The rise of electric vans and trucks:
Early evidence from Dutch zero-emission zones for freight

CleanCities

This briefing was written by Clean Cities, hosted by T&E. Clean Cities is Europe's largest network of organisations on a mission to build public support for cities to shift from polluting vehicles to active, shared and electric mobility.

Lead author: Anka Sušická
Contributors: Jens Müller, Martin Baierl
Review: Venn Chesterton
Design: Dan Farley
Cover image: Scharfsinn86 (iStock Photos)

Acknowledgements

The Clean Cities Campaign would like to express their gratitude to Sandra Wappelhorst (ICCT) and Nienke Onnen (Natuur & Milieu) for their input and to all partner organisations and cities that have contributed to this briefing. The Clean Cities Campaign is solely responsible for the content of and the views expressed in this document.

Contents

Executive summary

Freight transport is essential to city life but contributes substantially to emissions, noise and congestion in public space. The Netherlands, a European frontrunner in addressing these challenges, introduced its first 18 zero-emission zones for freight (ZEZ-Fs) in 2025, with plans to expand to 29 municipalities by 2030. This briefing provides an initial assessment of the impact of these zones on the uptake of electric commercial vehicles, drawing on both national and city-level data.

The main findings are:

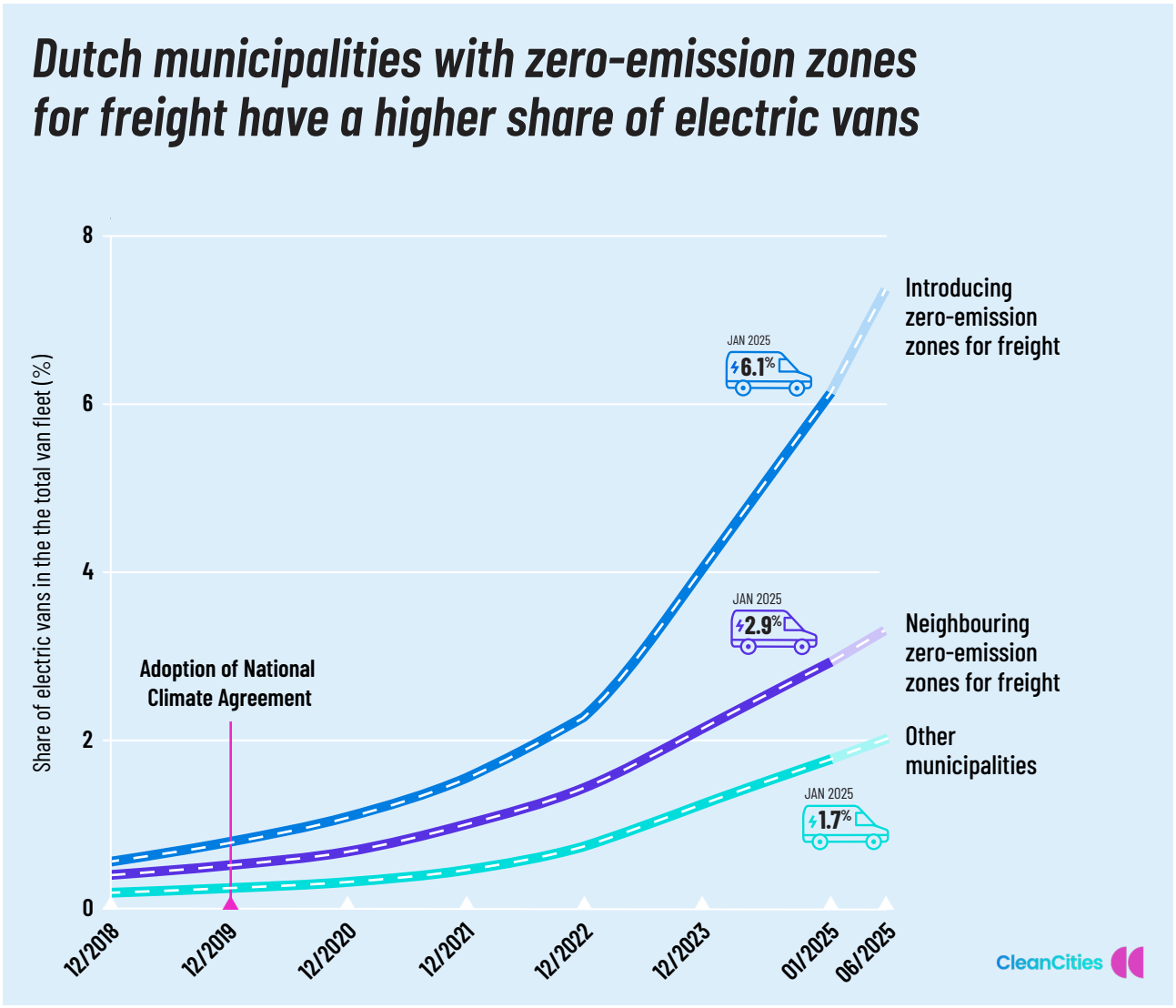
- **The Netherlands leads Europe in electrifying freight.** In the first half of 2025, 78.4% of all newly registered vans were battery-electric, far above the EU average of 8.5%. The Netherlands also accounted for a quarter of new electric trucks sold in the EU, with registrations increasing by 187.6% year-on-year, compared to the EU-wide growth of 46.1%.
- **Municipalities with commitments to zero-emission zones for freight see a higher share of electric vans.** According to the latest city-level data, municipalities with ZEZ-F commitments by 2030 had an average electric vans share of 6.1% by January 2025, compared to 1.7% in non-ZEZ-F municipalities. Similar differences can be observed for trucks up to 2024, but local truck registrations data is not yet available for 2025.
- **Neighbouring municipalities also see a higher share of electric vans.** Neighbouring municipalities reached a higher share of 2.9%, suggesting a “spill-over” effect.
- **Company strategies confirm the impact of zero-emission zones for freight.** Operators' investment plans and public statements highlight ZEZ-Fs as a key driver for deploying emissions-free fleets, while extensive business engagement and clear timelines gave companies sufficient time to adapt.

This initial analysis indicates that **zero-emission zones for freight can be a crucial policy tool** for accelerating electric commercial vehicle adoption, especially when combined with supportive measures such as local and national grants as well as fiscal incentives.

