

100 EUROPEAN CITIES WILL BECOME ZERO-EMISSION ZONES IN 2025

How will that affect the freight and load handling industry?



HIAB

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FOREWORD

We are releasing a series of whitepapers to keep you updated on the latest business trends in the industry. We aim to provide you and your organization with new insights that enable you to make well-informed business decisions that keep you ahead of your competitors.

This whitepaper delves into how efforts to reduce urban carbon dioxide (CO₂) emissions impact our industry. Specifically, we examine the EU Cities Mission, which is being implemented in 27 European countries to create at least 100 zero-emission zones by 2025. We look closer at the opportunities and challenges this initiative presents for various freight and load handling industry stakeholders, with extra focus on waste management.

Load handling is a crucial part of a modern society's ecosystem. Due to urbanization and climate regulations, the demand for quicker, safer, cleaner, and more efficient load handling is increasing, and the positive trend looks set to continue long into the future.



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INTRODUCTION

This whitepaper explores the impact of efforts to reduce urban CO₂ emissions on our industry. To provide a more concrete and thorough understanding of the subject, we will focus on *EU Cities Mission*¹, which aims to establish 100 European cities as zero-emission zones by January 2025.

The paper starts by providing a background on the factors that led to the inception of the EU Cities Mission. It then briefly describes the entire project. The report becomes more specific by presenting the business case *Waste handling in the Netherlands' zero-emission zones*. The paper concludes by describing Hiab's contribution to the solution in the Netherlands and our thoughts on how Hiab can aid the freight and load handling industry in the next years to come.

The EU has set the goal to achieve net zero greenhouse gas emissions by 2050. It will be done by mainly reducing CO₂ emissions.² The goal is legally binding for all member countries and includes reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels, a project named "Fit for 55".³

The transport sector accounts for 20% of global CO₂ emissions and is the second-largest carbon-polluting sector worldwide after the power industry (38%). In the transport sector, freight vehicle transportation stands for 25% of the CO₂ emissions.⁴

Freight vehicles account for 25% of the transport sector's CO₂ emissions.

In order for European countries to achieve their climate goals, the freight and load handling industry will undergo a significant transformation in the next few years. The industry will be driven by new and powerful regulations and incentives that are already changing customers' buying behavior and demand.

EU has the goal to achieve net zero greenhouse gas emissions by 2050, mainly by reducing CO₂ emissions.



Brussels is considered the European Union's capital and will be one of the 100 European cities zero-emission zones in 2025 (AI-generated image).

100 ZERO-EMISSION ZONES IN 27 EU COUNTRIES BY 2025

Although cities make up only 4% of the land area in the EU, they are home to 75% of the population. In addition, cities consume more than 65% of the world's energy and are responsible for over 70% of global CO₂ emissions.⁵ That's why reducing greenhouse gas emissions in cities is a top priority.

There are 300 low-emission zones today. By 2025 EU will have 500.

There are currently over 300 low-emission zones (LEZs) in Europe, and this number is expected to increase to over 500 by 2025.⁶ In a low-emission zone, vehicles are required to pay a fee in order to enter. Vehicles that produce higher levels of pollution usually pay a higher fee, while hybrid or electric vehicles may pay a lower fee or be exempt from the fee altogether. In some cases, the most polluting vehicles are not allowed to enter the zone at all.⁷ To find out about the driving restrictions in place in different European cities, visit the website: Urbanaccessregulations.eu

In order to achieve the European Union's target of reduced CO₂ emissions, a mere reduction in traffic is not enough. Hence, the EU has introduced the EU Cities Mission with the aim of

transforming at least 100 cities across Europe into zero-emission zones by 2030.

