland

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(1) Dudkowiak & Putyra, 2024 (link)
(2) European Commission, 2025 (link)
(3) C40 Cities, 2024 (link)

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Hamburg, Germany: Coordinated approach to taxi fleet electrification

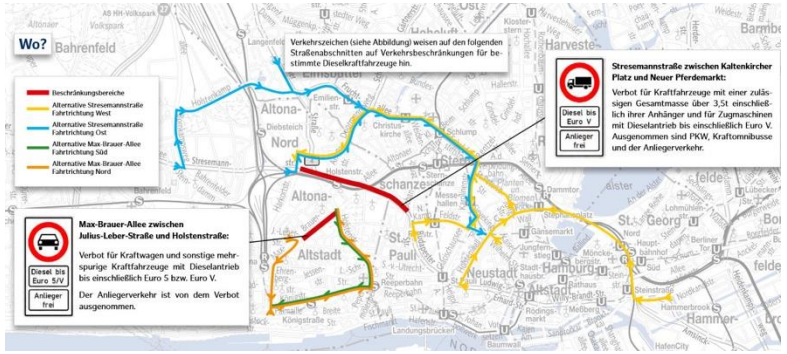
- The city is preparing for a Low Emission Zone and already restricts access on certain high-emission roads.

- The city uses public campaigns, incentives, and infrastructure investment to encourage EV uptake.
- Green mobility services (like MOIA and Green Uber) are also promoted as alternatives.

- The city is pursuing full electrification of taxi and rental fleets by 2025.
- Sinde 2021, the city has supported e-taxis with subsidies (up €5 000 per vehicle) and priority access to charging infrastructure.
- Taxi and rental cars with combustion engines can no longer be registered from 2025.
- As of now, nearly 700 fully electric taxis are operating, and the city is expanding to 40 charging points at taxi ranks.(1)

- Pilot projects and partnerships involve electric vans and micro-depots, and the city supports logistics electrification through infrastructure access.(2)

Hamburg, Germany



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(1) Hamburg News, 2024 (link)
(2) Port of Hamburg, 2024 (link)

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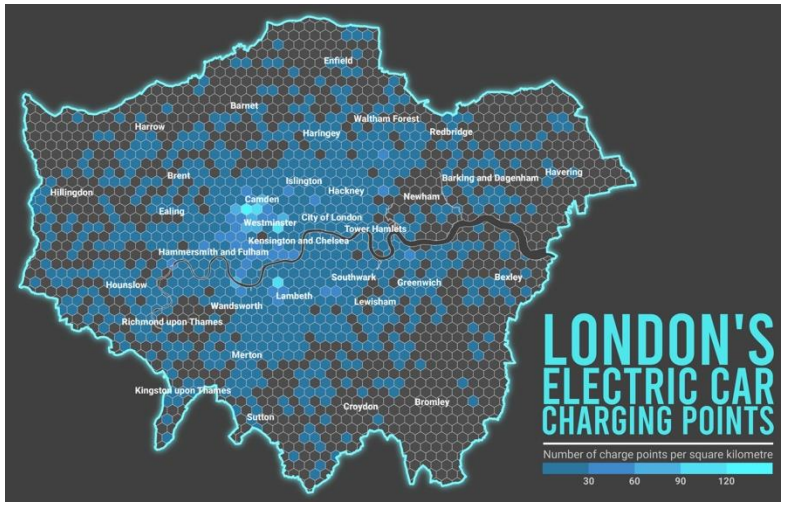
London, UK: Strategic approach of zero emissions zones, and infrastructure

- The city introduced its Low Emissions Zone (LEZ) in 2018, targeting high-polluting vehicles across a large area. The LEZ paved the way for stronger policies like the Ultra Low Emissions Zones (ULES) and Congestion Charge.
- Contrary to concerns, local merchants did not report a drop in sales - in fact research shows spending increased in LEZ-covered areas compared to the rest of the city.(1)

- Over 50% of London's black cabs are now Zero Emission Capable (ZEC) – taxis capable of driving a significant distance in fully electric mode but may still have a petrol range extender.
- These vehicles are manufactured in the UK, supporting local jobs.
- Since 2018, all newly licensed taxis must be ZEC.(2)
- The switch to ZEC taxis is supported by dedicated charging points, financial incentives, and vehicle licensing requirements.

