we simplify mobility

Unlocking the Future of Transportation:

Discover the First-Mover Advantages of EV Trucking

Whitepaper
UTA Edenred

Table of Contents

Introduction

The logistics industry is undergoing a significant transformation as the EU sets strict regulations to combat climate change. Fleet operators must respond. In order to remain competitive and continue to participate in the market, it is essential to move away from traditional internal combustion engine (ICE) vehicle fleets. Many companies are already preparing for this shift. A 2023 survey by the Smart Freight Centre – an international not-for-profit organisation focused on reducing global freight transport emissions – revealed that 88 percent of respondents either had a fleet electrification strategy or were in the process of developing one.[1]

While fleet operators face new challenges in this transition, the benefits of electrifying fleets are substantial, provided it is done correctly. Our whitepaper will show how to manage this transition successfully and how to profit from the first-mover advantage.

Find out how fleet electrification can help the EU achieve its climate goals and what happens when electrified fleets become more cost-effective. Get to know about e-charging and how UTA Edenred is making a difference. Plus, gain insights from Prof. Dr. Arne Strauss, an expert in sustainable logistics. Be part of the change and take advantage of being one of the first movers in the electrification of trucks.

Electrification of Trucks

Ein A Key Step Toward EU Sustainability Goals

Electrifying heavy goods vehicles is crucial for achieving global climate goals due to the significant role of road transport in the EU. But what is the current status of vehicle registrations, and what specific initiatives and regulations are in place to support the EU's endeavour to electrify its transportation sector?

Sustainable Logistics: Crucial for Achieving the 2030 Agenda

The European Green Deal aims for the 27 EU member states to achieve climate neutrality by 2050. As a first step, greenhouse gas emissions are to be reduced by at least 55 percent by 2030 compared to 1990 levels.[2] Logistics play a crucial role in achieving these targets, as road transport dominates in most EU countries.[3] In major EU countries like France, Italy, and Spain, the combined share of rail and water transport (maritime and air transport excluded) is less than 13 percent, while it stood at nearly 23 percent across the EU in 2021.[4]

Even though trucks and buses constitute only two percent of the vehicles on Europe's roads, they are the second-largest source of CO_2 emissions in the transport sector.[6]

> This means that almost 80 percent of goods are transported by heavy goods vehicles (maritime and air transport excluded).[5]

Heavy goods vehicles (HGVs), including trucks, buses, and coaches, are responsible for 25 percent of CO_2 emissions from road transport.[7] Hence, road traffic was responsible for over 750 million tonnes ($MtCO_2$) of CO_2 emissions in 2022.[8] According to a study by the International Council on Clean Transportation (ICCT), battery electric trucks produce at least 63 percent lower greenhouse gas (GHG) emissions over their lifetime compared to diesel trucks.[10] This reduction can increase to 84 percent when trucks use only renewable electricity.[11]

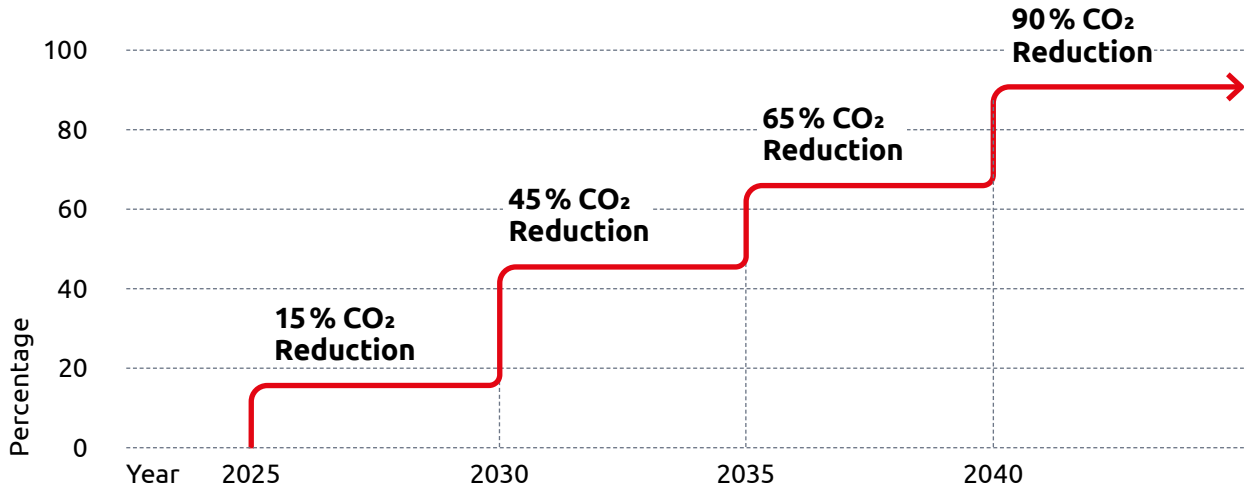
Therefore, the electrification of trucks is essential to advancing the energy transition and achieving global climate goals.

EU Regulations for Reducing CO_2 Emissions

The European Green Deal is a central component of the EU's climate protection policy. The centrepiece of the Green Deal is the European Climate Law, which sets out the EU's commitment to climate neutrality by 2050.[6] This law forms the legal framework for all climate protection measures and supports the sustainable transformation of the economy and the transport sector in Europe. In the context of the Green Deal, CO_2 emissions standards for new heavy goods vehicles were developed and are to be implemented in stages. The revised standards uphold the 15 percent reduction goal for 2025, elevate the 2030 objective to 45 percent, and set ambitious new targets of a 65 percent cut by 2035 and a 90 percent decrease by 2040.[6]

While the EU has not set a specific target for the percentage of electric trucks by 2030, it is anticipated that a significant portion of these emissions reductions will be achieved through the electrification of trucks.[7] The EU is actively promoting the adoption of zero-emission vehicles as part of its broader CO_2 reduction strategy.

CO_2 Emission Standards for Heavy Goods Vehicles in the EU



The EU's emission reduction targets for heavy goods vehicles have been raised even further to achieve climate neutrality by 2050.