The Dutch experience offers **lessons for other European cities and governments** aiming to decarbonise urban logistics. Clear, long-term policies, financial support and charging infrastructure are essential. National governments should empower cities, harmonise rules and plan grid capacity. The Netherlands, Denmark, and Sweden already have national ZEZ frameworks, whilst Norway is developing one.

The EU should maintain ambitious **CO_2 standards for vans and trucks, set binding zero-emission purchase targets for corporate fleets** and enable **cross-border enforcement of ZEZs**. These measures would help increase the supply of electric vans and trucks and boost demand amongst companies.

Clean Cities will continue to analyse the trends in electric van and truck uptake in the Netherlands as new data becomes available - particularly given that national data shows a strong increase in electric van and truck registrations in 2025.



Source: Regionale Klimaatmonitor, CBS. Note: For 2024 and 2025, the municipal total fleets were estimated using 2023-2025 provincial growth rates. Shares in June 2025 are calculated using the January 2025 total fleet due to lack of available data.

1. What are zero-emission zones for freight and why do they matter?

Urban freight: a vital, but challenging, part of urban transport

Urban freight transport is essential to cities, enabling the movement of goods and services for households, businesses and public authorities. Yet this vital sector also creates some of the most pressing challenges for urban liveability and health. Despite representing **a small share of the total vehicle fleet**, urban freight vehicles - predominantly fossil-fuelled vans and trucks - **disproportionately contribute to traffic congestion, emissions and noise pollution**. Clean Cities research shows that urban logistics accounts for around 25% of GHG emissions from road transport in cities, while representing 6% of total urban vehicle-kilometres.

The challenge is **amplified by rapid growth in demand**. Urban freight operators face structural constraints, including financial pressures, tight delivery schedules, and operational limitations, which can make transitioning to cleaner and zero-emission vehicles challenging. Driven largely by e-commerce, EU parcel volumes are rising by 8–14% each year, and in many cities van traffic has grown faster than passenger cars and overall traffic. Without decisive intervention, freight activity will continue to rise sharply, threatening progress towards cleaner, safer and more liveable cities.

Beyond European regulation: zero-emission zones as key local measures

Regulation is tightening at the European level. The EU has committed to phasing out sales of all new petrol and diesel vans by 2035 and to imposing substantial CO_2 reduction targets for trucks by 2040 (-45% by 2030, -65% by 2035 and -90% by 2040). However, under current legislation, emissions from heavy-duty vehicles are projected to fall by only around two-thirds of the reductions required by 2050 compared with 1990 levels. As for vans, registration numbers of electric models are lagging behind cars. This **gap highlights the urgency of accelerated local action**.

Across Europe, many cities are already taking steps to clean up urban freight, including the introduction of urban consolidation centres, last-mile electric cargobikes and dedicated charging infrastructure. Among the most ambitious tools now being rolled out are zero-emission zones (ZEZs), designated areas where, over time, only zero-emission vehicles as well as walking and cycling are permitted.

From zero-emission zones towards 'Living Districts'

For Clean Cities, zero-emission zones (ZEZs) are a key policy towards creating 'Living Districts' - people-first urban areas that bring communities and businesses together. The goal is calmer, more connected streets where residents can thrive, businesses can prosper and deliveries can run smoothly.

ZEZs are often a natural progression from low-emission zones (LEZs), which restrict access based on vehicle emission standards but do not require a full transition to zero-emission vehicles. More than 340 European municipalities cities have implemented LEZs.

As for zero-emission zones - including those for freight - **33 municipalities** have committed to **introducing a ZEZ by 2030**. Copenhagen was the latest to adopt such plans in August 2025. Clean Cities provides a map showing both planned and existing zero-emission zones. **Three European countries** - the Netherlands, Denmark and Sweden - **have already adopted national legal frameworks** for ZEZs, with Norway currently developing one (see Annex 1 for details).

Most of these zones **focus on freight transport** due to its high mileage and therefore disproportionate contribution to emissions and congestion. The Netherlands is at the forefront of this shift. Since January 2025, Dutch municipalities have begun rolling out ZEZ-Fs, the first of their kind in Europe.[i]

Dutch cities at the forefront

Dutch cities face acute challenges linked to urban logistics, reflecting broader European trends. Freight distribution in Dutch urban areas is responsible for 30–50% of road transport-related air pollution and around 35% of road transport-related CO_2 emissions. Delivery vans represent more than 80% of urban freight traffic, and the total distance driven in urban logistics is projected to rise by nearly 19% between 2021 and 2035. These pressures have increased the **urgency for municipalities to act**.

In response, the Dutch Implementation Agenda on Zero-Emission Zones sets out ambitious and multidimensional goals: "to improve liveability, accessibility, and health (through cleaner air and reduced noise pollution), as well as economic vitality and safety in cities, while also helping to limit climate change." These goals reflect more than **five-years of collaboration between the national government, municipalities, the private sector and civil society** (see timeline below). This joint effort culminated in the introduction of the Netherlands' first zero-emission zones for freight in early 2025. As of August 2025, 18 cities have implemented a ZEZ-F and by 2030, this number is set to increase to 29 (see map below).

From 2030, zero-emission zones in the Netherlands are expected to deliver **annual savings of approximately one megatonne of CO_2 emissions**. Their design combines clear rules, phased implementation and a combination of incentives and restrictions.

The run-up to zero-emission zones in the Netherlands

YEAR	KEY MILESTONE
2014	**GREEN DEAL ZERO EMISSION URBAN LOGISTICS (ZES)** Businesses, public authorities and research institutions signed a covenant to make urban logistics more efficient and sustainable.
2019	**NATIONAL CLIMATE AGREEMENT** Reinforced the Green Deal ZES objectives and committing to accelerate the transition to fully zero-emission urban logistics, including medium-sized zero-emission zones for vans and trucks in 30-40 larger municipalities from 2025.
2021	**IMPLEMENTATION AGENDA URBAN LOGISTICS ("ON THE ROAD TO ZERO EMISSION")** Signed by 33 parties, including the Ministry of Infrastructure and Water Management, municipalities, business and industry a ssociations, setting the framework for ZEZ-F rollout.
2023	**TEMPORARY DECREE ON ZERO-EMISSION ZONES** Published in the official government gazette ("Staatsblad"), defining detailed rules, transitional arrangements, exemptions and derogations. Valid until 1 January 2030.
2023	**AGREEMENT ON CENTRAL EXEMPTIONS DESK** Municipalities, the Dutch Vehicle Authority (RDW) and SHPV, a cooperative of Dutch municipalities, signed an agreement to establish a centralised office for exemption applications, ensuring harmonised handling nationwide.
April 2025	**UPDATED IMPLEMENTATION AGENDA** Harmonised ZEZ-F introduction and operation across municipalities, updating rules, exemptions and governance structures.

i Oxford launched a small pilot of a zero-emission zone in its city centre in February 2022. The scheme applies charges to vehicles that produce emissions when entering the designated area. Outside of Europe, two Chinese cities have introduced zero-emission zones.