- As of 2020, London had around 2 700 public charging points, including over 300 ultra fast chargers, many of which are targeted toward high-usage vehicles like taxis and delivery vans.(3)

London, UK



(1) Clean cities Campaign, 2021 (link)
(2) Transport for London, 2018 (link)
(3) Mayor of London (link)

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Stockholm, Sweden: Electromobility in parking, and nighttime operations

- The city plans to equip all city-owned parking spaces in inner-city with charging stations by 2028.
- In suburbs, the goal is to have 25% of parking spaces outfitted with chargers by 2026, progressing to 100% coverage by 2030.(1)

- The city is integrating shared mobility services into the broader public transport network to encourage the adoption of electric vehicles and reduce reliance on private cars.

- The city promotes the shift to off-peak, emissions-free deliveries, leveraging the quieter operation of electric vehicles to facilitate nighttime operations, thus reducing daytime traffic congestions.

- In 2021, Stockholm co-founded the Electrification Pact alongside companies like Scania AB and Volkswagen, aiming to facilitate the transition to electric vehicles by enhancing charging infrastructure and supporting services.(2)

Stockholm, Sweden

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(1) Bable, 2017 (link)
(2) UITP, 2024 (link)

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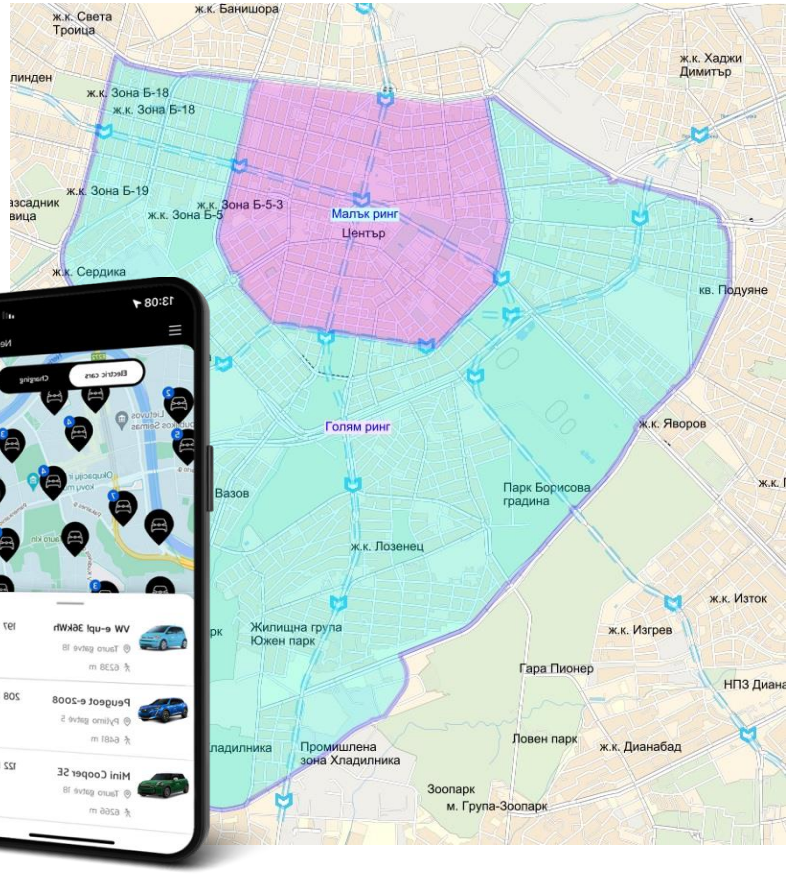
Sofia, Bulgaria: Pioneering low emissions zones and support for shared e-mobility

- Sofia is the first city in Eastern Europe to implement a formal LEZ.
  - The measure applies to M1 and N1 vehicles during winter season (Dec-Feb).
  - It was being introduced in two phases from 2023 to 2025, covering two designated urban zones.
- The city implemented a project from 2019-2022 aimed at expanding the public charging network by adding 280 new charging stations.(2)
- The city promotes the use of shared electric cars by allowing them to park for free anywhere in the city, offering a strong incentive to reduce private car ownership.
- The municipality has launched efforts to raise awareness among residents, businesses, and other stakeholders about the link between traffic, emissions, and public health, promoting a shift toward more sustainable urban transport options.