Source

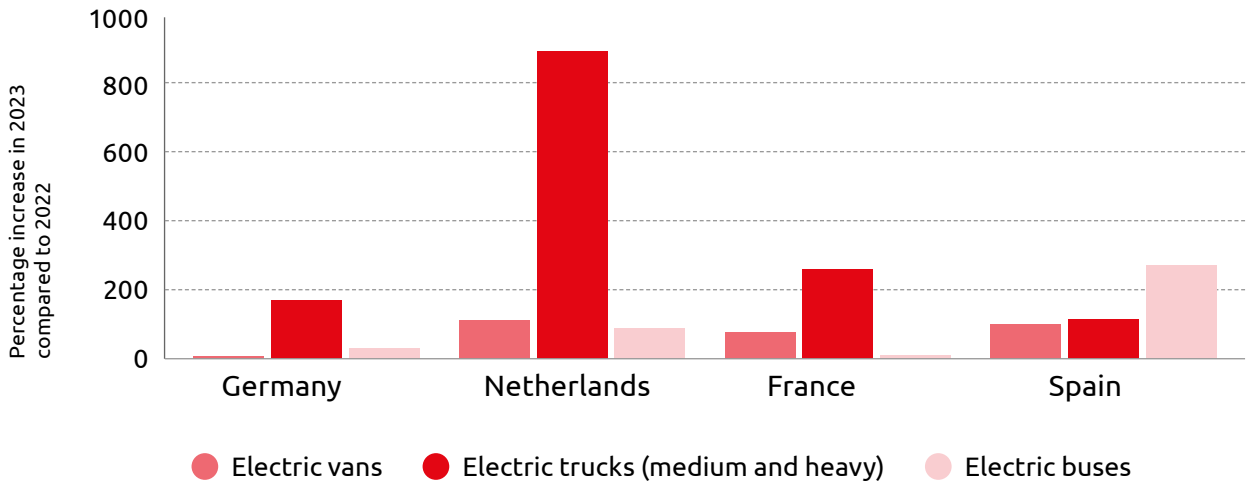
Current Status of Heavy Goods Vehicle Registrations in the EU

Given the strong demand for CO_2 reduction, what are the trends in new truck registrations? In 2023, diesel-powered vans continued to lead the market with 1.2 million units registered, marking a 10.4 percent increase from 2022. However, their market share decreased from 85.7 percent in 2022 to 82.6 percent in 2023. Electric vans, on the other hand, saw a significant rise, with sales increasing by 56.8 percent and market share growing from 5.4 percent in 2022 to 7.4 percent in 2023. This shift was driven by substantial gains in markets such as the Netherlands (+110.4 percent), Spain (+100.3 percent), and France (+76.7 percent).[12]

For trucks, the market in 2023 remained dominated by diesel vehicles, which accounted for 95.7 percent of new registrations. However, new registrations of electric trucks saw a remarkable increase of 234.1 percent, reaching 5,279 units. The Netherlands (+889.7 percent) and Germany (+169.8 percent) were the primary drivers of this growth, contributing to over 60 percent of electric lorries sales in the EU. The market share of electric trucks rose to 1.5 percent, up from 0.8 percent in the previous year, indicating significant progress but highlighting that there is still a long way to go.[12]

2024, on the other hand, deviated from this trend due to special factors (e.g., the elimination of subsidies).[13] Given favorable forecasts for the development of the total cost of ownership for eTrucks, the influence of subsidy programs is expected to decline in the future.[14] For the future, therefore, a positive trend in registrations of electric vehicles can be expected.[15]

Increase of Electric Heavy Goods Vehicle Registrations in Key European Markets



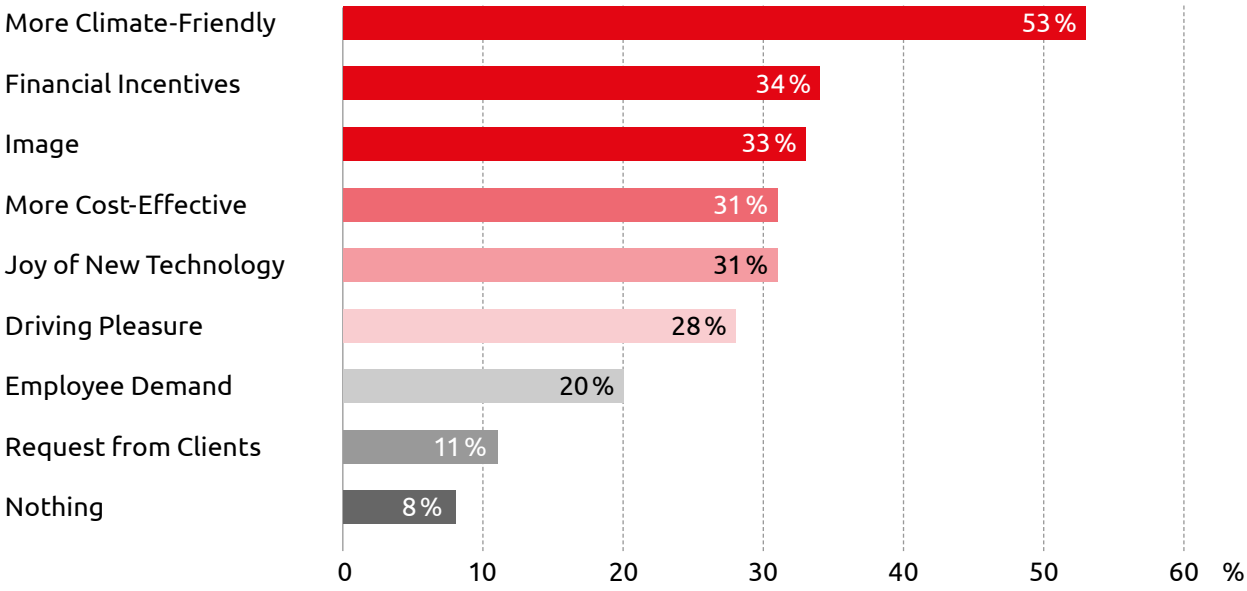
Between 2022 and 2023, there was a significant increase in the registration of electric vans, trucks and buses in major European markets.

Source

Incentives and Support for Fleet Electrification in the EU

Businesses need to reevaluate their fleet management strategies. According to a study by UTA Edenred, over half of fleet managers are prioritising e-mobility for its environmental benefits. This shift is not merely a trend, but a strategic necessity driven by regulatory pressures and the desire to align with broader corporate sustainability goals.[16] The following EU and national incentives are available to support this initiative:

Drivers for the Use of Electric Vehicles in Companies
(From the perspective of fleet managers)

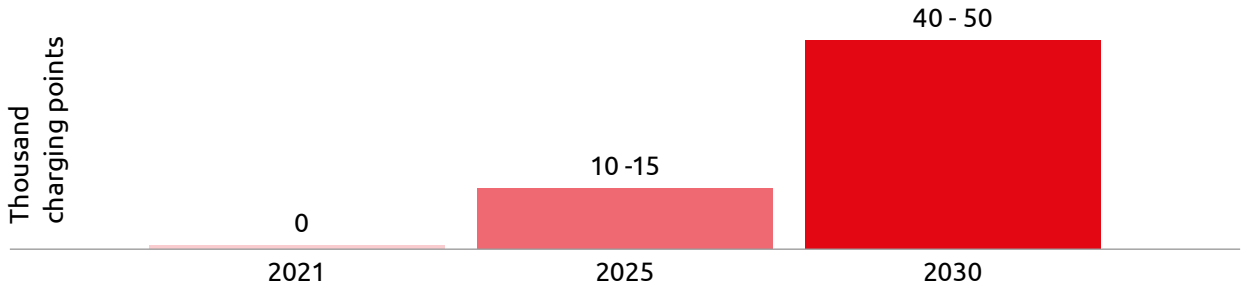


Environmental friendliness, incentives and company image are the primary motivations for fleet managers to incorporate electric vehicles into their fleets.

