



POLISH  
ROAD  
TRANSPORT  
INSTITUTE

Report

# Green revolution in transport through the eyes of road carriers



Fundacja Promocji Pojazdów Elektrycznych  
Electric Vehicles Promotion Foundation

September 2024



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The study was commissioned by Amazon

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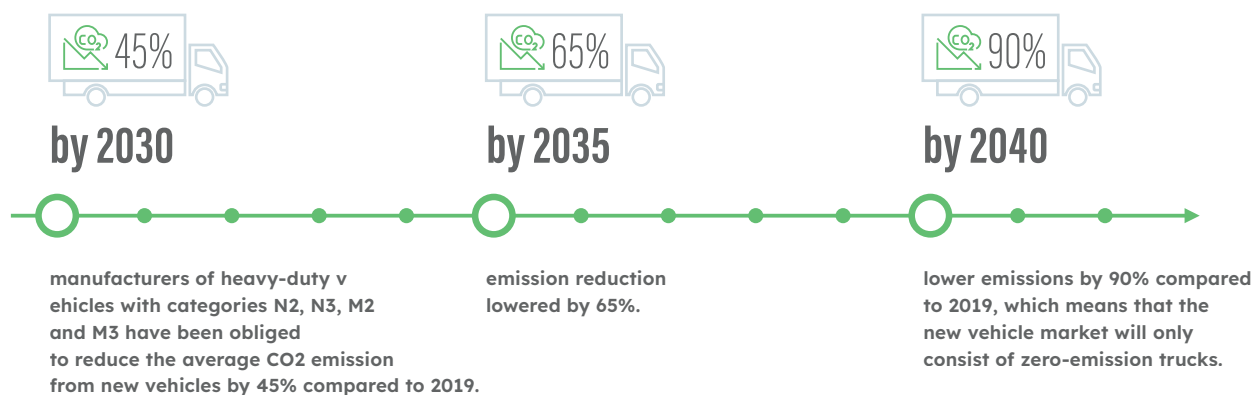
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# 1 Introduction

On 14 May 2024, the European Council approved new, stricter CO<sub>2</sub> emission goals for new heavy-duty vehicles effective from 2030. Published on 6 June 2024, the Regulation is to ensure that the trajectory of CO<sub>2</sub> emission reductions from the transport sector is consistent with the EU's climate targets.

## Impact of the regulations on the transportation market

The new goals directly benefit the expansion of electric or hydrogen vehicle offerings, at the expense of those powered by



Therefore, the road transport sector is facing a significant challenge. It means a long-term and comprehensive decarbonisation transformation. Becoming climate-neutral is key for EU entities. It is not only a regulatory commitment, but most importantly a strategic goal which carries the potential of transforming the economy, stimulating innovations and strengthening the European Union's position on the international scene. These changes seem inevitable, and they will also influence the current status quo of the transportation market.

traditional fuels. Today, almost every dealer has electric vehicles in their offer or is planning to introduce them in the near future. About 50% of Scania, Daimler, MAN or Volvo trucks sold should be zero-emission after 2030. Truck manufacturers declare that they are ready for this transition. At least seven major manufacturers (Scania, Daimler, MAN, Volvo, DAF, Renault, Iveco) plan to sell only electric vehicles in 2040. It will improve the share of zero-emission trucks in transport companies' fleets.

## Polish transport companies: market condition in the light of new regulations

Polish companies will be forced to gradually decarbonise their services through increasing the share of zero-emission vehicles, whether they want it or not. This primarily affects companies operating in the international transport market. The competitiveness in terms of carbon footprint will then become significant in the domestic transport market.

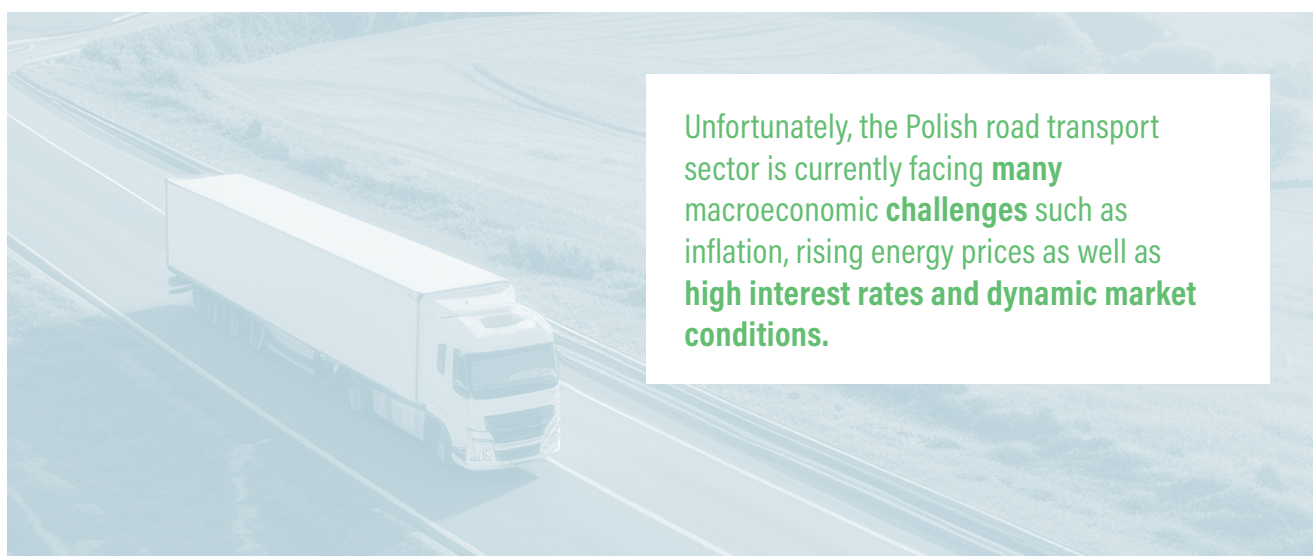
The Electric Vehicle Promotion Foundation (EVPF) , however, indicates that non-compliance with the decarbonisation requirements may lead to a loss of competitiveness in international markets, in particular in terms of cabotage transport in which Poland plays a significant role. In 2021, the Polish road transport sector transported 380 billion tonne-kilometres, which constitutes the EU's highest result. On the other hand, Polish Economic Institute report authors highlight that the accelerated heavy road transport electrification may result in creating additional 21 thousand jobs in Poland by 2035.

Polish road transport is of particular importance in Europe. According to the latest TLP report , the sector accounts for 7% of Poland's GDP and 6.5% of employment. The industry is the foundation of the Polish economy, and its development is crucial for the country's stability and economic growth. The TSL sector is one of the fastest growing in Poland, reaching

average yearly growth rate at 4.9% between 2010 and 2022, which is higher than the average for the entire economy - 3.5%. In 2022, the sector's revenues reached PLN 375 billion, 85% of which was from goods transport. Road transport contributed significantly to employment growth, increasing it by 230 thousand workers within the last decade. TLP indicates that this is the result of developing logistics hubs, mainly handling the German economy. This has led to an annual growth rate in warehousing services of around 15%.

The same report indicates that the value of freight road transport services provided amounted to PLN 190 billion, with an average annual growth of 10.5% by 2010. The freight road transport is one of the largest export sectors in Poland with annual revenues of PLN 65 billion from the sale of services abroad. The TSL sector companies are also the most active investors. The sector's annual investments amount to approximately PLN 31 billion, of which PLN 9.5 billion is invested in road transport. These investments involve both the infrastructure development as well as modern logistics technologies. Road transport is also of crucial importance for Poland's balance of payments. The export of transport services generates approximately PLN 65 billion annually, which significantly impacts the state's positive trade balance.

Moreover, Polish transport companies play a key role in the European international transport market by handling ap-



Unfortunately, the Polish road transport sector is currently facing **many macroeconomic challenges** such as **inflation, rising energy prices as well as high interest rates and dynamic market conditions.**

proximately a quarter of the market. Poland is also the most popular reshoring destination for Western European corporations, which further strengthens the position of Polish carriers on the market, as they operate the most important routes on European trade routes. Their importance increases, especially in terms of economic structure and logistics changes in the region. According to the 'Elektryfikacja sektora drogowego transportu ciężkiego' [Heavy road transport sector electrification] report prepared by the Polish Economic Institute and New Mobility Association, the heavy road transport sector's added value amounted to EUR 9 billion in 2020, which ranks Poland fifth in the European Union, right behind Germany, France, Italy and Spain. Poland is also the leader in terms of employees - accounting for 15% of the total European road transport employment in 2020.

Additionally, the sector is facing driver shortages, lack of infrastructure or the emerging necessity of decarbonisation. The carriers have to face the economic downturn and invest major funds in new low-carbon technologies at the same

time. It should be noted that the lack of publicly available dedicated heavy-duty vehicle charging stations and higher costs of purchasing a fleet of new vehicles in the light of lacking investment funds constitute a real obstacle to implementing such plans. Customers who are reluctant to bear the costs of decarbonisation and inadequate regulations that do not favour low- and zero-emission vehicles (road infrastructure use charging systems) further hinder the process. The possibility of making investments in the transport sector is crucial for its decarbonisation. However, the related uncertainty is very high in the light of transport companies' current capabilities. Moreover, the higher demand for low-carbon transport services will force the transport companies to adapt their ESG strategies. This process will also be applicable to the smallest market players who will be required to meet the new standards expected from major clients and suppliers.





# 2 Key survey findings

We are at the beginning of the road - zero-emission trucks are a very rare sight in transport companies. Many know them only from stories. As many as 93% of the transport companies surveyed do not have a fleet of zero-emission vehicles (BEV and HCEV) in their fleet, and 69% do not have alternative-fuel vehicles either. Furthermore, 28% of companies have not even had the opportunity to test such technologies.

Zero-emission trucks do not solve the problem, they are too expensive to buy and maintain, have too short a range, need to wait for technology development. The majority of companies surveyed (63%) do not see zero-emission vehicles as an effective strategy to reduce the environmental impact of truck transport, and 18% do not believe in the effectiveness of zero-emission technologies. . The biggest barriers in purchasing new vehicles are: high investment costs (73%), lack of suitable infrastructure (54%) and too short range per charge (51%). Operating costs of such vehicles is a barrier for 15% of companies. In addition, 39% of respondents do not trust the maturity of emerging technologies.

