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Light Electric Vehicles (LEVs) Market by Vehicle Category, Application (Personal Mobility, Shared Mobility, Recreation & Sports, Commercial), Power Output (Less than 6 kW, 6-9 kW, 9-15 kW), Component Type, Vehicle Type Region - Global Forecast to 2027

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Abstracts

The light electric vehicle market is projected to grow from USD 78.5 billion in 2022 to USD 122.7 billion by 2027, registering a CAGR of 9.4%. E-ATV/UTVs, e-bike, e-scooter, e-motorcycle, neighbourhood electric vehicle, e-lawn mower (robotic e-lawn mower and manual e-lawn mower), electric industrial vehicle, autonomous forklifts, delivery robots, and automated guided vehicles were mapped as part of this research. The growth of battery and motor technology and government efforts to reduce emissions in urban areas has increased the demand for LEVs vehicles over the years. With the rapid setup of charging stations worldwide, demand for LEVs such as , e-bike, e-scooter, e-motorcycle, and neighbourhood electric vehicle (golf cart/others) has also increased. Technological breakthroughs in EV batteries and other EV technologies have made it possible to have high-power engines in electric ATVs and UTVs for off-roading (comparable to their ICE counterparts). This will create a shift in demand for electric ATVs and UTVs in the coming years. The LEV market is primarily dominated by players like Textron Inc. (US), Polaris Inc. (US), John Deere (US), Yamaha Motor Co. Ltd. (Japan), Club Car Inc. (US), and BMW AG (Germany). The top key players in the e-ATV/UTV segment of the LEV market are Polaris Inc. (US), Toyota Industries (Japan), John Deere (US), and Textron Inc. (US). The top key players in the e-Bike segment of the LEV market are Accell Group NV (Netherlands), Merida Industry Co. Ltd. (Taiwan), Giant Manufacturing Co. Ltd. (Taiwan), and Yamaha Motor Company (Japan). The top key players in the e-scooter/motorcycle segment of the LEV market are Yadea Grup Holding Ltd. (China), Niu International (China), Zhejiang Luyuan Electric Vehicles Co. Ltd. (China), Hero Electric (India), and Jiangsu Xinri E-Vehicle (China). The top key

players in the neighborhood electric vehicles segment of the LEV market are Textron Inc. (US), Yamaha Motor Co. Ltd. (Japan), The Toro Company (US), and John Deere (US). The top key players in the e-lawn mowers segment of the LEV market are John Deere (US), Honda Motor Co. Ltd. (Japan), The Toro Company (US), Yamabiko Corporation (Japan), and Husqvarna (Austria). The top key players in the light electric industrial vehicles segment of the LEV market are BYD (China), Yutong (China), and AB Volvo (Sweden). These players have worked on providing offerings for the LEV ecosystem. They have initiated partnerships to develop their LEV technology and offer best-in-class products to their customers.

“Personal and commercial LEVs to be the largest segment in market during the forecast period”

The increasing price of petroleum products is the primary factor driving the Light electric vehicle market for personal and commercial use. Electrical systems are more durable and efficient in regular use than mechanical models because they break less often due to a lesser number of moving parts, and hence less friction and wear. The lifetime ownership cost or total cost of ownership (TCO) is projected to decrease compared to a vehicle with an IC engine contributing to a further increase in demand for LEVs for personal and commercial use like e-ATVs/UTVs, neighborhood electric vehicles, e-bikes, e-scooters, and e-motorcycles and some special purpose vehicles like e-lawn mowers. For instance, to tap into the growing demand, Ecocharger, the UK manufacturer of all-electric ATVs and UTVs Ecocharger intends to increase the number of its dealerships in Europe. This suggests that either out of concern for the environment or to comply with rules or to reduce maintenance and usage costs, consumers are asking for more e-ATVs/UTVs. This, in turn, will augment revenues for the LEV market in the personal, commercial and recreational segments during the forecast period.

The number of warehouses per nation is rising as a result of the expanding demand to support the hub and spoke model in e-commerce, automotive component manufacturing, consumer products, and electronics sectors. Over the next five years, the warehouse and fulfilment sector is anticipated to increase by double digits, driving up demand for electric utility vehicles. The US ranks second among the top 10 e-commerce nations, with penetration increasing from roughly 10% of all retail sales in 2019 to approximately 15% in 2020. According to the US Bureau of Labor Statistics, there will be 19,194 warehouses in the US in 2020, up from 15,255 in 2011. By 2027, it is expected that worldwide online e-commerce sales will have doubled, adding almost 28,500 new warehouses to the stock. The European e-commerce market has grown by

24% from 2020-2021 according to the European e-commerce report 2022 and the Asia pacific e-commerce market registered a growth of 20% from 2020 to 2021 according to the insider intelligence report of 2022. The increased number of warehouses will likely lead to heightened demand for industrial LEVs attributed to their low maintenance and usage costs, dependability, and better load-carrying and handling capabilities. Most businesses provide electric forklifts, pallet trucks, tow tractors, and other vehicles for various end-use sectors. Due to their compliance with Tier 4 emission standards and lack of in-plant emissions, industrial LEVs are typically preferred by end users. Players are producing eco-friendlier industrial vehicles by manufacturing them in eco-friendly factories.