Source

EU-Wide Government Incentives
To encourage the development of electric fleets, the EU has implemented a variety of regulations and directives aimed at facilitating this transition. The most important of these are the Alternative Fuels Infrastructure Regulation (AFIR) and the Renewable Energy Directive (RED).

Required charging points for medium and heavy trucks in the EU by 2030
(EU EV Charging Masterplan)



According to the EU EV Charging Masterplan, around 40,000 to 50,000 public charging points for trucks will be required by 2030, requiring an investment of around €5 billion. Source 1 Source 2

Alternative Fuels Infrastructure Regulation
Effective since April 2024, AFIR sets mandatory targets for deploying alternative fuel infrastructure across all EU member states. This regulation mandates the installation of recharging stations with a minimum output of 350kW every 60 kilometres along the Trans European Transport Network (TEN-T) core network and every 100 kilometres on the comprehensive network by 2030.
This extensive infrastructure development is essential to support the growing number of electric HGVs and meet the EU's emissions reduction targets.[17]

Renewable Energy Directive
The Renewable Energy Directive (RED) is a cornerstone of the EU's strategy to increase the use of renewable energy across all sectors, including transport. Revised in 2023, the directive sets a binding target for the EU to achieve at least 42.5 percent renewable energy in its total energy mix by 2030, with an ambition to reach 45 percent. This directive supports the electrification of the logistics transport sector by promoting renewable energy sources for electricity generation, thereby reducing dependency on fossil fuels and lowering greenhouse gas emissions.[18]

By incentivising the integration of renewable energy into the power grid, the directive facilitates the use of clean energy for electric vehicles, including heavy goods vehicles. This alignment ensures that as more HGVs switch to electric powertrains, the electricity used is increasingly derived from renewable sources, enhancing the overall sustainability of the transport sector. Additionally, the directive includes measures to simplify and accelerate permitting processes for renewable energy projects, further supporting the infrastructure needed for widespread EV adoption in logistics.

Country-Specific Incentives

In addition to EU-wide government incentives, several European countries offer initiatives to promote the electrification of vehicle fleets, including grants, subsidies, tax reductions and exemptions for the purchase of electric vehicles and the expansion of infrastructure. Here are some key examples.

Belgium
In Brussels and Wallonia, battery-electric and fuel cell-powered commercial vehicles weighing up to 3.5 tonnes are currently subject to a minimum traffic tax rate of 38.64 Euro per year. In Flanders, however, these vehicles are exempt from traffic tax. A reduced VAT rate of 6 percent applies to electricity consumption.

In all regions of Belgium, buyers of commercial vehicles powered by batteries or fuel cells receive an investment deduction of 35 percent on the associated charging or refueling infrastructure. In the Brussels region, micro and small businesses receive a subsidy of up to 16,000 Euro per vehicle for the replacement of a maximum of three commercial vehicles up to 3.5 tonnes per year, including charging stations. In Flanders, SMEs can receive a 40 percent reimbursement (up to 400,000 Euro per vehicle) for a maximum of two battery-electric commercial vehicles weighing between 3.5 and over 12 tonnes. For a maximum of two fuel cell vehicles weighing between 3.5 and over 12 tonnes, SMEs can receive a subsidy of 22.5 percent of the additional costs, up to 350,000 Euro per vehicle. In Flanders, private individuals, non-profit organisations, and vehicle-sharing platforms can receive a 5,000 Euro subsidy when purchasing a new, zero-emission van weighing up to 3.5 tonnes and with a list price of up to 40,000 Euro (including VAT). For used, emission-free vans that are at least three years old and have an original list price of less than 60,000 Euro, a 3,000 Euro bonus is available.

France
Companies can benefit from a system of ‘over-depreciation’ and claim part of their investments in battery-electric or fuel cell-powered commercial vehicles for tax purposes. The following rates apply: 40 percent for vehicles weighing between 2.6 and 3.5 tonnes, 115 percent for vehicles weighing between 3.5 and 16 tonnes, and 75 percent for vehicles weighing over 16 tonnes.

A financing system based on energy saving certificates is available for the purchase of vehicles with alternative drive systems. The subsidy depends on the vehicle category, the buyer group and the price per megawatt hour Cumac (unit of measurement for energy saved).

Avere France's Advenir programme promotes the installation of charging stations for heavy commercial vehicles and coaches. For the installation of charging infrastructure below 500 kVA, the subsidy rate is 50 percent, with a subsidy rate of 2,200 to 15,000 euros, depending on the charging capacity. For charging capacities above 5,000 kVA, subsidies of between 100,000 Euro and 960,000 Euro are possible, with the amount again depending on the number of charging points and the charging capacity.

Germany
In Germany, battery-electric and fuel cell vehicles registered by 31 December 2025 are granted road tax exemption for up to 10 years. However, the tax exemption only applies until 31 December 2030. The new federal government plans to extend the tax exemption until 2035.

For purely electric vehicles purchased by companies between 1 July 2025 and 31 December 2027, an arithmetic-degressive depreciation will be introduced. Depreciation will be staggered, starting at 75% in the year of purchase and lasting for six years. However, it cannot be combined with special depreciation allowances.

The previous price limit of 70,000 Euro for the application of the reduced assessment basis of 0.25% for company car taxation of purely electric vehicles will be raised to 100,000 Euro. This means that higher-priced electric vehicles will also benefit from tax advantages in future.

Zero-emission trucks are currently exempt from truck tolls until 2026. Here, too, the coalition agreement provides for an extension of this toll exemption.[19]

Italy
In Italy, battery-powered electric vehicles are exempt from vehicle tax for five years from the date of initial registration. After that, the tax is reduced to 25 percent of the amount payable for equivalent petrol and diesel vehicles. For electric hybrid vehicles, a minimum tax rate of 2.58 Euro per kilowatt hour applies. Some regions grant additional discounts on vehicle tax.

Netherlands
In the Netherlands, the registration tax for vehicles used to transport goods weighing up to 3.5 tonnes is 74.41 Euro per gram of CO_2 emitted. Zero-emission vans are exempt from registration tax.