This is not a good time to invest in zero-emission vehicles, it is better to look for solutions in traditional well-known technology. In the next five years, only 26% of surveyed companies are planning to purchase zero-emission trucks, while 65% have not yet considered such an investment. Interestingly, as many as 42% of the companies surveyed favour the development of e-fuels and improved diesel engines, while 37% hope for greater use of biodiesel.

There are no prospects of paying back higher investment costs, customers are not willing to pay higher

Rates for green service. The benefits of purchasing zero-emission vehicles are not perceived unequivocally: 46% of surveyed companies see no benefits, while 43% see an opportunity to improve their environmental image. Only 24% of respondents see additional growth opportunities for the company resulting from new regulations, such as lower road tolls and increased customer confidence. On the other hand, 55% of companies are concerned that these regulations could lead to a deterioration in liquidity and even bankruptcy.

Regulations and public policies do not encourage investment, we expect more from the state. Almost 60% of the companies surveyed expressed dissatisfaction with the current government proposals for the purchase of zero-emission vehicles and emission-free vehicles and infrastructure development, although as many as 90% admitted that they had not studied them in detail and had not participated in the public consultation. Not surprisingly, as many as 54% of the companies surveyed expect a reduction in taxes, 54% more regulatory stability and more than 45% subsidies for electricity costs. 45% a surcharge on electricity costs and a system of tolls favouring low- and zero-emission vehicles.

The development of charging infrastructure at national and European level is considered important by 43% of the companies surveyed.

# 3 What do carriers think of decarbonisation?

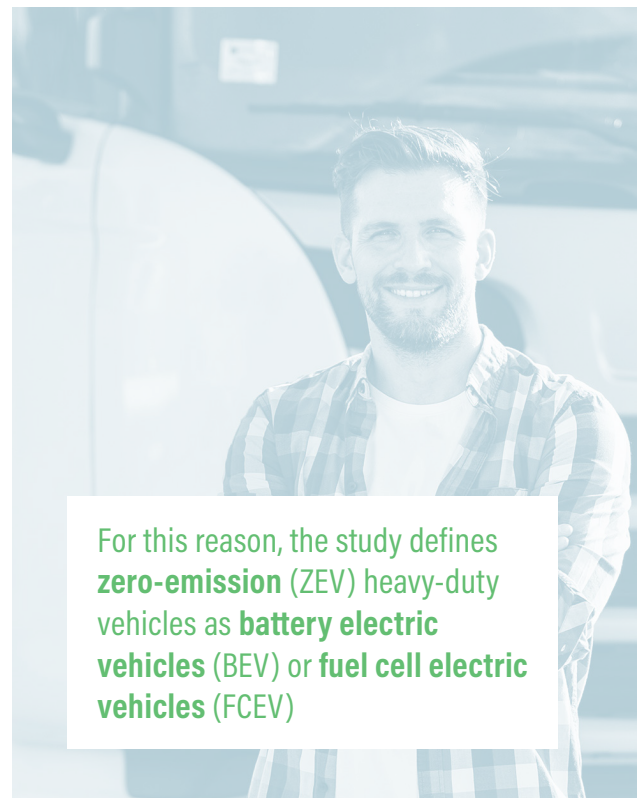
In order to maintain competitiveness in the global market, Polish companies must be prepared for the upcoming changes. The key question is how the changes are perceived by the companies, how are they preparing for the changes and what are their expectations in relation to public policies. Our study focuses on determining the current market situation perceived by carriers in terms of the market process related to the latest legislative changes which forced changes on the European heavy-duty vehicle market.

## What are zero-emission vehicles to us?

Before presenting the findings, it should be noted that the study used the zero-emission vehicles term. The definition of the zero-emission vehicle has been included in the European Parliament and (EU) Council Directive 2019/1161 . According to the Directive, a zero-emission heavy-duty vehicle is an environmentally friendly vehicle if it is propelled without the use of an internal combustion engine. This includes both fully electric vehicles as well as vehicles propelled by electric energy produced as part of the chemical reaction between hydrogen and oxygen.

The study does not include bio- and synthetic fuel powered zero-emission vehicles. Biofuels release carbon dioxide during the combustion process, similarly to fossil fuels. Moreover, the processes related to growing, harvesting, processing and transporting raw materials for biofuel production also gene-

rate greenhouse gases. Additionally, objections are raised as to the performance of an ICE in general . Therefore, the report categorises all vehicles propelled by natural gas (LNG/CNG) or LPG, HVO, biomethane, biodiesel as **vehicles propelled by alternative fuels**. Nonetheless, the respondents had the opportunity to provide their opinions on all kinds of propulsion.



For this reason, the study defines **zero-emission (ZEV) heavy-duty vehicles as battery electric vehicles (BEV) or fuel cell electric vehicles (FCEV)**

5. Official Journal of the European Union, Directive (EU) 2019/1161 of the European Parliament and Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles (Text with EEA relevance)

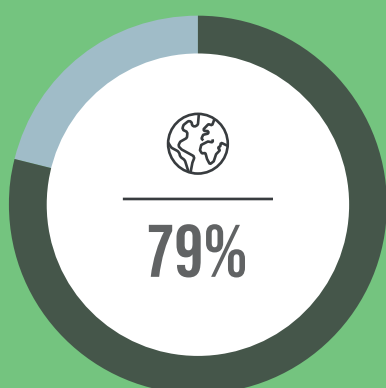
6. Technical Transactions, 'Influence of IC engine load on the energy conversion efficiency in the system' article

## Group:

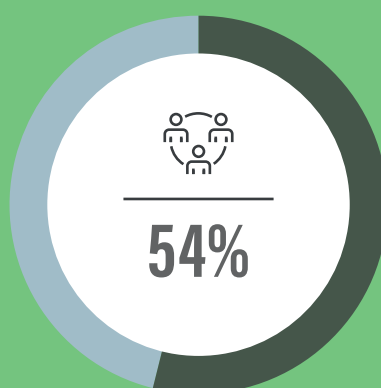
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## Polish transport companies

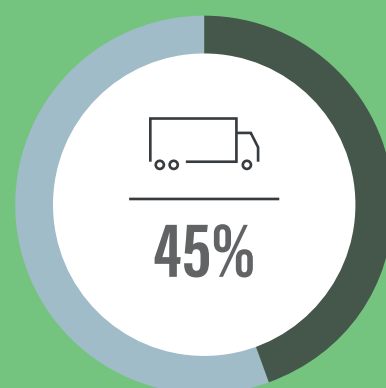
**Survey methodology:** This report is the result of quantitative and qualitative research. The survey (CAWI) was conducted on 124 transport companies seated in Poland. The surveys have been distributed by industry media as well as the media of the Polish Road Transport Institute and its partners. The survey has also been distributed by e-mail and sent to the publicly available addresses of transport companies. The survey involved a layered random sampling where the population has been divided into layers based on market (road freight transport), company size, heavy-duty vehicle fleet owned, operation territory and provision of service by the company itself. Random samples from each layer have ensured representative results. The survey results exclude companies which are not the owners of vehicles of total permissible mass over 3.5 tonnes. In order to provide more accurate results, 13 Polish transport companies have been interviewed in the form of in-depth interviews (IDI) using the CATI methodology



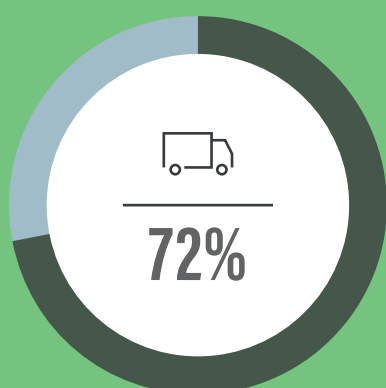
of the companies  
operate internationally



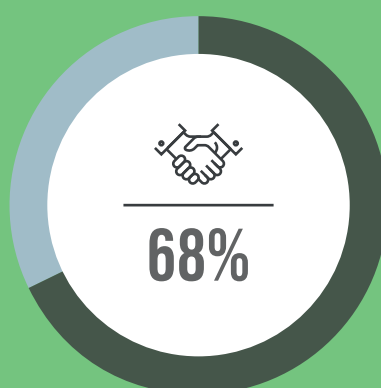
of the companies have  
50 or more employees



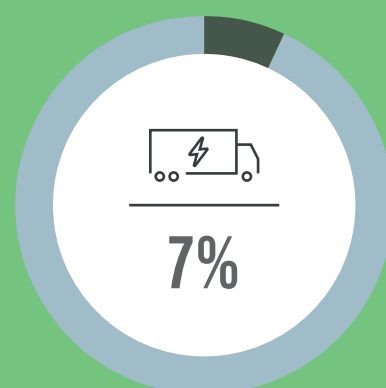
of the companies  
have 6 - 50 vehicles of total  
permissible mass over 3.5 tonnes



of the companies have  
a vehicle fleet consisting only  
of vehicles of total permissible  
mass over 3.5 tonnes



of the companies facilitate  
their transport business  
with subcontractor fleets



of the companies have  
at least one BEV or HCEV  
of total permissible  
mass over 3.5 tonnes

## How many people are employed by the companies surveyed? ?

Structure of respondents considering employment

Medium-sized companies make up the largest group of respondents. Entities with 50 - 249 employees accounted for 31% of responses. Small-sized entities with 10 - 49 employees are another group that is most often represented, accounting for 29% of respondents. Large-sized companies employing over 250 persons accounted for 22% of respondents. Employment at small-sized companies, i.e. an undertaking with up to nine 9 employees, was declared by 18% of all respondents.

## What is the main type of transport offered?

Structure of respondents considering the main area of business activity

The survey was dominated by companies that indicated the international market as their main business activity area. As many as 79% of road carriers provide international transport services. On the other hand, only 17% of respondents mainly focus on the domestic market. The local (up to 150 km), courier and cabotage markets are operated by only 4% of respondents, of which the cabotage market is mainly operated by less than 1% of respondents.



