Europe's market for e-trucks set to accelerate in 2025

The European market for electric trucks will gear up in 2025 on the back of CO2 regulations for manufacturers and the start of production in larger series. Emissions reporting (CSRD) and mileage charging will take it further from the demand side, although e-trucking remains more costly

Electric trucks are being pushed into the market

Electric trucks are being pushed into the market under ambitious regulations

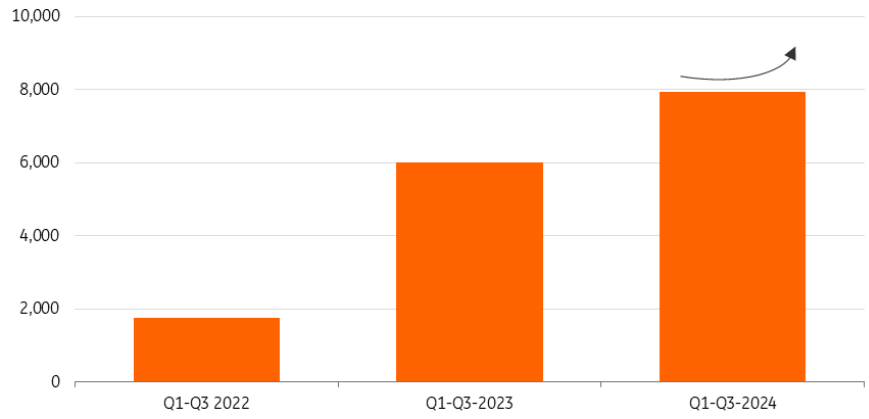
Battery electric trucks are currently seen as the most efficient zero-emission option for short and medium-haul trucking, and they are making significant inroads. European truck manufacturers are under pressure to decarbonise quickly. CO2 reduction targets* of 15% by 2025 and 30% by 2030, compared to the 2019-20 baseline, incentivise the production of electric trucks, given that further efficiency improvements in diesel technology won't be sufficient to meet those targets.

In early 2024, the European Union agreed to raise this target to a 45% reduction by 2030, necessitating even greater efforts. Consequently, the composition of European truck sales will change significantly over the next decade, similar to the shift seen in the car market.

*Based on registrations and measured with the so-called 'VECTO-calculation' certificate at the moment of registration and the average production).

Number of e-trucks hitting the road about to accelerate

Registrations new electric trucks* > 3.5 tonne in Europe (EU + EFTA + UK)



Source: ACEA, ING Research *incl. small fraction of plug-in hybrids

Sales of e-trucks begin

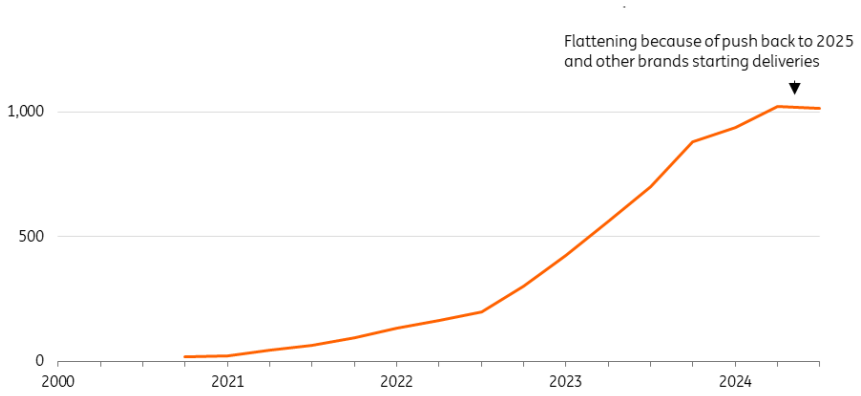
Manufacturers, including DAF, have begun or will soon begin series production, expanding the range of electric trucks. The e-variant of the Daimler Mercedes Actros tractor (600) with a range of 500km will hit the road in series early 2025. Scania also kicked off production of electric trucks for ranges up to 400km and MAN planned to scale up production of the EGTX in 2025.