Figure 1. Overview of existing and planned zero-emission zones for freight in Dutch municipalities

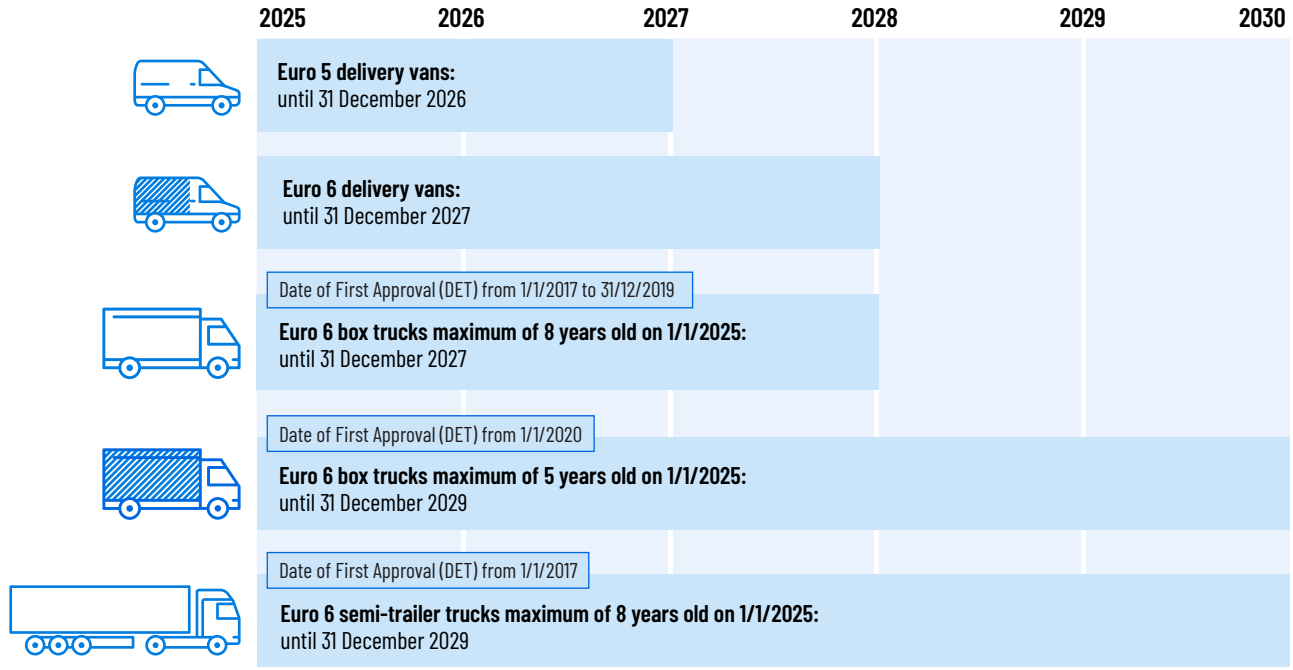
Source: Official map published by the Dutch government (as of September 2025)

A gradual implementation, starting with newly registered freight vehicles

Cities in the Netherlands have the authority to introduce zero-emission zones for freight (ZEZ-Fs) through a traffic decree ("verkeersbesluit"), which must be adopted at least four years before the zone takes effect. **Municipalities define the zone boundaries, enforcing compliance and provide complementary measures** such as subsidies, consolidation hubs or charging infrastructure. They receive approximately €387,000 of dedicated national funding per year to support the introduction of a ZEZ-F.

To avoid a patchwork of local rules, the national government, municipalities, business associations and civil society agreed on a **harmonised national framework** under the Implementation Agenda on Zero-Emission Zones, first signed in 2021 and updated in 2025. This framework ensures consistent implementation while allowing municipalities flexibility in local design and support measures. A Phased Implementation Roadmap guides municipal officials through decision-making, legal requirements, communication, enforcement, organisational capacity and resource planning.

Figure 2. Timeline of the phased introduction of zero-emission zones for freight



Source. NB: A government-proposed extension would allow Euro 6 vans access until 1 January 2029, a year longer than the initially planned 1 January 2028 deadline.

ZEZ-Fs in the Netherlands operate through a **gradual phasing-in of access rules** (see the chart above). Initially, only newly registered vans and trucks must be zero-emission - typically battery-electric - to enter the zones. Existing fleets benefit from a transition period, with deadlines that vary according to their emission standard (see graph below). The government has also proposed extending access for Euro 6 vans until 1 January 2029 to give companies more time, pending amendments to the Dutch Road Traffic Act.

Exemptions and subsidies allow for a fair and flexible approach

To support businesses during this transition, **various exemptions and subsidies have been introduced**. Companies can apply for temporary exemptions to enter ZEZ-Fs for up to 12 days per year. Additionally, specific exemptions can be granted for longer periods under certain conditions (see the overview in the Annex 2). A centralised system managed by the Dutch Vehicle Authority (RDW) ensures consistent processing across municipalities.

Financial support is or was also available to assist businesses in adopting zero-emission vehicles (see the overview in Annex 3). National schemes such as SEBA for vans and AanZET for trucks provide purchase subsidies. Municipalities may offer additional top-up and support measures. Free consultations with experts and city advisors are also available to companies.

Enforcement combines **automatic number plate recognition** (ANPR) cameras and **municipal enforcement officers**. Fines for non-compliance are substantial: €120 for a non-compliant van and €310 for a truck.

