

TRUKKER

Empowering Next Era of Land Freight



ATOMIX

*Technical &
Commercial
Feasibility
Study*

Trukker's Global Think Tank: Powering a Seamless EV Launch in the Middle East

With presence in China, UAE, and India, the team has been deeply committed over the past two years in conducting focused research on New Energy Vehicles (NEV) and their evolving ecosystems. This commitment is ongoing, as we continue to import, test, and refine our strategies.

Our efforts have included visiting over five prominent electric truck manufacturers, engaging with more than 90 global suppliers, and conducting successful pilot programs with companies from various sectors, including FMCG, food and beverage, e-commerce, ceramics, petrochemicals, logistics, and manufacturing

These comprehensive and continuous efforts have provided invaluable insights, proving the robustness and feasibility of electric trucks under extreme conditions.

The results of this rigorous testing and piloting continue to fuel the comprehensive analysis and actionable insights presented in this report, as Trukker remains dedicated to advancing the adoption of electric trucks in the region.



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Executive Summary

Trukker is poised to become a **leader in sustainable, cost-effective, and technologically advanced transportation solutions within the UAE, KSA, and Turkey**. The company recognizes the urgent need to reduce emissions within the freight sector while addressing rising costs and the demand for smarter logistics. Electric trucks are key to achieving these goals.

A thorough **evaluation of global markets reveals China's dominance in electric truck production** and highlights the cost-effectiveness of its cutting-edge technology.

However, to ensure quality, after-sales support, and long-term innovation, Trukker has **strategically partnered with two rising Chinese original equipment manufacturers (OEMs)**. Their focus on second-generation electric trucks aligns with Trukker's commitment to maximizing range, efficiency, operational cost-savings, and client satisfaction. To ensure we consistently provide our clients with the best possible solutions, Trukker **remains open to collaborating with other global OEMs offering competitive products and technologies**. Trukker is also actively exploring innovative electric van solutions to address the growing demand for sustainable last-mile deliveries. This comprehensive approach ensures we offer a **full range of electric vehicle solutions to our clients**.

Informed by a comprehensive survey of major UAE clients, Trukker understands the **strong interest in fleet electrification, alongside a focus on cost control**. To streamline the regulatory process and spearhead the expansion of its sustainable solutions, Trukker has **established ATOMIX**. This subsidiary will hold the necessary **permits and manage the electric truck operations**.

Trukker has made **remarkable progress** by conducting pilot programs in the UAE for its fleet and actively collaborating with regulatory authorities and various stakeholders. **Leading companies** from the FMCG, food and beverage, e-commerce, ceramics, petrochemicals, logistics, and manufacturing sectors have already participated in these pilots, with several others in the pipeline. This proactive approach positions Trukker to offer affordable and sustainable transportation solutions that are in high demand, while also enhancing operational efficiency.

Trukker's **innovative business model** is designed to streamline the electric truck adoption process for clients, providing access to financing, charging solutions, and data-driven insights. **Trukker's client-centricity and its innovative electric truck adoption strategy solidify its potential as a regional leader**. The successful implementation of this strategy will not only reduce emissions and drive innovation in the sector, but also create new business opportunities and enhance Trukker's reputation as a **forward-thinking, environmentally conscious company**.

Trukker is exploring strategic partnerships, with multiple stakeholders in the EV ecosystem across the world, to further enhance the supply chain, digitalization technologies, and operational systems.

This ambitious plan includes the sale or lease of 6,000 electric trucks by the end of 2030.

Introduction

The logistics industry is at a pivotal moment, facing increasing pressure to adopt more sustainable practices while maintaining efficiency and cost-effectiveness. As one of the largest contributors to greenhouse gas emissions, the transportation sector is under scrutiny to find cleaner, more efficient alternatives to traditional internal combustion engine (ICE) vehicles. In response to this challenge, electric trucks have emerged as a promising solution that can significantly reduce emissions, lower operational costs, and improve logistics efficiency.

The Need for Electric Trucks

Road freight transport, or trucking, is the lifeblood of modern economies. It acts as a vital bridge, connecting supply chains, industries, and ultimately, consumers. As the workhorse that delivers the vast majority of goods to their final destinations, trucking is indispensable to trade, and overall economic well-being. It contributes significantly to GDP, employs millions, and serves as the primary means for domestic, trans-border, and international cargo movement.

However, this essential sector faces a significant challenge: sustainability, rising costs, and the need for ever-smarter logistics solutions. Despite its economic importance, road transport represents a major contributor to greenhouse gas emissions. According to the MIT Climate Patrol, road freight emits over **100 times more CO2** than ships carrying the same amount of cargo over the same distance. This highlights the urgent need for cleaner, more cost-effective, and technologically advanced transportation solutions in the trucking industry. Recognizing the environmental and economic impact of the sector, Trukker is taking proactive steps to chart a more sustainable path forward.

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Where do our Freight Emissions Come From?

Some types of freight transport are much more carbon-intensive than others. The types of freight that emit the most carbon dioxide, measured in metric tonnes, are not the same ones that carry the majority of our cargo.



In 2020, air freight, which shipped so little cargo, emitted an estimate **155 million tonnes** of Carbon Dioxide



Rail freight emitted **170 million tonnes** of Carbon Dioxide



Sea freight emitted **657 million tonnes** of Carbon Dioxide



Road Freight emitted over **2.2 billion tonnes** of Carbon Dioxide

Source for all data: The International Transport Forum's ITF Transport Outlook 2021

Figure 1: Emissions by different modes of transportation¹

Trukker's Commitment to Sustainability

Trukker places a strong emphasis on addressing these emissions generated during the transportation of goods for our clients, while simultaneously optimizing costs and operational efficiency. Acknowledging the challenges in minimizing the emissions, Trukker is committed to mitigating its carbon footprint through initiatives aimed at **minimizing empty miles, optimizing backhaul trips**, and exploring innovative technologies.

Nevertheless, achieving complete elimination of emissions, along with long-term cost reduction and smarter logistics, necessitates a proactive approach. Encouraging clients to embrace **Zero Emission Vehicles (ZEVs)** for the conveyance of their cargo stands out as the **most effective solution**. The opportunity to facilitate the early adoption of electric trucks, with the potential to reduce carbon emissions by up to 60%, directly aligns with Trukker's

¹ Freight Transportation | MIT Climate Portal

sustainability strategy and our commitment to providing clients with cost-effective, technologically advanced logistics solutions.

These efforts underscore Trukker's unwavering commitment to innovation and sustainability in logistics. By thoroughly testing electric trucks in various industries and extreme conditions, Trukker is not only enhancing its technical knowledge and operational readiness but also aligning its initiatives with a broader vision for a greener future. This research and the pilots conducted provide the foundation for Trukker's strategic approach to sustainable logistics, ensuring that the company remains at the forefront of industry advancements while delivering value to its clients.

ATOMIX : The Solution

ATOMIX's deep understanding of the electric truck market and ecosystem stems from extensive engagement with over 90 global suppliers. Through plant visits and test drives, we meticulously evaluated various models and technologies to identify the most suitable solutions for the Middle East market.

Purpose and Scope of the Report

This report aims to provide a comprehensive analysis of the feasibility of implementing electric trucks within Trukker's operations in the Middle East, with a particular focus on the UAE. The report will explore the technical and commercial aspects of electric trucks, assess the potential benefits and challenges, and outline a strategic roadmap for Trukker's transition to a sustainable, cost-effective, and technologically advanced transportation model.

Overview of the Report

Building on the extensive research and pilot programs conducted across diverse sectors, this report provides a comprehensive analysis of the feasibility of implementing electric trucks within Trukker's operations. It focuses on three key areas: emissions reduction, cost optimization, and enhanced logistics efficiency.

The report examines the technical aspects of electric vehicles, compares global OEMs, and explores charging infrastructure requirements. Additionally, it assesses the potential benefits and challenges for Trukker and its clients, considering the relevant government policies across our operating regions.

Drawing from the findings of the pilot programs, this report presents a strategic roadmap for Trukker's transition to electric trucks, outlining actionable strategies to achieve a sustainable, cost-effective, and technologically advanced transportation model.

Trukker is committed to driving the adoption of electric trucks in the Middle Eastern region, not only to reduce emissions and improve operational efficiency but also to contribute to a more sustainable future for the logistics industry and the region as a whole. This report outlines our strategic roadmap for achieving this vision and highlights the potential for electric trucks to transform the transportation landscape in the years to come.

Nation's Commitments towards Net Zero

The global push towards net-zero emissions targets is gaining significant momentum worldwide. Nations across the globe are setting **ambitious goals for decarbonizing their economies**, with particular emphasis on the transportation sector.

The urgency of transitioning to cleaner transportation is reflected in global initiatives like the *Global Drive to Zero program*. This initiative, supported by numerous governments and businesses worldwide, aims to accelerate the adoption of zero-emission commercial vehicles. 33 governments and 80+ stakeholders have **pledged 100% zero-emission truck and bus sales by 2040 (30% by 2030), targeting net-zero carbon emissions by 2050**. Turkey, along with a growing number of countries, has become a signatory of this program, demonstrating its commitment to **cleaner transportation solutions**.

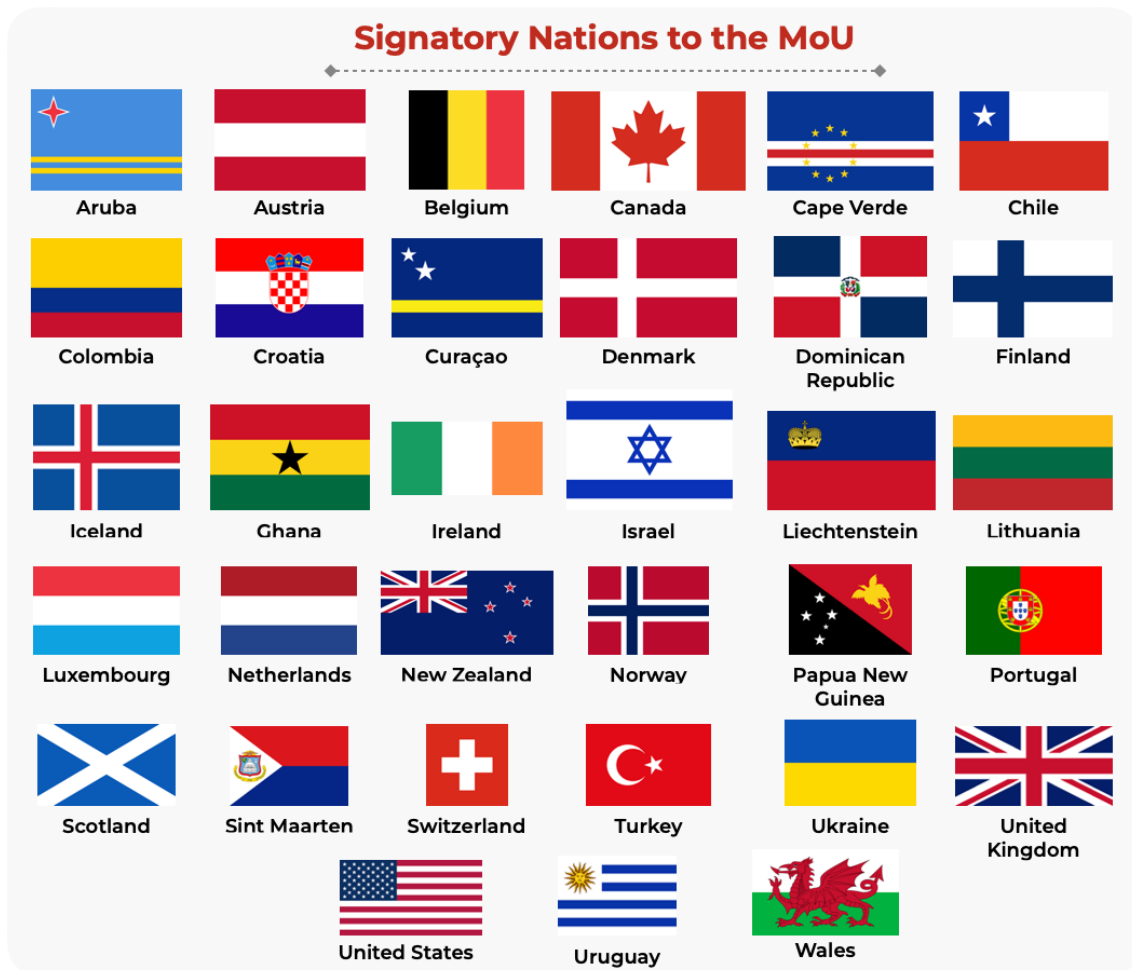


Figure 2: Signatory Nations to the MoU²

²<https://globaldrivetozero.org/2023/12/05/cop28-stronger-zero-emission-transport-ambition-policies-needed-now/>

While the UAE and KSA are not yet among its signatories, their ambitious net-zero goals and emerging policies signal a potential alignment with the program's direction in the future.

Trukker, by proactively exploring electric truck implementation, positions itself as a leader within this evolving landscape, opening the door for future collaborations and partnerships that support the **transition to cleaner transportation** within these regions. Understanding these commitments within Trukker's operating regions is crucial for aligning our sustainability strategy with emerging policies and potential.

Overview of the commitments across Trukker's operating regions

United Arab Emirates

- **Net Zero Target Year:** 2050
- **Key Policies:**
 - **Zero-Emissions Public Transportation in Dubai 2050:** RTA is the first Middle Eastern organization to create a long-term plan for transitioning to Net-Zero Emission Public Transport by 2050 after launching its strategy.³
 - **Dubai's Clean Energy Strategy 2050⁴:** Under this strategy, Dubai aims to produce 75 % of its energy requirements from clean sources by 2050. The strategy also aims to make Dubai a global center of clean energy and a green economy. It consists of five main pillars:
 - infrastructure,
 - legislation,
 - funding,
 - building capacities and skills, and
 - environment-friendly energy mix

Kingdom of Saudi Arabia

- **Net Zero Target Year:** 2060
- **Key Policies:**
 - **Saudi Green Initiative:** It is a wide-ranging national program designed to combat climate change, reduce emissions, and protect the environment. Key Targets⁵:
 - **Reduce Carbon emissions:** The goal is to reduce emissions by more than 278 million tons of carbon dioxide equivalent per year by 2030.
 - **Clean Energy Transition:** Aims to generate 50% of the country's electricity from renewable sources by 2030.