## How many heavy-duty vehicles do they own?

Structure of respondents considering the owned vehicle fleet

The companies surveyed vary in terms of heavy-duty vehicles owned. Polish carriers usually own 6-50 vehicles of this type. As many as 45% provided such a response. More than 50 but less than 100 heavy-duty vehicles are owned by 18% of respondents. One in four (26%) carriers report owning more than 100 of such trucks. The remaining group (11%) are the companies that operate a fleet of 1-5 vehicles of total permissible mass over 3.5 tonnes.

The largest group of respondents are companies that have only such vehicles in their fleets - as many as 72%. Additionally, as many as 18% of carriers indicated that at least 3 in 4 fleet vehicles are of total permissible mass over 3.5 tonnes. Only 4% of respondents are companies where heavy-duty vehicles make up less than a quarter of the entire fleet. The same number of companies indicated that their fleet consists of more than a half (75%) of such vehicles. Only 2% of companies indicated that more than a quarter (up to 50%) of the entire fleet consisted of heavy-duty vehicles.

Companies without their own fleet of vehicles of total permissible mass over 3.5 tonnes were the smallest group surveyed. Such a response was indicated by 8% of respondents. However, **those companies were not included in the analysis as there was no direct link to the issue of regulations affecting their fleets.**

## Do they operate their own fleets or do they subcontract transport services?

Structure of respondents considering provision of services

35% of respondents stated that their transport company does not use subcontractors' fleets. One in three Polish carriers uses only its own fleet. However, every fifth respondent (19%) carries out most of its activities through subcontractors. A dominant response (46%) was that the share of subcontracted services was less than 50% of total transport services provided.

**Company size by number of employees**



- **18%** up to 9 employees
- **29%** from 10 to 49 employees
- **31%** from 50 to 249 employees
- **22%** at least 250 employees

**Main area of business activity**

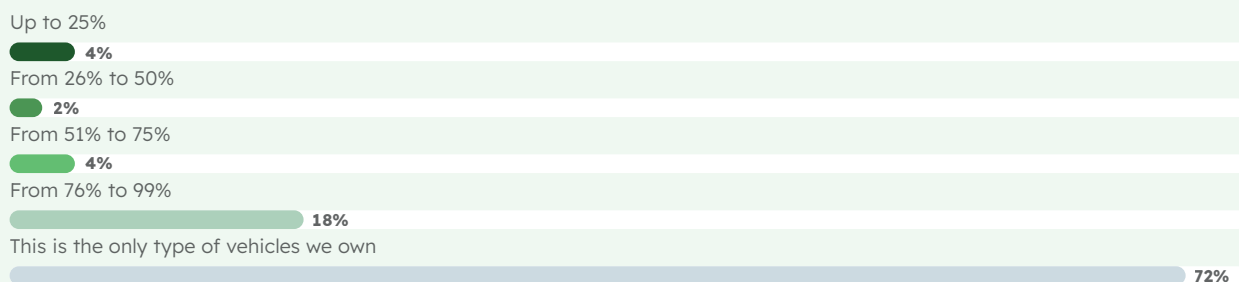


- **79%** international market
- **17%** domestic market
- **2%** courier market
- **2%** local market - up to 150 km

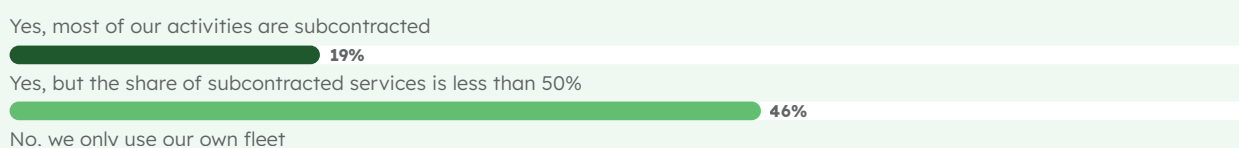
**Number of fleet vehicles of permissible total mass over 3.5t**



**Share of fleet vehicles over 3.5t**



**Transport business supported externally**



# 4 Decarbonisation through the eyes of a road haulier

Preparations for changes related to decarbonisation are necessary. It is particularly important for Polish companies to maintain their competitiveness in the European market. It is also becoming more significant for their business partners. It is also noticed by hauliers. Our research shows that 58% of hauliers have already experienced customer expectations to provide information on the carbon footprint of their vehicles, with 35% of respondents having received such requests from both the domestic and international markets, 19% from the domestic market and 4% from the international market

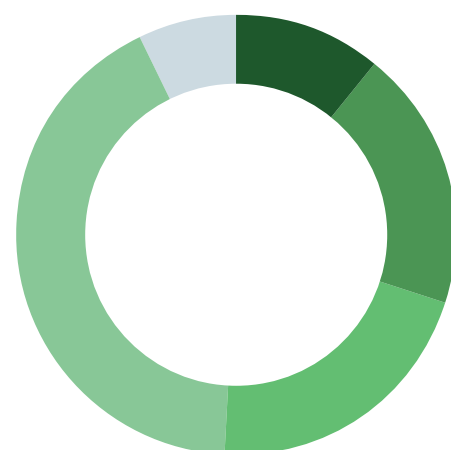
**Have you experienced customer requirements to provide information on the CO2 emissions of your vehicles as part of conducting your current business?**



- **42%** No, never
- **4%** Yes, in the foreign market
- **19%** Yes, in the domestic market
- **35%** Yes, both in the domestic market as well as the foreign market

**However, as many as 63% of the hauliers we surveyed disagree that we need to reduce carbon emissions from heavy-duty vehicles by replacing the internal combustion engine with zero-emission propulsion systems. The need of decarbonising heavy-duty vehicles through replacing the current propulsion solutions is visible to 30% of the companies surveyed.**

**Do you think that reducing CO2 in heavy-duty vehicles by replacing the internal combustion engine with zero-emission propulsion systems is necessary to achieve the long-term climate neutrality goal?**



- **11%** Definitely yes
- **19%** Probably yes
- **21%** Probably not
- **42%** Definitely not
- **7%** No idea

Only 7% of the companies surveyed are already using at least one BEV or FCEV. 38% of the companies have only seen such vehicles at trade fairs, exhibitions or conferences, without actually testing them. On the other hand, 27% of the companies had the opportunity to test the electric or hydrogen-powered trucks. A further 28% have not had the opportunity to familiarise themselves with such technologies.



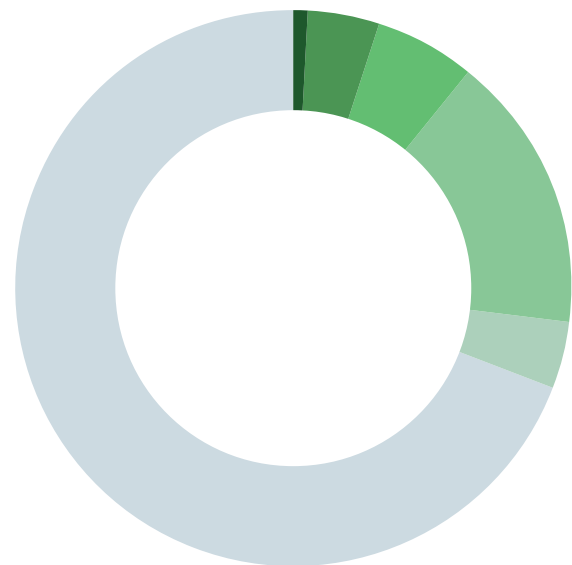
**Has your company already tested zero-emission heavy-duty vehicles?**



- **38%** Yes, but only during trade fairs/exhibitions/conferences, without testing them
- **27%** Yes, we have had the opportunity to test an electric or a hydrogen truck
- **7%** Yes, we already use at least one of such vehicles
- **28%** No, we have not had the opportunity to familiarise ourselves with such technologies

Almost one in three hauliers surveyed already has alternative fuel heavy-duty vehicles in their fleet. They include vehicles running on biofuels, LNG, CNG or LPG. Only 1% of companies have a fleet made up entirely of such vehicles. In 16% of the companies, they account for less than a quarter of the total fleet. However, the majority of respondents, 69%, said that they did not own this type of truck.

**Does the company have heavy-duty vehicles running on alternative fuels (biofuels, LNG, CNG, LPG) in its managed fleet?**



- **1%** Yes, all our vehicles run on alternative fuels (100%)
- **4%** More than a half of our vehicles run on such fuels (+50%)
- **6%** Less than a half of our vehicles run on such fuels (26-49%)
- **16%** Alternative fuel-powered vehicles constitute less than 25% of our fleet
- **4%** We only have one of such vehicles - either using biofuel, natural gas or LPG
- **69%** We do not own such vehicles (0%)

## Barriers to the introduction of zero-emission vehicles

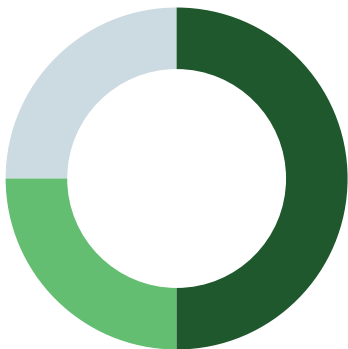
### Main difficulties in introducing zero-emission heavy-duty vehicles into the fleet

#### Most frequently indicated



- **73%** High investment costs for new vehicles without subsidies
- **54%** Insufficient publicly available charging infrastructure
- **51%** Low vehicle range on a single charge

#### Least frequently indicated



- **2%** Poor market offer compared to internal combustion engine vehicles
- **1%** Difficulties in finding a repair shop
- **1%** I do not see any difficulties that would constitute a barrier for such vehicles

Introducing zero-emission vehicles into fleets can be a challenge for hauliers. We asked hauliers to identify the three main barriers to introducing zero-emission heavy-duty vehicles into their fleets.



**Only 1% of the companies see no barriers.**

The survey results clearly indicate that the greatest barrier in this area for the majority of Polish companies is the high cost of investing in new vehicles without appropriate support instruments and incentives. This issue is considered the most important by 73% of companies. Moreover, some of the companies made it clear that such investments would force them to raise prices. However, they point out that customers are reluctant to incur the additional costs associated with purchasing more expensive vehicles. “Customers do not want to pay more for this type of transport” - stated one of the respondents.

