

EV Powertrain Market Assessment, By Component Type [Battery Pack, Power Electronic Controller, Electric Motor, Converter, Transmission, On-Board Charger, Others], By Vehicle Type [Passenger Car, Commercial Vehicle], By Vehicle Drive Type [Front Wheel Drive, Rear Wheel Drive, All Wheel Drive], By Propulsion Type [Battery Electric Vehicle , Hybrid Electric Vehicle , Plug-in Hybrid Electric Vehicle , Fuel Cell Electric Vehicles ], By Region, Opportunities, and Forecast 2016-2030

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## **Report description:**

The Global EV Powertrain Market size was valued at USD 101.45 billion in 2022 which is expected to reach USD 323.53 billion in 2030 with a CAGR of 15.6% for the forecast period between 2023 and 2030. Electric powertrain systems are essential for generating and transmitting power to the vehicle's wheels in fully electric, hybrid electric, and plug-in hybrid electric vehicles. These EV, HEV, and PHEV powertrains bring numerous benefits compared to conventional counterparts, including reduced emissions, enhanced fuel efficiency, and high torque at low speeds.

The substantial rise in oil prices is primarily driven by the gradual depletion of global oil reserves, which is exacerbated by the pressing global issue of global warming, largely caused by the substantial emissions of CO2. Environmental preservation and energy conservation have become issues of global significance. Consequently, the prevailing industrial vehicle design and development trend concerns green energy solutions. This has led automotive companies to focus on the development of e-powertrains, which are specifically engineered for low energy consumption and the reduction of carbon emissions. The e-powertrain eliminates the need for an internal combustion engine and is known for its compact and lightweight design. It generates instant torque and minimizes vibrations. Key components of the Electric Vehicle powertrain encompass the power distribution module (PDM), transmission, inverter, converter, transmission, and electric motor, among others. These components

collaborate to deliver a high-quality, smooth, and responsive driving experience.

The factors like declining cost of ownership for electric vehicles, government incentives and improving EV charging infrastructure is propelling the demand for electric vehicles which in turn is boosting the production of electric vehicles. Hence, the demand for EV powertrain is experiencing surging demand owing to the improving EV production volumes to bridge demand supply gap globally.

### Increasing Environmental & Sustainability Awareness Driving the EV Adoption

The global Electric Vehicle (EV) powertrain market is experiencing a rapid transformation, driven by a combination of key factors. Stringent environmental regulations, such as emissions standards set by governmental bodies and agencies like the U.S. Environmental Protection Agency's GHG emission regulations, have compelled automakers to invest significantly in electric powertrain technologies. The urgent necessity to reduce carbon emissions and combat climate change has become a central driver for the widespread adoption of electric vehicles. According to the 2022 Zero-Emission Vehicles Factbook unveiled during COP27 in Egypt, passenger electric vehicle sales are projected to exceed 10 million units, marking a substantial increase from the 6.6 million recorded in 2021. In the first half of 2022, electric vehicles captured more than 13% of global new car sales, a notable rise from the 8.7% figure reported for the entire year of 2021.

Moreover, the market is experiencing significant growth due to consumers' increasing popularity of electric and hybrid vehicles. The rising awareness regarding environmental conservation and the growing demand for sustainable transportation options have led to a surge in the adoption of electric vehicles, thereby propelling the EV powertrain market. Furthermore, governments worldwide are introducing attractive incentives and subsidies to encourage the uptake of electric vehicles, creating a favorable environment for both manufacturers and consumers. These factors' synergy generates robust market demand, drives technological advancements, and fosters the expansion of the global EV powertrain market.

Rising Cost of Gasoline Based Fuels Prompting Commuters to Switch to EVs

The rising tide of fuel prices and escalating environmental concerns have prompted consumers to shift toward electric mobility solutions, particularly in developed nations. This has ignited an intensity among automobile manufacturers to develop compact and lightweight e-powertrain solutions that align with the everyday needs of consumers. Government policies and support mechanisms play a pivotal role in this transformation, as they offer an array of incentives such as grants, subsidies, and support for domestic production, which further catalyze the mass adoption of electric vehicles. In parallel, non-financial incentives are gaining traction, bolstering the market for electric vehicle powertrains. This concerted effort to embrace eco-friendly and efficient transportation is paving the way for the rapid expansion of the electric vehicle powertrain market.

EVs present an attractive solution, offering a more economical and sustainable alternative to traditional petrol-powered vehicles. The growing interest in EVs for commuting stems primarily from their significantly lower operational costs when compared to petrol or diesel vehicles. Electric vehicles are highly energy-efficient and not subject to fluctuating fuel prices, providing consumers with greater stability in their transportation expenses. Although the initial purchase cost of an EV might be higher than traditional vehicles, the long-term savings on fuel and maintenance expenses make EVs a compelling investment. Owing to this, the demand for EVs has further increased the demand for EV powertrains for production.