³ [Roads & Transport Authority - News Details](#)

⁴ <https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/strategies-plans-and-visions/environment-and-energy/dubai-clean-energy-strategy>

⁵ <https://www.greeninitiatives.gov.sa/about-sgi/sgi-targets/reduce-carbon-emissions/>

- **National Renewable Energy Program**⁶: It is aimed at diversifying the country's energy mix and reducing dependence on fossil fuels.
- **National Hydrogen Policy**⁷: Saudi Arabia is actively pursuing hydrogen as a strategic energy source. The Kingdom's abundant natural resources make it well-positioned for large-scale production of blue hydrogen (produced from natural gas with carbon capture and storage).

Turkey

- Net Zero Target Year: 2053
- Key Policies:
 - **National Energy Plan**⁸: This plan prioritizes a significant increase in the share of renewables within the energy mix, targeting 64.7% by 2035.

TruKker's operating regions, the UAE, KSA, and Turkey, are all **committed to net-zero emissions** and are pursuing clean energy policies. These efforts pave the way for the **electrification of transportation**, including a shift towards electric trucks.

Zero Emission Vehicles

The transportation sector is undergoing a fundamental shift away from traditional internal combustion engines (ICE) towards Zero Emission Vehicles (ZEVs). Within the trucking industry, **electric trucks are emerging as a frontrunner in this transition**, offering cleaner operation and significant environmental benefits. This section will explore the details of this technology.

Types of Electric Vehicles

There are three types of Zero Emission Vehicles (ZEVs) in the market.

- **Battery Electric Vehicle (BEV)** utilizes electric motors powered by rechargeable batteries to propel the vehicle, operating without emitting any tailpipe pollutants.
- **Plug-in hybrid electric Vehicle (PHEV)** integrates rechargeable batteries with Internal Combustion Engines (ICE), offering the versatility to either charge the batteries or refuel using conventional means. Nonetheless, emissions while operating on the ICE are comparable to those of similar non-electric vehicles.

⁶ <https://powersaudi Arabia.com.sa/web/index.html>

⁷ https://cdn.climatepolicyradar.org/navigator/SAU/1900/saudi-arabia-national-communication-nc-nc-4_3253bae33df735effdc19fd32d268a82.pdf

⁸ [https://www.enerdata.net/publications/daily-energy-news/turkeys-national-energy-plan-2035-will-boost-solar-and-wind-capacities.html#:~:text=Overall%2C%20Turkey's%20installed%20capacity%20is,\(54%25%20in%202021\).](https://www.enerdata.net/publications/daily-energy-news/turkeys-national-energy-plan-2035-will-boost-solar-and-wind-capacities.html#:~:text=Overall%2C%20Turkey's%20installed%20capacity%20is,(54%25%20in%202021).)

- **Fuel Cell Electric Vehicles (FCEVs)** employ hydrogen as a fuel source to energize the electric motor, propelling the vehicle. Remarkably, FCEVs exclusively emit water vapor and warm air, completely devoid of any tailpipe emissions.

Despite BEVs and FCEVs offering significant **environmental advantages**, they do present some current **challenges**, as outlined below:

For BEVs

- Restricted range of kilometers per single charge.
- Prolonged charging durations in contrast to the quick refueling of conventional ICE vehicles.
- Susceptibility to higher temperatures, affecting performance.
- Initial higher cost compared to traditional ICE vehicles.

For FCEVs

- Insufficient hydrogen distribution infrastructure, leading to refueling inconveniences.
- Technology remains in an emerging stage, yet to reach maturity.
- Elevated upfront expenses compared to conventional ICE vehicles.
- Limited availability of vehicle models.

As illustrated in Figure 3 below, which consists of a comparison between distinct power-sourced vehicles, including Battery Electric, Hydrogen Fuel Cell Electric, and conventional sources like diesel and CNG, further emphasizes the fact that, to achieve net zero goal BEVs and FCEVs are the way ahead, even after there are limitations.

The parameters considered for this comparison encompass:

Tailpipe Emissions: Aspired to achieve zero harmful tailpipe emissions for the goal.

Availability Today: Evaluating the availability of different model options currently in the market.

Powertrain Capex: Assessing the initial investment required for vehicle purchase.

Efficiency Well to Wheel: This concept scrutinizes the overall energy efficiency and environmental impact of a vehicle's energy use, tracking from its source (e.g., fuel or electricity generation) to when the wheels start moving. It offers a comprehensive understanding of energy efficiency and its environmental consequences throughout the vehicle's operation process.







(Refer to Figure 4 for the well-to-wheel illustration of BEV and FCEV)

Range: Gauging the distance a vehicle can travel with a single charge or a full tank.

Refueling Time: Measuring the time needed to fill a vehicle's tank or battery.

Payload: Determining the vehicle's carrying capacity.

■ Favoring powertrain adoption
 ■ Neutral to powertrain adoption
 ■ Limiting factor for powertrain adoption
 ● Zero-emission powertrain/ fuel options
 ● Fossil fuels

	Tailpipe emissions	Availability today	Key TCO determinants 2030			Operational considerations 2030		
			Powertrain capex	Efficiency Well-to-wheel	Infrastructure costs	Range	Refueling time ¹	Payload
Battery electric 	Zero	Low Limited production volume and high vehicle costs	● High	● High	● High	● Medium	● Medium	● Medium
H₂ Fuelcell electric 	Zero	Low Limited production volume and high vehicle costs	● High	● Medium	● High	● High	● Fast	● Medium
Hydrogen ICE 	Low NOx emissions (requires SCR after-treatment)	Low No truck models on the market today	● Medium	● Medium	● High	● High	● Fast	● Medium
Bio-/Synfuel 	Medium CO ₂ (depending on CO ₂ source), NOx and PM emissions	Medium Limited availability of fuels	● Low	● Low	● Low	● High	● Fast	● High
CNG/ LNG 	High CO ₂ and PM emissions	Medium Limited availability of refueling infrastructure	● Low	● Low	● Medium	● High	● Fast	● High
Diesel 	High CO ₂ , NOx and PM emissions	High Standard fuel today	● Low	● Low	● Low	● High	● Fast	● High

1. Refueling times for Diesel, gas and hydrogen are approx. 15-20 min. Recharging times for BEV trucks will depend on the charger technology used and can range from 30-45 min to multiple hours

Source: McKinsey Center for Future Mobility, McKinsey Hydrogen Insights

Figure 3: Different power sources and their distinct features⁹

Notably, as exhibited in Figure 4 BEVs outperform FCEVs in terms of energy efficiency, rendering them the rational selection from an energy system viewpoint. These findings apply to both mid-sized passenger vehicles and commercial

⁹ [preparing-the-world-for-zero-emission-trucks-f.pdf \(mckinsey.com\)](https://www.mckinsey.com/industries/automotive-and-transportation/our-insights/preparing-the-world-for-zero-emission-trucks-f)

vehicles while acknowledging that there could be particular instances where long-range commercial FCEVs might be favored despite their limitations.

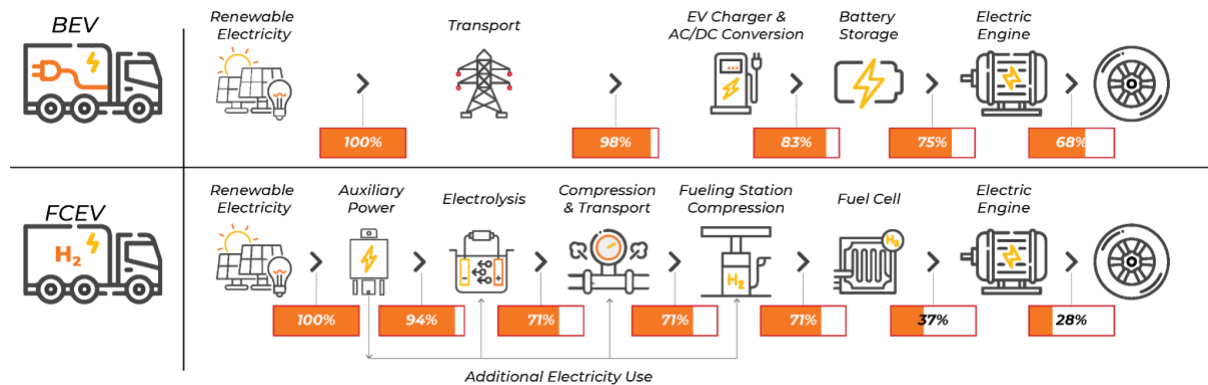


Figure 4: Well-to-wheel efficiency of fuels for electric road transport¹⁰

Batteries: The Heart of Electric Trucks

Batteries are the **powerhouse of electric trucks, similar to a fuel tank in traditional vehicles**. However, they impact much more than just how far the truck can go. The type of battery used significantly influences the truck's overall cost, how quickly it can be recharged, its lifespan, and its environmental footprint. Importantly, battery technology is constantly improving, with costs coming down and capabilities increasing year after year.

TruKker's choice of battery technology will directly impact these key factors. Here's a look at the common options in today's market:

Understanding Battery Choices

NMC (Lithium Nickel Manganese Cobalt Oxide): NMC batteries are known for packing a lot of energy into a smaller size. This means trucks using them can potentially travel farther on a single charge. However, NMC batteries can be **more expensive and might not perform as well in extreme heat or cold compared to LFP options**.

LFP (Lithium Iron Phosphate): LFP batteries are a **popular choice for commercial trucks** because they last longer, are more reliable under different weather conditions, are generally more affordable, and have strong safety features. While they might store slightly less energy for their size compared to other types, LFP technology is well-suited for the demands of regular trucking operations.

Beyond LFP and NMC, researchers are exploring several other battery chemistries to power the future of electric vehicles. Here are a few examples:

¹⁰<https://app.e.dnv.com/e/bfs?s=861531437&lguid=c549749dc5f84144b830b4db3e19e030&elqTrackId=CE2E8001B7C3F427DBED758678EF6929&elq=f157f81713af4b71b7f9cf2e80d2323c&elqaid=30431&elqat=1&elqCampaignId=20976>

- Lithium Cobalt Oxide (LCO): These batteries offer very high energy storage in a small space, but they tend to be more expensive and have safety considerations.
- Lithium Titanate (LTO): Known for extremely fast charging and long lifespan. However, they store less energy overall, which can limit a vehicle's range.
- Lithium Nickel Cobalt Aluminum Oxide (NCA): These deliver high energy storage and fast charging but require careful safety management and can be costly to produce.

Battery Chemistry →	Lithium Iron Phosphate (LFP)	Lithium Nickel Manganese Cobalt Oxide (NMC)	Lithium Cobalt Oxide (LCO)	Lithium Titanate (LTO)	Lithium Nickel Cobalt Aluminium Oxide (NCA)
Energy Density	90-150 Wh/kg	150-220 Wh/kg	150-250 Wh/kg	50-100 Wh/kg	200-280 Wh/kg
Power Density	300-500Wh/kg	600-1,000Wh/kg	300-500Wh/kg	1,000-3,000Wh/kg	800-1,500Wh/kg
Cycle Life	2,000-4,000	1,000-2,000	500-1,000	5,000-10,000	1,000-2,000
Charge and Discharge Rates	1C-3C	1C-3C	1C-3C	5C-50C	1C-3C
Thermal Stability	High	Medium	Low	Very High	High
Recyclability	Yes	Yes	Yes	Yes	Yes
Capacity Retention (per cycle)	Low	Medium	Varies	Lowest	Medium
Cost	\$100-\$150/kWh	\$150-\$200/kWh	\$200-\$250/kWh	\$300-\$400/kWh	\$300-\$400/kWh

Figure 5: Battery Types Comparison¹¹

The Electric Powertrain

Unlike traditional trucks with their complex engines and transmissions, the heart of an electric truck lies in a few key components

- **Electric Motors:** Electric trucks use one or more powerful electric motors to generate the force needed to move the wheels. These motors are known for their quiet operation, instant pulling power, and require far less maintenance than a diesel engine.
- **Goodbye Transmission:** Electric motors deliver power smoothly across a wide range of speeds, eliminating the need for a complex transmission with multiple gears. This translates to a simpler and potentially more reliable truck in the long run.
- **Regenerative Braking:** Energy Saver: Every time an electric truck slows down or brakes, its motors can act like generators, capturing some of that energy and sending it back to the batteries. This is a big advantage for trucks that do a lot of driving in cities with frequent stops.









¹¹<https://lohum.com/media/blog/types-of-batteries-used-in-electric-vehicles-in-india/#:~:text=Consequently%2C%20these%20pros%20and%20cons%20have%20led,utilizing%20NMC%20batteries%20in%20top%2Dend%20or%20>

Charging Infrastructure

Considering the limited range of operation for BEVs on a single charge, the efficiency of recharging batteries is a pivotal factor. If the charging process takes too long, it can hinder transporters and drivers from optimizing their profitability. Thus, the significance of charging infrastructure becomes paramount.

The table provided below presents a variety of charging levels, connector types, output power specifications, and use cases. This compilation offers insight into the wide array of chargers utilized worldwide.