In the meantime, order books for e-trucks have started to fill up. The timing of the scale-up is not arbitrary; the European CO2 reduction target plays a significant role. Manufacturers have also pushed back deliveries towards the end of this year as they aim to count the e-truck deliveries after the turn of the year.

To meet European CO2 targets, the manufacturer association ACEA estimates that the installed fleet of zero-emission trucks will need to expand to 400,000 by 2030, up from approximately 13,500 at the end of 2024, so this is a huge challenge with just six years to go. This means the current 2.5% of European sales will need to quickly reach double digits. Volvo has been ahead of the curve and is the European market leader in electric trucks, accounting for 3.5% of its orders in 2024.

Volvo was the first to deliver a larger series of e-trucks and others have followed

Deliveries of electric trucks, Volvo per quarter (Almost all in Europe)



Source: Volvo, ING Research

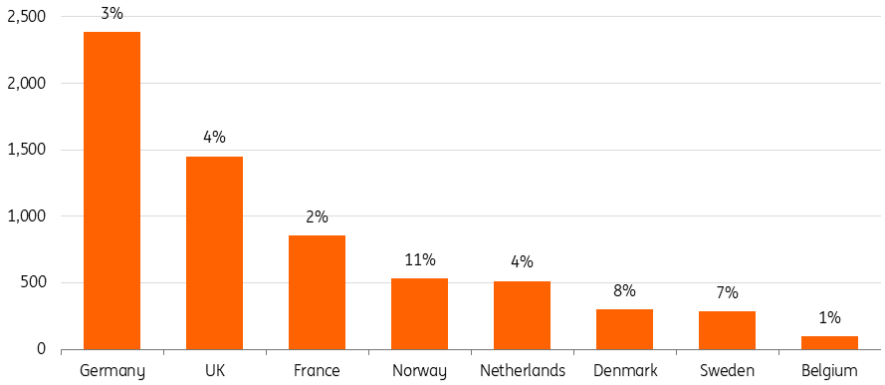
Most e-trucks delivered in Germany, UK and France, but Nordics take the lead in the transition

The sale of e-trucks has gained momentum, but the inflow has slowed in anticipation of new models expected in 2025. Most e-trucks are on the roads in Germany, the UK, and France, the largest European markets. However, Germany halted subsidies in early 2024, which may lead to a setback.

Relatively, the Nordics receive the highest number of e-truck deliveries. In the Netherlands, companies are gearing up for zero-emission zones in city centres starting in 2025. The push for electric trucks in the European Union is driven by CO2 reporting standards (CSRD). From 2024, larger companies will need to report their scope 1, 2, and 3 emissions, including transport activities.

Most e-truck sales are in Germany, but largest market shares in Nordics

Registrations of new electric trucks (incl. plug-in hybrid) > 3.5 tonnes per country, 1-3Q 2024 and market penetration



Source: ACEA, ING Research

E-trucks still much more expensive, but prices have started to come down

With prices ranging from €250,000 to €350,000, electric trucks are still substantially more expensive than diesel trucks (roughly 2-3 times higher). Continued development and extended ranges help keep prices up. However, the resumed downward trend in battery prices, the scaling of production, and intensified competition are driving prices down. The price of an E-Actros 600 tractor – for instance – has dropped below €300,000. Weak general demand for trucks likely contributes to this as well.

Although operational costs of e-trucks are usually lower*, the higher total cost of ownership still deters most haulage companies from investing in electric trucks for their fleets. Investing in e-trucks requires an in-depth analysis of operations and requirements, as well as more intensive coordination and cooperation with clients, which is usually easier for larger trucking companies.

*While energy costs are lower, some elements of maintenance are more costly. The lifecycle of tyres is, for example, 20-30% less because of higher wear.

