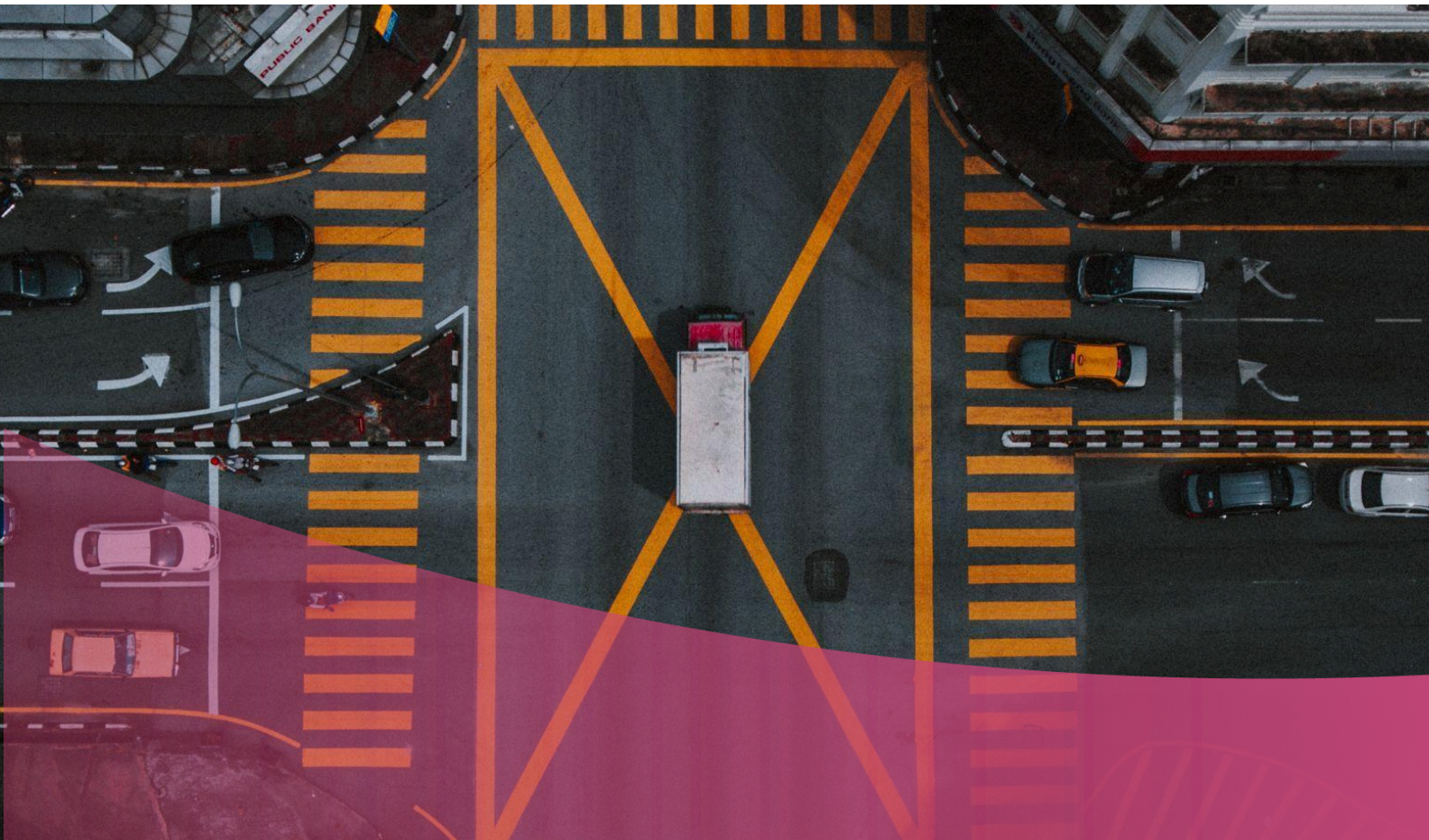
REPORT - JULY 2025

Buying electric

How shippers can drive the transition to zero-emission trucking



T&E

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Executive summary

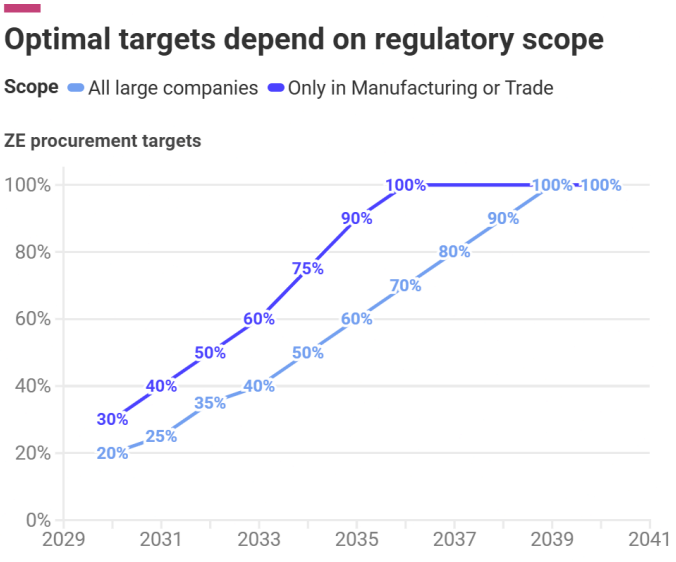
Shippers key to unlock electric trucking

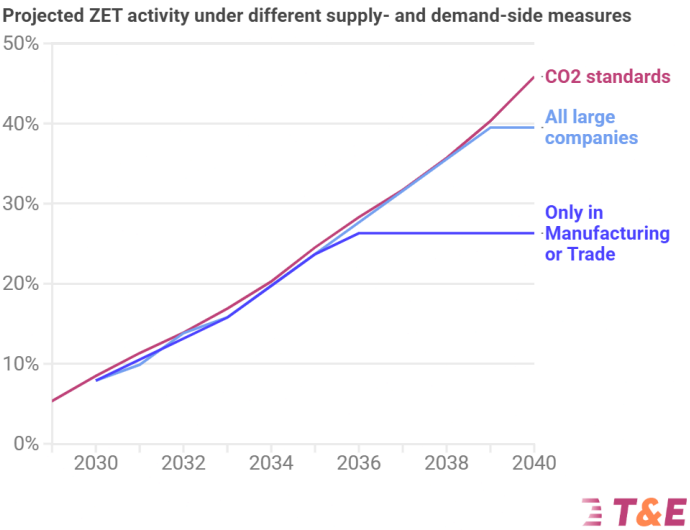
Large companies are the largest buyers of road freight. As part of its Decarbonise Corporate Fleets initiative, the European Commission should set zero-emission (ZE) procurement targets on large shippers, rather than truck operators.