Table 1: Understanding Charging Levels and Connectors

EV Charging Level →	Level - 1	Level-2	Level-3
Connector Type	· J1772	· J1772 (North America) · Mennekes (Europe)	· CC1 (North America) · CCS 2 (Europe) · CHAdeMO (Japan) · GB/T (China)
Typical O/P Power (higher kW indicates faster charging)	1 kW – 1.8 kW	3 kW – 22 kW	30 kW to 360 kW
Use Case	Home	Workplace, hotels, overnight charging	Fleets, Highway Services, logistics hub, distribution centers
Connector photo	 J1772 (Type 1)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>N. America</p>  J1772 (Type 1) </div> <div style="text-align: center;"> <p>Europe</p>  Mennekes (Type 2) </div> </div>	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>Japan</p>  CHAdeMO </div> <div style="text-align: center;"> <p>N. America</p>  CCS1 </div> <div style="text-align: center;"> <p>Europe</p>  CCS2 </div> <div style="text-align: center;"> <p>China</p>  GB/T </div> <div style="text-align: center;"> <p>All Markets <small>(except EU)</small></p>  Tesla </div> </div>

As depicted in figure 6, AC (Level-1 & Level-2) charging involves the vehicle's onboard charger converting AC power into DC before it reaches the battery, which significantly contributes to the prolonged charging duration.

In contrast, in DC (Level-3) charging the charging station itself hosts the converter handling the conversion of AC to DC and directly supplying DC power to the vehicle's battery. This streamlined approach results in significantly faster charging compared to AC.

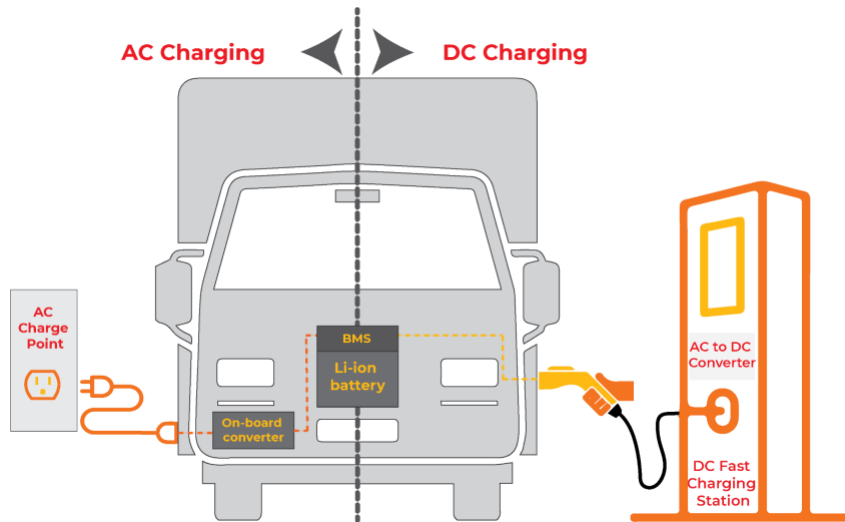


Figure 6: AC and DC Charging

Now that we've explored the various charging methods, it's vital to recognize that, for the effective deployment of electric vehicles, the existence and accessibility of charging infrastructure hold great significance.

For effective management of this charger network, Charger Management Software (CMS) is utilized, and to make these chargers accessible to drivers, driver-facing applications are employed.

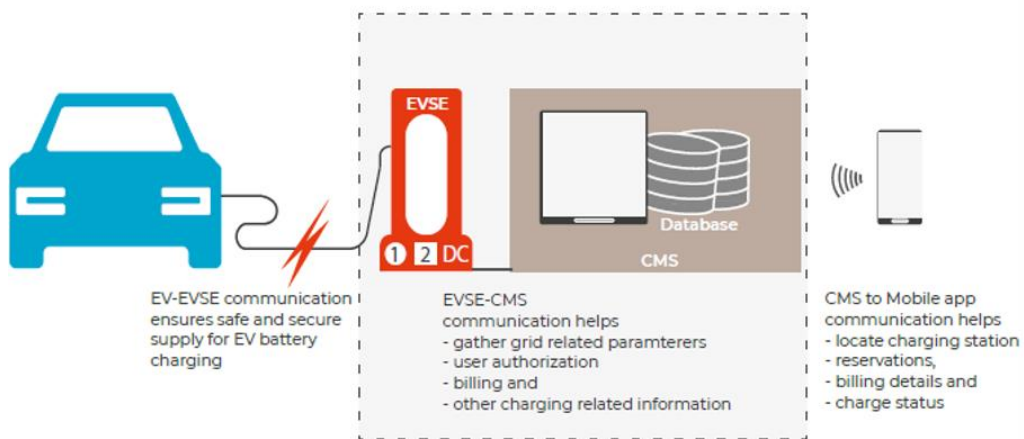
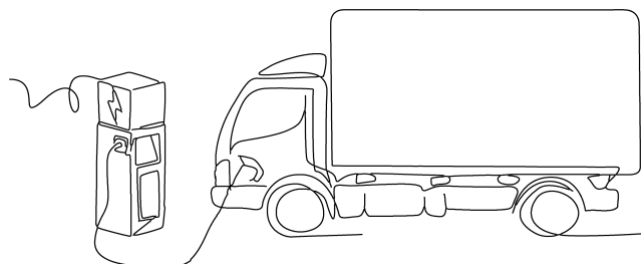


Figure 7: Architecture of EV Charging Infrastructure

The success of electric trucks hinges on robust charging infrastructure, ensuring a successful transition to electric trucks requires a comprehensive approach. The following section will delve into the global electric truck ecosystem, exploring the factors that have and are influencing the widespread adoption.



The Global Electric Truck Ecosystem

The global electric truck market is undergoing a dramatic transformation, with technological advancements to shifting government policies, factors are converging to create a rapidly expanding market for cleaner, more efficient commercial vehicles. Understanding this worldwide ecosystem is crucial for TrukKER to make informed decisions about its electric truck adoption strategies.

Development of the Electric Truck Market in Recent Years

The global electric truck market is no longer a niche segment; it's experiencing explosive growth and accelerating investment.

Driving Forces

This remarkable growth trajectory is fueled by several converging factors:

- **Falling Battery Costs:** Battery packs are the single most expensive component of an electric truck. Over the past decade, their cost has plummeted, transforming the financial outlook for electric truck adoption.

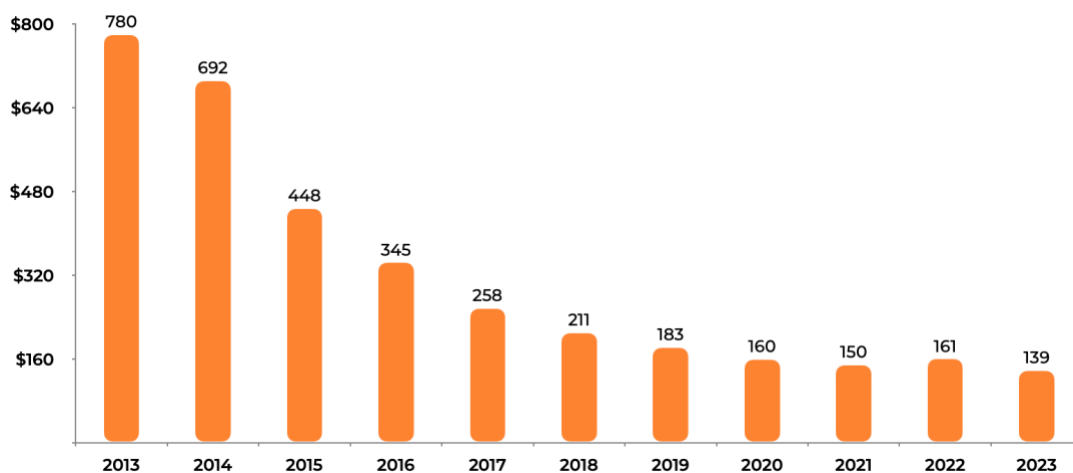


Figure 8: Lithium-ion battery price worldwide from 2013 to 2023¹²

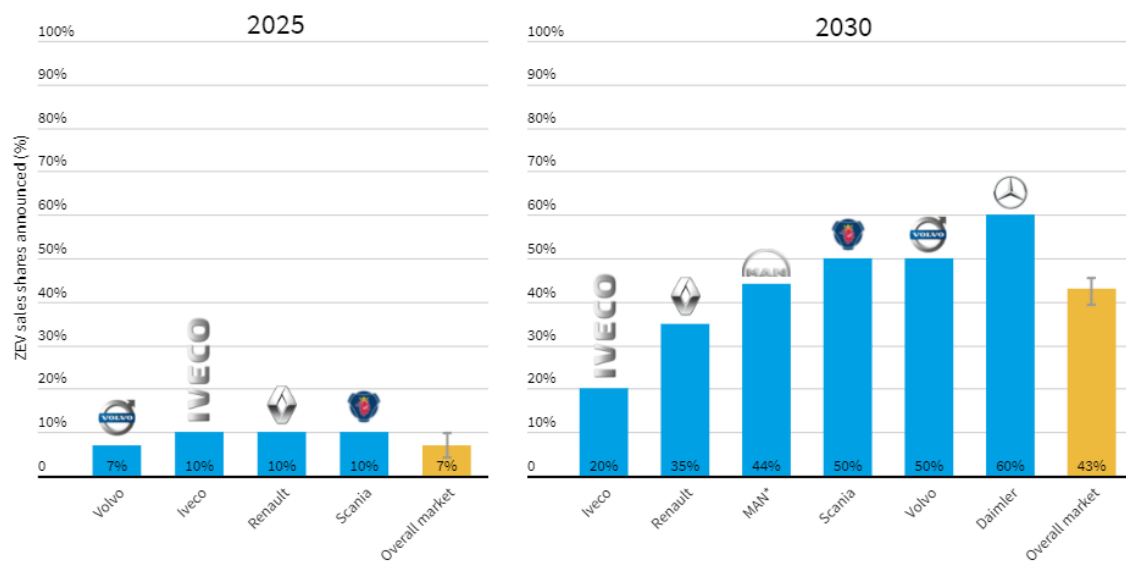
This dramatic decline in battery costs is making electric trucks increasingly competitive with traditional diesel models.

- **Supportive Policies:** Governments worldwide are increasingly enacting incentives, mandates, and targets promoting zero-emission vehicles, including commercial trucks. (For additional information on tax benefits and purchase incentives adopted by China, please refer to section “Focus on China as Front Runner”, for EU and US refer to section “Catch-Up Efforts by the EU and USA in the Electric Vehicle Adoption”)

¹² <https://www.statista.com/statistics/883118/global-lithium-ion-battery-pack-costs/>

- OEM Commitment:** Major truck manufacturers are now heavily investing in electric truck research, development, and production, bringing a wider range of models to the market. OEMs like Traton Group (MAN and Scania), Volvo, Daimler, DAF (Top 4 OEM manufacturers of trucks in Europe), and BYD are aggressively pursuing the sale of zero-emission new trucks. While a majority of them are betting totally on BEV technology, however, a few are trying out both BEV and FCEV technologies to reach sustainability goals.

Truck makers announce close to half of their sales to be zero-emission by 2030



Notes: The overall market averages have been estimated based on the 2019 sales shares of each OEM in the EU. The value represents an intermediate scenario, half-way between a best-case and a worst-case scenario. The best-case scenario assumes that those OEMs, which have not yet made any announcement, perform as well as the average of OEMs that have made announcements. The worst-case scenario assumes that OEMs with no announcement will not sell any ZEVs at all.

*Based on MAN's targets of 60% ZEV sales shares in the urban and regional delivery and 40% in the long-haul segment and a 20%/80% split based on the manufacturer's vehicle registrations during the baseline period.

Source: T&E analysis, data from public OEM announcements and ACEA sales shares (2019)

Figure 9: Zero Emission commercial vehicle targets of a few manufacturers¹³

- Growing Customer Interest:** Businesses across sectors are recognizing the environmental and potential cost benefits of electric trucks, driving demand for these cleaner, more efficient vehicles

¹³ <https://energypost.eu/clean-transport-in-europe-key-trends-to-watch-out-for/>

China's Stewardship in Global EV space

China's leadership in the global electric vehicle market is undeniable, as evidenced by its staggering production and sales figures. As palpable from the graph below, and the subsequent Figure 11, China stands out as the **dominant leader in Electric Vehicle production and Electric Truck sales**, surpassing the rest of the world, by leaps and bounds.