Manufacturers under CO2 pressure will continue to seek stirring influence

The pressure to green road transport comes from two sides. With the return of a buyer's market and the increased bargaining power of transport companies and fleet owners, truck manufacturers' control has not simply disappeared.

Truck manufacturers are now required to reduce CO2 emissions, with the first hurdle in 2025. This target is unlikely to be entirely achievable through fuel efficiency improvements alone. Therefore, the remaining reduction until 2030 will need to come from zero-emission trucks, which also count double towards the target.

The measurement for this is the VECTO value issued at registration. Failure to meet these requirements will likely result in large fines. Manufacturers will challenge dealers, and consequently, we can expect a significant acceleration in the delivery of zero-emission trucks by manufacturers between 2025 and 2030.

This also means manufacturers will retain some control over the market. CO2 taxes will make diesel mileage more expensive towards 2030, which supports demand, but manufacturers can also adjust pricing and availability to meet the targets.

E-trucks initially deployed within smaller circles and on fixed routes

E-trucks will mainly be used for short and middle-haul routes. Additionally, their deployment on fixed routes, such as between distribution centers 200-250 km apart, is particularly promising. It's essential to include a safety margin of 20-25% in planning, especially due to the significant variations in energy consumption between summer and winter.

Truck levy, ETS 2 and lower purchase prices will help narrow the premium for e-trucks

The gap between the total costs of ownership (TCO) of diesel trucks and electric trucks will narrow following policy changes in the upcoming years.

- In Germany, the regular MAUT levy increased significantly in 2024 due to the addition of a CO2 levy. For instance, a five-axle Euro VI truck now costs around €0.35 per km, an increase of over 80%. Electric trucks, however, are currently exempt. Austria also introduced a similar levy in 2024, as well as the Czech Republic and Hungary, replacing the Euro vignette. The Netherlands will follow in 2026 and Belgium has announced a similar step. In the Netherlands, the revenues of this system will largely be redistributed via purchase subsidies.

- In Europe, it has been agreed that road transport will be included in a separate emissions trading system (ETS 2) by 2030. This charge comes on top of the national mileage tax (if in place) which could take the total extra costs to €0.50 per km or more, depending on the CO2 price. The levies will narrow the gap and make zero-emission transport more attractive. In addition, it seems reasonable to expect that the prices of electric trucks may fall further towards 2030 due to upscaling, competition and sales pressure.

*The ETS 2 system starts with a fixed CO2 price of €45 per tonne, but this could change to a floating rate afterwards. Just as with the ETS system, carbon credits are gradually reduced towards 2050.

Charging infrastructure remains a critical factor for the growth of the electric fleet

To support the adoption of electric trucks, suitable charging infrastructure is essential, as public fast-charging points for trucks are currently scarce.

In most cases, electric trucks will initially be used for shorter trips and therefore rely heavily on

(overnight) 'depot charging'. To support the transition to longer distances such as 200-300km one-way and more, public charging is critical. Under the European AFIR directive, it has been agreed that a charging station with a charging capacity of 350 kW or more will be needed along the main road network (corridors) by 2030. An hour of charging is enough to cover about 200-250km. Ultimately, up to 50,000 such stations will be needed in the EU, in addition to 280,000 private charging stations. The expansion of the charging network will be evaluated in 2027, alongside the growth of the fleet.

Charging speed is also important. This should be 350 kW, or ideally, megawatt-charging, as refuelling should be done during truck drivers' breaks and waiting is not an option. The joint venture of truck manufacturers Milence was also set up to help develop the charging infrastructure for road transport. The first locations have recently been opened, such as in Venlo (Netherlands), Hedebouville (France) and the port of Antwerp (Belgium), with a view to having 1,700 charging stations by 2027 and with much more on the way.