- **Large companies (>250 employees and >€50 million) make up only 0.2% of EU companies but generate over half of turnover and buy nearly 40% of road freight.**
- **Annual ZE procurement targets on large companies reaching 100% in 2039 would create demand for ZE freight in line with truck CO_2 standards.**
- **Alternatively, only large manufacturers, wholesalers, and retailers could be targeted. Together they buy a quarter of road freight.**

ZE procurement targets can ensure large shippers support hauliers in their transition to ZETs, thanks to green premiums or longer contracts for example. This would improve the business case of shifting to ZETs, thus also supporting truckmakers in achieving their CO_2 targets, while having only a negligible impact on product prices for end consumers.

Either a 100% ZE procurement target for all large shippers by 2039, or by 2036 for large manufacturers, wholesalers, and retailers, would align ZE freight demand with truck CO_2 standards





Section 1

1. Why shippers are key in making the shift to zero-emission trucking successful

1.1. Road freight transport: low profit margins make investments in zero-emission trucks challenging for carriers

In 2024 the European Union adopted new CO_2 standards for trucks and buses. As a result, supply of zero-emission trucks (ZETs)—either battery-electric or fuel cell hydrogen—is expected to boom in the coming years.

However, electric trucks currently cost more than twice as much to purchase than diesel trucks on average. This means high upfront investment costs to switch fleets to zero-emission. This is likely to remain for the coming years as truck makers start ramping up ZET production.

Profit margins in the transport sector also tend to be low and variable. Even leading road hauliers may only achieve a margin of 1–4%. Low profitability affects the sector's ability to invest in new, more expensive vehicles, such as electric trucks and the corresponding charging infrastructure. This is particularly true for small companies, which dominate the road haulage sector with four out of five fleets owning fewer than 10 trucks.

Revenue guarantees can be key to improve the business case of ZETs. Paying a green premium for freight carried out by ZETs can help truck operators recoup their higher upfront investment costs earlier, and support ZET adoption in cases where TCO parity has yet to be reached.

1.2. How shippers can support the zero-emission business case

Shippers are cargo owners, i.e. the companies buying freight services from transport operators to transport their goods. Due to the important freight volumes they procure, large shippers are key market players and can as such help hauliers overcome the investment gap in several ways:

- Paying a green premium for electric freight: Increased revenue would help hauliers with the higher capital expenditure associated with ZETs.
- Longer contracts: Demand certainty for ZE freight can help hauliers obtain loans from banks to finance investment of more expensive ZETs, as revenues are guaranteed over a longer period.
- Buying ZETs and leasing them to road haulage operators: In this case, the shipper directly bears the higher investment costs. For example, Amazon recently ordered 200 eActros 600 from Mercedes-Benz Trucks to lease to their Amazon Freight Partners.

Paying a green premium is the most likely factor to encourage carriers to cut their carbon emissions, as reported in a survey conducted by Transporeon. But while **many shippers already request low-carbon freight, they are not always willing to pay for it**. Indeed, IRU recently

surveyed transport operators and found that the impossibility to pass on the extra cost onto shippers is the most cited obstacle to decarbonisation, reported by 61% of transport operators.

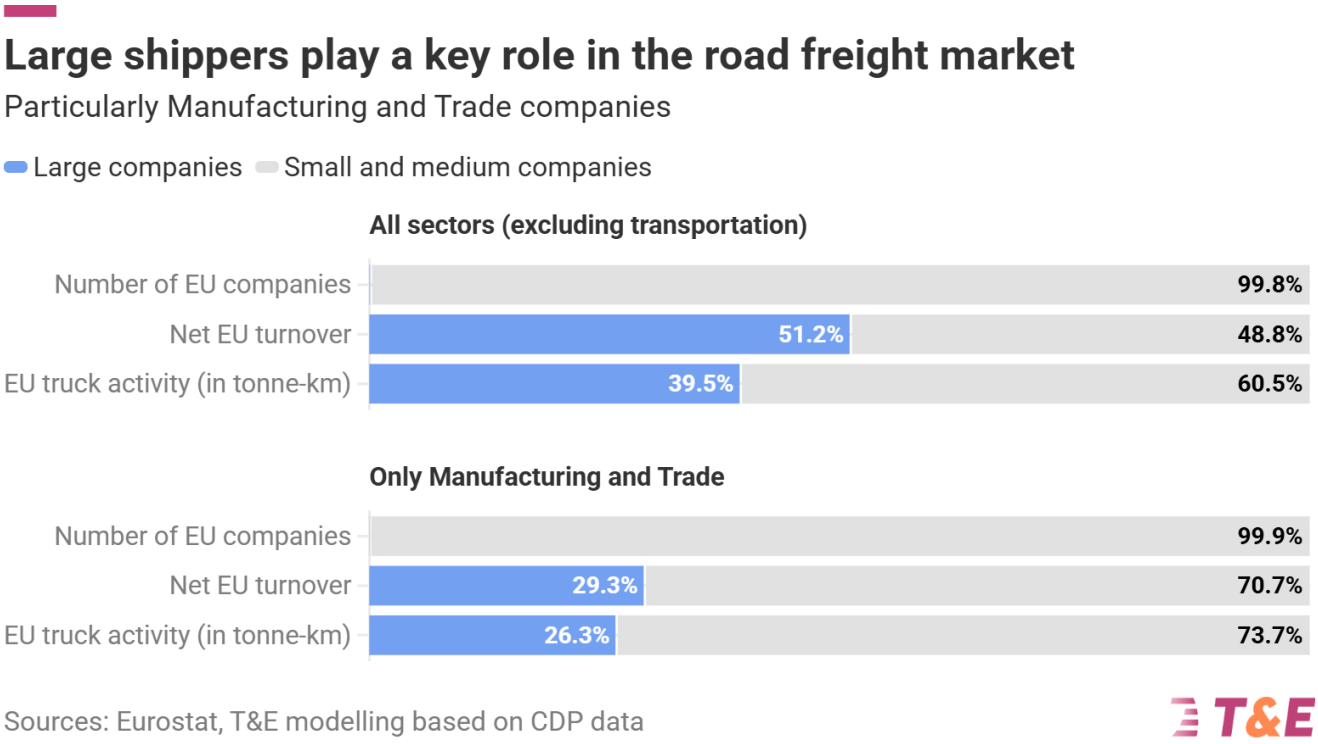
Therefore T&E proposes that the European Commission sets ZE procurement targets on large freight buyers as part of its Decarbonising Corporate Fleets initiative. This report presents the potential impact of various targets on ZET demand as well as on final product cost, and how such a regulation could work in practice.