Sofia, Bulgaria



(1) Urban Access Regulation in Europe, 2025 (link)
(2) CEEweb for Biodiversity, 2023 (link)
(3) Spark, 2025 (link)

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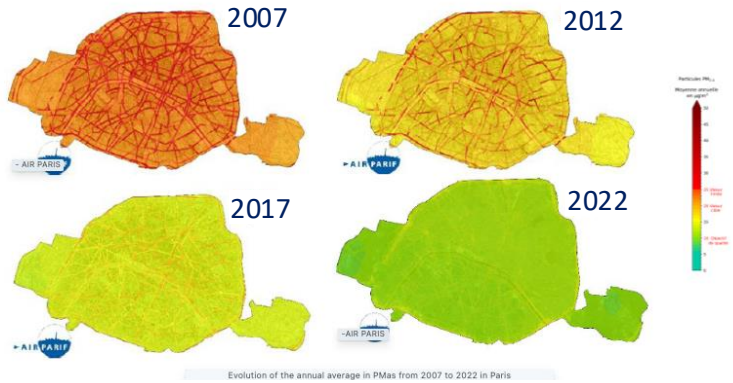
Paris, France: Transport electrification as a tool for cleaner urban air

- Paris has implemented a Low Emission Zone since 2017,with a gradual tightening of access restrictions based on vehicles emissions classes.(1)
- By 2030, the city plans to ban all diesel and petrol-powered private cars from the urban area.(2)
- Public communication is reinforced by real-time air quality maps and exposure data, helping justify action and raise awareness.

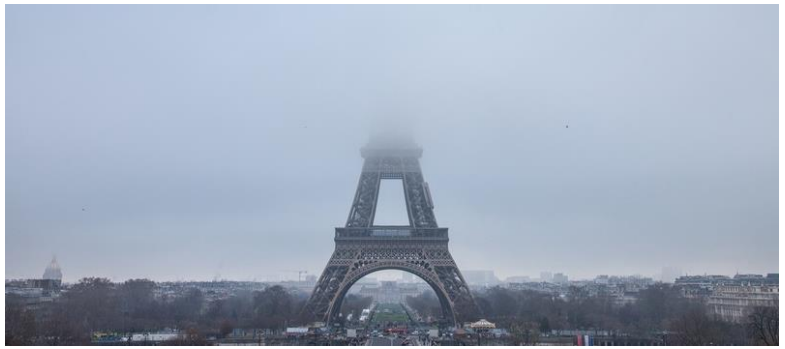
- All newly registered taxis must be either hybrid, electric or CNG-powered.
- Dedicated EV taxi charging have been installed at key locations (train stations, airports)
- Paris also promotes electric ride-hailing, and platforms like Uber have announced electrification targets aligned with the city's goals.

- The city is converting underutilized spaces (such as parking areas) into micro-hubs to facilitate last-mile deliveries. These hubs enable the use of environmentally friendly modes like cargo bikes and light electric vehicles for goods distribution within the city centre.(3)

Paris, France



Average Annual Contrentration $PM_{2.5}$ between 2007-2022



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(1) EnvironmentalBadge.com, 2017 (link)
(2) Reuters, 2017 (link)
(3) European Commission, 2024 (link)

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4 The Action Plan Framework

The following section presents a set of selected measures that could help Prague accelerate the adoption of electromobility

- The following set of nine measures builds directly on the evidence, data, and good practices presented so far.
- The aim is to support the City of Prague in advancing clean, accessible, and sustainable urban mobility with particular focus on:
  - Ensuring equitable and efficient charging infrastructure for all users
  - Accelerating the adoption of electromobility across private vehicles, taxis, and delivery vehicles
  - Reducing traffic-related emissions while continuing to support essential mobility and logistics services
  - Improving air quality management in line with the legislation, and ensuring data-driven decisions and transparent communication
- Each measure is evaluated by:
  - Complexity (how demanding the action is to implement, scale 1-3)
- The detailed description of each measure includes the current and target state - the latter is achievable within a few years
- The framework build on Prague's existing strategic documents and ongoing projects and aims to support the successful and realistic adoption of electromobility in key transport segments over the coming years.