The AanZET (Aanschafsubsidieregeling Zero-Emissie Trucks) subsidy programme supports entrepreneurs and non-profit organisations in the purchase or leasing of new, emission-free transporters in the weight classes from 3.5 to over 4.25 tonnes. The SPuLa (Subsidie Publieke Laadinfrastructuur voor zwaar vervoer) programme supports entrepreneurs in installing public charging infrastructure for heavy electric vehicles. Through the SPriLa (Subsidie Private Laadinfrastructuur bij bedrijven) subsidy programme, companies can receive a grant for installing public charging infrastructure for their own electric

vehicles or on leased land.

Poland
In Poland, battery electric vehicles and fuel cell electric vehicles are exempt from vehicle tax. For plug-in hybrids with an engine capacity of up to 2,000 cc, this exemption applies until the end of 2029.

Spain
In Spain, vehicles with CO_2 emissions of no more than 120g/km are exempt from the so-called special tax. In the Canary Islands, alternatively powered vehicles with CO_2 emissions of no more than 110g/km are exempt from value added tax.
In larger cities such as Barcelona, Madrid, Valencia and Zaragoza, battery-powered electric vehicles are eligible for a 75 percent reduction in vehicle tax. Plug-in hybrids and fuel cell vehicles also benefit from tax advantages, such as the option of accelerated depreciation of investments in vehicles and charging infrastructure.

A new incentive programme similar to the previous MOVES III programme is planned to be introduced retroactively for the period from 1 January to 30 June 2025. Private individuals will receive a subsidy of 7,000 Euro to 9,000 Euro for vans or minibuses, depending on whether an old vehicle is scrapped. In addition, they can receive a bonus of 1,000 Euro from the vehicle manufacturer. The expansion of the charging infrastructure is also being promoted. For self-employed persons, private individuals, neighbourhood communities and public administration, 70 percent of the eligible costs are covered.

Companies receive the following subsidies for public charging points with a capacity of less than 50 kW: large companies 35 percent, medium-sized companies 45 percent and small companies 55 percent of the eligible costs. For charging points with a capacity of more than 50 kW, 30 percent of the eligible costs will be covered. Additional funding is available if the installation takes place in municipalities with fewer than 5,000 inhabitants.

Source

Cost Structures of Electric Vehicles

Electric commercial vehicles are not only better for the environment, they can also offer companies economic benefits. This section provides insight into the different cost structures of electric and diesel trucks and compares these expenses to show why switching to an electric truck fleet could be beneficial.

Breakdown of Cost Structures: Electric vs. Diesel Trucks

Total cost of ownership (TCO) is a decisive factor for businesses as it encompasses all costs incurred over the lifespan of a vehicle, including the initial purchase, energy costs, and maintenance. When comparing the cost structures of battery electric trucks (BET) and diesel trucks, these components play a pivotal role. The operation of electric truck fleets offers significant long-term financial benefits compared to diesel trucks, mainly due to the decreasing total cost of ownership over a five-year period. These advantages result from several factors.[20]

Although the initial purchase price for BETs is higher than for ICE trucks, this difference is expected to decrease significantly. In a report from 2022, PricewaterhouseCoopers (PwC) states that the additional vehicle costs for BET trucks in long-distance transport are likely to be around 90,000 Euro higher than for ICE trucks by 2030, but that this difference will decrease over the following five years.[21]

According to the Fraunhofer ISI 2024 study, the costs for battery-electric trucks (BETs) are expected to decrease significantly due to rapid advancements in battery and fuel cell technology.[22]

The Dutch independent research organisation TNO assumed in their 2022 report that battery costs could fall from around 150 EUR/kWh in 2020 to below 100 EUR/kWh in 2030. The reduction in battery costs is of crucial importance as it directly lowers the acquisition costs of electric vehicles and thus accelerates their market launch.

With the expected decline in battery prices, electric trucks will become more affordable and increasingly competitive with diesel trucks.[20]

The main reasons for the economic advantage of electric trucks are energy costs and the strong price fluctuations in fossil fuels. In addition, the long-term increase in CO_2 taxes and the cost reductions achieved through economies of scale in battery production contribute to the economic advantage.[21]

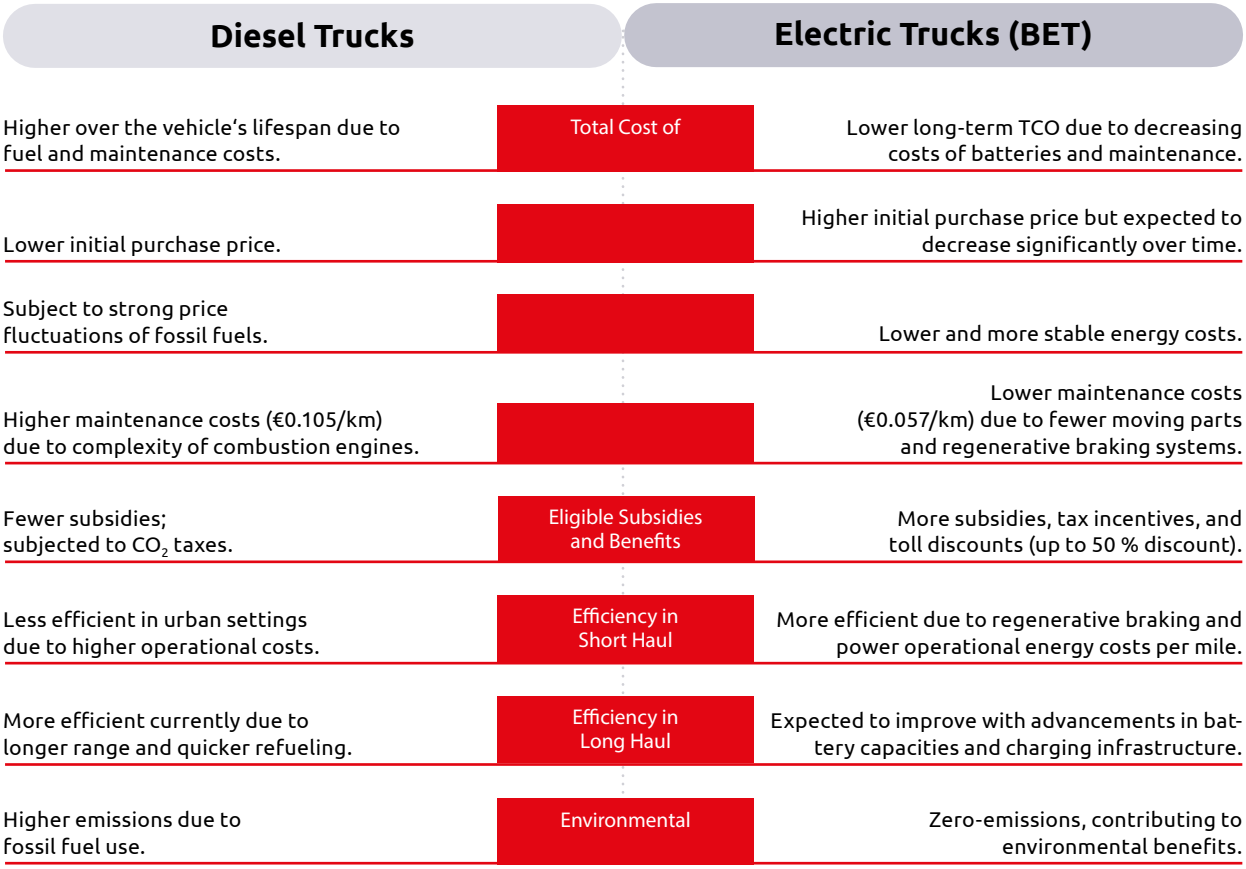
Maintenance costs are in contrast to BETs, which cost on average €0.057/km, compared to €0.105/km for ICE trucks. This is mainly due to the simplicity of their design – electric motors have fewer moving parts than conventional combustion engines. In addition, electric trucks do not require oil changes, air or fuel filters to be replaced. The regenerative braking systems in electric trucks also reduce brake wear, which further reduces maintenance requirements.[21]