Section 2

2. Impacts of ZE procurement targets

T&E advocates for the European Commission to come forward with ZE shipment targets on large companies. This is an effective approach, in several ways: despite accounting for only 0.2% of EU companies, large companies with more than 250 persons employed generate over half of net turnover.

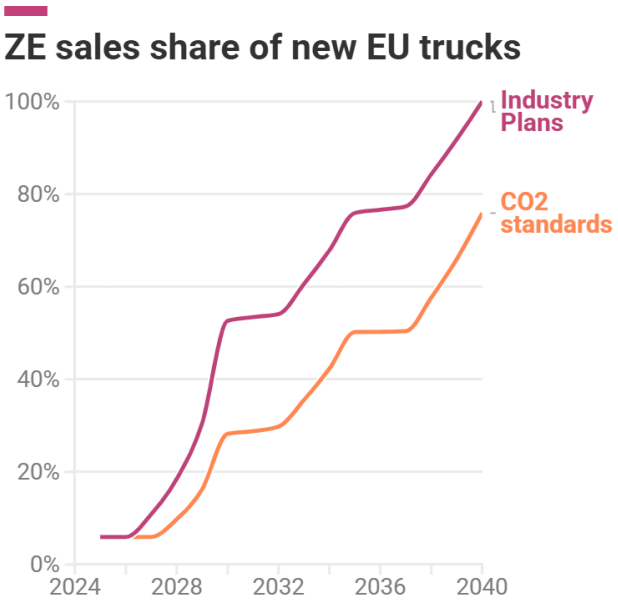
In turn, large shippers are responsible for a disproportionate share of road freight activity. T&E estimates that large shippers represent nearly 40% of EU truck activity (see the annex for the methodology). If only large manufacturers, wholesalers, and retailers are targeted, this would cover 26% of truck activity.



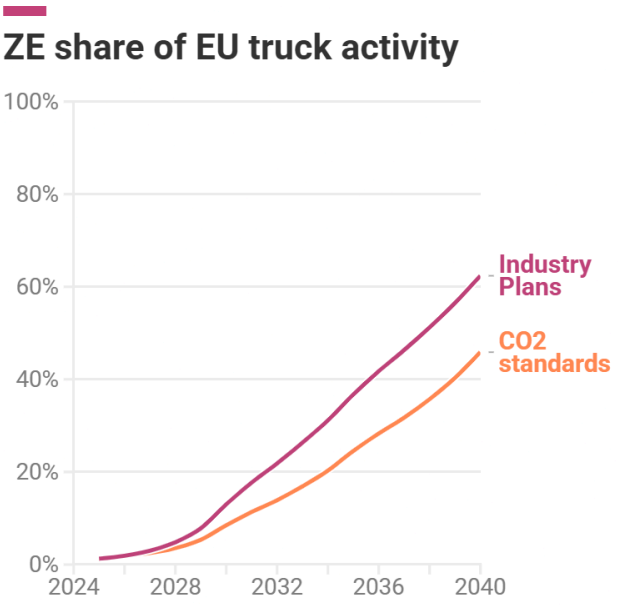
2.1. Three levels of ambition for ZE targets on large shippers

ZE procurement targets for large shippers have the potential to drive ZET uptake, provide demand certainty to truck manufacturers and charging providers, and support transport companies in their transition.

Here, we model targets on large companies matching different ambition levels compared to the HDV CO_2 standards. While the HDV CO_2 standards regulate new HDV sales, T&E has translated what they mean for ZE truck activity using its in-house EU Transport Roadmap Model. This is essential to have an adequate basis of comparison for ZE procurement targets, as such targets would regulate truck activity rather than apply to new vehicle sales.



Source: EUTRM (2024)



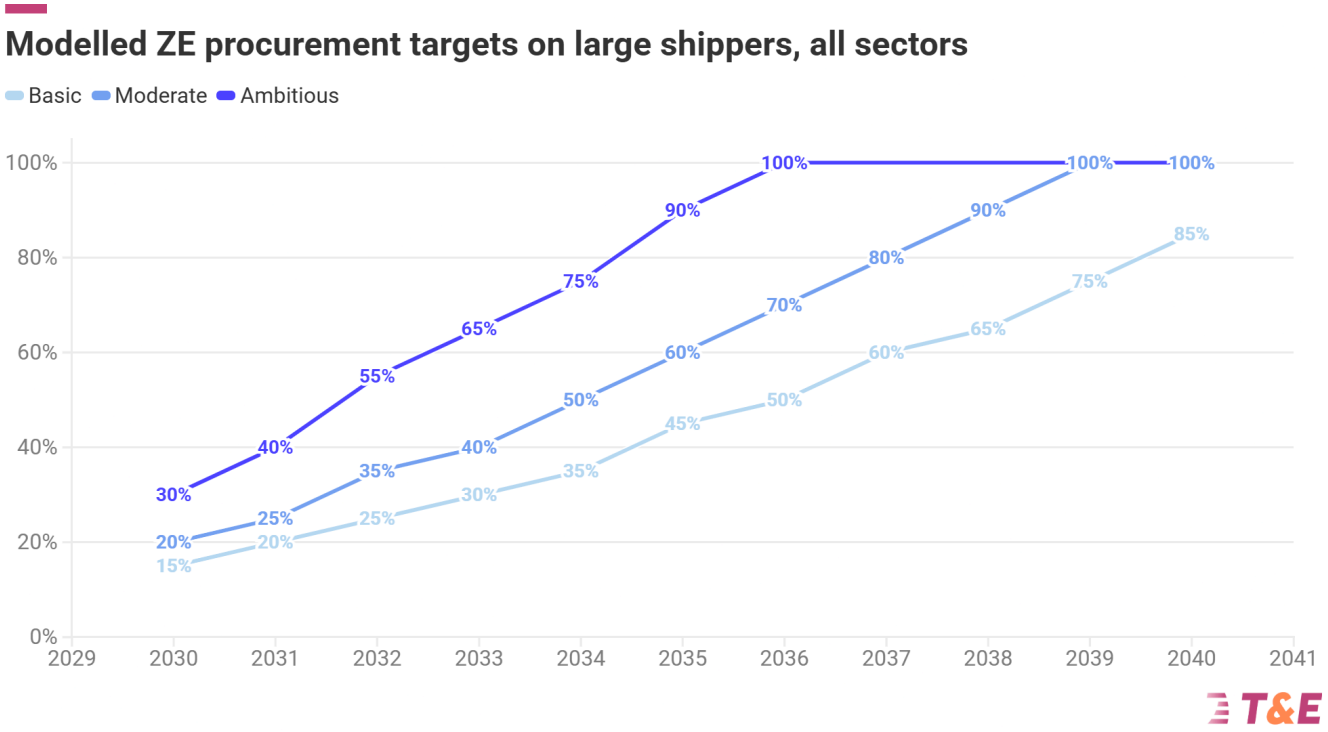
Source: EUTRM (2024)