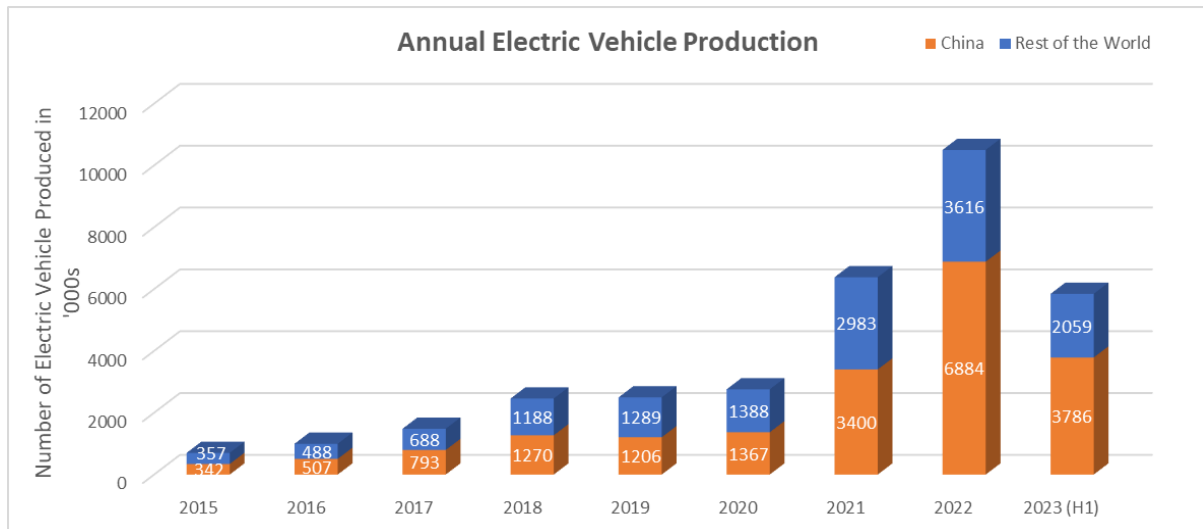


Figure 10: Annual Electric Vehicle Production

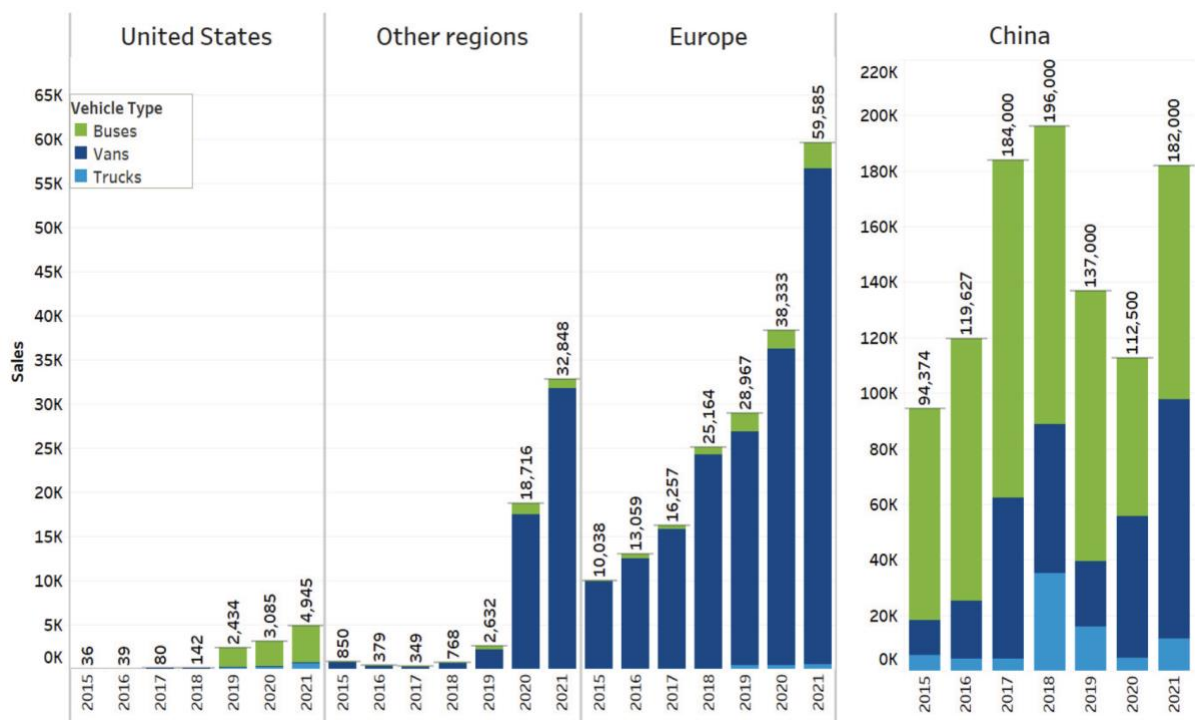


Figure 11: Zero Emission Vehicle Sales in the USA, Other Regions, Europe, and China from 2015 to 2021¹⁴

¹⁴ globaldrivetozero.org/site/wp-content/uploads/2022/10/ZE_TruckBus_update.pdf

As per an [analysis](#) published in [Sustainable Truck & Van among the top ten electric truck brands of 2022, nine are of Chinese origin](#), with Volvo being the sole exception.

Table 2: Medium and heavy-duty truck battery electric market share¹⁵

Medium and Heavy Duty Truck Battery Electric Market Share (Excluding hydrogen vehicles)			
2022 Rank	Company	Vehicles Registered	2022 Share
1	SANY	4249	13%
2	XCMG	2834	9%
3	Geely New Energy	2800	9%
4	Zhengzhou Yutong Group	2383	7%
5	SAIC Motor	1751	5%
6	Beiben Trucks Group	1563	5%
7	Dongfeng Group	1561	5%
8	Volvo	1211	4%
9	Infore Enviro	988	3%
10	Foton Motor	906	3%
	Other	11,794	37%

In 2021, China firmly held the reins of the global lithium-ion manufacturing landscape, contributing a staggering 79% of the lithium-ion batteries that made their way into the global market. The USA secured a distant second place with 6.2%, while Hungary occupied the third spot with 4.0% of the world's total production.

Please refer to Annexure 1 for the major producers of lithium-ion batteries.

¹⁵ Interact Analysis: nine brands out of the top ten e-truck manufacturers in 2022 are Chinese. The figures (sustainabletruckvan.com)

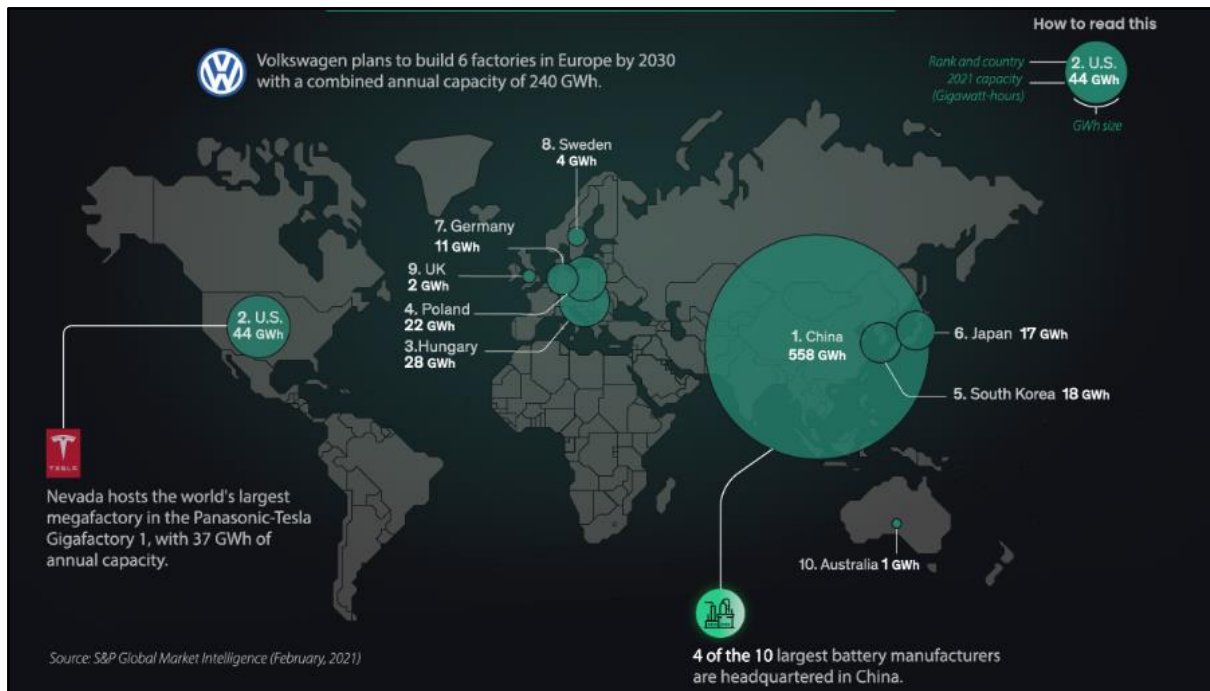


Figure 12: Top 10 countries for EV Battery Production as of 2021¹⁶

China's commanding position in Electric Vehicle production results from its **in-house technology development**, exemplified by companies such as CATL (for batteries), BYD (comprehensive development including batteries), and Inovance (for EV motors), rather than relying on traditional technology giants like Bosch, Cummins, Continental, or joint ventures with the companies from European Union and Japan.

China's **rapid electric vehicle adoption** stems from **long-term government support**, including periodic subsidies aimed at encouraging electric vehicle purchases.

Between 2009 and 2022, the Chinese government allocated more than 200 billion RMB (\$29 billion) toward subsidies and tax incentives. Initially, in 2009, the highest subsidy provided by the central government was set at 60,000 yuan. However, this subsidy standard underwent subsequent adjustments.

- 54,000 yuan in 2015
- 44,000 yuan in 2017
- 33,000 yuan in 2018
- 22,500 yuan in 2019
- 16,200 yuan in 2020

Furthermore, the government introduced additional incentives to encourage broader adoption

- Introduction of carbon credits
- Subsidies for the development of charging stations in urban and highway areas in terms of land availability and cash.
- Priority in vehicle inspection and issuance of free license plates for the new energy vehicles

¹⁶ Mapped: EV Battery Manufacturing Capacity, by Region (visualcapitalist.com)

- Granting special privileges for eLCV in terms of operating hours and accessible zones.
- Parking discount
- Road toll exemption

“Success Stories and scale of Electric Trucks adoption in China”

1. Leasing Operator DST, owns and operates 1,00,000 eLCVs
2. Leasing Operator Greenlink, owns and operates 50,000 eLCVs
3. 3PL operator, JD Logistics, operates around 20,000 eLCVs

In order to facilitate the widespread adoption of electric vehicles in China, charging operators such as TELD and YKC collectively manage a network of 580,000 DC charging stations.

Catch-Up Efforts by the EU and USA in the Electric Vehicle Adoption

The EU and the USA are making concerted efforts to expedite their electric vehicle adoption initiatives in order to align with the progress made by China. Let's explore their respective policy approaches.

Policies Driving Electric Vehicle Adoption in the EU

European countries have adopted multifaceted approaches for EV adoptions, few examples are:

- Germany:
 - €12,000 - €40,000 grants as per truck weight
 - €45mn subsidy for e-mobility
- Netherlands:
 - 20% subsidy for electric truck purchases with €40,000 being the cap
- Finland
 - No registration tax
 - EV charging at the workplace is exempt from income tax (FY'21-'25)
- Spain
 - €400mn subsidy to decarbonize urban road transport by 2050

For additional information on tax benefits and purchase incentives adopted by EU member states, please consult Annexure 2.

Policies Driving Electric Vehicle Adoption in the US

The U.S. federal government introduced a tax credit for plug-in electric vehicles (PEVs) purchased after December 31, 2009, with the tax credit amount varying from \$2,500 to \$7,500 per vehicle, contingent on its battery capacity and gross vehicle weight. This tax credit remains available until an automaker reaches the sales threshold of 200,000 EVs, after which it gradually phases out. Initially

halving for the six months following the 200,000th vehicle sale and subsequently diminishing to zero.¹⁷

Furthermore, individual states, such as California and New York, have implemented incentive programs of their own. For instance, California's HVIP program offers subsidies ranging from \$30,000 to \$120,000 per electric truck, while New York State's Truck Voucher Incentive program provides vouchers in the range of \$100,000 to \$185,000 per electric truck.

In November 2021, the Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA), was enacted, with the aim of providing a significant impetus to electric vehicle adoption. Here are the key highlights of the BIL¹⁸:

- The National Electric Vehicle Infrastructure (NEVI) Formula Program, established as part of the Bipartisan Infrastructure Law (BIL), dedicates \$7.5 billion to support EV charging projects. This funding is instrumental in the pursuit of ambitious objective
 - \$5 billion in fresh funding for the establishment of a comprehensive nationwide network consisting of 500,000 EV charging stations.
 - \$2.5 billion dedicated to publicly accessible alternative fuel infrastructure. This encompasses EV charging stations, hydrogen, propane, and natural gas fueling infrastructure along designated Alternative Fuel Corridors and within communities.
- 30% tax credit for medium/heavy electric trucks
- Furthermore, a substantial portion of approximately \$10.9 billion is earmarked for facilitating the transition of school buses, transit buses, and passenger ferries to low- and/or zero-emission alternatives.

¹⁷ <https://www.eesi.org/articles/view/comparing-u.s.-and-chinese-electric-vehicle-policies>

¹⁸ <https://www.skadden.com/insights/publications/2022/09/infrastructure-investment-and-jobs-act/part-ii-electric-vehicles-and-battery-materials-processing#:~:text=EV%20Charging%20Networks%20and%20Alternative%20Fuel%20Corridors.,fund%20new%20and%20existing%20EV%2Drelated%20programs%2C%20including:>

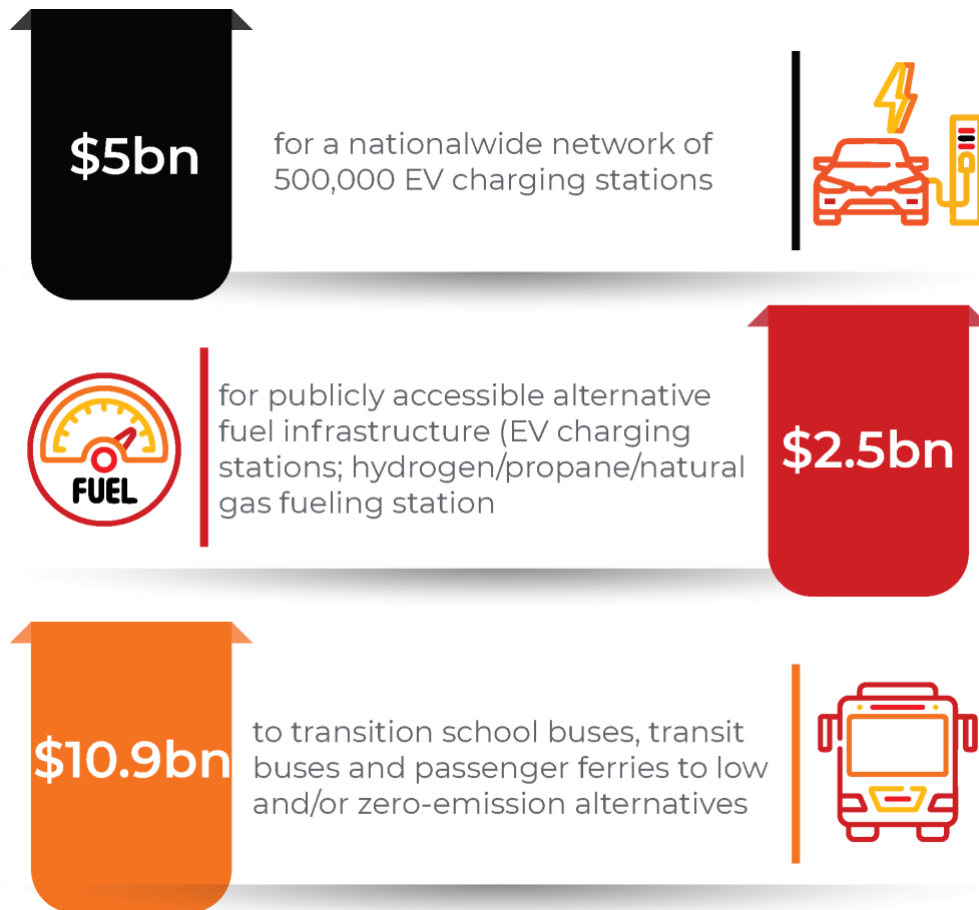


Figure 13: Key highlights of BIL

Global OEM Search Insights: China's Cost Edge and Beyond

TruKker's transition to electric trucks hinges on selecting OEMs that align with our **operational needs, budget, and sustainability goals**. A key focus is identifying partners who can help us achieve long-term cost reduction and greater operational efficiency. To make a data-driven decision, we launched a **comprehensive global search**. To ensure an informed choice, we have established a **rigorous evaluation process**. Our primary focus is on trucks that meet our operational requirements in terms of **range, payload capacity, and charging compatibility**. Additionally, we are prioritizing factors such as Total Cost of Ownership, technological innovation, the OEM's commitment to sustainability, and their ability to support our potential fleet expansion.