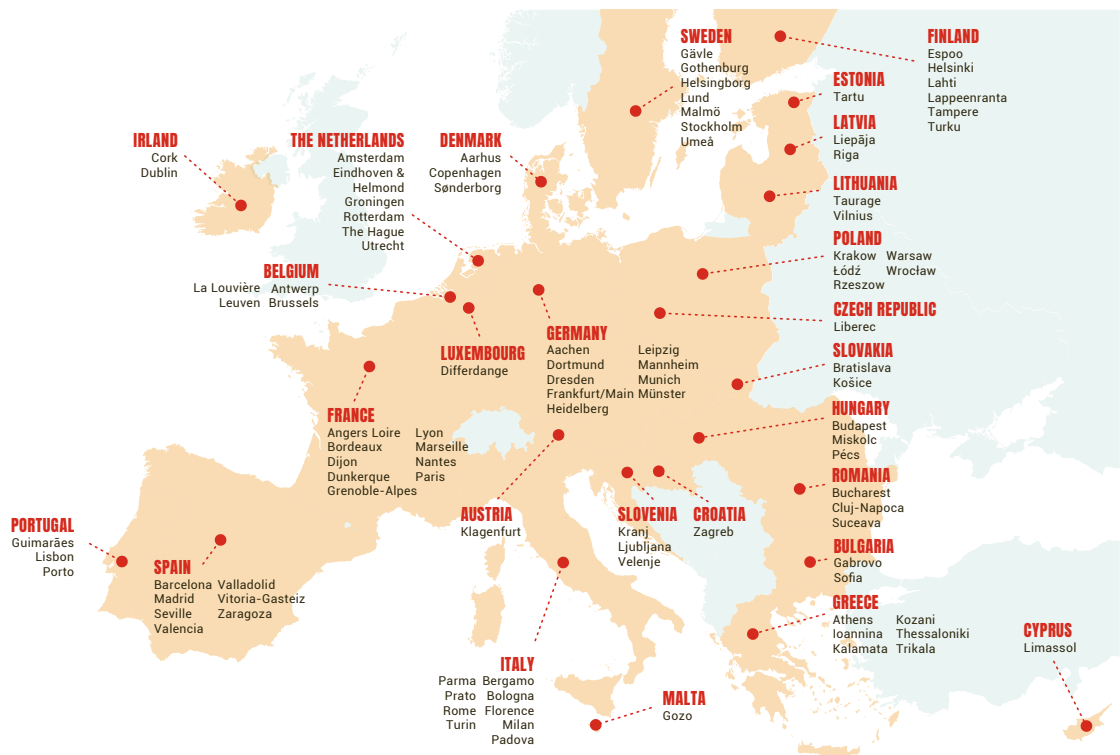
That means that only Zero-Emission Vehicles (ZEVs), pedestrians, and cyclists will have unrestricted access. ZEVs are vehicles that do not emit exhaust gas or other pollutants from the onboard source of power.⁸

In 2030, only ZEVs, pedestrians, and cyclists will have unrestricted access to zero-emission zones.

The EU Cities Mission is a comprehensive effort spanning across all 27 member states of the EU and 12 additional cities from associated countries (See Figure 1). These cities represent approximately 12% of the European population. Each city has committed to achieving climate neutrality in key sectors such as energy, buildings, waste management, and transportation, through the signing of a climate city contract.⁹

The EU Cities Mission is a significant political and financial investment, with €360 million of EU funding to be distributed to the selected cities during 2022-2023.¹⁰

Figure 1. Overview of the cities involved so far in the EU Cities Mission.



CASE STUDY: WASTE HANDLING IN THE NETHERLANDS' ZE ZONES

The Netherlands has about 17,6 million inhabitants on a land area of only 41 543 km² (424 inhabitants/km²). Since 54%¹¹ of the land is dedicated to farmland, the Netherlands has one of the highest population densities in Europe.¹²

Urbanization and rising living standards have led to an increase in the amount of waste generated in the cities of the Netherlands. As cities grow, the value of land increases, resulting in less space for waste management. Furthermore, there is a growing emphasis on sustainability and reducing carbon dioxide emissions in cities by decreasing the use of fossil fuels.

This brief case study describes how the implementation of zero-emission zones in the Netherlands impact city waste management. The Netherlands has six cities involved in the EU Cities Mission: Amsterdam, Eindhoven & Helmond, Groningen, Rotterdam, The Hague, and Utrecht.

The Netherlands are aiming for zero-emission zones in up to 40 cities.