The three potential ambition levels are as follows:

- **Scenario 1: Ambitious** ZE targets on large companies:
  - Starting from 30% in 2030 and reaching 90% of procurement in 2035 and 100% in 2036.
  - Such targets would drive the ZET market in line with the projections from EU truckmakers that nearly half of new sales will be zero-emission in 2030 and with their voluntary target to reach 100% fossil-free trucking by 2040, leading to additional CO_2 savings compared to existing regulation.
- **Scenario 2: Moderate** targets:
  - Starting from 20% in 2030 and reaching 60% of freight procurement from large companies in 2035 and 100% by 2039.
  - In this case, targets would nearly match the ZET activity the heavy-duty vehicle (HDV) CO_2 standards are projected to deliver i.e. the number of ZETs that truckmakers need to sell in 2030, 2035, and 2040 to meet their binding EU CO_2 targets.

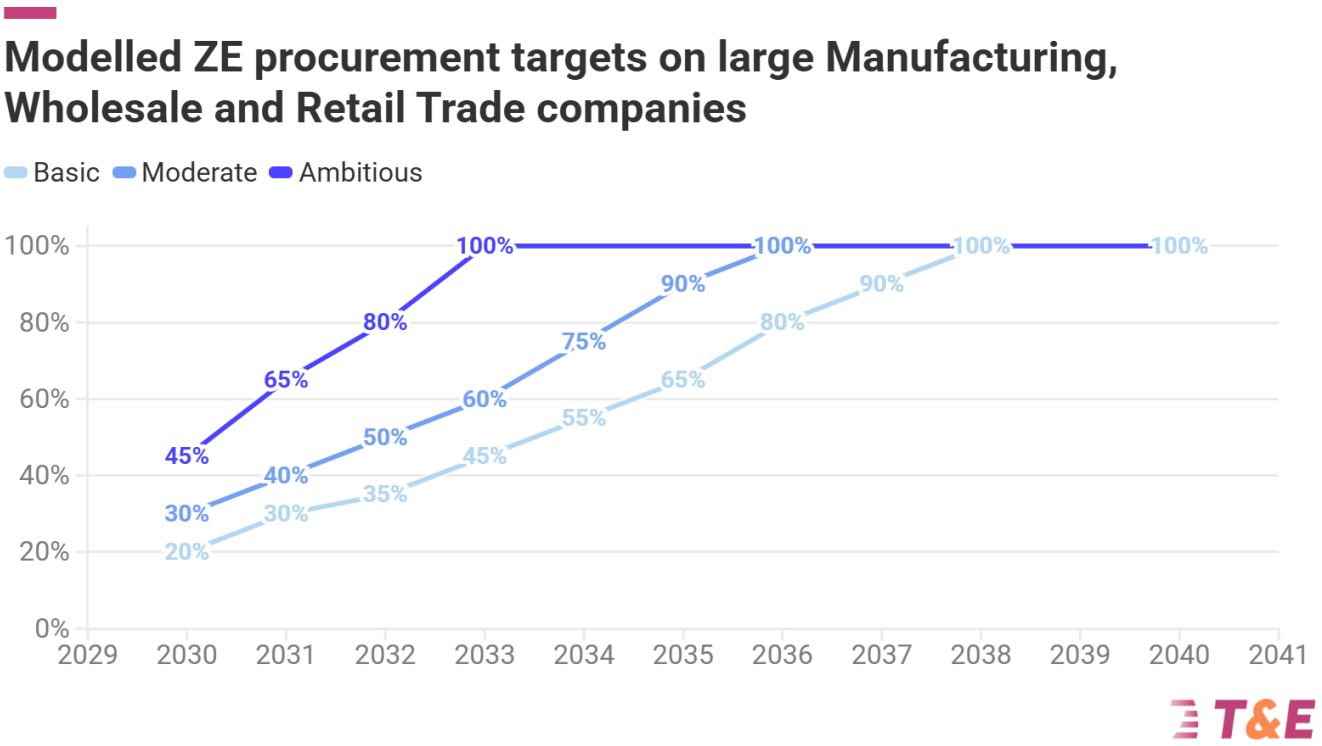
- Such a trajectory would be broadly in line with the EV100+ initiative, which gathers companies committed to fully transition to their own and contracted HDV fleets to zero-emission by 2040. Current members include Geopost, IKEA, JSW Steel, Maersk, Unilever, Prologis, and Lloyds Metals and Energy.

- **Scenario 3: Basic** targets:
  - Starting from 15% in 2030 and reaching 45% of procurement in 2035 and 85% in 2040.
  - This would provide demand certainty for three-quarters of the ZET activity delivered by the HDV CO_2 standards.



Alternatively, if targets are limited to large companies in the Manufacturing and Trade sectors, then higher targets would be required to achieve similar impacts as above, as fewer companies are targeted. While this would limit the overall regulatory burden EU-wide, large manufacturers, wholesalers, and retailers would need to transition to 100% ZE procurement faster than if all large companies were targeted.

In this case, large companies in the Manufacturing and Trade sectors would need to already procure 45% ZE freight by 2030 and 100% by 2033 to match voluntary targets set by truckmakers. To align with the HDV CO_2 standards, they would need to procure 30% ZE freight by 2030 and 100% by 2036. And in the case of basic targets providing demand certainty for only 75% of the ZET activity delivered by the HDV CO_2 standards, large manufacturers, wholesalers, and retailers would need to procure 20% ZE freight by 2030 and 100% by 2038.



2.2. Impact on road haulage operators

Targets on large shippers are the most effective when they match what the HDV CO_2 standards are projected to deliver in terms of ZET activity. In that case, for every ZET put on the market by truckmakers to meet their CO_2 targets and then bought by road hauliers, there is a large shipper willing to buy ZE transport services.