A global search resulted in the identification of **90+ electric truck suppliers** (a detailed list of suppliers is available in Annexure 3), to whom the specifications for electric trucks were communicated to obtain techno-commercial proposals. The heatmap below illustrates the range of suppliers contacted, and the subsequent table presents a concise overview of quotations received from various suppliers, categorized by payload capacities and countries.

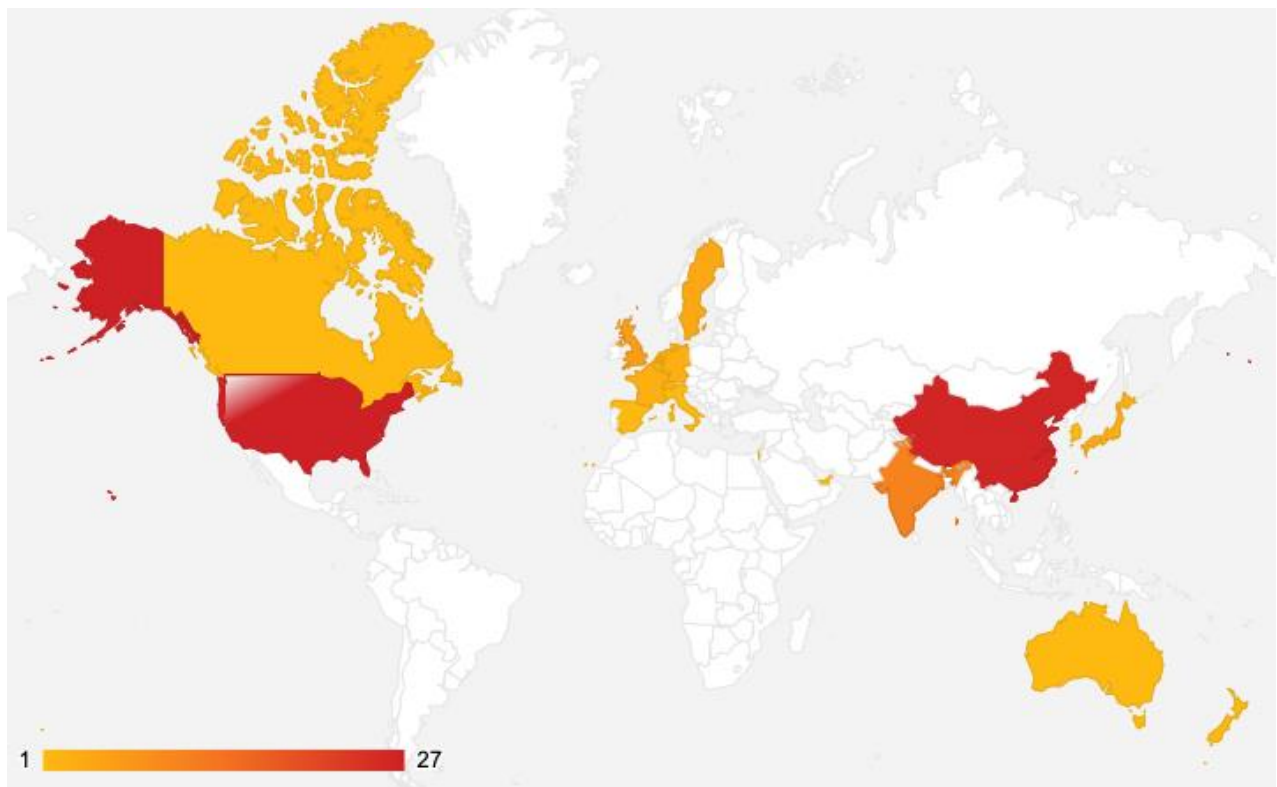


Figure 14: Heatmap of the suppliers' locations approached by TruKker

Table 3: Quotations Summary

Sl. No	Payload capacity range (In Ton)	Region/Country	No. of Models	Price Range (Ex-Works) (in \$)	kWh/km	Range (in km)
1.	0.8 to ≤1	China	5	17,900 to 22,500	0.120 to 0.178	190 to 321
		Europe	2	~54,680	0.109 & 0.208	60 to 132
		India	1	17,501	0.158	100
		Europe-Via UAE Dealer	2	28,581 to 95,305	0.106 & 0.188	~153
Sub Total (0.8 to ≤1)			10			
2.	>1 to ≤1.5	China	10	18,000 to 43,500	0.182 to 0.490	195 to 435
		India	2	20,060 & 21,000	0.190 & 0.258	120 & 250
Sub Total (>1 to ≤1.5)			12			
3.	>1.5 to ≤3	Europe	3	54,971 to 59,284	0.105	190
		China	3	20,680 to 44,000	0.186 to 0.382	280 to 300
		Canada	1	3,30,000	0.739	341
		USA	1	2,00,000	0.747	170
Sub Total (>1.5 to ≤3)			8			
4.	>3 to ≤4.2	China	7	32,741 to 68,649	0.135 to 0.706	174 to 390
		Canada	1	2,90,000	0.803	209
		Europe	1	2,12,925	0.560	250
Sub Total (>3 to ≤4.2)			9			
5.	>4.2 to ≤6	USA	4	88,000 to 2,32,000	0.655 to 0.736	100 to 332
		Canada	2	2,80,000 & 3,10,000	0.502 & 0.652	322 & 418
		China	3	NA	0.314 to 0.459	200 to 350
Sub Total (>4.2 to ≤6)			8			
6.	>6 to ≤13	China	4	47,200 to 1,19,000	0.327 to 1.842	170 to 430
		Europe	1	2,92,748	0.7	200
Sub Total (>6 to ≤13)			5			
7.	≥24 to ≤40	China	9	95,500 to 2,83,000	0.376 to 2.350	120 to 800
Sub Total (≥24 to ≤40)			9			
8.	≥45 to ≤70	China	6	96,200 to 3,50,000	0.430 to 3.525	190 to 564
Sub Total (≥45 to ≤70)			6			
Grand Total			68			

The provided table also highlights that, when considering solely the initial expenses linked to acquiring electric trucks, China emerges as the most cost-effective choice across all categories, with two exceptions: for the payload range of 0.8 to 1 (where the Chinese supplier ranks second), and for the payload range of greater than 4.2 to 6 (where prices from Chinese suppliers have not been received).

China's dominance in the new energy vehicle (NEV) industry is undeniable. It accounts for 65% of global EV production and sales, boasts 80% of the world's battery production capacity, and attracts significant investments across the EV value chain. This leadership position underscores the global momentum behind electric vehicle adoption and highlights the potential for the Middle East to benefit from China's expertise and advancements in this field. ATOMIX is strategically positioned to leverage China's expertise and bring leading technologies and solutions to the Middle East market.

Beyond Cost: Selecting OEMs for Quality, Innovation, and Support

For a successful electric truck transition, factors beyond initial investment are crucial. To maximize long-term efficiency, reliability, and client satisfaction, we've established the following key selection criteria. TruKker is committed to continuous market evaluation, ensuring we always offer our clients the most innovative and advantageous electric truck solutions.

1. **Technology:** 2nd Generation Electric Trucks are efficient in comparison with 1st generation trucks which were built similarly to diesel trucks. However, 2nd generation trucks are designed from scratch to maximize the potential of electric trucks, thus making them a **main parameter while shortlisting the trucks**

TruKker's focus on 2nd generation electric trucks aligns with our need for long-term fuel efficiency and helps us differentiate from competitors who may opt for older technology.

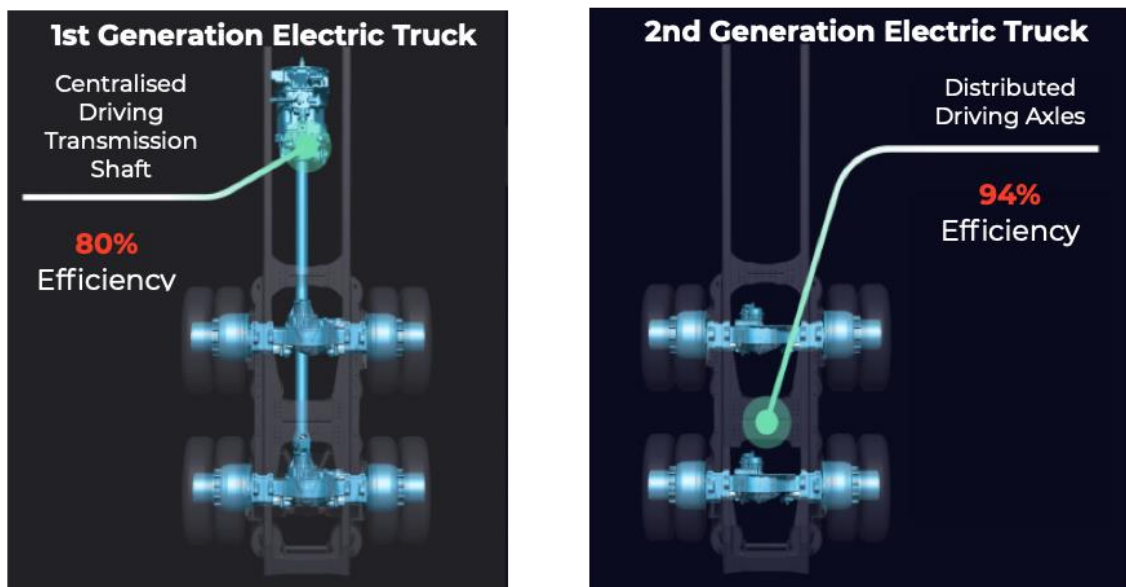


Figure 15: Comparison between 1st and 2nd Generation Trucks

2. **After-sales support:** During the transition from diesel to electric trucks, some clients may be hesitant initially. While a gentle nudge might encourage a few to embrace the change, it's crucial that they have convenient access to service centers, spare parts, timely support, and assistance. A lack of such support can erode the confidence of early adopters, leading to a detrimental ripple effect in the market and hindering the broader adoption of electric trucks.
3. **Charging Duration:**
 - a. Transport companies aim to optimize electric truck usage by operating them round the clock, often with multiple drivers. Therefore, they prioritize swift charging times to minimize downtime.

- b. On the other hand, individual drivers also aim for profitability, although their operational periods are constrained to either daytime or nighttime due to single-driver operation. This limitation provides them with ample time for charging.

4. **Supplier's Reputation and Product Quality:** Since electric trucks are relatively new in the market (except for China), there might be initial reluctance among customers before they fully embrace and integrate them into regular use. Opting for a supplier with a strong market reputation will encourage customers to give electric trucks a chance, while also ensuring the highest level of truck quality.

Based on the above parameters, plant visits, and test driving of electric trucks, TruKker **shortlisted several potential** OEMs for the supply of the electric trucks.

After further discussions, we selected three suppliers who are ready to export 2nd generation electric trucks to the UAE and provide the necessary support during the transition. These partners were chosen based on their strong performance in their respective markets, their commitment to innovation, and their ability to provide robust after-sales support.

While these two suppliers represent the best fit for TruKker's initial electric truck rollout, we recognize the rapidly evolving nature of this market. TruKker will continuously monitor advancements. As the electric truck offerings mature in terms of range, charging capabilities, and TCO competitiveness, we may **expand our supplier base to ensure we're always providing our clients with the most cutting-edge solutions.**

A Leading Innovator in Heavy Electric Trucks Technology in China

Established in 2020, this company has quickly become a major player in the electric truck sector, securing substantial funding from influential investors.



Figure 16: Heavy-duty Electric Truck

The company's strategic focus on the heavy-duty truck sector, a crucial segment in the electric vehicle landscape, sets it apart. Their commitment to long-distance freight haulage addresses a critical market need, offering substantial environmental and efficiency advantages.

This manufacturer's technological prowess is evident in several groundbreaking features:

- **Distributed Drive System:** Efficient power distribution improves overall system efficiency.
- **Low Wind Resistance Design:** Streamlined truck bodies enhance aerodynamics and energy efficiency.
- **Multi-Domain Fusion EE Architecture:** Integration of diverse electrical and electronic systems enhances overall performance and reliability.
- **Super charging and battery swapping:** The vehicles are supportive of both supercharging and battery swapping.
- **High-Level Autonomous Driving:** In-development autonomous driving capabilities improve safety and optimize fuel consumption.
- **Hydrogen-Electric Dual Platform:** This company is future-proofing its design by exploring hydrogen fuel cell technology alongside battery-powered trucks.