Starting to assess the effectiveness of the zones

It has now been eight months since the first zero-emission zones for freight came into force. A grace period, during which no fines were issued to non-compliant vehicles, ended in July 2025. With this period concluded - and many changes already occurring through “pre-compliance” - this is an **appropriate moment for an initial assessment** of the impacts of the zero-emission zones for freight.

Clean Cities seeks to draw initial lessons from this experience to inform both Dutch and other European municipalities considering similar measures. To this end, we have analysed the uptake of electric commercial vehicles with the results presented in the following chapter.

2. Electric freight vehicle market trends at the national and local level in the Netherlands

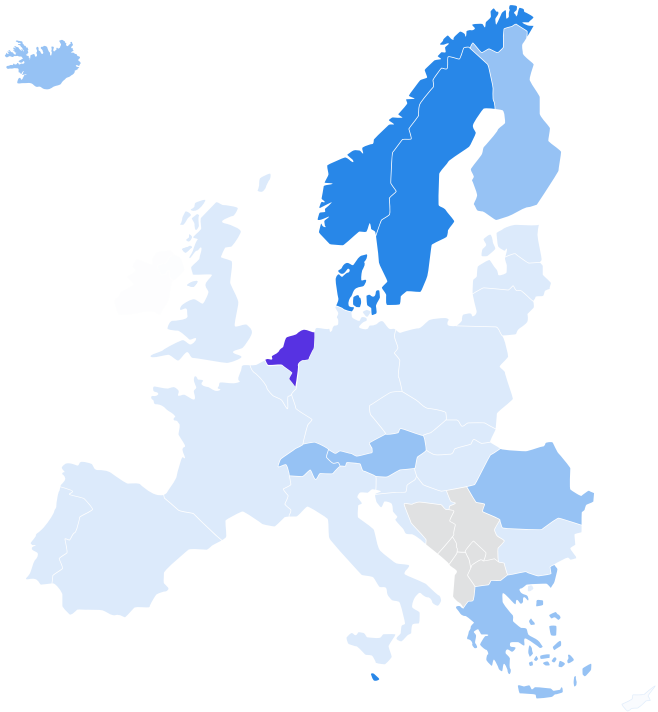
Image taken from: verdee.nl

The transition to zero-emission logistics - driven above all by the uptake of electric vans and trucks - is key to the Dutch zero-emission zones goal "to improve liveability, accessibility, and health [...] as well as economic vitality and safety in cities, while also helping to limit climate change." This chapter examines whether early evidence suggests these impacts are beginning to materialise. It first reviews national trends in electric vehicle registrations, followed by new city-level analysis comparing municipalities with ZEZ-Fs and their surrounding areas to those without.

The national trend: the Netherlands is leading the way on zero-emission freight vehicle uptake

Recent registration data confirms that the Netherlands has emerged as a frontrunner in the electrification of urban logistics. In the first half of 2025, **78.4% of all new vans registered in the country were battery-electric**, according to the Zero Emission Tracker of the European Automobile Manufacturers' Association (ACEA). This share is well ahead of other leading markets such as Norway (45.2%) and Denmark (26.5%), and **more than eight times the EU average of around 8.5%**. Although the Netherlands only accounts for 3.6% of the EU's total van fleet, it represents 12.3% of new electric van registrations.

Figure 3. Share of battery-electric vans in total van registrations in European countries (first half of 2025)



Country	Percent	Country	Percent
Netherlands	78.4	Hungary	6.7
Norway	45.2	Czechia	6.5
Denmark	26.5	Ireland	5.6
Malta	26.4	Slovakia	5.6
Sweden	25.0	Spain	5.4
Austria	18.4	Latvia	4.8
Finland	16.9	Belgium	4.8
Iceland	14.7	Italy	4.3
Greece	11.5	Bulgaria	2.6
Luxembourg	11.4	Lithuania	2.6
Switzerland	10.7	Poland	2.5
Romania	10.6	Estonia	2.5
Portugal	9.8	Cyprus	2.4
France	8.3	Slovenia	2.3
United Kingdom	8.0	Croatia	0.8
Germany	7.2		

KEY:

100-75% 75-50% 50-25% 25-10% 10-0%

Source.

Progress in the truck segment has been equally striking. Electric trucks registrations across the EU grew by 46.1% over the same period, while the Netherlands recorded an increase of 187.6%, accounting for **almost one in five new electric trucks sold in the Union**. These figures underscore both the pace of the Dutch transition away from fossil-fuelled commercial vehicles and the central role the country is playing in setting the direction for Europe.

The rollout of ZEZs for freight is one likely reason for the surge, alongside supportive **fiscal policies**. At the start of 2025, the long-standing exemption from the Dutch registration tax (BPM) for company delivery vans was lifted for diesel vehicles, while zero-emission vans remained exempt. Road tax (MRB) for electric vehicles is discounted by 75% in 2025 and businesses can benefit from the Environmental Investment Allowance (MIA), which allows tax deductions for investing in electric vehicles.

While these national figures provide a strong signal of change, a granular analysis of city-level data is needed to understand the specific effects of zero-emission zones for freight.

