

# Electric Bus Market to Offer Ample Growth Opportunities by 2031 | TMR Study

*Global Electric Bus Market is expected to reach 448.920 Thousand Units by the end of 2031, expanding at a CAGR of 17.89% during the forecast period*

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According to the report, the global [electric bus market](#) is projected to reach 448.920 thousand units by 2031, expanding at a CAGR of 17.89% during the forecast period. Hydrogen fuel cell buses are powered by combining the powertrain with fuel cell systems, controlled technology, and batteries. Such buses are regarded as the next generation of green vehicles, as they possess an extended lifespan as compared to e-buses. Rise in adoption of hydrogen fuel cell buses is estimated to offer significant opportunities for the market during the forecast period. Hydrogen fuel cell buses possess route flexibility as well as a fast refueling speed. These benefits have significantly boosted the demand for such buses for public transport systems.



## Expansion of Global Electric Bus Market

Electric hybrid buses have proven to offer a significant increase in fuel economy, as compared to standard diesel buses. In fact, according to the National Renewable Energy Laboratory (NREL), hybrid buses offer an average 37% higher fuel economy improvement than that offered by conventional diesel buses. A significant benefit of electric-drive buses is their improved performance. These vehicles provide a quieter and smoother ride, as compared to buses with more traditional ICE engines, providing passengers a more enjoyable ride. Acceleration in electric drive buses is also smoother and faster due to the fact that electric motors have increased low-end torque. Reduction in the maintenance cost of electric drive buses is also an improvement in their performance. These buses are expected to have lower maintenance costs due to reduced stress on mechanical components. These components could experience an increase in their usable lifetime by 50% to 100%. Low maintenance for electric drive buses is also due to the fact that these buses simply have fewer parts than traditional transmission powered buses.

Battery electric buses have the lowest maintenance cost, owing to the presence of only electric drivetrain and possess high low-end torque, which makes these buses suitable for application in

hilly areas.

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## Electric Bus Market Segmentation

In terms of bus length, the 10-12 meter segment accounted for a notable share of the global electric bus market. However, the 12-15 meter segment is expected to gain market share by the end of the forecast period owing to the large volumes of electric passenger buses used in public transport fleet. Most public transport fleets, especially in China, which accounts for almost 99% of the market, have electric buses that are 12–15 m in length. Furthermore, several market leading OEMs such as BYD, Proterra, and Yutong have been providing electric buses in the 12-15 m length range. BYD offers K8 and K9 electric buses between 12 m and 15 m in length and a range of 155 miles and 190 miles. It also offers C8 and C9 transit buses with a range of 125 miles and 155 miles, respectively.

In terms of battery type, the lithium ion- phosphate battery segment held a prominent share of the electric bus market in North America, in terms of volume, in 2020. The average price of Li-ion battery packs for large orders declined from approximately \$600 per kilowatt-hour (kWh) in 2015 to approximately \$150/kWh in 2020. Any decline in the battery price would help automotive OEMs cut down the price of the vehicles, as the battery accounts for around 40% of the electric bus manufacturing cost, thereby boosting their sales. Additionally, the battery capacity is likely to increase, owing to technological advancements, which, in turn, is estimated to help cater to the demand for a longer driving range. Thus, manufacturers are consistently working toward achieving a higher energy density and lower reliance on cobalt, an expensive raw material used in these batteries. This, in turn, would increase the operational efficiency of these batteries and lower their cost, respectively, thus, ultimately, boosting bus sales. This acts one of the key drivers in the electric bus market.

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The batteries of current electric buses have low capacities with long charging durations and limited range per charge. The performance and service life of batteries directly affect the performance and the cost of electric buses. Presently, batteries used to power electric buses are lead-acid, nickel cadmium, nickel metal hydride, lithium-ion, and super capacitors. Lithium-ion batteries are gradually replacing lead-acid, nickel cadmium, and nickel metal hydride batteries in electric buses, as they offer a longer battery life. However, the capacity of lithium-ion batteries is too low to power commercial vehicles, such as electric buses, as the heavy loads require more power to create maximum torque. In cold climates, the charging-discharging performance of batteries declines significantly, making it difficult for batteries to provide maximum power. The time required to charge an electric bus with the equipment available currently in the market is

very long, leading to wastage of time. The average time required to charge an [electric vehicle](#) from 0% to 100% with a 7 kW charging point is more than 4 hours. Moreover, most of the charging infrastructure is equipped with low-capacity chargers. These challenges must be addressed in order to boost the electric bus market.

## Regional Analysis of Electric Bus Market

Based on region, the global electric bus market has been segregated into North America, Europe, Asia Pacific, Middle East & Africa, and Latin America. Asia Pacific (APAC) held a prominent share of the global electric bus market, primarily because of the large-scale deployment of these vehicles in China. This is due to the enactment of supportive policies and provision of financial incentives by governments for the replacement of traditional diesel, petrol, and natural gas buses with greener variants. Moreover, several other countries in the region are aiming to electrify their public fleets over the next few years.

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## Electric Bus Market Players

Prominent players operating in the global electric bus market include BYD Company Ltd., Yutong, New Flyer Industries Inc., Proterra Inc., Solaris Bus & Coach SA, Zhongtong Bus Holding Co., Ltd, Shenzhen Wuzhoulong Motors Co., Ltd, EBUSCO BV, Alexander Dennis, King Long, FAW Group, AB Volvo, Daimler AG, TATA Motors, and Ashok Leyland.

## Drivers of Electric Bus Market

Gasoline being a fossil fuel is not a renewable source of energy, and it is anticipated to exhaust in the near future. It is important to develop and use alternative sources of fuel to support sustainable development. This involves use of electric buses, which do not use gas and are more cost-effective than conventional buses. An electric bus converts over 50% of the electrical energy from the grid to power at the wheels, while the gas-powered bus only manages to convert about 17% to 21% of the energy stored in gasoline.

Demand for fuel-efficient buses has increased recently owing to a rise in prices of petrol and diesel. This is due to depleting fossil fuel reserves and growing tendency of companies to gain maximum revenue from these oil reserves. Thus, these factors boost the need for advanced fuel-efficient technologies, leading to a surge in the demand for electrically powered buses for travel.

The conventional gas-powered vehicle employs an internal combustion engine to generate power. In an ideal scenario, the combustion system fully incinerates the fuel and only creates carbon dioxide and water as a waste; however, the combustion system generates various

greenhouse gases, leading to environmental pollution.

On the other hand, an electric bus uses an electric motor powered via a continuous supply of current; hence, it does not create any pollutants. The U.S., Germany, France, and China have implemented stringent government laws and regulations for vehicular emission, making it mandatory for automobile manufacturers to use advanced technologies to combat high-emission levels in buses.

A program launched by the California Air Resources Board (CARB) also includes guidelines for manufacturers to produce and deliver zero-emission vehicles (ZEVs), thereby substantially boosting the adoption of electric buses. Moreover, various countries are planning to switch completely to electric buses from conventional buses, owing to stringent emission norms. For instance, in September 2019, Nitin Gadkari (Union Minister of Road Transport and Highways in India) said that all the buses in India would switch to electric propulsion type in the following two years to reduce pollution levels across the country. Such initiatives are expected to drive the global electric bus market.

Electric Vehicle Charging Station Market - <https://www.prnewswire.com/news-releases/government-policies-encouraging-use-of-electric-vehicles-to-reduce-environmental-pollution-to-boost-electric-vehicle-charging-station-market-innovations-in-automotive-technology-to-intensify-competition---tmr-301317344.html>

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