In addition to these advancements, this manufacturer has forged strategic partnerships with industry leaders, including the world's largest battery manufacturer. With a significant number of heavy trucks already delivered, the company's commitment to technological innovation, focus on a crucial market segment, and early success position it as a formidable player in the electric truck industry:

A Rising Star in China's Light Electric Truck Market

Founded in 2020, this company has rapidly positioned itself as a dynamic and ambitious startup in China, gaining momentum and recognition in the electric truck industry, it has secured impressive funding from notable investors.

The company's mission is to lead the way as the premier provider of intelligent and connected electric commercial vehicles in China, fostering innovation and sustainability in the transportation sector. The company has strategically established partnerships with leading logistics companies and fleets, alongside a network of retail stores and service centers across China. Their innovative technology and contributions to the electric vehicle industry have garnered well-deserved recognition.

At the forefront of electric truck technology, it heavily invests in research and development, with a focus on areas such as battery management, intelligent driving systems, and connectivity solutions. The company's tech platform integrates various technologies to optimize vehicle performance and safety.

This manufacturer showcases its versatility and innovation with its two models. It is known for its spacious interior, extended driving range, and advanced driver-assistance systems.

This company's trajectory in the electric truck industry exemplifies a dedication to excellence, technological advancement, and a vision for a sustainable future in transportation. As they continue to pioneer in their field, it stands poised for further success and industry leadership.

TruKker's commitment to comprehensive electric transportation solutions extends beyond heavy and medium-duty trucks. We are actively exploring innovative electric van options to meet the evolving needs of our clients.



Features

200 Range (km)	40 Charging time (min)	85.4 Battery capacity (kWh)
100 Max speed (km/hr)	3.2 Payload Capacity (Ton)	18 Cargo Volume (m3)

- Scenario**
- Daily running of 150 km, overnight AC Charging
 - Daily running of 250 km, DC charging twice daily

Figure 17: Light Duty Electric Truck

Expanding Our Vision: Electric Vans for Smart Logistics

In parallel with our heavy and light-duty electric truck strategy, TruKker recognizes the growing demand for sustainable solutions in the van segment. To address this market, we have evaluated electric van models. The shortlisted Van is expected to be received by Sep'24, TruKker's selection process applies the same rigorous criteria:

- **Technological Innovation:** Emphasis on advanced battery systems, extended range, and intelligent features that enhance efficiency and driver experience.
- **Operational Suitability:** Prioritizing payload capacity, cargo space optimization, and maneuverability, especially for urban deliveries.
- **After-Sales Support:** Emphasis on OEM commitment to providing service, parts, and timely assistance in our operating regions.



Features

<350 Range (km)	60 Charging time (min)	82 Battery capacity (kWh)
120 Max speed (km/hr)	<1.3 Payload Capacity (Ton)	<10.9 Cargo Volume (m3)

Figure 18: Electric Van

UAE Client Insights Guide Electric Truck Strategy

To ensure alignment between our electric truck strategy and the evolving needs of our valued clients, we conducted a comprehensive survey across major UAE players from FMCG, food and beverage, e-commerce, ceramics, petrochemicals, logistics, and manufacturing sectors.

The UAE client survey revealed a **strong desire for sustainable transportation solutions, coupled with a focus on controlling costs**. This feedback directly aligns with Trukker's emphasis on providing cost-effective electric truck options and data-driven solutions that optimize operations for clients.

Key insights from the survey include:

- **Demand for Electrification:** 63% of the respondents expressed a desire to electrify at least 25% of their fleets, with several targeting up to 75% electrification. This underscores a strong and growing market demand for sustainable transportation solutions.
- **Cost Sensitivity:** 36% of the respondents indicated a willingness to pay a premium of max up to 5-10% for services of electric trucks, demonstrating that clients are not willing to pay higher prices than existing prices.
- **Infrastructure Collaboration:** 21% of respondents have indicated their willingness to provide parking facilities for charging infrastructure. The remainder expressed interest in supporting this initiative but were uncertain about the specific support they could offer.

Additionally, face-to-face and online meetings with existing and potential Trukker clients revealed a similar interest in electric heavy trucks. This preference for cost-effective and efficient solutions reinforces our selection of suppliers who prioritize advanced technology and operational optimization, aligns with our client's need for long-term affordability.

ATOMIX Implementation: Progress and Future Actions

Current Progress Summary

- **Strategic Entity Formation:** To streamline the regulatory approval process and create a dedicated business unit focused on electric truck implementation, Trukker has established ATOMIX. This subsidiary will hold the NOC, manage operations, and spearhead the expansion of our sustainable transport solutions.

ATOMIX, Trukker's dedicated initiative for electric vehicles, aims to make the transition to electric trucks effortless. As a one-stop solution provider, ATOMIX offers leasing, buying, and rental options, coupled with a suite of services designed to simplify the adoption process for our clients.

ATOMIX

- **Order Secured:** ATOMIX has made significant strides toward electric truck adoption by placing orders for our initial fleet and putting them to use for operations. These strategically selected OEMs specialize in innovative 2nd generation electric trucks, guaranteeing maximum efficiency and client satisfaction.
- **Regulatory Engagement:** We are actively collaborating with the UAE Ministry of Industry and Advanced Technology (MoIAT) to secure the necessary No Objection Certificate (NOC) for pilot operations through our newly established subsidiary, ATOMIX. Simultaneously, both OEMs are diligently working through the UAE homologation process to ensure full compliance with local regulations.
- **Customs Coordination:** To expedite the arrival of our pilot fleet, we have initiated discussions with customs authorities to streamline the import process. This proactive approach will ensure a smooth and timely transition to on-road testing.
- **Client Engagement:** We will provide regular updates to clients on the progress of our electric truck initiative and have completed pilot with leading companies from FMCG, food and beverage, e-commerce, ceramics, petrochemicals, logistics, and manufacturing sectors. Their involvement is crucial for gathering operational data, optimizing performance, and showcasing the advantages of sustainable transportation.

Focus on Latest Generation Electric Trucks

Value Proposition

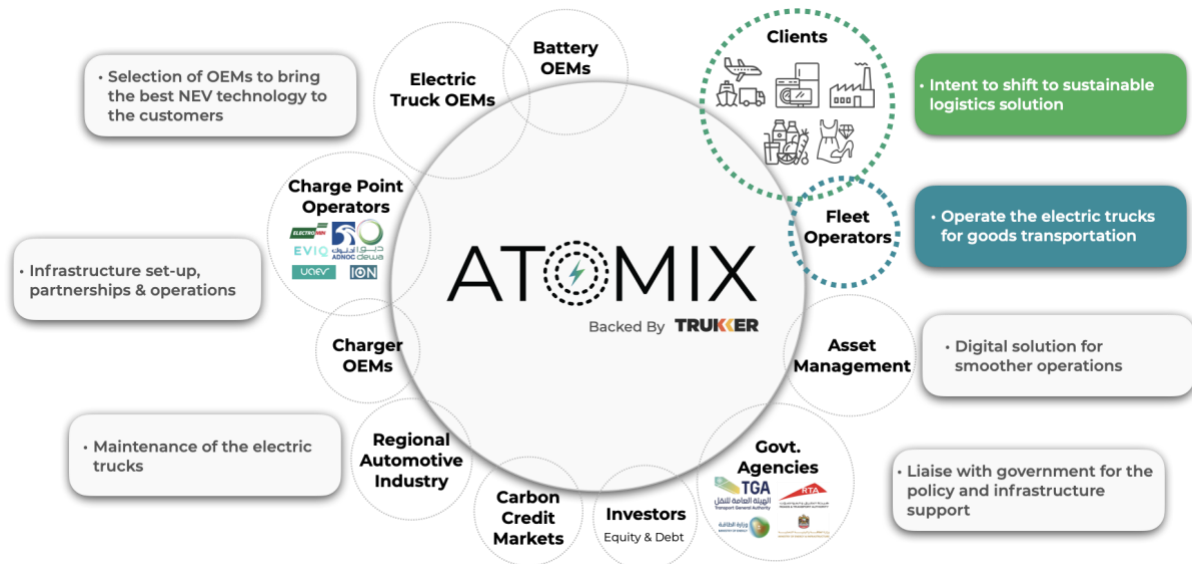
- ATOMIX provides clients with access to cutting-edge electric trucks that are more cost-effective, environmentally friendly, and operationally efficient than traditional diesel trucks.
- ATOMIX's electric truck solutions can help clients achieve sustainability goals, potentially gain access to restricted zones in cities, and burnish their reputations as environmentally conscious companies.

ATOMIX's Commitment to Cost-Neutral Electrification

ATOMIX understands that the successful adoption of electric vehicles (EVs) requires collaboration across the entire industry. We actively work with a wide range of stakeholders—including electric truck and battery manufacturers, charger suppliers, government bodies, and fleet operators—to develop a robust EV ecosystem in the Middle East. By bringing these key players together, ATOMIX is committed to accelerating the transition to electric trucks and advancing a sustainable future for transportation in the region.

We also recognize that the upfront cost of electric trucks can be a challenge for some clients. To address this, our strategy focuses on offsetting these initial costs through innovative solutions and strategic partnerships, ensuring that the shift to electric vehicles is both financially viable and operationally efficient for our clients.

- **Operational Optimization:** ATOMIX's data-driven insights enable route optimization and predictive maintenance, maximizing efficiency and minimizing downtime, leading to cost savings.
- **Innovative Financing:** ATOMIX offers flexible leasing and financing options to make electric truck adoption more accessible for clients.



Key Stakeholders

Supply Chain

- **Original Equipment Manufacturers (OEMs):** Shortlisted Chinese OEMs (and potentially other technically and commercially eligible OEMs in the future)
- **Suppliers:** Battery providers, charging infrastructure providers, maintenance providers

Clients

- Businesses that operate fleets of trucks

ATOMIX

- ATOMIX streamlines the adoption of electric trucks by providing a one-stop shop for truck acquisition (lease, buy, or rent), financing, charging infrastructure, maintenance, and data-driven insights. This comprehensive approach simplifies the transition for clients, allowing them to focus on their core business while ATOMIX handles the complexities of electric truck operations.

Operational Flow

- **Client Inquiry:** A potential client reaches out to ATOMIX to inquire about electric truck solutions.
- **Consultation & Needs Assessment:** ATOMIX consults with the client to understand their specific needs and requirements.
- **Pilot Program Option:** ATOMIX may recommend a pilot program where the client tests a limited number of electric trucks to assess suitability.
- **Financing & Procurement:** ATOMIX helps clients secure financing (if needed) and procures electric trucks from OEMs.
- **Regulatory Liaisons:** ATOMIX works with customs authorities to ensure all regulatory requirements are met for imports.
- **Charging Infrastructure:** ATOMIX helps clients identify and potentially secure access to charging infrastructure solutions.
- **Client Onboarding & Training:** ATOMIX provides training to client drivers and maintenance personnel on electric truck operation and care.
- **Data & Analytics:** ATOMIX collects data from electric truck operations to identify optimization opportunities and generate reports for clients.

Cost Savings and Operational Benefits for Clients

Cost Savings

- **Lower Maintenance Costs:** Due to the electric trucks' simpler design and fewer moving parts, they typically require less frequent and less expensive maintenance compared to traditional diesel trucks. This translates into lower operating costs and reduced downtime for clients.
- **Fuel Cost Reduction:** Electric trucks offer the potential to significantly reduce fuel costs, one of the largest expenses in freight operations. Based on the electricity costs and fuel price fluctuations in UAE, clients could see savings on fuel expenditure.

Operational Benefits

- **Optimized Operations:** ATOMIX's data analytics platform will collect insights from operating electric trucks to optimize routes, charging schedules, and predict maintenance needs. This enables clients to achieve maximum efficiency with their electric fleet.

- **Enhanced Reliability:** Predictive maintenance enabled by data gathered from electric trucks can help identify and address potential issues before they cause unexpected breakdowns. This translates into greater operational reliability for clients, minimizing disruptions and delays.

Immediate Next Steps

- **Regulatory Follow-up:** We will maintain close communication with regulators and the relevant OEM representatives to ensure a swift completion of the homologation and NOC processes. This proactive approach will pave the way for the successful adoption of the electric trucks in the UAE
- **Expansion Preparation:** We will focus on developing the necessary infrastructure for our operations. This includes identifying charging locations, training drivers and maintenance personnel on electric truck operations, and finalizing program details with participating clients.

Future Focus and Growth Projections

- Reach a fleet size of 6,000 electric trucks sold or leased by the end of 2030. This ambitious target will be achieved through a phased approach.
- **Continuous Improvement:** Data and insights gained from the continuous operations as part of the program will inform future procurement decisions and allow us to refine our electric truck implementation strategy. We are committed to a continuous improvement model, ensuring TrukKER and ATOMIX remain at the forefront of sustainability in the region.
- **Strategic Partnership Exploration:** Continue evaluating partnerships from multiple stakeholders from EV ecosystem, to enhance ATOMIX's capabilities in supply chain, technology, and operations.
- While ATOMIX's initial focus is on battery electric vehicles (BEVs), we recognize the **potential of fuel cell electric vehicles (FCEVs)/ Hydrogen Trucks** for specific use cases, particularly long-haul trucking. ATOMIX will continue to monitor developments in FCEV technology and infrastructure, with a view towards incorporating them into our solutions as they become more commercially viable.

Pilot Program Highlights

ATOMIX has already demonstrated the feasibility and benefits of electric trucks through successful pilot programs in the UAE. We conducted a pilot for light commercial vehicles (LCVs) and Heavy Commercial Vehicles (HCVs, successfully completing deliveries for key clients. Building on this success, we are planning further pilots for vans in the near future. These pilot programs provide valuable real-world data and insights, reinforcing the viability of electric trucks in the Middle East context.