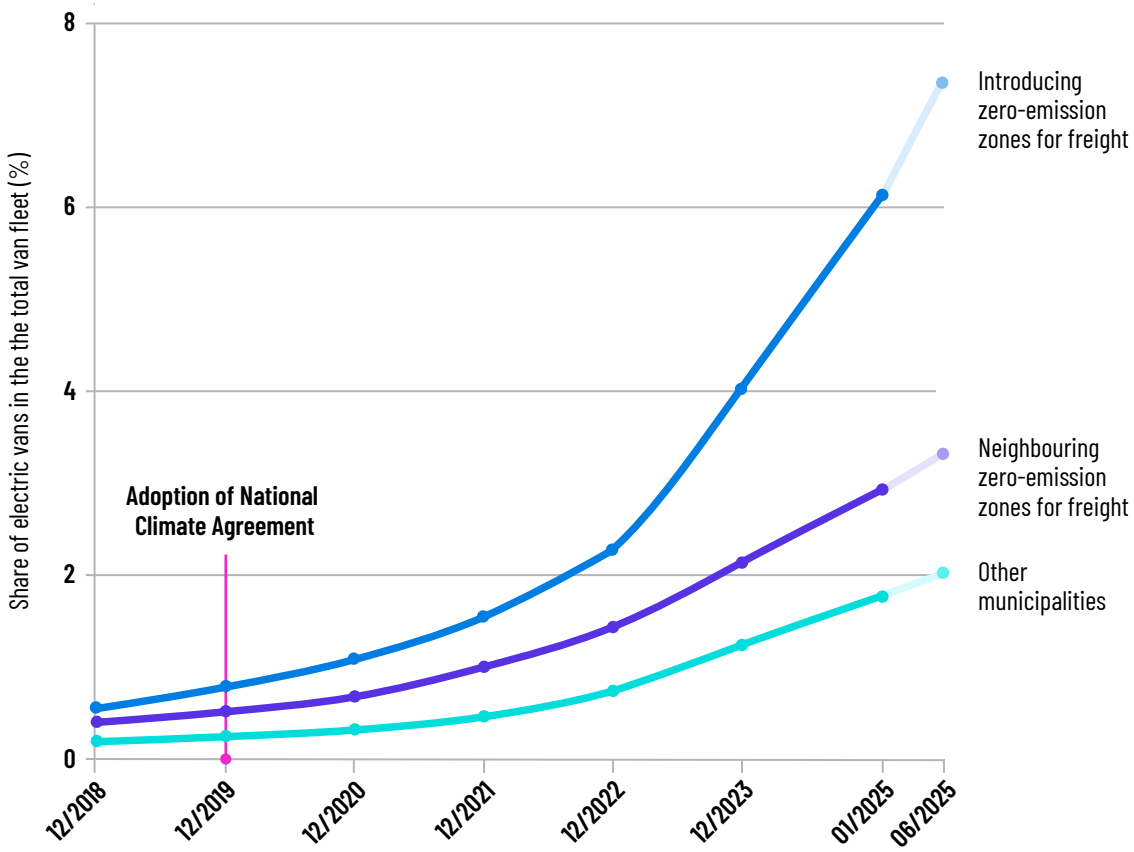
Analysing electric vans shares at the local level

To evaluate the impact of ZEZ-Fs on the adoption of electric commercial vehicles, we examined the **share of electric commercial vans within the total van fleet** across three groups of municipalities:

- Those with a ZEZ-F by 2030 (existing or planned by 2030) (n=29)
- Those neighbouring a municipality with ZEZ-F by 2030 (n=151)
- Those with no ZEZ-F plans and not neighbouring a ZEZ-F (n=162)

The analysis draws primarily on data from the Dutch “Regional Climate Monitor” (RKM), supplemented with figures from the Dutch Central Bureau for Statistics (CBS) where necessary. Municipal data for electric vans is available until June 2025, while for total van fleets it is only available up to 2023. Total van fleet figures at municipal level for 2024 and 2025 were therefore estimated using available figures at provincial level.

Figure 4. Dutch municipalities with zero-emission zones for freight have a higher share of electric vans



Source: Regionale Klimaatmonitor, CBS. Note: For 2024 and 2025, the municipal total fleets were estimated using 2023-2025 provincial growth rates. Shares in June 2025 are calculated using the January 2025 total fleet due to lack of available data.

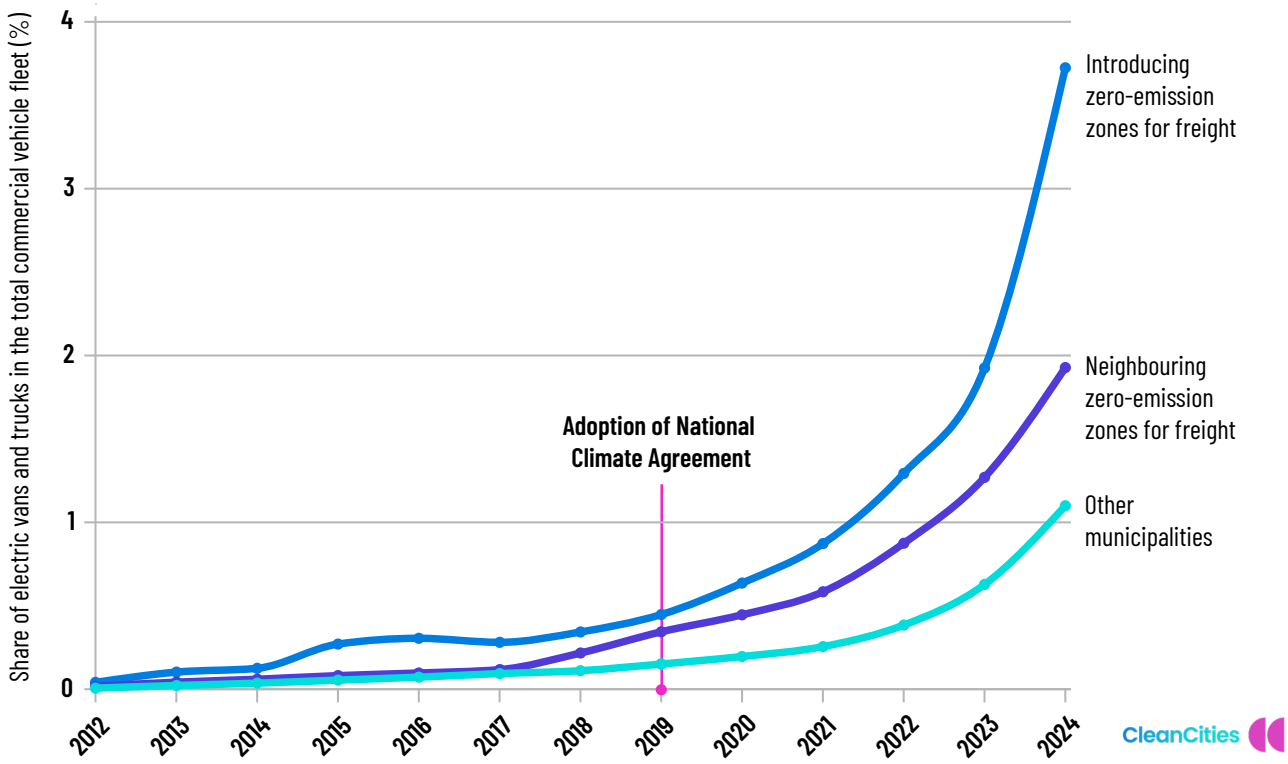
In addition, commercial vehicle figures (both electric and total) are compared using the latest figures from January 2024. Focusing on 2024 data remains relevant as fleet renewal typically occurs in anticipation of a regulatory change, a pattern also observed with low-emission zones across Europe. Detailed definitions, methodological adjustments and limitations are outlined in the Annex.