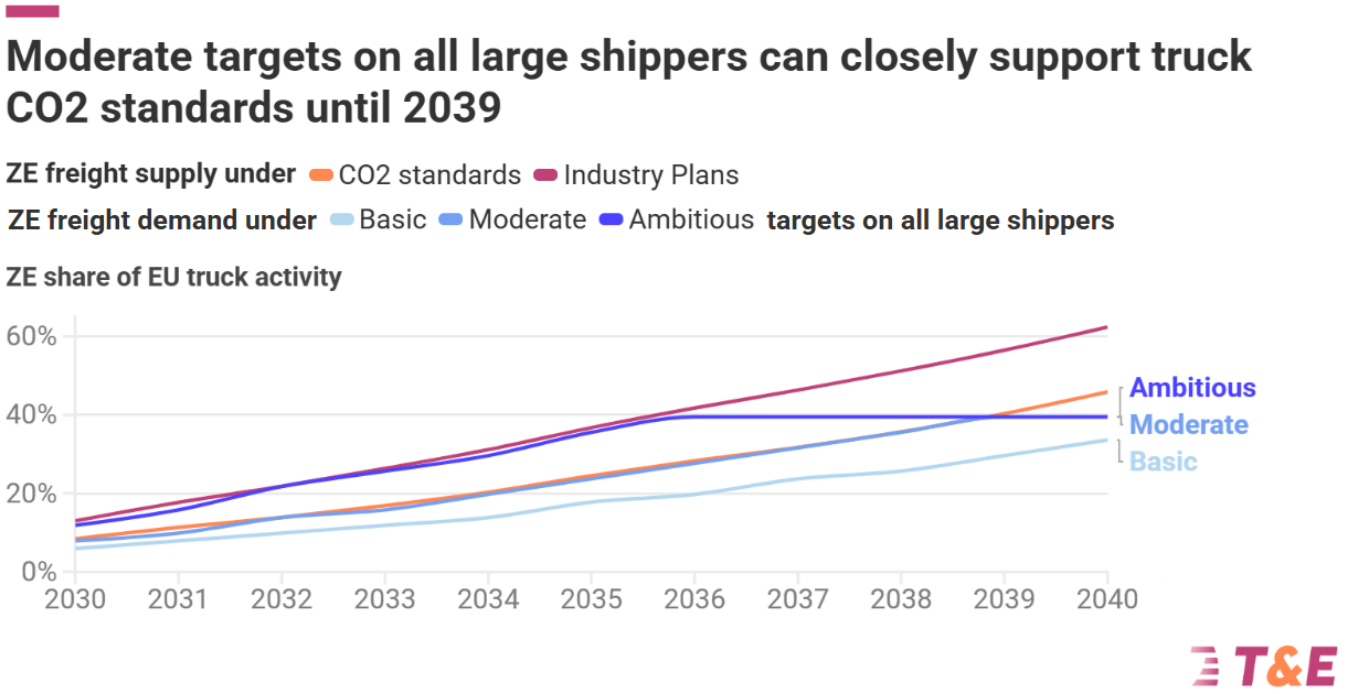
In practice, ZE targets on large shippers fully max out their potential impact once they reach 100% of procurement. As a result, past 2036 **ambitious** shipper targets can no longer keep up with the increasing ZET activity under industry plans. Similarly, **moderate** shipper targets stop matching the activity projected under the HDV CO_2 standards by 2039.

However, this is acceptable, as ZE targets on large shippers are primarily needed in the near-term, in the early 2030s. Their primary objective of setting ZE targets on large shippers is to support hauliers in the earlier stages of the transition by making sure hauliers can pass on associated extra costs onto their customers, which is crucial until total cost of ownership (TCO) parity is achieved for all cases. A 2022 study by TNO found that by 2035, all new electric freight trucks across Europe will have a lower TCO than their diesel counterparts, so targets on shippers are less needed past 2035.

In the **basic** scenario, targets on large shippers would provide a base level of demand certainty for ZE transport services. However, large shippers will have more flexibility to choose the routes to electrify, and hauliers providing ZE freight will remain in competition with each other. This means passing the extra cost onto customers may still prove difficult in cases where TCO parity with diesel is not yet achieved. In other words, ZE targets would potentially fail to achieve their primary objective.

Conversely, **ambitious** targets may also present some adverse impacts by requiring faster ZET uptake than projected under the HDV CO_2 standards. Truckmakers would have less pressure to lower ZET prices, as they would be assured of demand. However, it should be noted that faster ZET uptake could also potentially lead to lower ZET prices thanks to economies of scale.

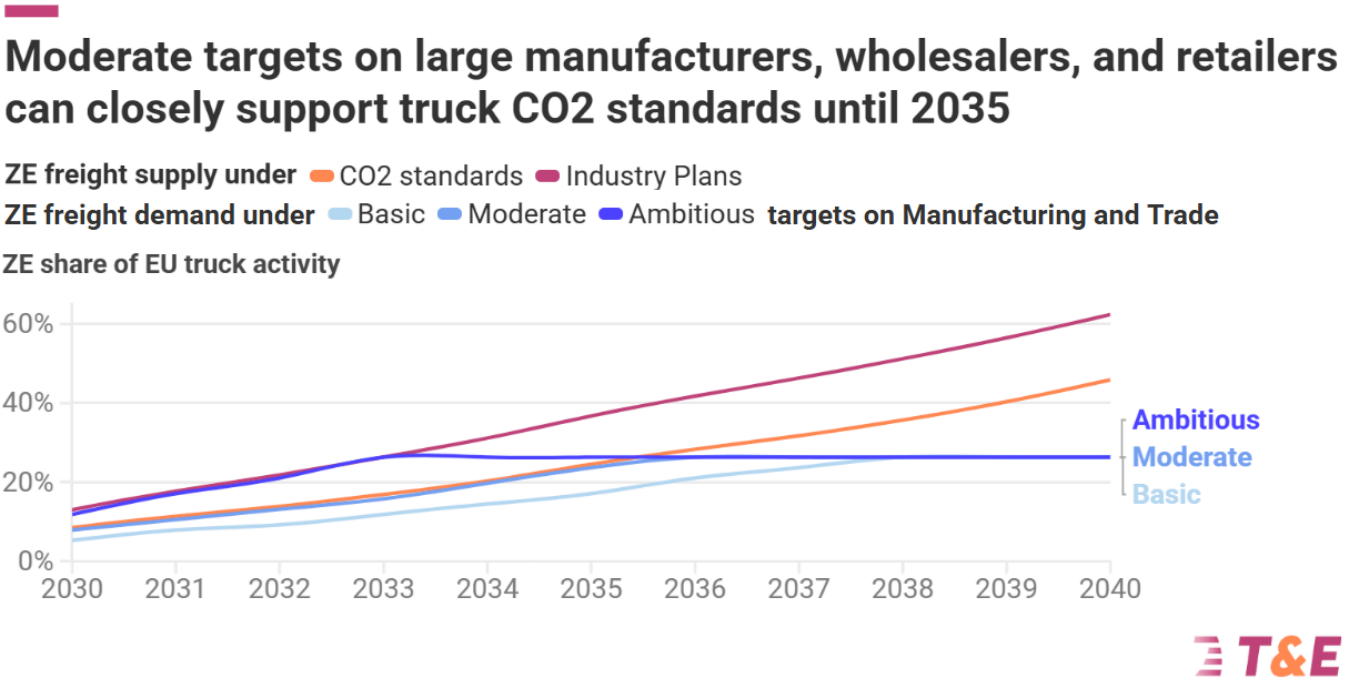
Moderate shipper targets can strike an optimal balance between the two competing trends. By matching ZET activity projected under the HDV CO_2 standards, they would guarantee that for every ZET supplied under the HDV CO_2 standards that hauliers buy, hauliers can find shippers willing to pay for higher freight rates.