The second major issue is the refuelling/charging infrastructure, or lack of it. As many as 54% of hauliers indicated insufficient access to publicly available charging stations as one of the three major problems affecting the difficult fleet replacement decision.

Many of the hauliers surveyed also indicated low vehicle range on a single charge. It is one of the three major difficulties for over a half of respondents (51% of companies).





**“Customers do not want to pay more for this type of transport” - stated one of the respondents.**

**Those are the most serious barriers to transitioning to zero-emission heavy-duty vehicles identified by the hauliers**, although some of the responses suggested that identifying only three barriers does not give a full picture of the market situation.

Four in ten transport companies (39%) also indicated the uncertainty as to the developing technologies. The following turn out to be less important: high cost of purchasing and installation of own charging stations (14%) as well as uncertainty as to the future electricity prices (13%). Two other issues, longer transport times and higher costs associated with operating and maintaining a zero-emission vehicle, were identified by the same number of hauliers - 11% of companies selected the two responses.

5% of hauliers indicated a long waiting time for the construction of a power connection to build their own charging station. On the other hand, 4% indicated the lower load capacity compared to similar internal combustion trucks.

However, the low availability of new vehicle models is not an issue. Only 2% of the companies are convinced that the poor market offer compared to internal combustion engine vehicles is one of the three major factors that make the decision difficult

Some of them worry about the drivers as well, considering new vehicles. Danger to drivers in the form of battery fire or being in an excessive electromagnetic field was indicated by 4%. Only 2% of the transport companies indicated drivers' lack of experience in operating such vehicles. The difficulties with finding a repair shop were identified only by 1% of the companies.

### **How do companies intend to reduce the emissions of their vehicles?**

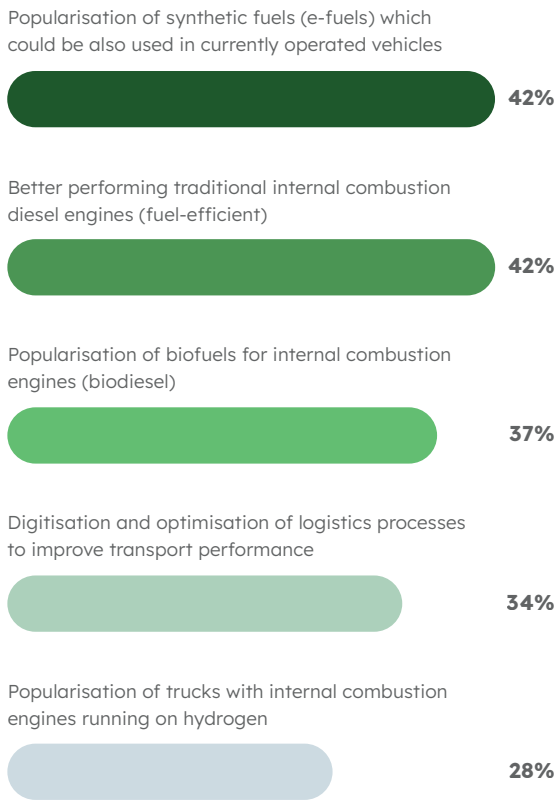
Battery electric vehicles are not the first-choice strategy for the Polish hauliers, considering reducing the emissions of their heavy-duty vehicles. The respondents have been asked to identify the three best strategies for reducing carbon dioxide. Only 11% of the companies identified increasing the use of zero-emission propulsion systems as one of the best strategies. **Most Polish transport companies refuse to switch to different propulsion systems in their fleets.**

The study has shown that the popularisation of synthetic fuels that could be used in vehicles currently in service is the most attractive strategy. This option was indicated by 42% of the companies. The same number of companies indicated traditional internal combustion diesel engines with better performance, i.e. fuel-efficient. A slightly lower number of companies indicated the popularisation of biofuels for internal combustion engines. The so-called 'biodiesel' was indicated by 37% of respondents. Others are waiting for the hydrogen revolution so that the traditional trucks with internal combustion engines can be run on hydrogen. Their popularisation is indicated by 28% of the companies as one of the three best zero-emission strategies, and further 16% indicated hydrogen that will be used to power fuel cells.

The fourth most frequently indicated strategy is the willingness to digitise and optimise logistics processes to improve transport performance. As many as 34% of the respondents perceive it as their opportunity to decarbonise. The optimisation of vehicle aerodynamics and propulsion system to save fuel was ranked fifth and indicated by 26% of the companies. Only one in five companies (19%) see a high potential in transport intermodality and the reduction of road transport activities in favour of rail transport.

The survey also included opinions for the increased use of 2-trailer Gigaliner type units or amending provisions resulting in increasing the total permissible mass as well as the length of units, together with increased number of axles. One of the respondents sees an opportunity in converting Poland's international transport sector to use biomethane, with the next phase being the electrification of Poland's rail transport.

### Best strategies for reducing heavy-duty vehicle emissions



### Benefits of introducing zero-emission heavy-duty vehicles

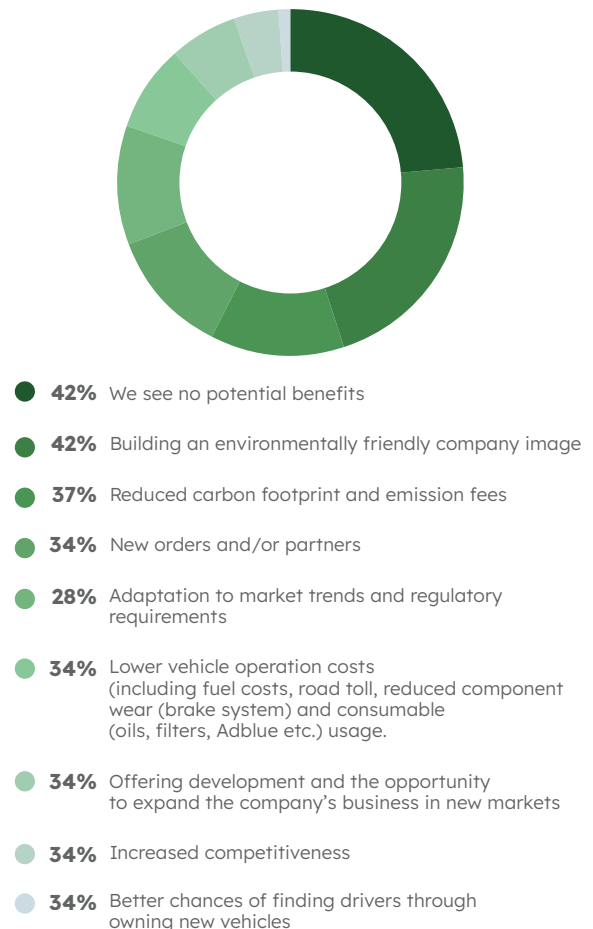
Decarbonisation is perceived by many as a disadvantage in economic terms. As many as 46% of respondents see no potential benefit from introducing zero-emission heavy-duty vehicles into their fleets.

However, some companies see it differently. The opportunity of building an environmentally friendly company image was

perceived as one of the three best benefits for as many as 41% of the companies. Reduced carbon footprint and the resulting lower emission fees were indicated by 24% of respondents. New orders or partners are one of the most advantageous benefits for 23% of the companies.

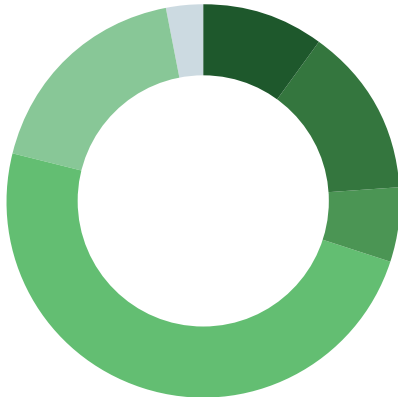
In contrast, slightly fewer respondents, i.e. 21%, see adapting to market trends and regulatory requirements as one of the most important benefits, while 16% see a potential reduction in vehicle operating costs and consumables. Further 12% perceive the offering development and the opportunity to expand the company's business in new markets as another benefit. Only 8% think of decarbonisation in terms of increasing their own competitiveness. Better chances of finding drivers through owning new vehicles was indicated as a benefit by even fewer, namely only 2%.

### Most important benefits of introducing zero-emission heavy-duty vehicles into the fleet



## Opportunities and threats as seen by transport companies

European Union's regulations related to the reduction of CO2 emitted by heavy-duty vehicles

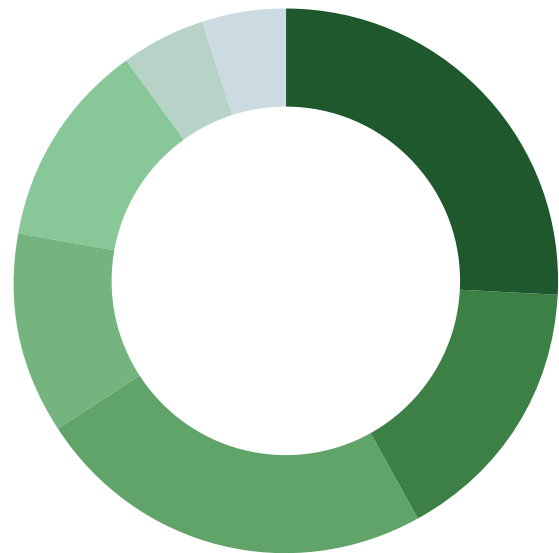


- **10%** Major opportunity for expanding the business
- **14%** Minor opportunity for expanding the business
- **6%** Lesser threat to the company
- **49%** Major threat to the company
- **18%** Difficult to say, this topic has not been analysed yet
- **3%** I am not familiar with new regulations on the topic



Although many see the benefits, only 10% of hauliers see decarbonisation as a major opportunity for their own growth. Further 14% remain restrained, however, they still notice the opportunity. As many as 26% of all responses related to new orders and potential contractors in this group of hauliers asked to specify the benefits for their own companies. Slightly fewer focused on lower road toll, namely 24%. Further 16% related to the potential increase in customers' trust. Reduced impact on the environment was indicated by the same number of companies that pointed to fewer competitors. Both responses were indicated by 12% of companies. The fewest pointed to lower operating costs (5%) and developing digital optimisation tools (5%).