“GROWING SALES OF E-BIKES, E-SCOOTERS, AND E-MOTORCYCLES TO DRIVE THE LEV MARKET”

Two-wheeled vehicles use electric motors to attain motion. The electricity is stored in a rechargeable battery, which drives the electric motors. These vehicles are zero-emission electric motor-driven vehicles. The operating speed and top speed of electric two-wheelers are based on battery technology.

Scooters and bikes are easy-to-operate two-wheelers with a step-through frame and a platform for the user’s feet. These two-wheelers are affordable, lightweight, and easy to commute. On the other hand, motorcycles are heavier, faster, and bigger than scooters/mopeds. Depending on the requirement, these two-wheelers have different body designs and frames. The electric versions of scooters and motorcycles are powered by electricity stored in their batteries. Electronic systems are more resistant than mechanical models because they break less often due to less friction and less wear. As a result, electric two-wheelers last longer and reduce the environmental impact compared to fuel-powered vehicles. Manufacturers are expected to develop two-wheelers with a higher range than the current breed of electric two-wheelers. In May 2021, Yadea Group Holdings Ltd. launched the Yadea Champion 2.0 series of e-scooters equipped with the world-leading TTFAR 8 extended-range system. In March 2022, Okinawa Autotech also launched an electric scooter, Okinawa okhi90, which features 16-inch alloy wheels and a range of 160 km.

“Asia Pacific to lead LEV market in coming years by value”

Asia Pacific was the largest market for LEVs and accounted for approximately 59% of the market in 2021 by value, owing to the large-scale sale of LEVs wherein China was the largest and India was the fastest growing market. The market is supported by local and national incentives like the drafted law of India in July 2022 wherein all the fleet operators should have a 100% electric vehicle fleet, and innovative business models built around LEVs like delivery and transportation services, vehicle renting/leasing for personal, commercial, and industrial uses, and others. The demand is equally increasing for B2B & B2C segments, with final consumers asking for different products which are Technologically advanced, light in weight, removable, and easily changeable. This is expected to drive competitive pricing in the market. The market in Asia Pacific is estimated to be the largest and is estimated to demonstrate healthy growth in the future years.

Key drivers over the forecast period for personal mobility use are government subsidies and incentives, low maintenance and running costs, rapidly developing infrastructure around LEVs. For commercial and industrial use, the main drivers are zero/strict emission norms, benefits from government in terms of tax saving, subsidies, easy availability of renewable energy, and vehicle tracking & automation capabilities. Inflation and supply chain disruption due to the Ukraine and Russia War may affect the LEV market on a short term but a speedy recovery and increasing demand post this is expected.

Since, most of the LEV components manufacturing is done in the Asia Pacific region, many disruptive and constructive trends in the LEV components segments like swap stations for batteries with companies like NIO having the largest battery swap station in China as of May 2022 and entering the European market according to company's website, mid motor with chain drive, and other methods are seen to develop which are expected to drive the market demand even higher.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in this market.

By Company Type: Tier I – 67%, Tier II– 9%, and OEMs – 24%

By Designation: CXOs – 33%, Managers – 52%, Executives – 15%

By Region: North America – 25%, Europe – 34%, Asia Pacific – 41%

The LEV market is primarily dominated by players like Textron Inc., Polaris Inc., John Deere, Yamaha Motor Co., Ltd., Club Car Inc., and BMW AG. The top key players in the e-ATV/UTV segment of the LEV market are Polaris Inc., Toyota Industries, John Deere, and Textron Inc. The top key players in the e-Bike segment of the LEV market are Accell Group NV (Netherlands), Merida Industry Co. Ltd. (Taiwan), Giant Manufacturing Co. Ltd. (Taiwan), and Yamaha Motor Company (Japan). The top key players in the e-scooter/motorcycle segment of the LEV market are Yadea Grup Holding Ltd. (China), Niu International (China), Zhejiang Luyuan Electric Vehicles Co. Ltd. (China), Hero Electric (India), and Jiangsu Xinri E-Vehicle (China). The top key players in the neighborhood electric vehicles segment of the LEV market are Textron Inc. (US), Yamaha Motor Co. Ltd. (Japan), The Toro Company (US), and John Deere (US).. The top key players in the e-lawn mowers segment of the LEV market are John Deere (US), Honda Motor Co. Ltd. (Japan), The Toro Company (US), Yamabiko Corporation (Japan), and Husqvarna (Austria). The top key players in the light electric industrial vehicles segment of the LEV market are BYD (China), Yutong (China), and AB Volvo (Sweden). These players have worked on providing offerings for the LEV ecosystem. They have initiated partnerships to develop their LEV technology and offer best-in-class products to their customers.

Research Coverage:

The report covers the LEV market based on vehicle category, application, power output, component type, Vehicle Type, and region (North America, Europe and Asia-Pacific). It covers the competitive landscape and company profiles of the major players in the LEV ecosystem.

The study also includes an in-depth competitive analysis of the key market players, their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

Key Benefits of Buying the Report:

> This report will help market leaders/new entrants in this market with information on the closest approximations of revenue numbers for the overall LEV and LEV components ecosystem and its subsegments.
>
> This report will help stakeholders understand the competitive landscape and gain more insights to better position their businesses and plan suitable go-to-market strategies.
>
> This report will also help stakeholders understand the market’s pulse and

provide information on key market drivers, restraints, challenges, and opportunities.

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