However, The Netherlands doesn't settle for that. They have decided to create zero-emission zones for logistics in 30-40 cities, which will be in place on 1 January 2025. Approximately 30 cities have already signed an agreement to implement Zero-emission zones (ZEZ), which include load handling, waste management and recycling. The city ZEZs are aiming to reach full electrification of waste management trucks, starting with new trucks registered after 1 January 2025.¹³

Waste management trucks registered after 1 January 2025 must be fully electric to operate in a Dutch ZE-Zone.

However, waste management trucks registered between 31 December 2012 and 1 January 2025 have dispensation and are allowed to be used until the end of 2029. Consequently, time is scarce for purchasing, installing, and registering new diesel waste management trucks authorized to be used at least until the end of the decade.

Time is scarce for purchasing, installing, and registering diesel waste management trucks with dispensation until the end of 2029.

- Since electric waste management trucks are still not a competitive option, I believe the demand for buying ZEZ diesel waste management trucks will peak in 2024. The purchase and registration must be accomplished before 1 January 2025, so the clock is ticking; it is urgent to start the purchasing process to make it before the deadline. Truck Manufacturers (OEMs) can deliver diesel trucks on short notice. Still, it will be challenging for bodybuilders to have the capacity to install and deliver the truck in time for registration. There is a potential risk for a drop in demand for trucks during 2025 due to the investments done in 2024. However, the demand will increase and accelerate between 2026 and 2029 when municipalities and waste management companies begin investing in electric waste management trucks, says Bert Rodermond, Sales & Marketing Director Hiab Benelux B.V.



An AI-generated image of downtown Amsterdam that will become one of The Netherlands' 30-40 zero-emission zones in January 2025.

OPPORTUNITIES AND CHALLENGES WITH ZE ZONES FOR THE FREIGHT AND LOAD HANDLING INDUSTRY

All cities participating in the EU Cities Mission may dispense vehicles used in community critical services (similar to those in the Netherlands' case). However, from 2030 onwards, these services must also be carried out with ZE vehicles. Below is a summary of the potential opportunities and challenges with zero-emission zones for the industry and its stakeholders.

Society and citizens

Reducing the use of diesel engines not only leads to lesser CO₂ emissions but also contributes to an improved living environment with less pollution and minimal noise. As a result, the involved nations and citizens become pioneers in the fight against climate change, thus benefiting society as a whole. Challenges are that residents in zero-emission zones need to switch to electric cars in the coming years or that the city increases its public transportation services. Additionally, rising electricity tariffs and electricity grid shortages pose obstacles that must be solved.

Municipalities and waste management companies

Local dispensation for using zero-emission vehicles until 2030 allows municipalities and waste management companies to transition gradually towards fully electric solutions. Opportunities with electric waste handling include easy-to-use operating systems and decreased noise levels, which makes it possible for more extended and productive workdays. Between 2026 and 2029, waste management companies must invest heavily in electric trucks, which are significantly more expensive than diesel solutions. There are also challenges to solving lower range and productivity due to lack of battery capacity (need for charging during the working day) and risk for lower payload due to heavy battery weight. Furthermore, handling high battery voltage requires strict safety regulations and training.

Truck bodybuilders

In the zero-emission zone cities that choose to make similar dispensations as in the Netherlands, there will be a short-term peak for installing diesel waste handling solutions, followed by rising demand for installing electric waste management trucks. One major challenge is more complex and dangerous electric equipment, requiring specialized installation training.

Truck manufacturers (OEMs)

OEMs will experience an increasing demand, accelerating the development of next-generation electric freight and load handling trucks. A significant challenge is offering electric trucks with a battery capacity, range, weight, and price that make them commercially comparable to a diesel-driven solution. However, for this transition to happen, nations also need to make heavy investments in increasing the supply of green energy and expanding the capacity of the electricity grid.

Crane manufacturers

In the upcoming year, there will be a significant demand for hybrid cranes that can efficiently use diesel and electric batteries as energy sources, along with other zero-emission equipment for waste management. The shift towards pure electric-based solutions will create a need for new high-tech crane solutions, including monitoring systems that can optimize efficiency and energy consumption automatically. This is crucial to enhance the performance of overall electric freight and load handling solutions.