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Proposed measures to support electromobility and air quality in Prague

Area	#	Measure	Complexity (1 = least complex)	
Charging infrastructure development	I.	Successful completion of the project for the implementation of **1 500 parking charging stations** by the end of 2027, using the already granted subsidy	3	
	II.	Identification of (for example 5) locations for the construction of **fast charging hubs** in strategic areas of the city and offering these locations to private investors	3	
Support of the EV operation in the city	III.	Development a **communication platform** for city residents (e.g. PID Lítačka app) that allows EV users to manage charging and access other EV-related services	2	*
	IV.	Introduction of **pricing tariffs** for parking and parking charging price differentiating between vehicle types and between residents/non-residents	1	*
Reduction of the local emissions	V.	Gradual introduction of **low-emission zones** in selected areas of the city to improve air quality	3	*
	VI.	Conditioning the **granting of taxi service licenses** on meeting emissions efficiency threshold	1	
Data & Communication	VII.	Processing the impact analysis of **Ambient Air Quality Directive** (EU) 2024/2881	1	*
	VIII.	**Communication towards public** about health impacts of local emissions from transport and the effect of electromobility	1	
	IX.	Further alignment of **communication between the Prague City Hall and the individual Districts** with regards to promoting electromobility	1	

* The measure has a high positive communication potential towards Prague citizens if applied cautiously.

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LEEF TECHNOLOGIES

I. Successful completion of the project for the implementation of 1 500 parking charging stations by the end of 2027, using the already granted subsidy

- Building accessible parking chargers in residential areas is essential for allowing city residents without private parking spaces to use electric vehicles.
- Identifying locations for parking charging stations, the permitting process, and the actual construction are very demanding. Installing thousands of charging stations, which will be needed, cannot be done without the active role of the city.
- Prague has already secured funding for the implementation of 1 500 charging stations (with almost 3 000 charging points) by 2027 and is simultaneously carrying out a project to build EV-ready lampposts. It is crucial that, despite the complexity of organizing the entire project, this initiative is successful.
- After the installation of the first 1 500 parking charging stations, consider a densification phase should follow, both based on real data about station usage and feedback from citizens (on-demand densification).

Current state

- In 2024, the city was approved for a state subsidy for investment costs amounting to 200 million CZK
- A project is underway for the construction of EV-ready lampposts, which are being prepared for the installation of charging wallboxes
- The identification of locations for the installation of charging stations is underway

Target state

- 1 500 public charging stations for slow charging distributed fairly across Prague, especially residential areas (where private charging is not feasible).
- These slow parking chargers would complement privately operated charging infrastructure.

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LEEF TECHNOLOGIES

II. Identification of (for example 5) locations for the construction of fast charging hubs in strategic areas of the city and offering these locations to private investors

- With the development of charging technology, charging powers of 150-350 kW can now be achieved, enabling vehicle charging in up to 15 minutes. Installing these charging solutions requires higher connection capacity. Unlike installations with lower power, these will be implemented in larger numbers in newly established fast charging hubs.
- Investors of these newly emerging fast charging hubs are typically private companies, a practice commonly seen along highways . In the urban environment, the main obstacle is the availability of land in strategic locations (e.g., near airport, train stations, commercial zones etc.) with sufficient space and power capacity allowing the construction of these hubs.
- The city could help by identifying and offering suitable municipal land to private companies (e.g., through long-term leases). The city's support in obtaining building permits for the construction of the hubs is also significant.

Current state	Target state
▪ Currently, there is no fast charging hub in Prague allowing charging a larger number of vehicles with a power of 150 kW or more ▪ Out of a total approx. 50 DC charging points in Prague, only 35 offers the power 150 kW or more.(1) ▪ There are fast charging hubs (e.g., IONITY Nupaky, Tesla Vestec) near city outskirts.	▪ 5 fast charging hubs, each with approx. 5-10 charging spaces with power output 150-350 kW located near to airport, train stations, commercial zones etc. ▪ The hubs will be publicly accessible for all types of vehicles (passenger cars, taxis, delivery vehicles).

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(1) CistaDoprava.cz, 2025 (link)

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III. Development a communication platform for city residents (e.g., PID Lítačka app) that allows EV users to manage charging and access other EV-related services

- A unified communication platform should be established to support the needs of electric vehicle users (especially charging) and seamlessly integrate electromobility into Prague's broader transport ecosystem (linking it with other modes of transport).
- The PID Lítačka app, in operation since 2016, is a core digital tool for urban mobility management. It should be enhanced with a dedicated EV interface that enables users to:
  - View a citywide map of public charging stations (across different operators), including real-time availability and pricing
  - Reserve, access and pay for charging in a single step across all stations
  - Integrate parking and charging payments (at city operated stations)
  - Introduce tariff differentiation for vehicle types and user categories – see Measure IV below
  - Have an option to select electric taxi option when planning multimodal trips