What specific opportunities does your company see in relation to the decarbonisation of heavy-duty vehicles?



- **26%** New orders and potential contractors
- **16%** Increased customers' trust
- **24%** Lower road tolls
- **12%** Lower environmental costs
- **12%** Lower number of competitors
- **5%** Lower operating costs
- **5%** Development of digital optimisation tools

Unfortunately, over a half of the hauliers surveyed believe that the new European Union's regulations related to the reduction of CO2 emitted by heavy-duty vehicles are a threat to their businesses. As many as 49% see it as a major threat, and 6% perceive it as minor.

### What specific threats does your company see in relation to the decarbonisation of heavy-duty vehicles?



- **24%** Deterioration in financial liquidity
- **24%** Bankruptcy
- **19%** Sale of part of the fleet
- **17%** Inability to handle deliveries
- **14%** Necessity of transitioning to a different business sector

Hauliers are most concerned about the significant increase in costs associated with the necessary investments. They were asked to indicate the expected threats, one in four respondents (24%) mentioned deterioration in liquidity as well as fearing bankruptcy (also 24%). Nearly one in five responses related to the sale of part of the fleet (19%) and the inability to handle deliveries (17%) due to the necessary heavy-duty vehicle decarbonisation. 14% of responses indicated that it would be required to transition to a different business sector.

### Are the carriers planning to purchase zero-emission trucks?

#### Is your company planning to purchase zero-emission trucks within the next 5 years?

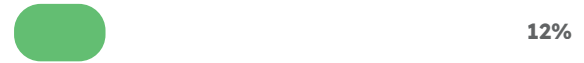
Yes, we are planning to purchase electric and hydrogen trucks



Yes, we are planning to purchase hydrogen trucks



Yes, we are planning to purchase electric trucks



No, we have not yet given any thought to such a purchase.



No, we are transitioning to a different business sector



Only a quarter of respondents confirmed that they are planning to purchase zero-emission trucks within the next five years. 12% of respondents are planning to focus only on electric vehicles, and 7% only on hydrogen vehicles. A further 7% of companies are planning a combination of the two propulsion types.

These numbers become irrelevant compared to the negative responses. However, as many as 65% of respondents emphasise that they have not yet analysed such a purchase.

Why is it that so many companies are reluctant to make the purchase or are delaying the purchase decision? When asked to give three main reasons for such a decision, the hauliers most frequently replied that such trucks were too expensive for them (37% of respondents). The lack of adequate charging and refuelling infrastructure is reason enough to abandon the purchase for 32% of the companies. Nearly one in four respondents (24%) considers such trucks less effective in terms of costs and operation activities, which significantly makes the purchase decision more difficult.

**There are no zero-emission trucks that can perform tasks within a market-acceptable timeframe and price range - says one of the surveyed persons during an in-depth interview.**

As many as 18% of the companies do not trust the zero-emission technologies. 15% claim that such trucks are too expensive to maintain, and 13% prefer to focus on optimising routes and minimising empty trips. A small group of companies (9%) are waiting to invest until they emerge from the current crisis.

#### Main reasons for not buying zero-emission trucks



- **37%** Zero-emission trucks are too expensive
- **32%** Lack of adequate charging and refuelling infrastructure
- **24%** Zero-emission trucks perform worse in terms of operations and costs
- **18%** I do not believe in zero-emission technologies
- **15%** Zero-emission trucks are too expensive to maintain

### Insufficient state support

During the research, we presented hauliers with a summary of the government's proposed support programmes for the purchase of zero-emission trucks and charging infrastructure. The respondents were informed that the subsidies depend on company size: 30% to 60% for the price difference between an electric truck and a diesel, and up to 100% for charging infrastructure at logistics parks and intermodal terminals.

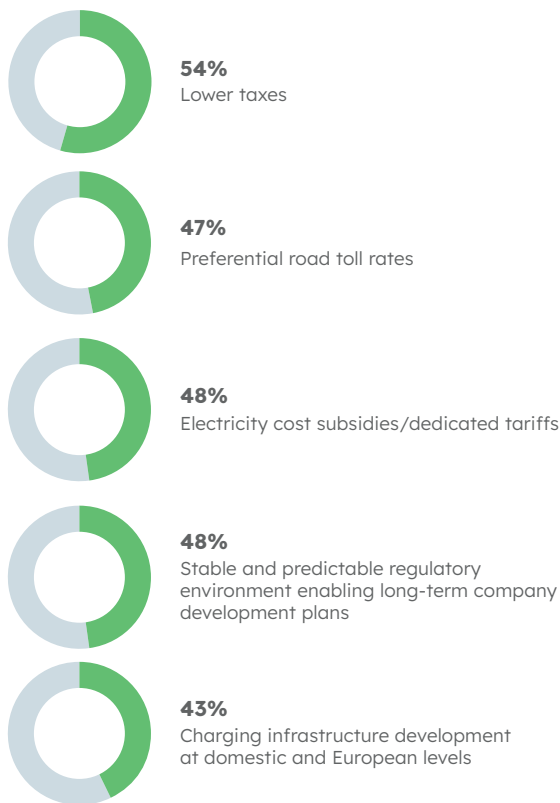
Do these proposals meet the investment needs of Polish transport companies? 28% of respondents consider these programmes as sufficient, while 15% are definitely convinced about it. 15% of hauliers did not express their opinions due to the lack of detailed knowledge within the matter. However, as many as 57% of respondents concluded that the proposed support is insufficient or definitely insufficient.

What would convince Polish hauliers to proceed with the purchase? When asked to name several other public policy support instruments, most companies mentioned lower taxes. This is crucial for 54% of companies. In addition to lower taxes, nearly a half of respondents indicated the possibility to plan the company's development in the long term. As many as 48% of respondents indicated the need for a stable and predictable regulatory environment. A similar number of companies (47%) are interested in preferential road tolls and electricity subsidies. The need for developing charging infra-

structure at the European level was indicated by as many as 43% of respondents.

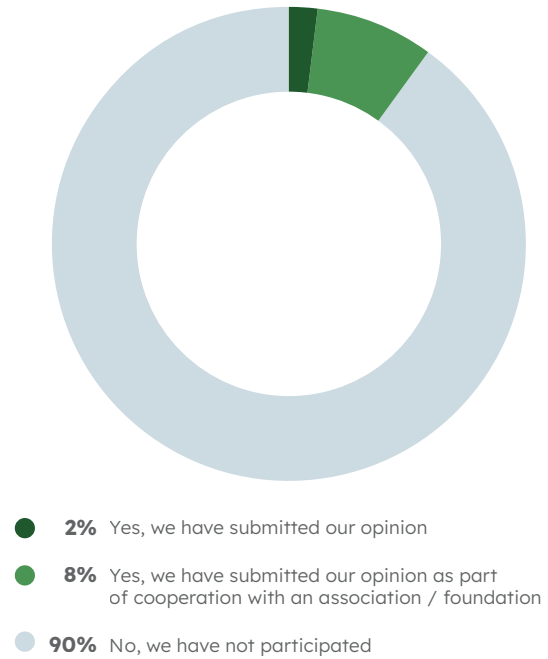
This question raised additional voices. Some hauliers proposed subsidies of up to 100% of the difference in purchase price, the establishment of a repurchase value, and a warranty after the vehicle has been used. Others indicated the necessity to increase the total permissible mass of battery electric vehicles to at least 48 tonnes

**What other support instruments would be helpful in making the decision to purchase electric heavy-duty vehicles for your company?**



Interestingly, as many as 90% of the companies surveyed have not participated in any public consultations on support programmes for the purchase of zero-emission heavy-duty vehicles and the development of dedicated charging infrastructure. Only 2% of companies have submitted opinions, and 8% have participated indirectly through cooperation with associations or other entities.

**Has your company participated in public consultations on support programmes for the purchase of zero-emission heavy-duty vehicles and the development of dedicated charging infrastructure?**

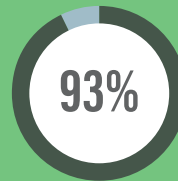


# 5 Conclusions

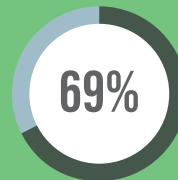
The vast majority of companies, namely 93%, do not yet have BEVs or HCEVs in their fleets. In addition, 69% of companies do not have alternative fuel heavy-duty vehicles, proving that the transition of the road transport sector to become climate neutral is only at the beginning. Over the next five years, only 26% of surveyed hauliers plan to purchase zero-emission trucks, while 65% have not yet made this decision. Moreover, 28% have not had the opportunity to familiarise themselves with such technologies during testing.

More than half of the companies do not consider zero-emission vehicles to be a good strategy for limiting the environmental impact of trucks, and almost one in five do not have confidence in new propulsion technologies. As many as 46% do not see any benefits from introducing them. Most of the companies prefer to introduce alternative strategies such as the popularisation of e-fuels, better performing traditional diesel engines or biodiesel and forward optimisation.

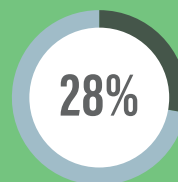
The main reasons why hauliers restrain from purchasing zero-emission trucks are their high cost, lack of proper charging/refuelling infrastructure and perceived lower operational and cost efficiency. The most significant barriers to the purchase of new zero-emission vehicles are high investment costs without subsidies and other incentives, insufficient charging and refuelling infrastructure and low range on a single charge.



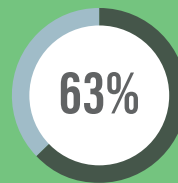
**93%** of companies do not have BEVs or HCEVs in their fleets.



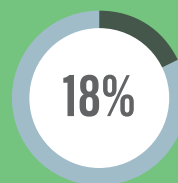
**69%** of companies do not own heavy-duty vehicles using alternative fuels.



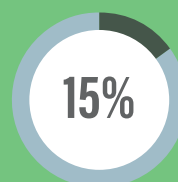
**28%** have not had the opportunity to familiarise themselves with such technologies during testing.



**63%** of the respondents consider zero-emission vehicles as a poor strategy for limiting the environmental impact of trucks.