In summary, the transition to zero-emission freight and load handling solutions in zero-emission zones, represents a significant business opportunity for the industry. Zero-emission zones are a chance to test and evaluate solutions in preparation for nationwide EU regulations to reach net zero greenhouse gas emissions by 2050.

Figure 2. Overview of opportunities and challenges with zero-emission zones for the freight and load handling industry and its stakeholders.

Stakeholders	Opportunities	Challenges
Society and citizens	<ul style="list-style-type: none"> + Better environment with less pollution and noise. + Countering climate change. + The zero-emission zones make the involved nations and citizens front-runners in the green transformation towards a zero-emission society. 	<ul style="list-style-type: none"> - Need of buying electric cars (2030 and forward). - Risk for capacity shortages in the electrical grid and higher energy prices. - Heavy investments in increasing the supply of green energy and expanding the capacity of the electrical grid.
Municipalities and waste management companies	<p>2024-2029</p> <ul style="list-style-type: none"> + If dispensation: A gradient transformation towards the zero-emission objective 2030. <p>2030 and forward</p> <ul style="list-style-type: none"> + Electrified freight and load handling decreases noise levels and enables extended and more productive workdays (the ability to work earlier and later increases productivity due to lesser conflicting traffic). + Higher operator/driver comfort due to lesser noise, pollution (fossil fuel fumes) and more advanced easy-to-use operating systems. 	<p>2024</p> <ul style="list-style-type: none"> - If dispensation: Short term investments in diesel trucks for waste handling that will be allowed until 2029. <p>2025-2029</p> <ul style="list-style-type: none"> - Investments in electric trucks that today are significantly more expensive than corresponding diesel truck solutions. <p>2030 and forward</p> <ul style="list-style-type: none"> - Risk for lower range and productivity due to lack of battery capacity (need of charging during the working day). - Risk for lower payload due to heavy battery weight. - High-voltage equipment requires safety precautions and training of operators/drivers.
Truck bodybuilders	<p>2024</p> <ul style="list-style-type: none"> + If dispensation: Peaking short-term demand on installation of diesel trucks for waste handling solutions. <p>2025 and forward</p> <ul style="list-style-type: none"> + Increasing demand on installations of electric waste management trucks. 	<p>2024</p> <ul style="list-style-type: none"> - If dispensation: It will be a challenge to complete all load handling solutions on diesel trucks so they are ready for registration before 2025. <p>2025 and forward</p> <ul style="list-style-type: none"> - Investments in workshops upgraded to meet the needs for electric installations. - Installations of high-voltage solutions require safety precautions and training of personnel.
Truck manufacturers (OEMs)	<p>2024</p> <ul style="list-style-type: none"> + If dispensation: High demand on diesel trucks with load handling solutions (i.e cranes). <p>2025-2029</p> <ul style="list-style-type: none"> + An increasing demand and fast development of next generation hybrid and electric freight and load handling trucks. <p>2030 and forward</p> <ul style="list-style-type: none"> + Increasing demand of electric freight and load handling trucks. 	<p>2025-2029</p> <ul style="list-style-type: none"> - Risk for a drop in demand for diesel-powered trucks. - Need to develop hybrid trucks with a capacity, range, weight and price that make them commercially attractive. <p>2030 and forward</p> <ul style="list-style-type: none"> - Need for offering electric trucks with a capacity, range weight and price that make them commercially attractive.
Crane manufacturers	<p>2024-2029</p> <ul style="list-style-type: none"> + Increasing demand and development of hybrid cranes. <p>2030 and forward</p> <ul style="list-style-type: none"> + A gradient transformation towards pure electric solutions will boost the demand for new high-tech crane solutions, including automation software that optimize efficiency and minimize energy consumption. 	<p>2024 and forward</p> <ul style="list-style-type: none"> - Need for heavy investments in product development to maximize efficiency and minimize energy consumption.