Eligible subsidies and benefits: The economic context, including energy prices and regulatory incentives, plays a critical role. Subsidies, tax incentives and stricter emissions regulations make BEVs more attractive as they offset initial higher investment costs and shorten amortisation periods. In Europe, zero-emission vehicles (ZEVs) have benefited from a new toll system since May 2023 and receive a 50 percent discount, which could save logistics companies up to 25,000 Euro per truck per year. This regulatory support significantly increases the economic attractiveness of BETs by aligning financial incentives with environmental benefits.[20]

Efficiency Differences Between Electric and Diesel Trucks for Short and Long Haul

Electric or diesel trucks: which offers greater energy efficiency for short and long distances? Electric trucks are currently more efficient in urban settings, while diesel trucks still hold the advantage for long-haul routes. However, this is expected to change as technology advances.

The report by the International Energy Agency says that electric trucks are notably more efficient in urban settings due to their ability to recuperate energy via regenerative braking and lower operational energy costs per mile. On the other hand, diesel trucks currently hold advantages for long-haul routes, benefiting from longer range capabilities and quicker refuelling times. However, advancements in electric vehicle technology, particularly improvements in battery capacities and charging infrastructure, are expected to gradually diminish these differences, potentially making electric trucks equally or more efficient for long-distance travel in the future.[23]



Electric Truck Charging

The electrification of fleets necessitates the development of robust and well-developed charging infrastructure to support the growing number of electric trucks on European roads. Let us examine the current status and identify the most promising areas for future development.

Charging Infrastructure in the EU: Goals and Developments

According to an analysis by McKinsey, the EU requires around 3.4 million operational public charging points[24] to meet its CO_2 reduction target of 45 percent by 2030.[3] It should also be noted that there are differences between the requirements for charging equipment for transport vehicles and those for passenger cars. According to the European Automobile Manufacturers Association (ACEA), Europe needs to develop:

- **10,000 to 15,000** higher-power destinations and public charging points by 2025.

- **40,000 to 50,000** charging points by 2030, with the majority being high-power chargers of more than 500 kW.

- **40,000 lower-power** (100 kW) public overnight chargers at HGV parking areas along motoways by 2030[3]

While there is still much to be done, the progress made in recent years has been encouraging. Indeed, the figures have grown significantly. In the last two years, the number of public charging stations in the EU has more than doubled, from approximately 300,000 in the first quarter of 2021 to 700,000 in the first quarter of 2024.[25]

Currently, there are over 6,000 charging points across Europe with a capacity suitable for trucks (above 350 kW), which marks a significant increase from less than 3,600 charging points a year ago.[26] The different performance and operating requirements must be taken into account:

Charging stations for electric trucks range from 300 kW units for quick energy replenishment to more sophisticated Megawatt Charging Systems (MCS), which can deliver up to 3.5 MW. Each station type is designed with specialised technologies and components to ensure efficient, safe, and reliable charging for different use cases.

300 kW Charging Stations
In early 2023, Europe introduced its first dedicated truck charging corridor along a 600-kilometre section of the Rhine-Alpine corridor, one of the continent's most heavily trafficked freight routes. This corridor includes six public charging locations equipped with 300 kW charging points.[27]

Currently, there are approximately 160 charging points specifically designed for trucks installed across Europe.[28]

400 kW Combined Charging Systems (CCS)
Although the exact number of 400 kW charging stations can vary due to ongoing installations and developments, estimates indicate that there are several hundred charging stations either currently operational or planned across Europe. These stations are part of efforts by major networks and independent charging hubs to support the growing adoption of electric heavy goods vehicles.

Megawatt Charging Systems (MCS)
Megawatt Charging Systems (MCS) are making significant progress in Europe, driven by several key projects and investments. Projekt "Hochleistungsladen im Lkw-Fernverkehr" (HoLa, engl.: High Performance Charging for Long-Haul Trucking"), for instance, is focused on implementing and testing eight MCS points in Germany, with the goal of establishing a network of at least 1,000 points by 2030.[29] Companies such as ABB, Autel Energy, BP Pulse, Kempower, Kverneland Energi, and Milence are heavily investing in MCS technology across various countries, including Germany, the UK, Norway, and France.[30] These advancements are essential for the electrification of heavy-duty transport, ensuring that infrastructure can support the increasing demand for high-power charging solutions.

Pioneers in Fast Charging Technology

Significant progress has already been made in developing charging infrastructure within the EU. The Netherlands, France, and Germany are at the forefront of these advancements, setting exemplary standards for others to follow. These three countries, with the support of companies like Milence, collectively account for over 61 percent of all charging stations in the EU, totalling over 600,000 charging points, highlighting their commitment and leadership in this area.[31]

When looking at fast charging specifically, France has expanded its infrastructure to more than 21,000 fast charging points, strategically located along major routes and logistics hubs, with plans for further expansion. France has a density of 40 charging stations per 1,000 square kilometres.[32]

Germany has also developed an extensive network of over 28,000 fast charging points, supported by Milence with several 400 kW hubs. This translates to 78 charging points per 1,000 square kilometres.[32]

The Netherlands boasts over 4,000 fast charging points, ensuring robust support for electric trucks. The Netherlands has the highest density of fast charging points, with around 96 points per 1,000 square kilometres.[32]

These proactive measures, particularly those seen in the Netherlands, set an example for other EU countries.

Fast Charging Technology: Timeline

Fast charging technology is crucial for electric commercial vehicles, as they require faster charging times to maintain operational efficiency.