Current state	Target state
▪ The PID Lítačka app is user application provides public transport ticketing, parking payment, route planning ▪ The app is integrated with some shared mobility services (e.g., bikes, scooters) ▪ Currently it include a map of public charging stations.	▪ PID Lítačka displays real-time availability of all public charging stations in Prague ▪ EV users can easily manage their reservations, charging information and payment in one place, PID Lítačka allows payment for parking and charging together

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IV. Introduction of pricing tariffs for parking and parking charging price differentiating between vehicle types and between residents/non-residents

- Unlike the current system, which allows free parking for all electric vehicles across the entire city, a tariff system should be introduced that links parking with parking charging (stations built by the city allowing introduction of various tariffs).
- Goals of the new tariff system:
  - Allow for reduced prices for charging and parking for residents with electric vehicles in their place of residence
  - In other parts of the city, residents may (for example) have reduced parking/charging fees compared to non-residents
  - The system should not create an undue incentive for non-residents to use private vehicles for travel within Prague
  - The system should allow preferential parking and charging rates for shared electric mobility services to support more efficient and sustainable use of urban space

Current state	Target state
▪ Free parking for EVs in Prague has been available since 2019, does not differentiate between residents and visitors. ▪ Originally included both BEVs and plug-in hybrids (PHEVs) that met emission limits, since 2024, limited to battery electric vehicles (BEVs) only. ▪ The current scheme is valid until mid-2025.	▪ New tariff system should serve as an incentive for the use of electric vehicles over emission-based vehicles, while simultaneously avoiding undesirable incentives that could encourage city visitors to excessively use private cars for transportation within the city. ▪ Shared electric mobility services should receive preferential parking and charging rate

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V. Gradual introduction of low-emission zones in selected areas of the city to improve air quality

- This measure does not require a ban on combustion vehicles or a full city centre closure.
- It builds on the existing Czech legislative framework, which allows cities to introduced Low Emission Zones (LEZ) with clearly defined conditions – including location, time, and vehicle emissions standards.
- The implementation of LEZ should be preceded by a thorough preparatory process, including technical and transport studies, assessment of impacts on residents and traffic, legal analysis, pilot testing, and consultations with all key stakeholders.
- A phased tightening of emission requirements is recommended – starting with minimum standards, with a long=term goal of eventually restricting access to zero-emission vehicles only.
- This approach can be gradual, data-driven, and flexible, with exemptions for residents, logistics, or other sensitive users.
- The primary goals is to improve air quality in the most affected areas while allowing time for adjustment and maintaining public trust and operational feasibility.

Current state	Target state

▪ An official Low Emission Zone is not yet in operation in Prague.
▪ Some partial access restrictions exist:
  ▪ Freight vehicles over certain weight limits (e.g., 3.5 t or 6 t),
  ▪ Entry for non-residents on selected streets (due to noise and air pollution concerns).
	▪ Gradually introduced Low Emission Zones (LEZ) in selected locations with the highest air pollution, based on air quality monitoring and traffic data.
	▪ LEZ implementation is coordinated with other city measures.
	▪ The measure ensured meeting the new EU directive on air quality limits.

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VI. Conditioning the granting of taxi service licenses on meeting emissions efficiency threshold

- Link the issuing of new taxi service licenses to vehicle emissions performance, based on either Euro emission standards or zero-emissions vehicle status.
- These requirements should be introduced gradually: for example, starting with EURO 6 in the initial phase, with a future transition to only allowing zero-emissions vehicles.
- This measure aims to gradually reduce emissions from the taxi sector, which has a high share of urban mileage and contributes disproportionately to air pollution in dense areas.
- The practice of issuing taxi licenses based on vehicle emissions standards is common in other European cities and has proven to be a high-impact measure for improving urban air quality.

Current state	Target state
▪ Taxi operator licenses are issued indefinitely, unless revoked. ▪ Driver's licenses ("yellow card") are renewed every 5 years. ▪ There are no specific emission requirements linked to vehicle approval for taxi use -> older or higher-emitting vehicles can continue operating as taxis without restriction.	▪ Taxi licenses are granted only to vehicles that meet minimum emissions criteria, such as Euro 6 or zero-emission vehicles. ▪ A gradual phasing in of these requirements ensures a just transition and allows time for operators to adapt.

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VII. Processing the impact analysis of Ambient Air Quality Directive (EU) 2024/2881

- Prepare for the implementation of the new EU Air Quality Directive by conducting an impact analysis specific to Prague.
- Evaluate whether existing monitoring infrastructure is sufficient and whether new measuring stations will be required – particularly in the most polluted areas of the city.
- Use the results to identify locations and sectors that may struggle to meet the stricter air pollution threshold and plan mitigation steps.
- The output will serve as a data-driven foundation for decisions on priority areas and types of measures (e.g. low-emission zones, changes to parking system, transport planning).