CRANE SOLUTIONS FOR WASTE MANAGEMENT IN CITY ZE ZONES

Hiab has been successful in multiple municipal waste management procurements that include future city zero-emission zones, among others in The Netherlands. This has been achieved by offering future-proofed solutions that enable a gradual transition towards full-scale electrification of waste handling by 2030.

In densely populated cities, under-ground waste containers have become increasingly popular as a solution for efficient and eco-friendly waste management. However, it can be challenging for drivers to safely and efficiently empty these containers on narrow city streets. To overcome this challenge, Hiab have developed the HIAB S-HIPRO 230W. This innovative crane is designed to empty underground waste containers with maximum precision and ease.



The HIAB S-HIPRO 230W in action

HIAB offers a wide range of HiPro cranes suitable for waste management. It is not possible to make a presentation of all the different models here, but what they all have in common are:

Precision. All HIAB HiPro cranes are equipped with the most advanced and easy-to-operate control system on the market. With an optimized oil flow that allows many simultaneous

movements, it ensures the highest speed and precision. The response from the HiPro control system is instant. Pump Flow Distribution (PFD) keeps the crane's movements in perfect proportion to the operator's control movements, and the optimized oil flow allows the crane to perform many actions simultaneously. Since the HiPro control system is so simple to operate, very little training is needed, making it easier to onboard new crane operators.

Capacity. HiPro cranes make it possible to boost capacity when needed the most. Automatic Duty Control (ADC) and Automatic Speed Control (ASC) engage directly without any stops or manual actions. Together with the best and most versatile hydraulic system on the market, these features boost capacity by up to 30%.

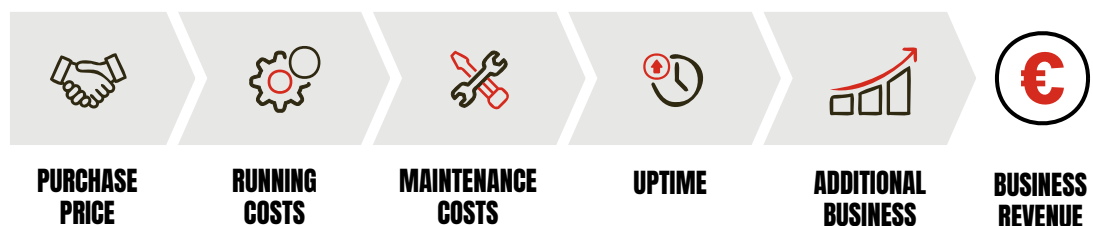
Durability. HIAB nDurance™ gives the cranes an enduring surface protection. Technologically advanced and environmentally sound, this high-tech painting system shields the crane's parts with an ultra-thin nanoceramic layer that prevents corrosion.

Reliability. HiPro crane solutions are reliable and robust workhorses built to last, ensuring maximum uptime by minimizing unplanned downtime and the need for repairs. That is why HIAB can offer a five-year warranty.

Productivity. The sum of the highlighted advantages above entails that HIAB HiPro cranes deliver the highest productivity compared with competing solutions.

Profitability. By summing up the improved uptime and increased additional business opportunities, Hiab ensures a low total cost of ownership (TCO) and the best long-term business investment on the market (see Figure 3).

Figure 3. Hiab Value Creation Model.



Waste handling cranes usually utilize a fixed hydraulic pump powered by the truck's diesel engine. Although Hiab's cranes are efficient, this solution doesn't significantly reduce CO₂ emissions.

HIAB wspr are future-proofed hybrid solutions enabling a gradual transition towards full-scale electrification.

In response, Hiab has developed wspr, an easy-to-install and use electric hybrid solution compatible with your medium range crane model of choice. The HIAB wspr solution utilizes both an electric and a conventional fuel engine power take-off system. With the truck engine off, electrically powered cranes consume less energy, drastically reducing operating and maintenance costs by up to 90%.