Significant advancements have been made in this field in less than ten years. Here is a timeline of key milestones:

- **2018:** CharIN's Megawatt Charging Systems Task Force begins addressing megawatt charging technology [33]
- **2020:** Development of the Megawatt Charging System [34]
- **2021:** Launch of the first 500 kW wireless chargers [35]
- **2023:** Testing of the first 3 MW chargers[36]
- **2024:** Introduction of the ChargePoint Megawatt Charging System [37]
- **2024:** Development of the world's first megawatt charger for electric trucks, by Technical University of Munich (TUM) and MAN[38]

Did You Know? Pantograph Charging

There are also other important developments in the field of charging technology, such as pantograph charging. This involves using an extendable arm to charge electric trucks and buses so that plug cables are no longer required. This method allows for efficient charging during operation, particularly at ‚opportunity charging' stops along routes and overnight depot charging.

While more costly initially due to custom hardware, pantograph charging can deliver up to 600 kWh, extending the vehicle's range by 100 miles in just 10 to 15 minutes, making it crucial for the future of long-haul electric trucking.

UTA Edenred

Shaping the Future of Sustainable Fleet Management

UTA Edenred with its parent company Edenred is driven to accelerate electromobility. The mission of UTA Edenred is simplifying mobility, with the transition to electric mobility being a key component of sustainable transport. With experience, passion and collaborative approach UTA Edenred is actively involved in initiatives that promote the adoption of electric vehicles across Europe.

Membership in ChargeUp Europe

Edenred is a member of ChargeUp Europe, a coalition dedicated to accelerating the deployment of EV charging infrastructure. This partnership allows UTA Edenred to contribute to the development of a seamless and extensive charging network across Europe. ChargeUp Europe advocates for policies that support the growth of EV infrastructure, ensuring that charging points are accessible, reliable, and user-friendly.

Membership in Avere

In France, Edenred is a member of The European Association for Electromobility (AVERE), an organisation that promotes electromobility through advocacy, education, and collaboration. AVERE works with government bodies, businesses, and other stakeholders to advance the use of electric vehicles. By participating in AVERE, Edenred helps shape policies and practices that reduce carbon emissions and enhance the regulatory conditions for electromobility.

Partnership With Milence

UTA Edenred is also collaborating with Milence, a company dedicated to developing a robust European charging network specifically for HGVs. Milence is setting a new standard in the electric truck industry by focusing on fast charging solutions rather than overnight charging. Their innovative approach aims to fully charge electric trucks within the standard break periods of drivers, significantly reducing downtime and enhancing operational efficiency.
The company is actively expanding its operations, with new charging hubs in key locations such as Heudebouville, France[41], and along the A9 highway in Perpignan, linking Spain with Northern Europe. Additionally, Milence is establishing two new charging hubs in Germany[38] on key Trans European Transport Network (TEN-T) corridors, further supporting growing demand for electric HGVs. This strategic expansion is particularly beneficial for UTA Edenred's customers as the partnership facilitates the processing of transactions at Milence's fast-charging stations.

Merger With Spirii

Through Edenred's acquisition of leading EV charging platform provider Spirii in February 2024, UTA Edenred has enhanced and expanded its charging capabilities. Its offering now encompasses the installation, processing and maintenance of workplace, home and depot charging facilities; as well as software and a smartphone app for the efficient management of charging processes. As a result, the charging of electric fleet cars, vans and trucks has never been easier.

UTA eCharge®

UTA eCharge is an innovative solution designed to simplify the charging process for electric trucks and cars alike. With UTA eCharge, customers gain access to a vast network of charging stations across Europe, enabling seamless travel as well as efficient and convenient fleet management. The service integrates various charging points into a single, unified billing system, making it easier for fleet managers to monitor and control their charging activities.

UTA eCharge also provides real-time information on the availability and status of charging stations, helping drivers to plan their routes effectively and cost-effective.

The merger with Spirii transforms UTA eCharge into a comprehensive 360° offering, catering to the diverse needs of European e-mobility customers from both corporate fleets and the transport and logistics sector. The expanded UTA eCharge home, workplace, and depot charging capabilities are initially available in Germany and France.

UTA Carbon Offset

To further support the companys sustainability goals, UTA Edenred offers the UTA Carbon Offset programme. This initiative allows customers to offset their carbon emissions by investing in certified climate protection projects. By participating in the UTA Carbon Offset programme, companies can balance their carbon footprint and contribute to global efforts to combat climate change. This UTA Carbon Offset complements UTA Edenreds electromobility services, providing a holistic approach to reducing the environmental impact of transportation. It underscores the companys commitment to sustainability by offering practical solutions that help businesses achieve their environmental goals.

Interview With Prof. Dr. Arne Strauss

Mercator Endowed Chair at WHU - Otto Beisheim School of Management

Prof. Dr. Arne Strauss is a distinguished expert in Demand Management and Sustainable Transport, holding the Mercator Endowed Chair at WHU – Otto Beisheim School of Management. With extensive academic experience, including previous positions at Warwick Business School and The Alan Turing Institute, his research focuses on operational research and sustainable transport solutions.

In this interview, Prof. Dr. Strauss shares his expertise on fleet electrification, highlighting key considerations for businesses and valuable tips. He emphasises the importance of strategic planning, infrastructure investment, and leveraging data analytics for successful fleet transitions.

Fleet operators are under pressure: both authorities and investors are pushing for a reduction in CO_2 emissions. Do you risk losing market share and competitiveness if you wait too long to electrify your fleet?

The European commission has proposed in 2023 to strengthen CO_2 emissions standards for HGVs, aiming at a 90 percent reduction in 2040. Reducing scope 1 and scope 2 emissions is a central concern of the European commission. But also, scope 3 emissions – which are indirect emissions that occur in the value chain – play an increasingly important role. This is indicated by shippers granting preferential contracting and financial incentives for carriers who use e-trucks. This has also been confirmed by the survey of the Smart Freight Centre in 2023.[1] So, in that domain, I would expect that there may indeed be a risk of losing market share for carriers that wait too long. As a member of the Transport & Logistics panel for the German Sustainability Award, I actually see

the sustainability reports of many companies in this domain. I'm happy to recognise that a major effort is devoted to emissions reductions, including fleet electrification.

"Of course, it always depends on what kind of fleet you refer to. A balanced approach would usually be to strategically plan the transition using optimisation models that account for trade-offs between buying BEVs now (to benefit from operational cost advantages) or later (to benefit from improved battery technology and range), as well as to trade-off between different types of BEVs to buy (smaller versus models with larger batteries). For example, the work of Pelletier et al. (2019) proposes such a strategic planning model. Basically, it is important to start with electrification."[39]

What are the operational benefits of fleet electrification?