**18%** do not believe in zero-emission technologies



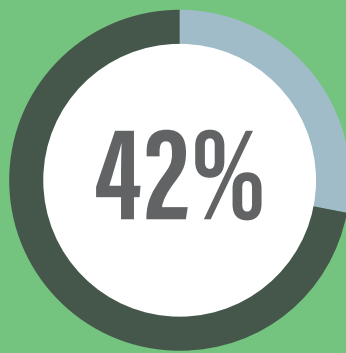
**15%** claim that such trucks are too expensive to maintain



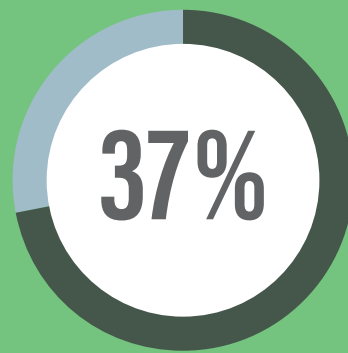
**Only 26% are planning to purchase zero-emission trucks within the next 5 years, and 65% have not yet thought about it.**



## How would they reduce emissions?

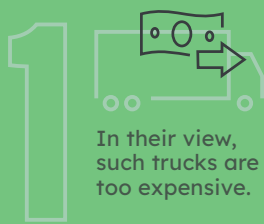


want to popularise e-fuels which could be also used in currently operated vehicles or introduce better performing (fuel-saving) traditional diesel engines.



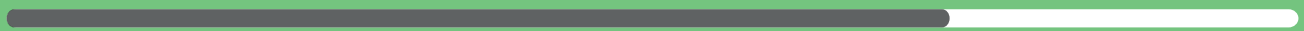
expect the popularisation of biodiesel for internal combustion engines.

## Why are hauliers reluctant to purchase zero-emission trucks?

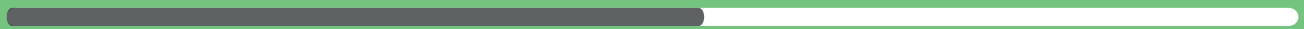


## Main barriers to purchasing new vehicles

73% - high investment costs without subsidies.



54% - insufficient publicly available charging / refuelling infrastructure.



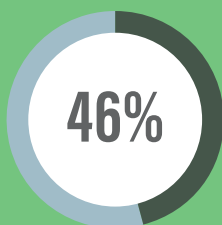
51% - low vehicle range on a single charge / refuelling.



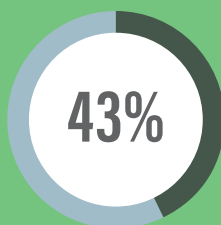
39% - uncertainty as to the maturity of technology which is being developed on a continuous basis.



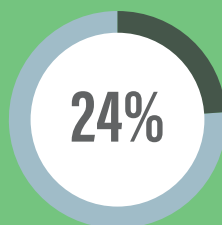
## Purchase benefits as seen by transport companies



no benefits.

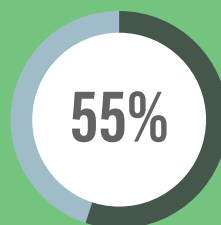


building an environmentally friendly company image.



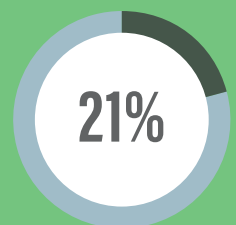
of companies see an opportunity in new regulations:

- New orders and potential contractors.
- Lower road tolls.
- Increased customers' trust.



considers new regulations as a threat:

- Deterioration in financial liquidity.
- Bankruptcy.
- Sale of part of the fleet.

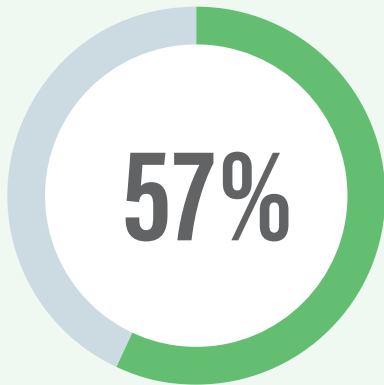


claim they do not have the knowledge to express their opinions.

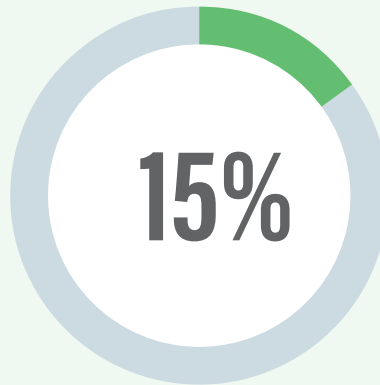


Despite the above, some companies see certain benefits from purchasing zero-emission trucks, such as building an environmentally friendly image, reduced carbon footprint and the related lower charges as well as increased customers' trust or adapting to regulatory and market trends. New EU regulations are perceived both as an opportunity (for 24% of companies) as well as a threat (for 55%), while the concerns are mainly related to deterioration in financial liquidity and potential company bankruptcy. 21% of companies admitted that they are not familiar with the regulations as well as opportunities and threats.

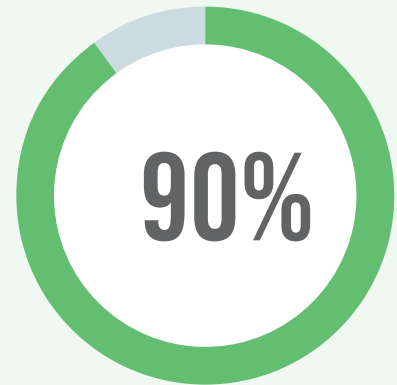
Polish transport companies expect better state support, mainly in the form of lower taxes, and stable regulations that would allow long-term planning or preferential road tolls. The development of charging infrastructure and electricity subsidies are also perceived as key heavy-duty vehicle decarbonisation support factors. Unfortunately, as many as 90% of the companies surveyed have not participated in any public consultations on support programmes for the purchase of zero-emission heavy-duty vehicles.



57% of companies feel that the government's proposals related to purchasing zero-emission vehicles and infrastructure development are not enough.



15% refrained from expressing their opinion on the matter.



90% of the companies surveyed have not participated in any public consultations.

**What do Polish companies expect, apart from higher subsidies?**

54% - Lower taxes



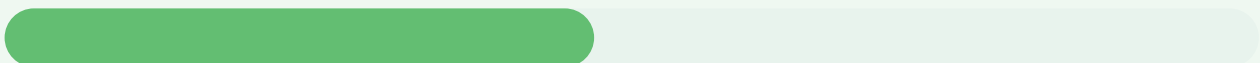
48% - Stable and predictable regulatory environment enabling long-term company development plans



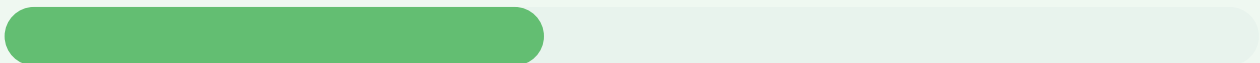
48% - Electricity cost subsidies



47% - Preferential road toll rates



43% - Charging infrastructure development at domestic and European levels



### Conclusions based on surveyed and interviewed transport companies



Company interviewed



3.5t+ fleet



electric vehicles



interested in buying

Company interviewed	3.5t+ fleet	electric vehicles	interested in buying
haulier 1	1,350	3 trucks	yes
haulier 2	60	no	no
haulier 3	350	no	no
haulier 4	450	4 trucks	yes
haulier 5	60	no	yes
haulier 6	700	no	yes
haulier 7	150	no	no
haulier 8	250	3 trucks (6 to be delivered)	yes
haulier 9	15	no	yes
haulier 10	450	no	yes
haulier 11	20	no	yes
haulier 12	8,500	18,000 minibuses	yes
haulier 13	55	no	no

## 1. Lack of coherent adaptation strategy among transport companies

The analysis of data and interviews with transport companies' representatives suggest the lack of coherent adaptation strategy in terms of decarbonisation. Despite the fact that nearly 80% of companies operate in the international market where CO<sub>2</sub>-related regulations are more ambitious, only 26% of the companies are planning to purchase zero-emission trucks within the next five years. Only four in thirteen companies interviewed in depth have zero-emission vehicles in their fleets. Five hauliers indicated that they are planning to purchase such vehicles by 2029. The remainder either have no plans to purchase or are currently testing and analysing whether it is profitable for their companies.

The interviews conducted show that the reasons for this state of affairs vary:

- **Long-term uncertainty:** Companies are concerned about the stability of conducting business in the long term due to their difficult financial situation.
- **Technological scepticism:** Some companies are not convinced about zero-emission technologies and count on future alternative solutions.
- **Low interest in decarbonisation:** Some companies are not entirely familiar with emission reduction as well as human health, climate and environmental impacts of road transport.

The interviews with hauliers proved that the majority (12/13) encountered customers' requirements and inquiries related to providing carbon dioxide emissions information. On the other hand, survey results show that 58% of companies encountered such requirements, although only 11% support CO<sub>2</sub> emissions reduction through zero-emission propulsion system, which means that market requirements and companies' readiness to meet them mismatch.

„Customers would like to know how much CO<sub>2</sub> is emitted during the transport of their goods to be able to include that information in their sustainability reports. More and more undertakings, especially those operating in sectors

focused on sustainability and ecological responsibility, are considering the environmental impact of logistics and strive to cooperate with companies that are transparent in this regard”, said one of the hauliers.

## 2. Strong resistance to technological changes

The quantitative analysis results show that although 38% of companies have seen zero-emission vehicles at trade fairs and exhibitions, only 27% have tested them and 7% have at least one zero-emission vehicle in use. This proves that despite certain technological awareness, the actual adaptation is very low. However, it is not that surprising, considering that as many as 63% of companies do not agree with the concept of CO<sub>2</sub> emissions reduction through zero-emission propulsion systems, and prefer internal combustion engines, e-fuels or biodiesel. This indicates a strong resistance to zero-emission propulsion systems, despite the fact that available studies and publications show that e-fuels do not reduce greenhouse gases to a satisfactory level and are uneconomic - **total ownership costs are 50% higher compared to the battery technology.**

Hauliers also highlight the low range of zero-emission trucks (52%) as one of the main barriers to their purchase despite the fact the range is sufficient for most of the domestic and European routes, considering driver's working time regulations .