Parameters	LCV	HCV	Van*
Pilot Time Period	53 days (~530 hours)	33 days (~330 Hours)	30 days (~300 hours)
Commodities	FMCG, Food & Beverages, e-commerce,	Ceramics, Wire Rod, Beams	FMCG, e-commerce
Weight of commodities	2.8 to 4 tons	25 to 28 tons	1 to 1.5 tons
km run per day	Upto 173 km	250 to 320 km	200 to 250 km
No. of trips per day	One & Two	One	One & Two
Avg. drops per day	7	1	7
Avg. efficiency in single charge	180-200 km	280 - 320 km	250 km

*expected

Electrifying Success of Pilot Vehicles

Light Commercial Vehicles:



Heavy Commercial Vehicles:



Risk Assessment and Mitigation

ATOMIX recognizes that transitioning to a large-scale electric truck operation involves certain risks. The following are key potential challenges and our proactive mitigation strategies

Client Hesitancy or Resistance

Challenge: Some clients may be reluctant to fully transition their fleets to electric trucks due to concerns about range, reliability, or lack of familiarity with the technology.

Mitigation:

- Phased Pilot Programs: Allow clients to test electric trucks in their specific operations to gain confidence and address concerns directly.
- Data-Driven Demonstrations: Share data from early adopters showcasing cost savings, emissions reductions, and operational efficiency.

Lack of Charging Infrastructure

Challenge: A lack of readily available charging stations could pose an operational bottleneck.

Mitigation:

- Partnerships: Partnering with potential CPOs for access to charging stations.
- Route Optimization: Utilizing software tools to map routes that align with existing charging infrastructure and maximize truck range.

Annexure 1

Major producers of the Lithium Ion batteries:

China

1. CATL (Contemporary Amperex Technology), HQ-Ningde, China : ([CATL](#))
CATL has a **market share of 34%** ¹⁹
2. BYD (Build Your Dreams), HQ-Shenzen, China : ([Batteries-BYD](#)
([bydglobal.com](#)), [Blade Battery](#) ([bydautoindia.com](#)))
BYD has **market share of 12%**.
3. CALB (China Aviation Lithium Battery Co. Ltd.), Henan, China: [Product System CALB Group, Ltd](#) ([calb-tech.com](#))
4. Guoxuan High-tech Power Energy Co. Ltd., Anhui, China: [Product & Application Gotion](#) || [www.hfgxgk.com](#)
5. Sunwoda Electronic Co. Ltd., Shenzhen, China : [Sunwoda - Sunwoda Electronic Co., Ltd.](#)
6. Farasis Energy, Jiangxi, China: [Home - Farasis Energy](#) ([farasis-energy.com](#))

Other Prominent Manufacturers

- SK Innovation Co. Ltd., Seoul, South Korea : [SK on | SK](#)
- Samsung SDI Co. Ltd., Yongin-si, South Korea: [Samsung Li-Ion Battery & Renewable Energy | Samsung SDI Official Site](#)
- LG Energy Solution Ltd., Seoul, South Korea: [LG Energy Solution](#) ([lgensol.com](#))
- Panasonic, Kdoma, Osaka, Japan: [Lithium-ion Batteries - Panasonic](#)

¹⁹<https://www.insidermonkey.com/blog/lithium-battery-production-by-country-top-5-countries-1110982/5/>

Annexure 2

Tax Benefits and Purchase Incentives (Electrical Commercial Vehicles | 27 EU Member States) (2023) (Source: ACEA)

GLOSSARY

- X** - No benefit or incentive available
- M2** - Vehicle for carriage of passengers, mass ≤ 5t
- M3** - Vehicle for carriage of passengers, mass > 5t
- N1** - Vehicle for carriage of goods, mass ≤ 3.5t
- N2** - Vehicle for carriage of goods, mass > 3.5t and ≤ 12t
- N3** - Vehicle for carriage of goods, mass > 12t
- BEV** - Battery electric vehicle
- PHEV** - Plug-in hybrid electric vehicle
- HEV** - Hybrid electric vehicle
- EREV** - Extended-range electric vehicle
- FCEV** - Fuel cell electric vehicle (hydrogen)

Tax Benefits		Incentives	
Acquisition	Ownership	Purchase	Infrastructure
Austria			
VAT deduction and exemption from tax for commercial vehicles, including business use BEVs, FCEVs, PHEVs, HEVs, and EREVs.	Tax exemption for all zero-emission commercial vehicles (eg BEVs and FCEVs).	<p>Bonus until the end of 2023 for purchasing (business use) commercial vehicles (importers' bonus + federal bonus):</p> <ul style="list-style-type: none"> • €2,000 + €18,000 for e-buses (M2) • €0 + €52,000 for e-buses (M3, ≤ 39 persons including driver) • €0 + €78,000 for e-buses (M3, 40-120 persons including driver) • €0 + €130,000 for e-buses (M3, > 120 persons including driver) • €2,000 + €4,000 for e-vehicles (N1, 2-2.5t) • €2,000 + €8,000 for e-vehicles (N1, > 2.5t) • €2,000 + €22,000 for e-vehicles (N2) • €7,000 + €65,000 for e-vehicles (N3) <p>Additional incentives can be granted by provinces and communities.</p> <p>For more details: www.umweltfoerderung.at</p>	<p>Bonus until the end of 2023 for purchasing (commercial use) the following loading infrastructure:</p> <ul style="list-style-type: none"> • Public access: <ul style="list-style-type: none"> - €2,500 for AC-normal charging point (≤ 22 kW) - €15,000 for DC-quick charging point (< 100 kW) - €30,000 for DC-quick charging point (≥ 100 kW) • Private access only: <ul style="list-style-type: none"> - €900 for AC-normal charging point (≤ 22 kW) - €4,000 for DC-quick charging point (< 50 kW) - €10,000 for DC-quick

			<p>charging point (50-100 kW)</p> <ul style="list-style-type: none"> - €20,000 for DC-quick charging point (≥ 100 kW) <p>Additional incentives can be granted by provinces and communities. For more details: www.umweltfoerderung.at</p>
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Belgium

X	<ul style="list-style-type: none"> • Brussels and Wallonia: minimum rates for BEVs and FCEVs (€38.64/year for N1). • Flanders: BEVs and FCEVs (N1) are exempt. 6% VAT (instead of 21%) for electricity consumption. 	<ul style="list-style-type: none"> • Federal level: 35% deduction of investment in new BEVs and FCEVs (N1-N3) and in related charging and fuelling infrastructure. • Brussels: for micro or small companies, up to €15,000 to replace max three N1 vehicles/year. For more details: www.economie-emploi.brussels/prime-lez • Flanders (for SMEs): <ul style="list-style-type: none"> - 40% of additional cost up to €400,000/vehicle for max two BEVs (N2 and/or N3). - 27.5% of additional cost up to €600,000/vehicle for max two BEVs (M2 and/or M3). - 22.5% of additional cost up to €350,000/vehicle for max two FCEVs (N2 and/or N3). <p>For more details: Ecology premium plus Agentschap Innoveren en Ondernemen (vlaio.be)</p>	X
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Bulgaria

X	Exemption for electric vehicles	X	X
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Croatia

No excise duties for electric vehicles.	Exemption from special environmental tax for electric vehicles.	<p>Incentive scheme (once per year, limited funds):</p> <ul style="list-style-type: none"> • NI: <ul style="list-style-type: none"> - up to €5,309 for PHEVs - up to €9,291 for BEVs or FCEVs • N2, N3, M2 and M3 - max €53,089 by company for BEVs, PHEVs, or FCEVs - up to 40% of funds per vehicle - the max amount depends on the category <p>There is a 12-month deadline to purchase the vehicle and submit a grant request. The vehicle must be kept for two years.</p>	X
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Cyprus

Exemption for vehicles emitting ≤ 120g CO2/km.	Minimum rate for vehicles emitting ≤ 120g CO2/km.	<ul style="list-style-type: none"> - Up to €12,000 to scrap and replace with a vehicle emitting < 50g CO2/km and costing ≤ €80,000. - Up to €100,000 for e-buses. - €20,000 for e-trucks 	X
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Czech Republic

BEVs and FCEVs emitting ≤ 50g CO2/km exempt from registration charges (with a special number plate).	<ul style="list-style-type: none"> - BEVs and HEVs exempt from road tax. - Vehicles emitting ≤ 50g CO2/km exempt from road tolls. - Reduction of the depreciation period for charging stations for electric vehicles from 10 to five years (wallboxes and standalone charging stations). - Accelerated depreciation for BEVs and PHEVs below 50g CO2/km 	Purchase incentive for low- and zero-emission vehicles by state and local government bodies.	Support from the Ministry of Transport for the development of charging infrastructure.
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Denmark

<p>Zero-emission vehicles (max 4,000kg total weight):</p> <ul style="list-style-type: none"> · Pay 40% of registration tax · Additional DKK 77,500 registration tax deduction · DKK 900 deduction of taxable value per kWh battery capacity (max 45 kWh) <p>Low-emission vehicles emitting < 50g CO2/km (max 4,000kg total weight):</p> <ul style="list-style-type: none"> · 55% of the full registration tax · Additional DKK 47,500 registration tax deduction · DKK 900 deduction of taxable value 	<p>Taxes on ownership are based on CO2 emissions. Zero-emission vehicles and vehicles with CO2 emissions of max 58g/km pay the minimum semi-annual tax rate of DKK 370.</p>	<p>X</p>	<p>X</p>
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Estonia

<p>X</p>	<p>X</p>	<p>New N1 BEVs and FCEVs (purchase and leasing):</p> <ul style="list-style-type: none"> · €5,000/vehicle for individuals · €4,000/vehicle for legal persons 	<p>X</p>
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Finland

<p>Zero-emission vans are exempt from registration tax as of 1 October 2021.</p>	<p>X</p>	<ul style="list-style-type: none"> - Purchase incentive of €2,000-6,000 for electric vans from 2022-2025. - Purchase incentive of €6,000-50,000 for electric trucks from 2022-2025. 	<p>X</p>
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France

<ul style="list-style-type: none"> - Regions provide an exemption (either total or 50%) for alternatively powered vehicles (ie BEVs, HEVs, CNG, LPG, and E85). - BEVs, FCEVs, and PHEVs (with a range of > 50km) are exempt from the mass-based malus. 	<p>X</p>	<p>Bonus for a new N1 BEV or FCEV:</p> <ul style="list-style-type: none"> · €6,000 for households, if vehicle ≤ €45,000 · €4,000 for legal persons if vehicle ≤ €45,000 <p>Scrappage scheme for a second-hand or new zero-emission vehicle (BEV or FCEV), based on weight:</p> <ul style="list-style-type: none"> · N1 class I: €5,000 · N1 class II: €7,000 · N1 class III or N2 (with weight exemption): €9,000 	<p>X</p>
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Germany

X	- 10-year exemption for BEVs and FCEVs registered until 31 December 2025. Exemption granted until 31 December 2030. - Exemption from the annual circulation tax for vehicles emitting ≤ 95g CO2/km.	KsNI programme (until the end of 2026): • For the purchase of new N1, N2 and N3 BEVs/FCEVs • For the retrofit of N2 and N3 vehicles into BEVs/FCEVs • 80% of the additional investment costs per vehicle Max €25 million per company per calendar year for vehicles, infrastructure, and feasibility studies (subsidised by 50%). For more details: www.balm.bund.de/EN/FundingPrograms/KSNI/Ksni_node.html	KsNI programme (until the end of 2026): • For electric charging and hydrogen tank infrastructure • 80% of project-related expenditure Max €25 million per company per calendar year for vehicles, infrastructure, and feasibility studies (subsidised by 50%). For more details: www.balm.bund.de/EN/FundingPrograms/KSNI/Ksni_node.html
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Greece

0% registration tax for battery electric or plug-in hybrid vans, lorries, and trucks.	X	30% on the net retail price (NRP) cashback for BEV vans (up to €8,000), plus €1,000 for scrapping.	X
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Hungary

X	X	X	X
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Ireland

€5,000 relief for BEVs up to €40,000. The relief tapers off after €40,000 and ends at €50,000.	• Minimum rate (€120 per year) for BEVs. • Reduced rate (€140 per year) for PHEVs ≤ 50g CO2/km.	Purchase incentives for individuals in 2021: • Up to €5,000 for BEVs <ul style="list-style-type: none"> • Up to €5,000 for PHEVs with ≤ 50g CO2/km and full-electric range of ≥ 50km • Up to €3,800 for battery electric vans 	X
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Italy

X	- BEVs: Five-year exemption from the date of the first registration. After this period, 75% reduction of the tax rate applied to equivalent petrol vehicles. - HEVs: Application of a minimum flat rate (€2.58/kW).	N1: • €4,000 for a BEV/PHEV ≤ 1.5t • €6,000 for a BEV/PHEV > 1.5t N2: • €12,000 for a BEV/PHEV ≤ 7t • €14,000 for a BEV/PHEV > 7t	X
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	Some regions apply discounts on tax ownership.		
Latvia			
Exemption from first registration costs for BEVs.	Exemption for N1 vehicles emitting \leq 50g CO ₂ /km.	X	X
Lithuania			
Exemption for electric vehicles (first registration only).	X	X	X
Luxembourg			
Only 50% of administrative tax.	Minimum rate of €30 per year for zero-emission vehicles.	X	X
Malta			
Minimum rate for vehicles emitting \leq 100g CO ₂ /km.	Minimum rate for vehicles emitting \leq 100g CO ₂ /km.	BEVs for individuals: <ul style="list-style-type: none"> • N1: €11,000 per BEV • M2 and N2: 40% of selling price, capped at €70,000 BEVs for companies: <ul style="list-style-type: none"> • N1: up to €20,000 • M2 and N2: up to €70,000 • M3 and N3: up to €400,000 • Additional incentive if established in and operating from certain localities Additional grant to scrap a vehicle of \geq 10 years. For more details: www.transport.gov.mt/land/sustainable-transport/financial-incentives-2023/new-electric-vehicles-6188	X
Netherlands			
X	X	- Subsidy scheme (SEBA) for entrepreneurs to buy/lease a new commercial vehicle (N1 or N2 weighing up to 4,250kg). - Environmental investment deduction (MIA) for BEV and FCEV light commercial vehicles.	X