Firstly, BEVs generally require less maintenance. Charging costs are lower than the cost of refuelling internal combustion engines, especially if they are charged on site. In addition, the savings in CO_2 prices will be significant given the planned gradual increase in price over the coming years. The possible introduction of a CO_2-based road user charge will give BEVs further advantages over ICE vehicles. The time spent refuelling ICE vehicles at filling stations can be saved if overnight charging is possible at the depot. The driving experience is also better, as BEVs accelerate smoothly. Finally, vehicle tax and insurance premiums are generally more favourable.

"With regard to insurance premiums, however, it is advisable to keep a close eye on the development of premiums for BEVs and to plan conservatively. For example, a recent report by Thatcham Research from 2023 concludes that insurance premiums are likely to rise. This is mainly due to the fact that any potential damage to the BEV's high-voltage battery is likely to result in a total loss given the high cost of these batteries."[42]

Which types of vehicle fleets are best suited to electrification and why?

Electrification is particularly useful for fleets of delivery vans and light goods vehicles (LGVs) operating in urban and suburban areas. One driving factor is of regulatory nature, namely the creation of low or even zero emission zones in some cities. Another factor is the greater availability of BEVs in this vehicle class, especially vehicles with relatively limited range which, however, is entirely sufficient to cover the required routes. These vans often start and end their tours at a depot such that they can be charged at favourable conditions on site. Charging during a tour would naturally be less attractive, since the driver would have to wait unproductively whilst the vehicle charges at higher rates than in the depot. Also, cargo owners are increasingly eager to see supply chain decarbonisation and may offer preferential contracting and financial incentives to carriers using electric fleets.

What challenges need to be considered when electrifying heavy commercial vehicles? What solutions are available in this area?

Die Electrification of HGV fleets is certainly more challenging than electrification of LGVs. Since HGVs typically would be used for long-haul transport, battery-electric HGVs would need to have very large batteries to provide the necessary range. Charging mid-route can be expensive, especially if it needs to be taken on top of the required driver rest periods. On the other hand, dedicated fast chargers for the large batteries of such HGVs are increasingly being installed, making battery electric trucks more attractive.

In your opinion, are there any areas that are not given sufficient attention during the changeover? What advice would you give to fleet operators?

The fleet size calculation should account for the range of the vehicles and charging downtimes. This energy demand calculation allows the planning of charging infrastructure, which should include a check with the grid company to ensure that the infrastructure would actually be able to handle this power demand. The number, type, and location of charging point also needs to be determined. This will of course also be related to shift patterns. For example, if at any point in time half the vehicles are out of the depot, then we obviously would not need a charging point for every vehicle in the fleet.

It is also worthwhile to speak with the insurance company to be clear about implications on existing policies before committing to a course of action.

"My advice would be to make use of the free guidance provided by Smart Freight Centre on their website; I find their reports generally helpful and to the point."

Infrastructure costs are still a key cost factor in fleet electrification. Which approaches for reducing costs are particularly promising?

The first thing to check is what energy demand would be required, and how it would be distributed over the day; to assess what infrastructure is required in the first place. According to a guideline issued by the Smart Freight Centre, costs differ tremendously between charging equipment, ranging from just 1,000 Euro for an AC 22 kW charger to 70,000 Euro for a DC 150 kW charger. Accounting for planning, administration and installation and potential required grid updates, the costs are around 5,000 Euro and 180,000 Euro, respectively.[41]

This illustrates the need for careful planning of charging infrastructure; is ultra-fast charging really needed, or can some charging points be slower because part of the fleet can use overnight charging. Apart from this, one should check whether there are any state subsidies available to support this the investment.

What trends are you observing with regard to the expansion of depot charging facilities: both in terms of the number of charging facilities and the type of installation?

The Alternative Fuels Infrastructure Regulation has defined targets for charging infrastructure for electric LGVs and electric HGVs. Given the cost advantage and the urban or regional focus of many transport operations, most charging can be expected to take place at depots. According to the European EV Charging Infrastructure Masterplan, over 80 percent of charging points for electrical trucks will be located in such depots.[41]

The type of installation will naturally depend on the nature of the fleet – are we talking about light goods vehicles, heavy duty trucks, short urban routes with frequent stops or long trips, etc. The different types of common installations is likewise discussed in those guidelines, along with a breakdown of planning steps when considering the installation of charging infrastructure in the depot.

"The Smart Freight Centre has issued a guideline for truck charging infrastructure at depots that I would recommend fleet operators to consult."

What role does the installation of solar panels play in this?

Combining the installation of solar panels with fleet electrification can make a lot of sense, especially if the solar panels are being subsidised by the government, and if it is also combined with an investment in energy storage such that it can be used when the vehicles are back in the depot. Given that investment is likely to be substantial, one would need to weigh carefully the large upfront cost against the benefits expected in the future, bearing in mind the lifetime of the installation. Apart from cost savings against future electricity spot market prices, another advantage from solar panels is the reduction of scope 2 emissions since the company is less reliant on (potentially fossil fuel-based) grid electricity.

The management of electric fleets requires the further development of planning software. How well do current approaches support fleet operators? Where is further development necessary?

In fact, there are a lot of aspects that make route planning really complex for an electric fleet: partial re-charging, different charging technologies, mixed fleet, mid-route charging, charging schedules at the depot, nonlinear charging patterns, load management, exploitation of electricity price movements…This highlights that manual planning will get tricky as the fleet size increases, and that software designed for traditional ICE fleets is not sufficient any more, as it will not be able to address those challenges.

Using electric fleet management software is highly recommended since it allows constant monitoring of the fleet and its vehicles' battery status. This allows the prioritisation of charging for certain vehicles based on their charge levels and urgency of their use, as well as route planning adjusted for ranges, etc. However, including all these aspects into a single planning approach is challenging and might benefit from further development. One may need to prioritise which aspects are the most important for one's own operations in the event there is no single software package that addresses every aspect.

What trends do you see in the next five to ten years with regard to the electrification of fleets?

There are estimates that the overall uptake of zero emission vehicles for urban, regional and long haul trucks is over 99 percent by 2035. Only for very long distance trips or due to cost disadvantages, in the case of fuel cell electric vehicles, there is no use case for electric trucks. Whether this potential will be reached remains to be seen; much depends on regulatory pressure, battery cost developments, CO_2 pricing, etc. However, I expect that we will continue to see a strong drive towards electrification, particularly for urban and regional operations over the next few years. This may accelerate if we see a major breakthrough in autonomous driving.

Conclusion

Fleet electrification isn't just a regulatory necessity; it can be a game-changer for any delivery business. The EU's ambitious climate goals mean the time to transition is now. Road transport is a major contributor to emissions, and shifting to electric heavy goods vehicles is key to meeting these targets.