## 3. Different views on decarbonisation benefits

Green, environmentally friendly company image can make a big difference. Especially that 23% of consumers know what sustainability is, according to the Chamber of Electronic Economy . It may seem like a small percentage, but it is gradually growing -10% year-over-year growth. Therefore, the ecological awareness of consumers keeps growing. Moreover, 60% of Internet users declare that they take into account whether an e-shop operates based on sustainability principles. Nearly 80% of customers choose green delivery when given the option. Last year, green deliveries also motivated around half of online shoppers to make a purchase, as indicated by Gemius . Although nearly a half of hauliers see no benefits from

introducing zero-emission vehicles to their fleets, 4 in 10 have the intuition aligning with the market trend and see building an environmentally friendly image as a benefit.

Interviews with hauliers suggest that the image benefits and lower road tolls are the main incentives, while only a few companies are interested in the actual environmental impact of their businesses. The sceptical attitude to decarbonisation results also from difficulties faced in the market, customers' indifference or the governmental support offered to date. Companies' fear of deterioration in financial stability (24%) or bankruptcy (24%) is visible in the surveys.

It cannot be denied that all green solutions leading to reduced emissions require additional funding, which directly influences the cost of services offered by hauliers. During the interviews, the hauliers highlighted that the customers are reluctant to incur additional costs. Apart from expensive trucks, they also worry about unpredictable future energy prices. They also often question the rationale for change in light of non-existent truly 'green' domestic energy.

#### 4. Misunderstanding as the main, but not the only barrier

The introduction of new CO2 emission regulations for heavy-duty vehicles is related to several specific challenges to be faced by hauliers, most importantly those involving additional investment costs. During the interviews, hauliers clearly stated that another significant barrier to companies willing to invest is the charging infrastructure, or the lack of it. ALL hauliers surveyed point out that it is insufficient in Poland.

'We need major investments. This is a significant operational constraint for companies operating over long distances. Electric vehicle fleet management requires a fresh approach to route planning and logistics that will consider the charging time and place', said one of the hauliers.

logistics that will consider the charging time and place', said one of the hauliers.

It is worth noting that over a half of the undertakings (55%) see new regulations as a threat to their businesses. **Altho-**

**ugh 90% of the companies have not participated in any public consultations, 57% think that the support programmes planned are insufficient, and 21% are entirely unfamiliar with them. This suggests low proactivity on the part of hauliers, which may be due to lacking knowledge, resources or the aforementioned confidence.** However, this situation may also indicate insufficient communication activities by administrative authorities, which excludes many companies from the dialogue on regulations.



## 5. Different perception of support programmes

The fact that 28% of companies said the support programmes met their needs is a significant and surprising result, given the general scepticism about decarbonisation and related technologies. The high result may imply a superficial evaluation of programmes based on surveys without a thorough detailed analysis. Our assumption was that this segment of the market might be better informed or more open to innovation.

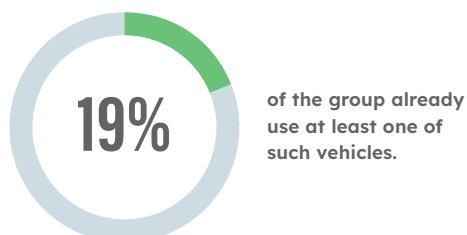
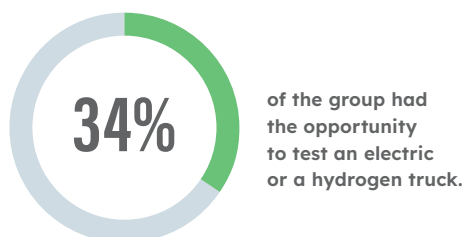
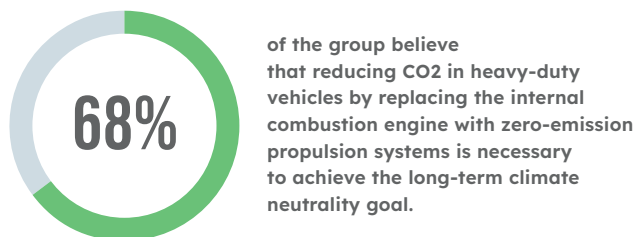
However, we decided to deepen the analysis. The responses do not present any statistically significant differences in the structures of companies. The approach to zero-emission propulsion systems is particularly visible.

**Companies with a positive attitude towards support programmes are the ones experienced in testing and operating zero-emission vehicles as well as having increased awareness of the need to reduce CO2 emissions. Companies that are against it mainly have no experience with zero-emission vehicles and are not that convinced about the required CO2 emission reduction.**



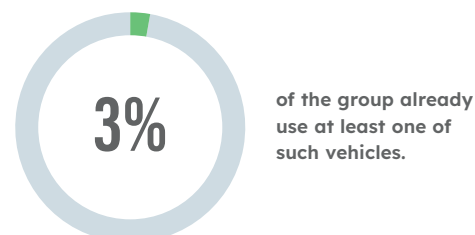
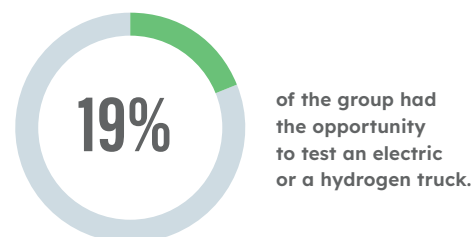
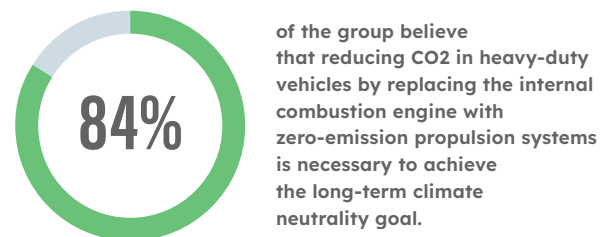
### Companies supporting the concept

Companies that believe the programmes will probably or definitely meet the investment needs.



### Companies that are against

Companies that believe the programmes will probably or definitely NOT meet the investment needs.



Most of the hauliers are not satisfied with governmental proposals. They clearly stated that the governmental support is insufficient. Only three (3) in thirteen (13) interlocutors stated that the vehicle purchase incentives are attractive. The majority consider them to be too low to compensate for the difference in vehicle purchase costs.

‘The wide range of subsidies (30-60%) depending on company size is something I do not understand. Why should a company lose or make money just because of its size, when it is about the well-being of the environment? It should be the same for all of us - transparent provisions and entrepreneur-friendly

## 6. Better state support needed

The evaluation of support programmes shows unequal access to information and resources, which highlights the need for an even access, especially for smaller companies operating in less developed areas. It is crucial as only 1% of the companies do not see any difficulties in introducing zero-emission trucks into their fleets. The main barriers are high purchase costs (73%) and the lack of infrastructure (54%). The companies expect better state support, including lowering taxes (54%), stable regulations (48%), developing the charging infrastructure (43%) and electricity subsidies (48%).

Tax reliefs and financial incentives are one of the most efficient methods for reducing the cost barrier, also among the hauliers surveyed. The introduction of tax reliefs for companies investing in electric heavy-duty vehicles could lower their purchase and operation costs of such vehicles. Vehicle purchase subsidies or CO2 emission tax reliefs would make the investments in new technologies cost-efficient.

‘Another important instrument is the reduction or abolition of road tolls, which could significantly reduce operating costs. This would definitely make electromobility more attractive’, emphasised one of the hauliers.

The Polish road toll system was supposed to be changed at the latest on March 25th, 2024, in accordance with the

Directive (EU) 2022/362 of the European Parliament and of the Council of 24 February 2022 amending Directives 1999/62/EC, 1999/37/EC and (EU) 2019/520, as regards the charging of vehicles for the use of certain infrastructures. Unfortunately, despite the several-month delay in EU

### Key activity areas related to changing the perception of decarbonisation

It is worth noting that this report focuses on the opinions of Polish companies’ representatives, which are related to new regulations and zero-emission technologies. The study clearly indicates the existence of prejudice based mainly on fears and reluctance to adapt.

### It is not the hauliers who are to blame.

Insufficient communication on the part of governmental administration related to the conducted public initiatives as well as goals of given initiatives and the resulting opportunities are the main reasons for today’s situation. Although companies can be accused of not being proactive in seeking dialogue, it is the responsibility of national authorities to effectively implement change, especially in the context of the road transport sector’s key role in the Polish economy. The sector not only generates significant emissions, but also constitutes a material part of the GDP, ensures a high level of employment in the TSL industry and contributes to the competitiveness of the economy internationally. Being the leader in European road transport, Poland handles approximately a quarter of international freight transport. Failure to meet the decarbonisation requirements will not only jeopardise Poland’s position as the leader, but it will also weaken many sectors of the economy.

In order to change the perception of decarbonisation from a barrier to an opportunity, coordinated actions between public administrations, transport operators, their partners and customers are required. The introduction of changes may increase acceptance and accelerate road transport zero-emission technologies’ adaptation, supporting sustainability and environmental protection at the same time.

The key market issue is the lack of **actions' transparency**.

**Better** transparency of governmental and company actions on decarbonisation could build stronger public trust. Regular reporting and data access help to understand what the actions taken and their results. The introduction of the Directive on corporate sustainability reporting (CSRD) and new European Sustainability Reporting Standards (ESRS) are the regulations that could improve this aspect, therefore other issues will be discussed in the following part.

## Recommendations for public authorities

### 1. Informational and educational campaigns

- **Organisation of nationwide informational campaigns** in the media, at schools and workplaces to educate the society on decarbonisation benefits such as improved air quality, public health, new jobs and available support programmes. The campaigns should be directed both at companies as well as the general public to raise environmental awareness.
- **Support for regional seminars and conferences** which enable exchanging knowledge and experiences between hauliers, experts and administration representatives.
- **Educational programmes:** Introduction of educational programmes at schools and universities that would provide knowledge on climate changes, renewable energy and low-emission technologies.