The following table summarises the benefits and drawbacks of the three ambition levels from the perspective of carriers:

Shipper targets		
Much weaker than CO_2 standards	Close to CO_2 standards	Much stronger than CO_2 standards
	↯ Revenue guarantees for ZE carriers ↯ Truck makers still incentivised to make ZETs affordable	↯ Strong revenue guarantees for ZE carriers ↯ Faster ZE truck uptake ↯ Additional CO_2 savings
✗ Little to no revenue guarantees for ZE carriers, as ZE freight offer far exceeds secured demand from shippers		✗ Less incentives for truck makers to lower ZET prices

If targets are limited to large manufacturers, wholesalers, and retailers, a similar impact can be created, though maximum potential is reached earlier as is shown in the following chart.



2.3. Impact on overall product costs will be limited

At present, carriers fully bear the added costs associated with decarbonisation, as they find it difficult to pass them onto their customers. If instead shippers were made willing to pay higher freight rates for ZE transport services, then they may either absorb the extra costs, or pass them onto their own customers through higher product prices.

The green premium depends on several factors influencing TCO, such as whether CO_2-based tolls are already in place for example. Anecdotally, estimates of up to 30% have been reported by some freight forwarders, and 15–20% in Germany. To be conservative, we model here the impact of a 30% green premium that large shippers would pay to hauliers for ZE transport services, and then entirely pass onto their own customers.

In practice, green premiums should reflect the actual cost difference between a ZET and a diesel truck for a given shipment and route. By 2030, battery-electric freight trucks will already be cheaper on average than diesel on a TCO basis, so a flat 30% premium may be difficult to justify in many cases.

As transport costs account for 10% of product prices on average, a 30% increase in road freight rate could translate into a price increase of up to 3% for products transported by ZETs, unless large shippers at least partially absorbed the higher transport costs in their profit margin.

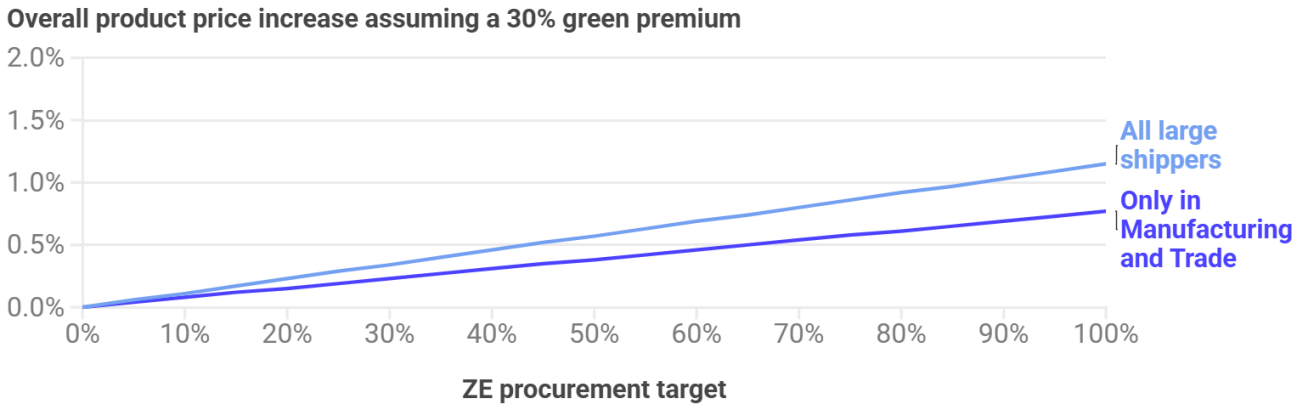
This increase in freight costs would only apply to some of the products shipped by large shippers. In 2030, a 20% ZE procurement target applying to all large shippers would mean that transport costs would go up for less than 8% of products. In this case, the total price increase due to a 30% green premium would only be 0.2%.

The chart below shows the projected overall price increase under different ZE procurement targets. The highest projected increase is 1.1%, which is achieved under a 100% ZE

procurement applying to all large shippers. However, this target level should only be reached by 2039. By then, electric trucks will have been cheaper than diesel to own and run in virtually all cases for several years, so it is unlikely that green premiums would still be required to support ZETs.

Negligible impact on final product prices

Even assuming large shippers entirely pass the green premium onto end consumers



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Section 3

3. Decarbonising Corporate Fleets: How to design ZE procurement targets for shippers

The European Commission is preparing to launch its proposal to Decarbonise Corporate Fleets, which it committed to publish by the end of 2025. The Commission recognised the important role of shippers in accelerating ZE HDV uptake in its Automotive Action Plan. Here, we discuss how targets on large shippers can be designed.

3.1. Defining green road freight

Simply put, ZE road freight activity corresponds to transport activity performed by ZE freight vehicles, either trucks or vans.

For trucks, ZE HDVs are defined in the HDV CO_2 standards as heavy-duty motor vehicles without internal combustion engines, or with an internal combustion engine that emits less than 3 gCO_2/tkm. In practice, this definition allows for battery-electric trucks, hydrogen fuel cell trucks, and trucks with hydrogen combustion engines.

For vans, ZE vans are defined as light commercial vehicles without tailpipe emissions, allowing for both battery-electric and hydrogen fuel cell vans.