Results: municipalities with or next to zero-emission zones have a higher share of electric vans

The main findings are:

- **Municipalities with ZEZ-F commitments have a higher share of electric vans total van fleets than other municipalities.** By January 2025, municipalities with a ZEZ-F plan reached an average share of 6.1%, compared with just 1.7% in municipalities without any plans, as shown in Figure 4. The latest numbers of electric vans from June 2025 show a continued increase in registrations. It should be noted that due to total van fleet data not being available yet, the share of electric vans shown for June 2025 are based on the estimated total fleet from January 2025 and are hence shown with a faded line.
- **There are signs of spill-over effects.** Municipalities bordering a ZEZ-F (introduced by 2030) recorded an intermediate share of 2.9%, suggesting that the presence of a nearby zone may influence vehicle choices beyond its boundaries.
- **When looking at commercial vehicles fleets, similar patterns emerge.** The latest available data from January 2024, as seen in Figure 5, shows that electric commercial vehicles (including vans, trucks, buses and special

Figure 5. Dutch municipalities with zero-emission-zones for freight see faster electric commercial vehicle uptake



Sources: Statistics Netherlands (CBS), Regionale Klimaatmonitoor

vehicles) are more prevalent in municipalities with a ZEZ-F (existing or planned by 2030): the average share is 3.7%, compared with 1.1% in municipalities without any ZEZ-F commitments. Municipalities neighbouring a ZEZ-F also show higher uptake, averaging 1.9%.

- **Electric freight vehicles are displacing diesel-powered vehicles.** In municipalities with a ZEZ-F commitments, the number of registered fossil-fuelled commercial vehicles fell by 1.5% between January 2023 and 2024, while numbers in non-ZEZ municipalities rose slightly by 1.2% (see Annex 6). A report from Maastricht, where a ZEZ for freight was introduced in January 2025, shows the most polluting vans and trucks (emission classes 0-4) circulating in the zone have almost halved since fines began in July, confirming the shift towards cleaner alternatives.

Company strategies confirm the impact of zero-emission zones for freight

Statements and investment decisions by private sector actors corroborate a causal link between the introduction of zero-emission zones and the increased uptake of electric vans and trucks, confirming that businesses are actively responding to these policies.

Company	Measures	Link with ZEZs
PostNL (postal services, deliveries)	PostNL, the leading postal and parcel operator in the Netherlands, has shifted to emission-free delivery in 27 city centres across the Netherlands, covering more than 1.5 million kilometres per month with electric vehicles. Besides the use of electric vehicles, the company also relies on smart charging infrastructure, new route planning and attention to the daily routines of delivery drivers. Across the country, 30% of the company's last-mile delivery across is emission-free as of July 2025. By 2030, PostNL aims to deliver entirely emission-free in both the Netherlands and Belgium.	All zero-emission zones are included in the 27 cities with emission-free deliveries, and usually the zero-emission zones are the areas in which emission-free deliveries are rolled out first (e.g. in Amsterdam). PostNL also stated that "expanding the number of zero-emission delivery zones is fully aligned with our sustainability ambition."
Albert Heijn (grocery retailer)	Albert Heijn, the largest grocery retailer in the Netherlands, has set a goal of becoming a zero-emission supermarket chain by 2050. At the end of 2024, emission-free deliveries were achieved in 17 Dutch cities. By the end of 2025, the company aims to cover 29 cities with existing or planned zero-emission zones. In the Amsterdam area, more than 50 electric trucks now operate from DC Zaandam, making over 2,000 store deliveries per week, including to all stores within the A10 city ring.	Albert Heijn says they are "continuously taking steps to ensure that all customers and stores in the 29 ZE zones are supplied emission-free by the end of 2025." Since 2023, they have prioritised the roll-out of electric vehicles in the cities that announced plans to introduce zero-emission zones, often well ahead of the introduction of these zones. This shows that zero-emission zones can lead to an accelerated roll-out of electric vehicles.
SDR Elektrotechniek	SDR Elektrotechniek B.V., an Amsterdam-based SME providing electrical installations, has actively embraced electric vehicles as part of its commitment to sustainability and compliance with Amsterdam's zero-emission policies.	A company spokesperson stated: "The main reason for our shift to electric transport lies in the zero-emission policy. Driving electrically is mandatory within the centre of Amsterdam. This encouraged us to start this transition in good time. This was our primary consideration in beginning with electric transport."

Zero-emission zones could also impact cargobike uptake, but data is lacking

Electric cargo bikes are emerging as another alternative to diesel-powered vans and trucks with rapid growth in many European cities (see below). Detailed, city-specific data on cargobike sales or fleets are not yet available, making systematic tracking difficult. Nevertheless, electric cargobikes represent a viable solution for last-mile deliveries, and a rise in their use could be another way for companies to adapt to zero-emission zones. We aim to assess these trends in more detail in future analyses.

Cargobikes as viable alternatives to diesel vans

Cargobikes can offer an efficient and clean alternative to diesel vans. Cycling routes in cities are typically 15–20% shorter than car routes, enabling deliveries to be faster and avoiding congestion. Cargobikes are cheaper to purchase and operate: a one-to-one replacement is 10-15% cheaper than an electric van. Cargobikes also open up jobs for people without a driver's licence, access restricted streets and visibly demonstrate a company's sustainability commitment. Research suggests that if 80% of parcels in dense urban areas were delivered by cargobike and the rest by electric vans, operators could save up to €554 million annually by 2030 and cut emissions by 80% compared to a van-only fleet.

Challenges remain. Cargobikes typically have smaller load capacities (replacing a medium van may require four bikes), upfront costs and regulatory uncertainties can be barriers for small businesses, and adoption is limited by insufficient cycling and parking infrastructure. The Dutch government supports cargobike uptake with tax deductions for purchases and plans for urban consolidation hubs.