Battery Electric Vehicle Contributing to Major Demand for EV Powertrain

The production of Battery Electric Vehicles (BEVs) plays a pivotal role in driving global demand for Electric Vehicle (EV) powertrains. This phenomenon is underpinned by a complex interplay of factors that revolve around zero emissions, remarkable advancements in battery technology, and shifting consumer preferences. Advances in battery technology have translated into tangible improvements in BEVs' energy density, range, and overall performance. Lithium-ion batteries have become more efficient and cost-effective, reducing the overall price tag of BEVs. As battery technology advances, it wields a direct and transformative impact on the demand for EV powertrains, catalyzing innovation and investment within the sector.

In tandem with these technological strides, a growing environmental consciousness among consumers is driving a surge in demand for BEVs. Consumers increasingly recognize the advantages of electric vehicles, including reduced operating costs, diminished maintenance requirements, and the convenience of home-based charging. This burgeoning consumer demand for BEVs serves as a powerful force propelling the production of these vehicles and, consequently, the escalation in demand for EV powertrains. Notably, this trend opens up significant opportunities for the industry in the near future. An illustrative example is Toyota's recent announcement of its ambitious plan to manufacture 600,000 BEVs by 2025, marking a substantial increase from

## its previous target of 190,000 EVs by 2024.

Government Incentives Driving EV Adoption

Governments worldwide are implementing a variety of incentives to encourage the adoption of Electric Vehicles (EVs). These incentives encompass subsidies that directly reduce the purchase price of EVs, making them more affordable for consumers. Tax credits are another common approach, providing financial benefits to individuals or businesses purchasing electric vehicles by lowering their tax liabilities. Many countries also offer tax exemptions, sparing EVs from specific taxes like sales tax, road tax, or import duties, further reducing the overall cost of ownership. For instance, the United States offers a federal tax credit of up to USD 7,500 to purchase an EV, and many states also offer incentives. Likewise, Norway offers EVs a complete exemption from import duties, VAT, and free parking access to EV owners. Indian government has already initiated plans to replace gasoline-based vehicles in fleet with electric vehicles.

In addition, governments provide incentives to manufacturers, including grants and low-interest loans, to promote the production of EVs and their components like powertrains. For instance, India has announced the production linked incentive (PLI) scheme allocated a budget of USD 3,160 million to the automobile and auto component industry. this initiative offers financial incentives to promote the domestic production of advanced automotive technology products, which includes electric vehicles and their components. under this scheme, eligible sales of electric vehicles and their parts can receive incentives up to 18% of their value. Impact of COVID-19

The electric powertrain industry had been impacted by the global COVID-19 pandemic, resulting in a decline in growth due to reduced automotive sales and changing requirements. Nevertheless, the market is being driven by stringent emission regulations imposed by governmental bodies, such as the U.S. Environmental Protection Agency's Greenhouse Gas (GHG) emission standards, India's BS-VI norms, and China VI standards. The recovery in post-COVID-19 sales of pure and hybrid electric vehicles is a significant factor in the electric powertrain sector. Additionally, governments' widespread adoption of electric cars and enticing incentives to promote domestic electric vehicle production are expected to enhance the global demand for electric powertrains. Key players Landscape and Outlook

EV powertrain manufacturers are teaming up with automobile companies for several reasons. Firstly, these partnerships combine specialized expertise: powertrain manufacturers bring knowledge in electric motors and batteries, while auto companies offer insights into vehicle design and safety standards. Secondly, tapping into established automakers' infrastructures ensures cost-efficient EV production due to economies of scale. Moreover, these collaborations grant access to extensive dealership networks, widening the reach of EVs among consumers. Innovation accelerates as these entities pool resources, leading to cutting-edge EV technologies. Additionally, these partnerships aid traditional automakers in adhering to strict environmental regulations by integrating electric powertrains. Shared financial risks make substantial EV investments more manageable. Lastly, affiliating with reputable automakers boosts brand credibility, enhancing consumer confidence and driving the overall adoption of electric vehicles.

In April 2023, Denso Corporation (Denso) achieved a significant milestone by creating its inaugural inverter featuring silicon carbide (SiC) power semiconductors. This cutting-edge inverter is slated for integration into BlueE Nexus Corporation's eAxle, a pivotal component in the Lexus RZ, thus contributing to the vehicle's performance and efficiency.

In February 2023, Continental AG introduced an innovative electric motor rotor position sensor (eRPS) tailored for electric vehicles. The eRPS harnesses inductive technology to accurately determine the position of the rotors in synchronous electric machines, leading to enhanced efficiency and a more seamless operational experience.

In December 2021, Magna International Inc. (Magna) unveiled its comprehensive all-electric connected powertrain, the EtelligentReach. This holistic system includes two electric motors, inverters, and transmissions, with the added advantage of advanced software to enhance vehicle range and driving dynamics optimization.

In November 2021, Mitsubishi Electric Corporation (Mitsubishi Electric) made its foray into the electric vehicle (EV) market by introducing e-axles, which seamlessly combine motors, inverters, and reduction gears, serving as an integrated solution for EVs.

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17. About Us & Disclaimer

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