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By targeting both transport services performed by trucks and vans without differentiation, targets would allow for more flexibility for use cases where both trucks or vans could be used (e.g. last-mile urban delivery). Vans may be easier to electrify, but more vehicles or more intense utilisation would be required to deliver the same activity than trucks due to lower payload. Hauliers can decide whether a given contract for ZE transport is best performed with ZETs or ZE vans.

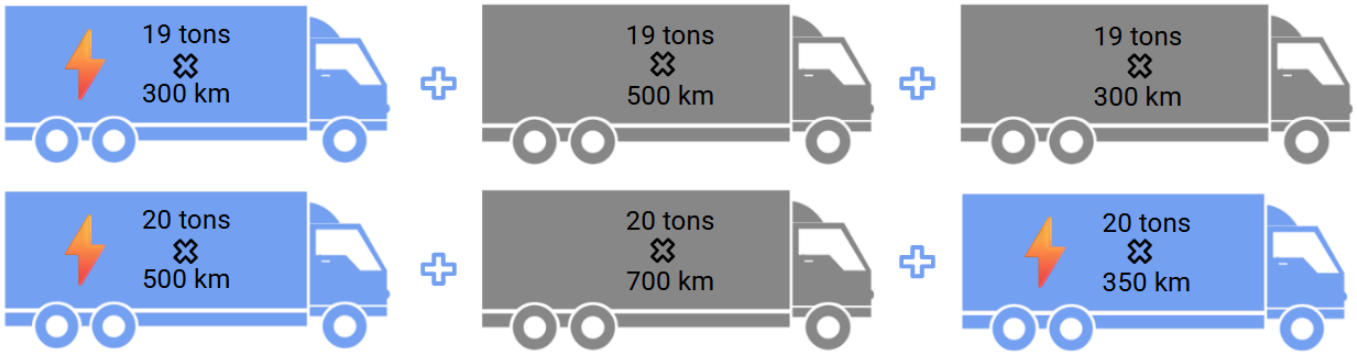
Alternatively, procurement targets could be set as CO_2 reduction targets instead of ZE targets. However, this would create more reporting obligations. To calculate and report their emissions, shippers would need to gather data from hauliers such as quantities of fuel burned, emission intensities, and proofs of sustainability. To keep the regulatory burden to a minimum, T&E recommends setting simple ZE procurement targets instead of emission targets.

3.2. Measuring zero-emission procurement

Road freight activity is usually calculated based on a combination of two metrics: the quantity of goods commissioned to be transported by road, and the total distance over which the goods are transported. This can be expressed in tonne-kilometre (tkm) or m^3-kilometre (m^3km, more commonly used for parcel delivery services). Both ISO 14083 and the GLEC Framework v3 express transport activity in tkm.

Companies within the scope would annually report the total amount of road freight procured in the EU, and the total amount of ZE road freight procured in the EU (in tkm or m^3km).

Calculating zero-emission procurement for six shipments



Total road freight procured	19x300 + 19x500 + 19x300 + 20x500 + 20x700 + 20x350 = 5,700 + 9,500 + 5,700 + 10,000 + 14,000 + 7,000 = 51,900 tkm
Zero-emission road freight procured	19x300 + 20x500 + 20x350 = 22,700 tkm
Zero-emission share of road freight procured	22,700 / 51,900 = **43.7%**

The infographic above shows an example calculation for a company procuring transport services for six shipments. All the required information for tracking compliance is readily available in the tender: the weight of the shipment, the distance of the road journey (which can

be approximated based on origin and destination if necessary), and whether the vehicle is zero-emission or not. This means shippers can have full control over their own compliance, and rely on little to no data from carriers, thus keeping monitoring burden to a strict minimum.

Book-and-Claim for zero-emission road freight procurement

For more flexibility, procurement targets could allow for Book-and-Claim. This model can help solve the mismatch between demand for and supply of ZE freight.

With Book-and-Claim, ZETs can be deployed where it makes the most economic and operational sense (e.g. TCO parity is already achieved, depot and public charging infrastructure is in place), and the corresponding environmental attributes can be transferred to shippers requesting ZE freight. This provides demand certainty for ZE freight, and improves asset utilisation of ZETs and their corresponding infrastructure.

The Center for Green Market Activation (GMA) coordinates GMA Trucking, an alliance of freight buyers implementing Book-and-Claim for ZE trucking service attributes. Programme members include Amazon, PepsiCo, and Kuehne+Nagel among others.

Kuehne+Nagel started offering Book-and-Claim for electric road freight in 2024. Their whitepaper presents a few elements necessary to ensure Book-and-Claim frameworks are robust. This includes restricting the sales of environmental attributes to the region and year where and when the physical solution is implemented, and steps to avoid double-counting.

3.3. Identifying large companies in scope

Shippers are not yet defined in EU law in the context of road haulage. A legal definition could be drawn based on their definition in EU maritime law as “any person by whom or in whose name or on whose behalf a contract of carriage of goods has been concluded with a carrier” (Directive 2002/59/EC). Around 100,000 manufacturers, wholesalers, and retailers in Europe form the European Shippers’ Council, a non-profit organisation representing their interests as cargo owners.

In practice, any company regardless of its economic activity, has the potential to procure road transport and thus be a shipper. To avoid undue burden, we explore a few ways that regulatory scope can be limited to as few companies as possible while remaining effective.

The primary criterion is company size. As noted earlier, large companies only make up 0.2% of EU companies but account for more than half of EU turnover and nearly 40% of EU truck activity. Large companies can easily be identified in business registries based on their number of persons employed (over 250), net turnover (over €50 million), and balance sheet (over €43 million).

A road freight procurement threshold could also be used to complement company size. For example, only companies commissioning more than 5 Mtkm of road freight transport every year would be subject to targets. However, such an approach would require companies which fall below the threshold to still report their non-existent or low freight activity to prove that they are not subject to the ZE procurement targets. As a result, the reporting burden would be unnecessarily high.

3.3.1. Focusing on key shipping sectors

ZE procurement targets could be limited to only the two largest EU economic sectors: Manufacturing (e.g. Siemens AG in Manufacturing of electrical equipment) and Wholesale and retail trade (e.g. IKEA Supply AG for wholesale trade, and Inter Ikea Systems B.V. for retail trade). Large companies in those sectors make up only 0.1% of EU companies but generate 29% of EU turnover, and buy 26% of road freight.

The road freight demand of a single large player in the sector can be equivalent to an immense truck fleet. For example, Schwarz Group reported in 2024 9.1 $MtCO_2e$ in scope 3 greenhouse gas (GHG) emissions from upstream transportation globally (including 6.9 $MtCO_2e$ from Lidl only). Assuming all their transportation needs were met with standard 5-LH diesel trucks burning 30.6 l/100km and driving 116,000 km/year, these emissions correspond to a fleet of 98,000 trucks (including 74,000 for Lidl).