Image taken from: freepik.com

3. Conclusions and policy recommendations

Image taken from: weverling.nl*

...if you look at usage per kilometre or the cost per kilometre, you'll see electric is genuinely cheaper. So my advice to other businesses is: get started, and look carefully at the total cost per kilometre — you'll find electric really is more economical than diesel.

Weverling*

Conclusions

Our initial assessment indicates that zero-emission zones can be a key driver of electric commercial vehicle adoption, especially when combined with other supportive policies and underpinned by extensive business engagement with sufficient time to adapt. Further analyses are necessary, especially once complete municipality-specific data for 2025 will be available.

* Weverling Groenproviders, a family-owned landscaping company from Zuid-Holland.

The main findings are:

- **The Netherlands leads in registrations of electric vans and trucks**, accounting for a substantial share of new electric vans and trucks sold in the EU.
- **Municipalities with ZEZ-Fs show a higher adoption of electric vans and trucks compared to other areas**, underlining the effectiveness of these zones in accelerating the transition.
- In municipalities with zero-emission zones, **electric freight vehicles are actively displacing diesel-powered vehicles, not merely adding to the overall fleet.**

Policy recommendations

Based on the findings of this research, Clean Cities propose the following policy recommendations:

Cities:

- **Provide a clear, long-term policy signal:** Announce zero-emission zones with a sufficient lead time, allowing businesses to align investment and vehicle replacement cycles. Phase requirements with transition periods for existing fleets.
- **Standardise rules where necessary:** Work with other municipalities and national governments to harmonise regulations, enforcement and transition periods. The Dutch Implementation Agenda offers a model.
- **Support businesses in their transition:** Pair mandates with financial incentives and practical support to lower barriers to entry.
- **Expand charging infrastructure.** Tackle limited availability by providing public charging infrastructure in a targeted manner, support depot charging and use public procurement to stimulate demand.

National governments:

- **Harmonise zero-emission zone frameworks:** where possible, establish consistent national rules, including a central exemption system, and standardised enforcement, to give businesses predictability.
- **Ensure predictable fiscal incentives:** provide subsidies and tax benefits for compliant vehicles while phasing out fiscal support for diesel, as demonstrated by policies in the Netherlands.
- **Plan for grid capacity:** Coordinate with grid operators and municipalities to secure sufficient electricity supply for growing commercial electric fleets.

European Union:

- **Maintain predictable and ambitious CO_2 standards:** ensure van and truck targets remain strong and predictable to guide manufacturers and operators.
- **Introduce a green fleets mandate:** Require public and large private fleets to shift to zero-emission vehicles, accelerating the transition and creating market scale.
- **Enable cross-border enforcement:** Harmonise rules and enforcement mechanisms across member states via a strengthened Cross-Border Enforcement Directive, which would facilitate issuing and collecting fines for foreign vehicles.

4. Annexes

Annex 1: Overview of national legal frameworks for zero-emission zones in European countries

Country	Policy framework	Existing/planned zero-emission zones
The Netherlands 	There is nationally-coordinated framework established by the 2019 Climate Agreement and the Implementation Agenda on Zero-Emission Zones that empowers municipalities to introduce zero-emission zones as of 2025.	18 ZEZs for freight in place, 29 planned according to the Dutch government
Denmark 	In late 2024, the Danish Parliament passed legislation granting all municipalities in Denmark the authority to introduce zero-emission zones from 1 January 2025. Two types of zones are foreseen: for private vehicles only, or applicable to all vehicle types, including light commercial vehicles - but excluding buses and trucks over 12 tonnes.	On 21 August 2025, Copenhagen approved Denmark's first zero-emission zone in the central Vesterbro district, starting in 2027 for passenger cars and mid-2028 for commercial vehicles, with exemptions for residents, local businesses, and commercial vehicles over 12 tonnes.
Sweden 	Since 1 January 2020, Swedish municipalities have the legal authority to implement up to three types of zones. The strictest "Class 3" zones are similar to zero-emission zones but include exemptions for CNG (gas) vehicles and plug-in hybrids. This framework is embedded in the Road Traffic Ordinance and is the same across all of Sweden.	The City of Stockholm is planning to introduce a class 3 clean air zone in a small area of the inner city. This process is currently on hold following a ruling by the County Administrative Board.
Norway 	The Ministry of Transport and Communications has tasked the Norwegian Public Roads Administration with drafting a proposal for legislation and regulations that gives municipalities the authority to establish zero-emission zones. This draft is now under ministerial review according to a written response by the Ministry from 28 August 2025.	According to the Norwegian government, several larger Norwegian cities have asked for the possibility to introduce zero-emission zones.

Table 1. Overview of legal frameworks and plans for zero-emission zones in European countries. Source: see links

Annex 2: Overview of exemptions in Dutch zero-emission zones for freight

What vehicles are exempted?	Conditions	Timeline	Level of decision
Private vehicles	Truck/van that is never used commercially	Valid until 2027	National
Vehicle that cannot be made emission-free	E.g. specific fuel, loading, towing capacity needs. For example a sewer cleaner	Valid for one year from being granted	National
Vehicle adapted for disability	The vehicle adjustment was €500 or more	Valid until 2030	National
Special truck	Moving van, circus vehicle, heavy-duty exceptional transport	Valid until 2030 or until the vehicle is 13 years old	National
PHEV truck	Will be exempted until the end of 2029	Valid until the end of 2029	National
Long delivery time for replacement vehicle	Order confirmation can only be used once for an exemption	Valid until delivery	National
Business economic circumstances	If the company is unable to afford a cleaner vehicle but needs to enter the ZEZ-F	Valid for one year from being granted	Recently changed from municipal to national
Hardship clause	For situations not applicable to other exemptions. E.g. for business owners who are seriously ill, or closing down their business	Not specified	Municipal - in all existing ZEZs apart from Enschede

Table 2. Overview of exemptions in Dutch zero-emission zones for freight. Source: RDW

Annex 3: Overview of subsidies granted in the Netherlands to enable companies to comply with the zero-emission zone requirements for freight

