Automotive Regenerative Braking System Market Assessment, By Component [Battery, Motor, ECU, and Flywheel], By Propulsion [BEV, PHEV, FCEV], By Vehicle [Passenger Bar, Light Commercial Vehicle, Heavy Commercial Vehicle], By Region, Opportunities and Forecast, 2017-2031F

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Report description:

The global automotive regenerative braking system market is projected to witness a CAGR of 10.21% during the forecast period 2024-2031, growing from USD 7.23 billion in 2023 to USD 15.75 billion in 2031. The increased adoption of electric vehicles and the technological advancements in the braking system of highly efficient vehicles are expected to garner market growth. While slowing down the vehicle, regenerative braking converts the kinetic energy into electric power. It brings many advantages for electric vehicles, including higher power, long shelf life of brakes and rotors, and extended range. Though EVs and hybrids require an important portion of stopping power from regenerative braking alone, they also have traditional hydraulic brakes. However, the automotive industry is witnessing an increase in the use of regenerative braking systems, majorly due to heightened global awareness of environmental sustainability issues. Concern over greenhouse gas emissions and the consequent impact of fossil fuel consumption on climate change is driving pressure on automakers to lower the carbon footprints of their vehicles.
The increasing demand for efficient electric vehicles, along with extended research and development facilities, is anticipated to fuel the market growth. Furthermore, the expanding EV charging infrastructure is also fuelling market growth. For instance, Tata Motors launched its 2024 Electric Nexon SUV in September 2023. The vehicle has regenerative braking that increases the overall range through multi-mode regen and paddle shifters.
Extended Range and Higher Fuel Efficiency to Drive Market Expansion
Regenerative braking systems recover kinetic energy lost during braking and deceleration and utilize it to replenish the vehicle's battery. They are generally used on pure electric and hybrid automobiles. In this method, when accelerating or cruising, the motor propels the wheels, but when braking, the wheels propel the motor. The motor can function as a generator by preventing the wheels from rotating and producing power that can be used to recharge the car's battery thanks to this two-way energy flow. The

increased fuel process and rising demand for efficient electric vehicles are anticipated to propel the market growth for automotive regenerative braking systems.

The global automotive industry is seeing a surge in demand due to rising car sales and production, leading to increased greenhouse gas emissions. In addition, the government is pressuring automakers to implement cutting-edge technologies that can lower vehicle fuel consumption and pollutants from exhaust fumes. This may accelerate the market for automotive regenerative braking systems worldwide.

In June 2023, ZF Friedrichshafen AG declared that it had created a 7.5-ton battery-electric truck regenerative braking system for Tevva. The company worked with Tevva experts as part of the initiative to incorporate the electronic brake system (EBS) into their electric trucks, which emit no emissions. For Tevva's truck, its engineers completed rigorous testing requirements while optimizing the vehicle's control unit (VCU) and improving interoperability with the EBS.

Reduced Emissions Along with Extended Brake Life to Thrive Market Growth

Higher adoption of EVs leads to increased sales of regenerative braking systems. Along with reduced emissions, the extended brake life also helps the market strive. Governments worldwide are implementing strict emissions limits and fuel efficiency regulations in response to environmental concerns about air pollution and the need to lessen their dependency on fossil fuels. These regulatory frameworks heavily push manufacturers to incorporate regenerative braking systems into their car designs to comply with the rules. For example, the European Union's stringent pollution restrictions drive automakers to use more environmentally friendly technology, such as regenerative braking systems. Automotive companies collaborate with major tech companies to enhance the regenerative braking experience.

For instance, in April 2024, Mercedes-Benz unveiled Benz EQS with several enhancements, including 118.0-kWh battery pack and revised regenerative braking software that increases the vehicle's range by over 10%.

Government's EV Push to Add Value to the Market Expansion

Governments around the globe are promoting the adoption of electric vehicles to limit vehicular emissions. The growth in sales of electric vehicles leads to the adoption of certain equipment and technology, including regenerative braking systems. Furthermore, EV and electric two-wheeler manufacturers are also introducing new ones. Governments also provide new incentives and investments in EV technology, components, and vehicle producers. The demand for emission-free technologies, cost savings, and technological breakthroughs have all contributed to the popularity of electric vehicles in recent years. Because of growing worries about automobile emissions, the market is expected to increase dramatically. Several institutions have been drawn to invest in this area as a result.

For instance, in April 2024, Kenya's energy distributor, Kenya Power, announced on Monday that it would invest USD 1.93 million over the next three years to promote the use of electric vehicles (EVs) in Kenya. To ensure the construction of safe, dependable, accessible, and reasonably priced charging services and to expedite the adoption of electric vehicles, Kenya created a framework for infrastructure related to battery swapping and charging in September 2023.

Asia-Pacific Leads in the Market

Asia-Pacific held the largest market share for regenerative braking systems in 2023 and is predicted to continue growing in the coming years. Compared to other regions, it has witnessed the fastest growth rate as well. Over the projection period, the demand for Battery Electric Vehicle (BEV), Hybrid Electric Vehicle (HEV), and Plug-in Hybrid Electric Vehicle (PHEV) is anticipated to be fuelled by the region's increasingly strict emission regulations. In 2023, the Chinese EV market was the major factor for the increase in battery demand in the region while expanding its manufacturing facilities.

The market's second-most prominent area is North America. Regenerative braking is becoming more common in electric vehicles as people's demands for stress-free driving, safe transportation, and efficient travel grow. The markets in Europe and the rest of the world have grown remarkably. With initiatives like the early regularization of EVs and autonomous cars, Europe is concentrating on strengthening its EV position in the market. By providing funds and initiatives, the government oversees the use of autonomous vehicles.

For instance, in November 2023, the new Minicab EV, a kei-car1 class electric commercial vehicle with a monobox design, went on sale at sales affiliates across Japan on December 2023, according to a statement made by Mitsubishi Motors Corporation (henceforth, Mitsubishi Motors). Activating the regenerative brake in the B position, which increases regenerative power reduces actual power consumption.

Future Market Scenario (2024-2031F)

- Advanced regenerative braking systems with ABS and EV transmission and expanding research and development facilities are anticipated to fuel the market growth.
- The higher demand for electric two-wheelers and the addition of a regenerative braking system for efficient performance is projected to garner market growth.
- Government support for EV manufacturers, including auto technology, through incentives, investments, and major tax cuts is likely to expand the global regenerative braking system market.
- The rapid ascent of hybrid and electric vehicles (HEVs and BEVs) has substantially impacted regenerative braking technology. These vehicles use regenerative braking to extend range and replenish batteries.

Key Players Landscape and Outlook

The automotive regenerative braking system market comprises major automotive equipment companies like ZF, AISIN Corporation, and Denso Corporation. The companies work on innovating the braking technology, along with enhancing efficiency and research and development. Furthermore, the companies also collaborate, acquire, and partner to expand their supply chain, distribution channel, and overall market hold.

For instance, in November 2021, Continental AG announced MK C2 Brake-by-Wire. Since the MK C2 is lighter and more compact than its MK C1, it is significantly simpler to integrate into smaller cars and entire vehicle platforms with a variety of installation places and powertrain types.

In January 2021, ZF Friedrichshafen AG launched its regenerative brake system for electric vehicles, enhancing safety and energy recuperation. This state-of-the-art brake control system is used across the complete model range of Volkswagen's MEB platform. The software interface facilitates feature integration and networking.

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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

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