3.3.2. Focusing on main freight forwarders

Another possible way of limiting targets to only a few companies while still ensuring they are effective at driving freight decarbonisation would be to focus on large freight forwarders, defined as "*intermediar[ies] who arrange for the carriage of goods and/or associated services on behalf of a shipper*".

As freight forwarders aggregate demand, setting ZE targets on the freight they procure has the same impact on the ZET market as targeting many shippers, but the reporting burden is reduced. In addition, large freight forwarders have dedicated sustainability and procurement teams, which can dedicate time to develop solutions to decarbonise their freight and to support their subcontractors.

However, this approach presents some difficulties as the distinction between freight forwarders and road hauliers is not always clear-cut in practice. It is common for road hauliers to subcontract to smaller companies on the one hand, whereas freight forwarders usually own some trucks.

The balance between both activities (arranging the carriage of goods vs hauling the goods directly) is key to properly categorise actors, and can be assessed by comparing the revenue generated by each activity. Emissions can also be a useful indicator: for example, Kuehne+Nagel's road logistics emissions totalled 1.1 $MtCO_2e$ in 2024, but only 0.12 $MtCO_2e$ were from its own trucks, consistent with its characterisation as a large freight forwarder. Similarly, only 2% of CEVA Logistics' emissions came from its own and leased trucks while 40% came from the road transport it subcontracted.

NACE codes can be useful to distinguish between freight forwarders and road hauliers. For freight forwarding, the relevant NACE code is 52.29 (Other support activities for transportation), whereas for road haulage it is 49.41 (Freight transport by road).

3.4. Defining ambition level

Ambition must be carefully balanced against regulatory burden. In the best case, ambitious ZE procurement targets are targeted at a few key actors whose efforts to decarbonise can send a wider market signal.

Ambition should be raised by increasing the required ZE share of procurement for targeted companies, instead of widening the pool of targeted companies, which would significantly increase the monitoring and reporting burden. Conversely, ambition should be preferably lowered by further limiting the number of companies subject to targets, rather than by lowering the required ZE share.

T&E recommends setting annual ZE procurement targets for all large companies reaching 100% ZE procurement by 2039, in line with the **moderate** targets presented above. Alternatively, if the number of companies subject to targets is limited to only large manufacturers, wholesalers, and retailers, then annual ZE procurement targets should reach 100% in 2036.

Lastly, it is crucial that ZE procurement targets increase annually to remain effective. If a 20% ZE procurement target is met in 2030, it can be met again in 2031 with the same ZET fleet, without any additional effort. In order to support ZET uptake, activity targets have to rise continuously. Usual 5-year targets would be ineffective at driving ZET sales uptake, while doing nothing to lessen reporting requirements.

Recommendations

1	Target freight demand from large shippers, not road hauliers
2	Define zero-emission procurement as transport services carried out using battery-electric, fuel cell electric, or hydrogen combustion trucks and vans
3	Set annual targets from 2030 onwards
4	Target level must be carefully optimised. Too low would provide no revenue guarantees for ZE carriers. Too high could reduce pressure on truckmakers to lower ZET prices.
5	If all large companies are regulated, ZE targets should start at 20% of procurement in 2030, reach 60% in 2035, and finally 100% in 2039.
6	If only large manufacturers, wholesalers, and retailers are in scope, then ZE targets should start at 30% of procurement in 2030, reach 90% in 2035, and finally 100% in 2036.

Annex

Company size is determined based on staff headcount, turnover and balance sheet total. Large companies have 250 persons employed or more, a turnover over €50 million or a balance sheet over €43 million.

Eurostat provides annual data on various economic indicators by sector and company size (sbs_sc_ovw). The table below presents the overall share of companies (excluding Transportation and storage), net turnover, and truck activity by company size. (Due to missing data, the shares of net EU turnover by company size do not add up to 100%.)

Persons employed	Share of companies	Share of net turnover	Share of truck activity
0–9	94.1%	16.5%	28.2%
10–19	3.3%	6.3%	9.5%
20–49	1.7%	8.8%	12.4%
50-249	0.8%	10.6%	10.4%
250+	**0.2%**	**51.2%**	**39.5%**

The table below presents the sectoral share of companies, net turnover, and truck activity by company size for the two largest sectors in the EU.

	Persons employed	0–9	10–19	20–49	50–249	**250+**
Manufacturing	Share of companies	5.9%	0.5%	0.3%	0.2%	**0.1%**
	Share of net turnover	1.0%	0.8%	1.5%	4.1%	**17.3%**
	Share of truck activity	2.3%	1.3%	2.1%	4.5%	**12.7%**
Wholesale and retail trade	Share of companies	17.5%	0.7%	0.3%	0.1%	**0.02%**
	Share of net turnover	5.8%	2.6%	3.6%	–	**12.1%**
	Share of truck activity	14.8%	5.0%	6.2%	–	**13.6%**
Manufacturing and Wholesale and retail trade	Share of companies	23.4%	1.2%	0.7%	0.3%	**0.1%**
	Share of net turnover	6.8%	3.4%	5.1%	–	**29.3%**
	Share of truck activity	17.1%	6.3%	8.3%	–	**26.3%**

Truck activity share by company size is estimated based on environmental data voluntarily reported as part of the 2024 Carbon Disclosure Project (CDP) by 3,500 companies based in the European Union, United Kingdom, and European Free Trade Area.

The CDP data is used to determine the relationship between reported revenue (converted in euro) and reported scope 3 greenhouse gas (GHG) emissions from upstream and downstream

transportation and distribution by sector, and for all sectors combined excluding Transporting and storage (as companies in that sector are assumed to never be cargo owners, even if they may subcontract freight).

It is assumed that scope 3 GHG emissions from transportation and distribution can be used as a proxy for road freight GHG emissions, hence road freight activity, hence truck activity. In practice, this assumes that the share of air or maritime freight in scope 3 GHG emissions from transportation and distribution, the propensity to use biofuels or more efficient vehicles to decouple freight activity from emissions, or the split between vans and trucks for road freight are independent of revenue within a given sector.

To calculate EU-wide estimates across sectors, the average share of truck activity by company size is weighted by own-account road freight activity by sector (in tkm) (road_go_ta_nace). This assumes that, excluding the Transportation sector, economic classification does not influence whether a company is more likely to carry its own goods or contract road haulage operators.