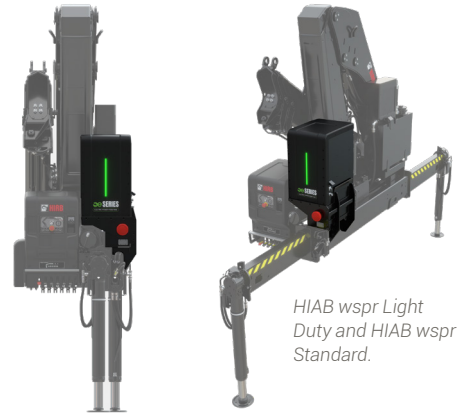
HIAB wspr can reduce operating and maintenance costs with up to 90%.

All while providing quiet and reliable maneuvering precision without toxic fumes. HIAB wspr comes in three different models:

- **HIAB wspr™ Light Duty.** Hybrid solution integrated on the crane base, including the battery pack. Light Duty is optimized for drop-off applications or for use during specific time windows.
- **HIAB wspr™ Standard.** Hybrid solution integrated on the crane base, including the battery pack. Standard Duty is suitable for most applications with a battery capacity for 1-2 work days.
- **HIAB wspr™ Heavy Duty.** Chassis-mounted hybrid solution. The Heavy Duty battery pack is optimized for applications requiring long working hours or less frequent charging sessions.

HIAB wspr brings a lot of advantages for both fleet owners and installation partners:

- + Plug-and-play installation with integrated high-voltage electric wiring from the factory.
- + No additional space is blocked for batteries and pumps on the truck chassis (Light Duty and Standard).
- + Significantly reduce noise levels caused by vibrations and resonance.
- + Allows for load handling operations in low- or zero-emission zones where engine idling is restricted.
- + 5 years extensive warranty covering battery modules. Additional battery parts are covered for two years.



HIAB wspr Light Duty and HIAB wspr Standard.

HIAB HiPro cranes in combination with wspr is a true future-proof hybrid solution that enables a smooth transition towards full-scale electrification of load handling by 2030. Last but not least, Hiab's eco-friendly loader cranes are a more profitable business investment compared to traditional alternatives.

Find out with the HIAB Customer Value Simulator what solution is the most profitable for you.

We can help you increase uptime while reducing energy costs and make more money on the bottom line. See how quickly an investment in a Hiab loader crane solution pays off for you at valuecalculator.hiab.com



Use the QR code to test the HIAB Customer Value Simulator directly on your phone.

You will receive a detailed tailor-made report with both data and analysis.





CONCLUSIONS

In just a few years, reducing CO₂ emissions has gone from fluffy formulated political visions to action-oriented targets supported by national regulations and incentives. An example of that is the EU Cities Mission. The fact that 100 of the leading cities in Europe will have zero-emission zones by 2025 will undoubtedly have a significant impact on the transportation and load handling industry. The momentum towards sustainable practices is further reinforced by the COP28 agreements, signaling a global commitment to reducing fossil fuels.

It is not enough for the freight and load handling industry to phase out fossil fuels and replace them with new electrical solutions. The industry must also increase energy efficiency to maintain a competitive capacity and productivity.

The transportation and load handling sector is at the beginning of a paradigm shift that is going to accelerate in the coming years. The transition will lead to new business opportunities for those who are quick-footed and prone to change, and the opposite for those who are not.

Therefore, it is of utmost importance for Hiab to stay at the forefront of innovation and technology and deliver the business value our customers demand to continue being successful.

The transformation that has been talked about for years is now happening for real. We at Hiab are ready to support you today so that you will become one of the winners of tomorrow.

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BUILT TO PERFORM

Hiab is a leading provider of smart and sustainable load handling solutions. We are committed to delivering the best customer experience every day with the most engaged people and partners. Hiab's premium equipment includes HIAB, EFFER and ARGOS loader cranes, MOFFETT and PRINCETON truck mounted forklifts, LOGLIFT forestry cranes, JONSERED recycling cranes, MULTILIFT skiploaders and hooklifts, GALFAB roll-off cable hoists, and tail lifts under the ZEPRO, DEL and WALTCO brands. As the industry pioneer, Hiab continues to make load handling smarter, safer and more sustainable to build a better tomorrow. Hiab is part of Cargotec Corporation.



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