### 2. Changing the narrative

- **Highlighting economic benefits:** Instead of focusing only on decarbonisation costs, the economic benefits such as energy cost savings, new jobs in the economy's green sectors and improved competitiveness should be highlighted. Developing a vehicle total cost of ownership (TCO) calculator and implementing it on government sites would definitely make the zero-emission vehicle economic analysis easier, especially for small-sized and micro companies that do not have their own resources to prepare such estimations.

- **Success stories:** Promotion of success stories from all over the world where decarbonisation brought material benefits to local communities and their economy.
- **Opinion leaders:** Endorsement of positive attitudes towards decarbonisation and combating misinformation by influential people and opinion leaders.
- **Undertakings as examples of good practices:** Companies that have successfully implemented a decarbonisation strategy and are willing to share their experiences could serve as role models for other companies, demonstrating that the transition to a low-carbon economy is possible and economically beneficial

### 3. Training and workshops

- **Organisation of specialist training for small and medium-sized transport companies** on fleet management, energy efficiency and new zero-emission technologies.
- **Training programmes for public administration bodies** to increase the knowledge of officials on decarbonisation and effective support of companies in this regard.

### 4. Financial and tax instruments

- **Launching a programme to support the purchase of zero-emission vehicles and develop the charging infrastructure.** Subsidy programmes should be available to all segments of the market, especially small and medium-sized undertakings, and their final form should be determined in consultation between the administration and entrepreneurs - regular public consultation by correspondence may not be sufficient.
- **Road toll system reform** along with preferential fees for low- and zero-emission vehicles that would increase the economic attractiveness of such vehicles and provide companies with the opportunity for long-term fleet investment planning.

- **More investments in research and development:** Support of new low-emission technology R&D that could accelerate the decarbonisation process and make it economically viable.

## 5. Preferential loans and leases

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- **Cooperation with financial institutions** to offer preferential loans and leases for zero-emission vehicle purchase. This initiative should be supported by state credit guarantees.
- **Leasing programmes with flexible terms** that would consider the specifics and needs of transport companies. Leasing instalments in Poland are currently significantly higher than in other European countries, mainly due to inflation and the very low vehicle residual value (RV). This is a promising intervention area for public policies.

## 6. Charging infrastructure development

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- **The construction of nationwide hydrogen refuelling and charging stations network** along key transport routes as part of Alternative Fuels Infrastructure Regulation (AFIR) implementation. Close collaboration with local authorities and energy infrastructure operators to reduce the construction time of high-capacity electricity connections is crucial.
- **Stronger support for private charging installations** at logistics parks and distribution centres through dedicated subsidy programmes and tax reliefs.

## 7. Stable and predictable regulations

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- **Dialogue with stakeholders:** Active engagement of different stakeholder groups, including employees, local communities, non-governmental organisations and the private sector in decision-making processes related to decarbonisation.
- **Introduction of stable and predictable regulations on road transport decarbonisation,** especially the introduction of a new road infrastructure charging system

compliant with European laws that would favour low- and zero-emission heavy-duty vehicles that would provide companies with the opportunity for long-term investment planning.

- **Regular consultations with the transport sector** in order to adapt the regulations to market and technological realities and to remove administrative barriers that impede contact with institutions.

## Recommendations for hauliers

### 1. Change management

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- **Development and implementation of transformation plans,** which take into account fleet decarbonisation and adaptation to new market needs. Companies should use the available tools and advisory support in this regard.
- **Management staff and employee training** related to new technologies, fleet management and energy efficiency.
- **Driver education and training** on operating and maintaining zero-emission vehicles.

### 2. Technology testing and demonstration

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- **Participation in pilot and demonstration programmes,** which provide the opportunity to test new technologies in actual operating conditions. Cooperation with vehicle manufacturers and research institutes is the key.
- **Making use of the available funds for testing and demonstrating** new technologies to minimise the investment risk.

### 3. Optimisation of logistics processes

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- **Digitisation and automation of logistics processes** to improve transport performance. Introduction of smart fleet management systems that would enable optimising routes and reducing empty trips.



- Cooperation with IT service providers aiming at customising management tools to suit business specifics.

#### 4. Risk management

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- **Identification and assessment of risks** related to the introduction of zero-emission technologies and fleet decarbonisation. Development of risk management strategies that would take into account the market and technology dynamics.
- **Cooperation with insurance companies** aiming at developing insurance policies and products tailored to new technologies.

## Recommendations for hauliers' partners and customers

### 1. Financial and investment support

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- **Cooperation with hauliers with regard to financing** zero-emission technology investments. Business partners could offer preferential payment terms or co-finance new vehicle purchases, e.g. by setting up a joint investment fund under the supervision of a specialised financial institution that would allocate funds for specific investments (vehicle, infrastructure), and the haulier would repay the funds on preferential terms. Moreover, partners co-financing green vehicles could consider this as one of the environmental objectives for sustainability reporting, in the context of supporting emission reductions and taking care of the partners' value chain.
- **Partnership initiatives** to jointly develop hydrogen refuelling and charging infrastructure.

### 2. Decarbonisation incentives

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- **Introduction of emission reduction incentives** in contracts with hauliers. The transport sector clients could reward companies investing in zero-emission technologies. Longer contracts or higher service rates could be implemented.

- **Support for the education and training** of hauliers on decarbonisation and energy

### 3. Promotion of sustainable practices

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- **Promotion of sustainable practices along the entire supply chain.** Business partners could cooperate with hauliers to optimise logistics processes and reduce carbon footprint.
- **Transparency and communication** related to decarbonisation activities. Companies could report their sustainability achievements and encourage their partners to similar activities on a regular basis.

### 4. Research and development investments

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- **Joint research and development projects** involving hauliers and technology manufacturers to develop innovative solutions for the transport sector.
- **Participation in test and demonstration programmes**, which would provide the opportunity to test new technologies in actual operating conditions.

## Summary

Road transport decarbonisation activities are key not only to achieve climate goals, but also to ensure a long-term development and competitiveness of the Polish economy. Despite the fact that the Polish road transport sector understands the increasing importance of decarbonisation, the majority of companies are reluctant to transition quickly to zero-emission technologies. High costs, no infrastructure and favouring alternative fuels constitute serious barriers. The sector may encounter difficulties with achieving the EU's future decarbonisation goals without significant state support, including financial incentives and infrastructure development. Joint efforts of public administration authorities, hauliers and their partners could bring benefits both in terms of the economy and the environment while contributing to the nation's sustainability.

## Appendix

# General conclusions from the Czech and Slovak transport companies surveyed

### Preparation of survey results

The surveys were e-mailed to dozens of Czech and Slovak transport companies and their potential partners from Poland, Czech Republic and Slovakia, the largest haulier associations, and to diplomatic posts as well. Telephone contact attempts were also made to companies for which contact details were available. Despite many efforts to obtain representative results, the number of surveys required for a reliable analysis was insufficient. In total, only 9 transport companies from both countries participated in the survey, which does not allow the results to be extrapolated to the whole sector in either country. Nevertheless, we have decided to present the main conclusions from the results obtained for both countries.

### Czech Republic

**Description of companies surveyed:** The survey conducted among Czech companies shows that the majority of respondents were small-sized companies with up to 10 employees. Despite their small sizes, the companies operate mainly internationally. Their fleets are modest and include up to 5 vehicles. None of the respondents had alternative propulsion vehicles, indicating a lack of interest or little opportunity to invest in modern propulsion technologies.

**Perception of CO2 emission issues:** All respondents reported that their companies have faced questions from business partners about their vehicle fleet and CO2 emissions. All respondents agree that it is necessary to implement solutions aiming at reducing CO2 emissions, which demonstrates their awareness of environmental challenges.

**Preferred support instruments:** The most important instruments that would convince the respondents to purchase electric trucks are the following:

- **Zero-emission truck subsidies.**
- **Preferential road toll rates.**
- **Charging infrastructure development.**

At the same time, the opinions on new EU regulations related to CO2 emissions reduction are divided, which means that the approach and their potential impact on business operations vary. This is in line with the survey results from Poland.

In addition to the survey, we had the opportunity to hear the opinion of a representative of a large transport company operating in all three markets, i.e. Poland, the Czech Republic and Slovakia, who confirmed the lack of interest in modern drive technologies in the Czech Republic. The expert emphasised that the attitude of Czech companies towards road transport decarbonisation is very negative. Our interlocutor's transport company includes electric trucks in its fleet, however, they are used only in Poland. His development strategy

assumes expanding the electric vehicle fleet, but also only in Poland. As a result, the company is not planning to invest in electric vehicles to operate its transport business in the territory of our southern friends.

**'Although the Czechs are sceptical about the issue, they understand that the transition from traditional fuels/engines to zero-emission solutions will be necessary to achieve climate neutrality in the future, and today's alternative is the use of HVO, which offers an approximate 90% reduction in CO2 emissions. We are in regular contact with our customers to face the new regulations on heavy-duty vehicle CO2 emissions', added our interlocutor.**

### Slovakia

**Description of companies surveyed:** The survey in Slovakia was more differentiated in terms of company size. Half of the respondents are small companies with up to 10 employees, while the other half are medium-sized companies with more than 11 employees. All companies operate internationally. The fleet was larger than in the Czech Republic, mainly comprising 6-50 vehicles. It was also found that 40% of the companies already had alternative propulsion system vehicles.

**Perception of CO2 emission issues:** As in the Czech Republic, most companies in Slovakia have encountered CO2 emission requirements, but only in the international market. This indicates that the pressure to reduce emissions comes mainly from foreign counterparties.

**Preferred support instruments:** Opinions on support programmes are divided - some of the companies are convinced the support programmes are necessary, others feel that financial intervention is not required. Despite the above, the most motivating factors for purchasing electric trucks included:

- **Zero-emission vehicle purchase subsidies.**
- **Long-term business growth planning.**
- **Dedicated charging infrastructure development at domestic and European levels, and subsidies for private charging stations.**

One of the companies said that there should be no subsidies and that companies should be given freedom of action.

**Assessment of EU regulations:** Respondents' answers suggest that the European Commission regulations to reduce CO2 emissions are perceived as a major risk to their business, which may lead to cautious new technology investments. This is in line with the survey results from Poland.





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