An increasing number of companies are also opening up their charging facilities to third parties or are operating charging plazas specifically for this purpose. In certain cases, this can also be a solution to improve the occupancy rate and thus the business case of the charging infrastructure. Megawatt charging (MCS) (1,000 kW), which enables charging within half an hour, for example, is technically feasible but is still in its infancy. The first charging station of this type has been opened in the port of Amsterdam.

Hydrogen combustion engine long-haul option in the middle run

Despite the focus on electric trucks, it is also clear that this is not yet an ideal solution for longer distances and heavy transport. In that respect, hydrogen in combination with an internal combustion engine can conquer its place in the future fuel mix. It is striking that all brands are working on this to a greater or lesser extent. For example, Volvo has announced the arrival of this concept and MAN has already introduced a model.

The hydrogen combustion engine still has a small amount of oil consumption, but in principle remains below 3 grams of emissions per tonne/km and is considered a 'zero-emission vehicle' under European CO2 legislation. Long-distance, international transport and heavy transport are complementary to e-trucks.

The big advantage for customers is that there is an 80% overlap with a diesel engine, so there is no need for a complete reconfiguration and a price of 2-3.5 times that of a diesel truck remains significantly lower than that of a hydrogen fuel cell truck. This concept is therefore also higher on the agenda for manufacturers. However, the use of hydrogen remains relatively expensive, so this is unlikely to happen on any large scale before 2030.

Threshold for entry of new e-truck brands higher than for cars

Entry into the truck market is more difficult for newcomers than for passenger cars. This is due to the relatively high importance of a well-developed service network and after-sales service. After all, a high degree of up-time is crucial in road transport.

This does not change the fact that new brands can enter the market in collaboration with an existing party. Think of Hyundai and BYD. For the Tesla-Semi, for example, type approval under the rules for weights and measures is still a bottleneck and a delaying factor. The actual European introduction of this remains a question mark for now. Ford has also recently become active again with the sale of trucks on the Dutch market, aiming for a few percent market share by 2030.

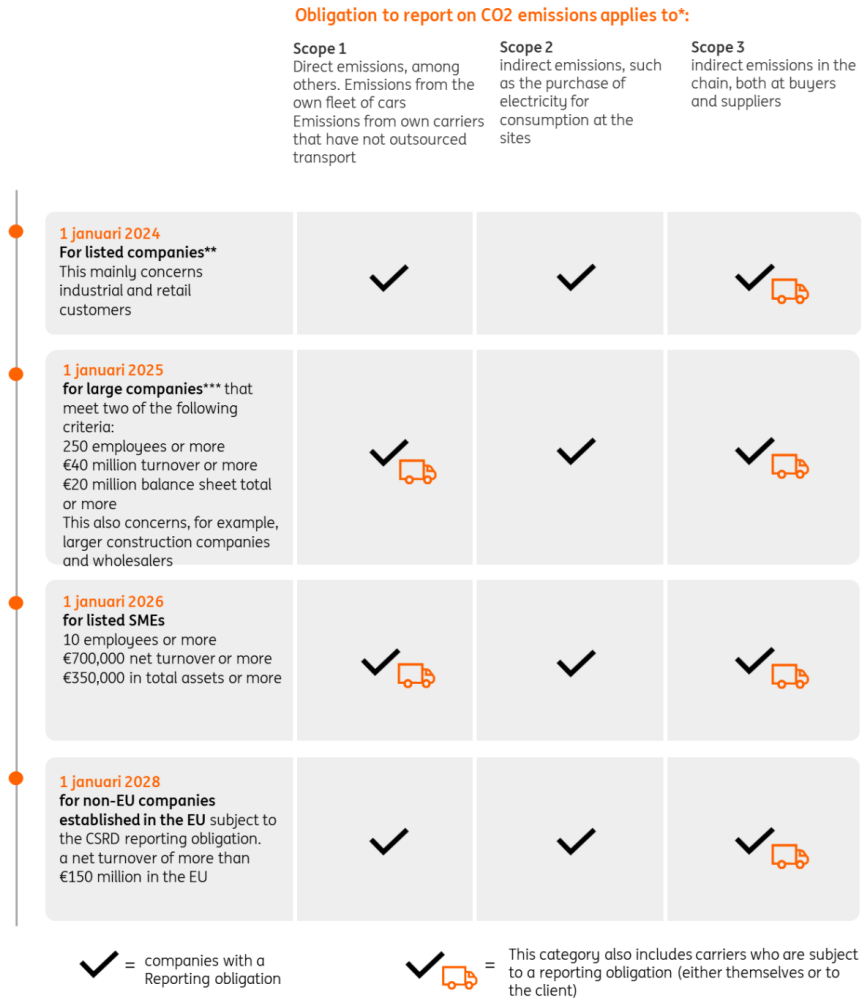
CSRD will require transport companies to track CO2 emissions