Current state	Target state
▪ Prague formally meets current air quality limits, but the new EU thresholds for 2030 will likely be exceeded in several areas. ▪ For example: Legerova street - $PM_{2.5}$ >15 µg/m³ (vs. future limit of 10 µg/m³), NO_2 >35 µg/m³ (vs. future limit of 20 µg/m³)(1). ▪ Air quality monitoring network: Six stations in the city centre, while eleven spread across other parts of the city. The number is sufficient, but the suitability of the locations requires further assessment.	▪ Completed assessment of needed adjustments to emission monitoring and reporting systems. ▪ Identification of risk areas where new mitigation measures may be necessary to meet the Directive. ▪ Basis for evidence-based decision making on future low-emission zones, mobility measures, and communication strategies.

(1) CHMU, 2025 (link)

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VIII. Communication towards public about health impacts of local emissions from transport and the effect of electromobility

- Strengthen public communication about the health impacts of air pollution from transport, with a particular focus on local effects such as respiratory and cardiovascular diseases.
- Communicated the benefits of low=emission and electric vehicle adoption in terms of health protection, especially in urban environments and high population exposure.
- Support public understanding and acceptance of clean mobility measures by connecting them to tangible improvements in quality of life.
- Consider targeting communication to specific groups (e.g. parents, elderly, healthcare professionals, schools) with tailored messages.

Current state	Target state
▪ Public awareness of air pollution as a general issue exists, but the direct link between traffic emissions and health outcomes Is often underestimated or abstract. ▪ Communication around electromobility tends to focus on climate and innovation benefits rather than immediate, personal impacts. ▪ Existing messaging is fragmented, and health-related arguments are not consistently used in public campaigns or city materials.	▪ Clear, consistent, and evidence-based communication about the health effects of transport emissions is integrated into city campaigns, communication materials are developed in cooperation with experts and health institutions. ▪ The public understands that reducing local emissions = better health outcomes, and that electromobility plays a key role in this transitions, which leads to stronger public support for city measures.

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IX. Further alignment of communication between the Prague City Hall and the individual Districts with regards to promoting electromobility

- Strengthen the communication between the City Hall and individual Prague Districts in the topics related to electromobility – including air quality monitoring, development of infrastructure, planning of low-emissions zones, and communication with residents.
- This measure supports the strategic documents by ensuring that all actors move in the same direction toward clean urban mobility.
- As electromobility advances, coordinated city hall-district communication becomes increasingly important to ensure consistency in infrastructure development, permitting, and communication with public.

Current state	Target state
▪ Communication between the City Hall and Districts on electromobility is ongoing but fragmented and often reactive rather than strategic. ▪ Some districts are moving ahead independently, while others lack resources or guidance. ▪ There is no consistent framework for sharing updates, aligning goals, or coordinating technical and planning inputs.	▪ Regular and structured communication channels are established between the City Hall and all districts. ▪ Clear roles and responsibilities for each stakeholder in the implementation of measures. ▪ Districts are actively engaged, informed, and aligned on citywide goals related to electromobility and clean transport policy.

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5 Summary

Summary

- Meeting national low-emission transport targets would require the deployment of approximately 280,000 low-emission vehicles in Prague by 2035. Such significant development of electromobility cannot be achieved without support from the city.
- Electrification in selected transport segments (private vehicles, taxis, delivery vehicles) contributes to reducing both climate impacts and local air pollution, which continues to be a significant concern for public health in urban areas.
- International case studies indicate that successful electrification depends on a combination of strategies, including coordinated development of charging infrastructure, granting taxi licenses to low-emission vehicles, and introducing low-emission zones.
- This study proposes nine tangible action measures that address four priority areas: development and operation of charging infrastructure, direct regulation of local emissions, data management, and targeted communication.
- The next step is the preparation of a detailed action plan that will define the implementation timeline, responsibilities, and delivery process for each measure.
- This document can serve as a foundation or inspiration for such an action plan and help establish a shared framework for the city's next steps.

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LEEF TECHNOLOGIES

Alžběta Křížková
Project Manager
alzbeta.krizkova@leeftech.com

LEEF Technologies s.r.o
Forum Karlín
Pernerova 51
186 00, Praha 8

www.leeftech.com

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