The future is bright with advancements in charging infrastructure like high-power direct current fast charging systems and Megawatt Charging Systems (MCS). Significant milestones in these technologies ensure that fleets can stay on the road longer and charge faster. While there are still challenges in infrastructure distribution, strategic investments and supportive policies are paving the way for a more balanced and efficient network.

Innovators like Milence are already making strides with solutions to enhance grid capacity and ensure reliable, rapid charging for electric HGVs.

With solutions such as UTA eCharge and the UTA Carbon Offset programme, UTA Edenred supports the transition to electromobility and a greener transportation strategy.

The benefits are clear:

- Lower maintenance costs
- Reduced fuel expenses and tax incentives
- By embracing fleet electrification, fleet managers and operators not only complying with regulations, but also gaining a competitive edge. This is the opportunity to lead the industry in sustainability and operational efficiency.
- By investing in electrification now, fleet operators will drive their business towards a cleaner, greener future in transportation.

Adopting electric truck fleets positions companies as pioneers of the future, leading the way in cost reduction and sustainability.

Sources

[1] https://smart-freight-centre-media.s3.amazonaws.com/documents/FEC_Survey_1_Report.pdf

[2] https://www.bmwk.de/Redaktion/DE/Dossier/europaeische-klimaschutzpolitik.html

[3] https://www.acea.auto/press-release/europes-truck-and-bus-ceos-launch-manifesto-for-zero-emission-vehicles-as-eu-inks-deal-on-co2-reduction-rules/

[4] https://www.destatis.de/Europa/DE/Thema/GreenDeal/GreenDeal.html

[5] https://www.acea.auto/files/ACEA_truck_fact_sheet.pdf

[6] https://theicct.org/publication/revised-co2-standards-hdvs-eu-may24/

[7] https://climate.ec.europa.eu/eu-action/transport/road-transport-reducing-co2-emissions-vehicles/reducing-co2-emissions-heavy-duty-vehicles_en

[8] https://www.statista.com/statistics/1462166/main-co2-emissions-sources-european-union-eu/

[9] https://theicct.org/battery-electric-trucks-emit-63-less-ghg-emissions-than-diesel/

[10] https://techxplore.com/news/2023-02-battery-electric-trucks-emit-ghg.html

[11] https://ec.europa.eu/commission/presscorner/detail/en/IP_24_287

[12] https://www.acea.auto/cv-registrations/new-commercial-vehicle-registrations-vans-14-6-trucks-16-3-buses-19-4-in-2023/

[13] https://www.acea.auto/cv-registrations/new-commercial-vehicle-registrations-vans-12-2-trucks-16-buses-1-8-in-q1-2025/

[14] https://www.strategyand.pwc.com/de/en/industries/transport/truck-study.html

[15] https://www.iea.org/reports/global-ev-outlook-2024/outlook-for-electric-mobility

[16] https://web.uta.com/pressemitteilungen/marktstudie-transformation-in-fuhrparks-jeder-zweite-flottenmanager-setzt-wegen-der-klimafreundlichkeit-auf-e-mobilitaet

[17] https://transport.ec.europa.eu/transport-themes/clean-transport/alternative-fuels-sustainable-mobility-europe/alternative-fuels-infrastructure_en

[18] https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en

[19] https://www.koalitionsvertrag2025.de

[20] https://www.agora-verkehrswende.de/fileadmin/Veranstaltungen/2022/Elektrische-Lkw/TNO_2022_R11862_Techno-economic_uptake_potential_of_zero-emission_trucks_in_Europe.pdf

[21] https://www.strategyand.pwc.com/de/en/industries/transport/the-dawn-of-electrified-trucking/strategyand-the-dawn-of-electrified-trucking.pdf

[22] https://www.isi.fraunhofer.de/de/presse/2024/presseinfo-18-emissionsfreie-lkw-sinkende-kosten.html

[23] https://iea.blob.core.windows.net/assets/a9e3544b-0b12-4e15-b407-65f5c8ce1b5f/GlobalEV-Outlook2024.pdf

[24] https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/europes-ev-opportunity-and-the-charging-infrastructure-needed-to-meet-it

[25] https://www.girteka.eu/electric-truck-charging-stations/

[26] https://www.eurowag.com/press-releases/are-european-countries-ready-for-truck-electrification

[27] https://www.bp.com/en/global/corporate/news-and-insights/press-releases/bp-pulse-build-europes-first-public-charging-corridor-for-electric-trucks-along-major-logistics-route.html

[28] https://theicct.org/wp-content/uploads/2024/01/ID-70-%E2%80%93-EU-R2Z-Q2_final.pdf

[29] https://hochleistungsladen-lkw.de/hola-wAssets/docs/publikationen/HoLa_LessonsLearnt-en.pdf

[30] https://mobilityportal.eu/6-companies-investing-in-mcs-europe/

[31] https://www.acea.auto/files/Charging_ahead_Accelerating_the_roll-out_of_EU_electric_vehicle_charging_infrastructure.pdf

[32] https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/european-union-eu27/country-comparison

[33] https://www.charin.global/media/pages/technology/knowledge-base/c708ba3361-1670238823/whitepaper_megawatt_charging_system_1.0.pdf

[34] https://milence.com/insight/megawatt-charging-the-game-changer-for-electric-heavy-duty-trucks/

[35] https://electrek.co/2022/09/21/ideanomics-tests-first-wireless-500-kw-electric-truck-charger/

[36] https://thedriven.io/2023/07/27/fortescue-rolls-out-3mw-fast-charger-as-it-trials-huge-electric-and-hydrogen-haul-trucks/

[37] https://electrek.co/2024/05/16/charge-point-megawatt-charging-system/

[38] https://www.tum.de/en/news-and-events/all-news/press-releases/details/worlds-first-megawatt-charger-for-electric-trucks

[39] https://milence.com/press-release/milence-is-building-its-second-charging-hub-for-heavy-duty-vehicles-along-a-key-corridor-in-southern-france/

[40] https://milence.com/press-release/milence-accelerates-network-expansion-into-germany-with-two-new-charging-hubs-on-key-ten-t-corridor/

[41] https://www.sciencedirect.com/science/article/abs/pii/S0968090X1930868X

[42] https://www.thatcham.org/wp-content/uploads/2023/07/Impact-of-BEV-Adoption-on-the-Repair-and-Insurance-Sectors-report-Innovate-UK-and-Thatcham-Research-FINAL.pdf

[43] https://smart-freight-centre-media.s3.amazonaws.com/documents/Guidelines-Charging-Infrastructure-for-Truck-Depots.pdf

[44] https://www.europarl.europa.eu/factsheets/de/sheet/135/transeuropaische-netze-leitlinien

UNION TANK Eckstein GmbH & Co. KG
Heinrich-Eckstein-Str. 1
63801 Kleinostheim – Germany
uta.com

August 2025