The Corporate Sustainability Reporting Directive (CSRD) requires companies to disclose their performance on a set of environmental, social and governance (ESG) indicators. As part of this, large (listed) companies will have to report (and substantiate) CO2 emissions in the value chain for the first time in 2025 (for 2024) and this will therefore be audited.

This applies not only to their own emissions (scope 1 and 2), but also to the emissions of suppliers (scope 3). This means that transporters who work (directly and indirectly) for these companies will have to provide figures (see below).

From 2024 onward, CSRD will force shippers and their transport partners to keep track of CO2 emissions

Timeline of implementation of CSRD (relates to reporting year*)



* Reporting follows at the end of the year with annual reporting
** For carriers, this also includes the emissions of charters that drive for them.
Commuting by private car or public transport is also included
that must comply with the Non-Financial Reporting Directive (NFRD) (first publication 2025)
that are not currently covered by the NFRD

Measuring is still a matter of exploring: 'a pallet to a specific destination has different CO2 emissions every time'

The transport management system (TMS) already provides figures, but the question is how transport clients want the figures to be delivered. Measuring (total) emissions is the first step. For transporters, the challenge is first to keep track of CO2 emissions and then to further develop the dashboard with indicators.

The actual CO2 emissions per kilometre or trip do not tell the whole story either. For example, weight plays an important role in fuel consumption, but also the trip distance and whether it concerns full truck loads or various addresses delivered (such as groupage). In international transport, ISO 14083 has established a standard for allocating CO2 emissions in the transport chain, but in practice broad standardisation of clients' reports will take time.

The increasing use of biofuels has little effect on the exhaust because CO2 and other harmful gases are still emitted. The view that biofuels reduce CO2 emissions by 80-90% is

based on the assumption that the biomass will be replanted or come from residual flows. Transporters receive renewable fuel units (HBEs) for this purpose and the Dutch emission authority checks the origin.

No 'licence to operate' yet, but that could be the future

Shippers may not yet be certain about their requirements from carriers, but this will become clearer in 2025 following the first audit. At that point, companies and their stakeholders can begin making comparisons. While it is not yet a 'license to operate' for haulage companies, it could become one, particularly as the regulation extends to non-listed and smaller companies.

For industrial companies, emissions from transport are not always the main priority, given the small share and the distance to the consumer, but for retail companies – such as supermarkets – this is different. Ultimately, all transport will have to move towards zero emissions.

Supply chain relationship intensifies due to reporting obligations

The relationship between carrier and client will intensify as a result of the energy transition. This applies to situations where zero-emission transport is already mandatory, such as in several city centres, but certainly also to the new reporting obligations. The (more intensive) monitoring of emissions also has advantages for transporters themselves, because performance becomes more transparent and therefore steps forward can be made.

Different links in the chain will account for themselves to each other and follow progress. This is something that the Customer Due Diligence Directive (CSDDD), adopted by the EU in May 2024, also aims to do. At the same time, this requires the sharing of data, which is not always done smoothly.

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