		- For more details: www.rvo.nl/subsidie-en-financieringswijzer	
Poland			
<ul style="list-style-type: none"> Exemption for BEVs. Exemption for PHEVs up to 2,000cc until end 2029. 	<p>Depreciation:</p> <ul style="list-style-type: none"> up to PLN 225,000 for BEVs and FCEVs up to PLN 150,000 for vehicles emitting 0-50g CO2/km up to PLN 100,000 for vehicles emitting > 50g CO2/km 	<p>Purchase incentives for individuals:</p> <ul style="list-style-type: none"> PLN 18,750-27,000 for BEVs and FCEVs of a max price of PLN 225,000 <p>Incentives for legal persons (purchase, leasing):</p> <ul style="list-style-type: none"> up to PLN 70,000 for N1 BEVs and FCEVs 	Up to 50% of the eligible costs for hydrogen stations.
Portugal			
X	Exemption for BEVs.	Companies (limited to N1 vehicles): €6,000 to buy a new BEV.	X
Romania			
X	Exemption for electric vehicles.	X	X
Slovakia			
<ul style="list-style-type: none"> BEV registration is subject to a max charge of €33. BEVs, or PHEVs combined with other fuel types or energy sources, are depreciated for two years. 	<ul style="list-style-type: none"> Exemption for BEVs. 50% for FCEVs and HEVs. 	X	X
Slovenia			
Minimum additional tax rate (0.5%) for BEVs.	X	X	X
Spain			
<ul style="list-style-type: none"> Exemption from 'special tax' for vehicles emitting ≤ 120g CO2/km. Canary Islands: VAT exemption for alternatively 	<ul style="list-style-type: none"> Reduction of 75% for BEVs in main cities (eg Barcelona, Madrid, Valencia, Zaragoza, etc). 	<p>Incentive scheme (MOVES III) in 2021-2023:</p> <ul style="list-style-type: none"> Vans (N1): €7,000-9,000 for private individuals, depending on scrapping <ul style="list-style-type: none"> Additional €1,000 from manufacturers 	<p>Incentive scheme (MOVES III) in 2021-2023:</p> <ul style="list-style-type: none"> Self-employed, individuals, neighbouring communities, and

<p>powered vehicles (eg BEVs, FCEVs, PHEVs, EREVs, and HEVs) emitting ≤ 110g CO₂/km.</p>		<ul style="list-style-type: none"> • Different incentives for SMEs and large companies (+ MOVES FLOTAS) For more details: <ul style="list-style-type: none"> • www.idae.es/ayudas-y-financiacion/para-movilidad-y-vehiculos/programa-moves-iii • www.idae.es/ayudas-y-financiacion/para-movilidad-y-vehiculos/programa-moves-flotas • Incentive scheme (MOVES MITMA) for N2, N3, M2, and M3 vehicles: <ul style="list-style-type: none"> • Scrappage of a vehicle registered before January 2019 (€2,500-25,000 depending on Euro class and type of vehicle) <ul style="list-style-type: none"> • Acquisition of new alternatively fuelled vehicles (BEVs, PHEVs, HEVs, and also gas for buses) • Incentives from €15,000-190,000, depending on the vehicle type and the company size <p>For more details: www.mitma.gob.es/el-ministerio/sala-de-prensa/noticias/mar-16112021-1646</p>	<p>administration: 70% of the eligible cost</p> <ul style="list-style-type: none"> • Companies and public charging points (power ≤ 50 kW): 35% of the eligible cost for a large, 45% for a medium, and 55% for a small enterprise • Companies and public charging points (power > 50 kW): 30% of the eligible costs <p>These amounts are increased if the location is in municipalities with less than 5,000 inhabitants.</p>
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Sweden

<p>X</p>	<p>N1: Low annual road tax (SEK 360) for zero-emission vehicles and PHEVs.</p>	<p>Environmental trucks*:</p> <ul style="list-style-type: none"> • For companies, municipalities, and regions • Max 20% of the vehicle's purchase price <p>Electric bus premium:</p> <ul style="list-style-type: none"> • For BEVs, PHEVs, FCEVs, and trolleybuses with a capacity of > 14 passengers <ul style="list-style-type: none"> • For a public transport authority, municipality, or limited company (authorised to procure public transport), the premium is 20% of the purchase price (max 100% of the purchase price difference with the closest diesel bus) • For a transport company, the premium is 40% of 	<ul style="list-style-type: none"> - Grants for various types of charging infrastructure (residents, businesses, and organisations) from the Swedish Environmental Protection Agency. - Support from Klimatklivet for DC charging for business vehicles. <p>For more details: www.naturvardsverket.se/amnesomraden/klimatomstallningen/klimatklivet/elbilsladdning-och-laddinfrastruktur/</p>
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		<p>the difference with the closest diesel bus</p> <ul style="list-style-type: none"> • Plug-in hybrid buses receive half the premium amount 	
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Iceland

Minimum tax rate: 5% of the custom value.	X	<p>BEVs and HEVs:</p> <ul style="list-style-type: none"> • Custom clearance: VAT waiver (€8,800/ISK 1,320,000). • No VAT on the retail price ≤ €36,600 (ISK 5,500,000); full VAT above that. <p>Special discount for battery electric trucks: the total amount is max €2,600,000 (ISK 400,000,000) in 2023.</p>	VAT waiver on charging stations and the installation of charging stations.
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Switzerland

X	Vehicles with more than 3.5t total weight driven by an electric motor are exempt from the distance- related heavy vehicle fee (HVF).	X	Various cantons and municipalities contribute to the installation costs for electromobility.
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United Kingdom

X	X	<p>Small vans:</p> <ul style="list-style-type: none"> • 35% discount (max £2,500) • < 2,500kg gross vehicle weight • < 50g/km CO2 emissions and be able to travel ≥ 96km without any emissions <p>Large vans:</p> <ul style="list-style-type: none"> • Max £5,000 • 2,500-4,250kg gross vehicle weight • < 50g/km CO2 emissions and be able to travel ≥ 96km without any emissions <p>Trucks:</p> <ul style="list-style-type: none"> • 20% discount (max £16,000) • 4,250-12,000kg gross weight • CO2 emissions of ≥ 50% less than the equivalent conventional Euro VI vehicle that can carry the same capacity and be able to travel ≥ 96km 	X
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		without any emissions For more details: www.gov.uk/plug-in-vehicle-grants/trucks	
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Annexure 3

Manufacturer	Country	Type of Supplier (Manufacturer/Trader/ Auth. Dealer)	Technical Review	Commercial Review
Sea Electric, Victoria	Australia	Manufacturer	Yes	-
Lion Electric	Canada	Manufacturer	Yes	Yes
Keyton Auto	China	Manufacturer	Yes	Yes
Xiamen King Long International Trading Co. Ltd.	China	Manufacturer	Yes	Yes
Nanjing Ichelaba Motor Technology Co., Ltd. (Via Made in China)	China	Trader	Yes	Yes
Sichuan Chifeng Automobile Sales Co., Ltd (Via Made in China)	China	Trader	Yes	Yes
CEVO Export (via Made in China)	China	Trader	Yes	Yes
SANY	China	Manufacturer	Yes	Yes
JAC Motors	China	Manufacturer	Yes	Yes
BYD Trucks	China	Manufacturer	Yes	Yes
Deepway	China	Manufacturer	Yes	Yes
Geely	China	Manufacturer	Yes	Yes
Newrizon	China	Manufacturer	Yes	Yes
Foton Motor	China	Manufacturer	Yes	Yes
Fullwon Truck	China	Manufacturer	Yes	Yes
Dongfeng Group	China	Manufacturer	Yes	-

SAIC Motors Hongyan Trucks	China	Manufacturer	Yes	-
Dayun	China	Manufacturer	Yes	Yes
Beiben Trucks	China	Manufacturer	Yes	Yes
Zhangzhou Qiaohui Trading Co. Ltd. (Via Made in China)	China	Trader	Yes	Yes
Chongqing Miao Zhong Automobile (Via Made in China)	China	Trader	Yes	Yes
Know-How Technology (Tian Jin) Co., Ltd (Via Made in China)	China	Manufacturer	Yes	Yes
SHANDONG AOHENG AUTOMOBILE SALES CO., LTD. (Via Made in China)	China	Manufacturer	Yes	Yes
Eusino Auto Ltd.	China	Trader	Yes	-
zhengzhou yutong group	China	Manufacturer	Yes	-
Shaanxi Auto	China	Manufacturer	Yes	-
Wuling	China	Manufacturer	Yes	-
Alke, Italy	Europe	Manufacturer	Yes	Yes
Goupil, France	Europe	Manufacturer	Yes	Yes
Addax Motors, Belgium	Europe	Manufacturer	Yes	Yes
Volta Trucks, Sweden	Europe	Manufacturer	Yes	-
Scania, Sweden	Europe	Manufacturer	Yes	-
Quantron, Germany	Europe	Manufacturer	Yes	-
Einride, Sweden	Europe	Manufacturer	Yes	-
Lunaz, UK	Europe	Manufacturer	Yes	-
E-Force One AG, Switzerland	Europe	Manufacturer	Yes	-
Hytruck, Netherlands	Europe	Manufacturer	Yes	-
PVI, France - A Unit of Renault Group	Europe	Manufacturer	Yes	-
Dennis Eagle, UK	Europe	Manufacturer	Yes	-
Emoss, Netherlands	Europe	Manufacturer	Yes	-
Arrival, UK	Europe	Manufacturer	Yes	-
Irizar, Spain	Europe	Manufacturer	Yes	-
B-ON, Luxembourg	Europe	Manufacturer	Yes	-
Volvo Trucks, Sweden	Europe	Manufacturer	Yes	Yes
zevnz (or) Kahu EV, New Zealand	Europe	Manufacturer	Yes	-

Framo E-Way, Germany	Europe	Manufacturer	Yes	-
Renault, France	Europe	Manufacturer	Yes	-
Electra Commercial Vehicles, UK	Europe	Manufacturer	Yes	Yes
DAF Trucks, Netherlands	Europe	Manufacturer	Yes	-
Tewa Motors Limited, UK	Europe	Manufacturer	Yes	-
Bedeo, London	Europe	Manufacturer	Yes	-
Daimler Mercedes EActros, Germany	Europe	Manufacturer	Yes	Yes
Omega Seiki Mobility, Delhi	India	Manufacturer	Yes	Yes
Croyance Auto, Gujarat	India	Manufacturer	Yes	Yes
Evage, Chandigarh	India	Manufacturer	Yes	-
Binani Tech, Pune	India	Manufacturer	Yes	-
Tresa Motors, Bengaluru	India	Manufacturer	No	-
Kalyani Motive - Unit of Bharat Forge	India	Manufacturer	Yes	-
Cell Propulsion	India	Manufacturer	No	-
Jupiter Electric Mobility, Kolkata	India	Manufacturer	No	-
Tata Motors Limited, Mumbai	India	Manufacturer	Yes	-
Infraprime Trucks, Haryana	India	Manufacturer	No	-
SwitchMobility- Ashok Leyland, Chennai	India	Manufacturer	Yes	-
REE Automotive	Israel	Manufacturer	Yes	-
Isuzu Motors Ltd.	Japan	Manufacturer	Yes	-
UD Trucks	Japan	Manufacturer	Yes	-
Mitsubishi	Japan	Manufacturer	Yes	-
Hyundai	Korea	Manufacturer	Yes	-
Avevai	Singapore	Manufacturer	Yes	-
EGME (Emirates Global Motor Electric)	UAE	Dealer	Yes	-
Xos Trucks, California	USA	Manufacturer	Yes	Yes
Workhorse trucks, Ohio	USA	Manufacturer	Yes	Yes
Motiv Delivers, California	USA	Manufacturer	Yes	Yes
Peterbilt, Texas	USA	Manufacturer	Yes	-
Nikola Motors, Arizona	USA	Manufacturer	Yes	-
Admiral Mobility, Chicago	USA	Manufacturer	Yes	Yes

Zeus Electric Chassis, Minnesota	USA	Manufacturer	Yes	-
City Freighter, California	USA	Manufacturer	Yes	-
Alkane Truck Company, South Carolina	USA	Manufacturer	Yes	-
Boulder Electric Vehicle, Colorado	USA	Manufacturer	Yes	-
International Trucks - Part of Navistar, Illinois	USA	Manufacturer	Yes	-
Mack Trucks, North Carolina	USA	Manufacturer	Yes	-
Triton Electric Vehicle, New Jersey	USA	Manufacturer	Yes	-
Mullen Commercial (Electric Last Mile Solutions), California	USA	Manufacturer	Yes	-
Smith EV, Missouri	USA	Manufacturer	Yes	-
Freightliner, Oregon	USA	Manufacturer	Yes	-
Unique Electric Solutions, New York	USA	Manufacturer	Yes	-
Rocketruck, California	USA	Manufacturer	Yes	-
Phoenix Motors, California	USA	Manufacturer	Yes	-
ZEEM Solutions, California	USA	Trader	Yes	-
Ultra Motors, California	USA	Manufacturer	Yes	Yes
Orange EV, Kansas	USA	Manufacturer	Yes	-
IEV Trucks, California	USA	Manufacturer	Yes	-
Kenworth, Washington	USA	Manufacturer	Yes	-
Brightdrop, Subsidiary of GM, California	USA	Manufacturer	Yes	-
Rivian LLC, California	USA	Manufacturer	Yes	-

An aerial photograph of a multi-lane highway cutting through a dense, lush green forest. A yellow truck is visible on the road, moving from left to right. The text 'TRUKKER' is overlaid in the center of the image, with the 'K's in orange and yellow.

TRUKKER

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