Subsidy & location	For what	Volume	Period	Conditions
National subsidies				
SEBA - national (Subsidieregeling Emissieloze Bedrijfsauto's)	Purchase/ lease of an e-van	Budget of €60 million in the last round, up to €5,000 per van	2021-24, 4 rounds in total	Entrepreneurs & NGOs only; for fully electric vans (N1 or N2)
AanZet - national (Aanschafsubsidie Zero-Emissie Trucks)	Purchase/ lease of an e-truck	Budget of €30 million per one round, up to €115,200 per van	2025-27, four rounds announced so far	Entrepreneurs & NGOs only; for fully electric trucks
Local subsidies				
Scrappage schemes (Amsterdam)	Replacement of non-electric vehicles	Budget of €1 million, up to €1500 per van	2023-25	For vans of class Euro 4 or lower
Sustainable SME subsidy (Maastricht)	Purchase of an EV/ charging infrastructure/ logistics hub subscription	Usually max €5000 per unit, €15000 per company	2025	SMEs/self-employed only, for sustainable business mobility actions
Charging infrastructure (Nijmegen)	Installing charging stations for electric vans	Usually max €1500 per unit, €4500 per company, budget for 150 charging stations	2022-24	SMEs/self-employed only, charging their own vans at their own land
Electric cargobikes (province Overijssel)	Purchase of up to two electric cargobikes	Budget of €50,000, max €1500 per bike	2024-25	Companies registered for the last 3 months at least

Table 3. Overview of subsidies granted in the Netherlands to enable companies to comply with the zero-emission zone requirements for freight. Source: See links in the table

Annex 4: Data

Vans: For shares of electric vans in the total van fleet, the CBS (Centraal Bureau voor de Statistiek) total municipal van fleets dataset (Bestelauto's; gemiddelde leeftijd, leeftijdsklasse, hoofdgebruiker, regio's) was used for total municipal van fleet data. As the latest figures at municipal level are from 2023, we estimated the 2024 and 2025 municipal figures using the observed growth rates of fleets at provincial level for this time period. The growth rates were calculated using the numbers of vans per province (Motorvoertuigen actief; type, leeftijdsklasse, 1 januari). The estimates of municipal van fleets in 2024 and January 2025 can be found in Annex 6.

Commercial vehicles: The Regionale Klimaatmonitor (RKM) dataset on mobility covers all Dutch municipalities and includes, among others, four selected indicators: the total number of commercial vehicles, the number of light electric commercial vehicles under 3,500 kg, the number of heavy electric commercial vehicles above 3,500 kg, and their combined total. While these categories formally include vans, trucks, articulated trucks, special vehicles and buses, in practice the electric segment is dominated by delivery vans (accounting for ~85% of all vehicles in the category). For the analysis, the share of electric commercial vehicles was calculated for January each year (2012-2024).

For the purpose of analysis, municipalities were grouped into three categories:

- **Those with a ZEZ-F by 2030 (n=29):** municipalities that have implemented a zero-emission zone for freight in 2025 (n=18) or have committed to start a ZEZ-F in the years 2026-2030
    - The municipality of Haarlemmermeer is included in this group as the ZEZ-F around the airport of Schiphol (planned for 2026) lies within this municipality. Given the airport's unique role as a logistics hub, we decided to include Haarlemmermeer despite the zone only spanning the airport. We conducted a sensitivity analysis to test whether its inclusion significantly affects results and the impact proved negligible. In future analyses it may be possible to control for zone size and characteristics more explicitly.
- **Those neighbouring a municipality with ZEZ-F by 2030 (n=151):** Municipalities neighbouring the 29 municipalities with existing or planned ZEZ-F, to capture spill-over effects.
- **Those with no ZEZ-F plans and not neighbouring a ZEZ-F (n=162):** municipalities with no current ZEZ-F commitment and not neighbouring any of the 29 municipalities with existing or planned ZEZ-F.

Annex 5: Limitations

Several limitations should be noted when interpreting this analysis.

First, vehicle registration data are linked to the registered owner rather than the end user, which can lead to mismatches between where vehicles are registered and where they are actually operated, particularly for companies that register vehicles centrally but operate nationwide. Although CBS has developed methods to estimate actual vehicle use by location, these are only available from 2020 onwards and are not yet fully integrated into the dataset. Despite these caveats, registration data remain the best available proxy for monitoring electric van and truck uptake across municipalities.

Second, the size and scope of zero-emission zones for freight vary considerably between cities. Larger zones can be expected to have a stronger impact on electric vehicle uptake both within the municipality where they are introduced and in surrounding areas. Moreover, the boundaries of zero-emission zones for freight rarely align with municipal borders, as zones typically cover central urban areas. This means our municipal-level approach may underestimate the direct effects of ZEZ-Fs on local vehicle fleets.

Third, this analysis mostly assesses pre-compliance patterns with ZEZ-Fs, and further analysis will be necessary once complete 2025 municipal data become available. Whilst national-level data are available for the first half of 2025, municipality-level data for total van numbers are only available until 2023, **and the 2024 (yearly average) and 2025 (January) figures were only estimated using growth factors from available data at province level.** This approach might not capture developments specific to municipalities and not visible at provincial level.

Fourth, the commercial vehicles numbers include special vehicles and buses (aside from vans and trucks), which are not necessarily influenced by the ZEZ-Fs. However, these make up a very small share of the total commercial vehicle fleet. In general, the number of commercial vehicles is dominated by vans, typically accounting for around 85% of the entire commercial vehicle fleet .

Lastly, we combined all municipalities that have an existing or planned ZEZ-F in one group for the analysis. While we first separated ZEZ-F in 2025 (n=18) and ZEZ-F 2026-2030 (n=11) for more nuance, we later decided to combine these figures. This is because the ZEZ-F 2026-2030 group was composed of groups with different starting years and hence differing implications for the electric vehicle adoption. Further influenced by neighbouring ZEZ-F municipalities which started in 2025.

Annex 6: Table of selected figures

A spreadsheet containing the key data and results of our analysis can be found on the Clean Cities website.

Contacts

Barbara Stoll
Director, Clean Cities Campaign
barbara.stoll@cleancitiescampaign.org

Jens Müller
Deputy Director, Clean Cities Campaign
jens.mueller@cleancitiescampaign.org

Find out more

Clean Cities is Europe's largest network of organisations on a mission to build public support for cities to shift from polluting cars to active, shared and electric mobility.

www.cleancitiescampaign.org
info@cleancitiescampaign.org

CleanCities