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Off-highway EV Component Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

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Abstracts

The Global Off-highway EV Component Market was valued at USD 15.3 billion in 2024 and is estimated to grow at a CAGR of 8.1% to reach USD 28.6 billion by 2034, fueled by the accelerating transition toward electrified construction, mining, and agricultural machinery. As industries prioritize cleaner alternatives to traditional combustion engines, electric-powered equipment is gaining traction for reduced emissions, lower fuel consumption, and minimized maintenance costs. Regulatory mandates, emission control laws, and rising environmental awareness are pressuring original equipment manufacturers to invest in electric solutions. Additionally, governments and private sectors are investing heavily in smart infrastructure and green development, further increasing the demand for off-highway EV components.

The adoption of electric equipment such as loaders, dozers, and cranes is essential in reducing the environmental footprint of major urban development and infrastructure projects. Beyond electrification, the integration of digital technologies-such as predictive diagnostics, fleet connectivity, and smart telematics-is redefining operational efficiency in off-highway segments. These advancements fuel demand for highly specialized electronic components tailored for rugged, high-duty environments. Equipment with remote monitoring and real-time data capabilities supports better uptime and lifecycle cost control, helping fleet operators optimize performance in field operations.

Among application categories, the earthmoving segment captured the largest share in 2024, accounting for 37% share, driven by the high usage of electric excavators, loaders, and similar equipment across diverse project sites. Earthmoving machinery is well-suited for electrification, given its consistent usage patterns and the increasing need to operate in emission-regulated zones. OEMs and system suppliers are

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responding with next-gen battery packs, electric drivetrains, and cooling systems to meet growing demand in both public and private projects.

In 2024, battery electric vehicles (BEVs) captured the largest portion in the off-highway EV component market, making up 66% share, driven by their ability to operate without tailpipe emissions, a major advantage in today's push for greener construction and mining operations. BEVs also offer operational efficiency and long-term cost benefits, thanks to lower fuel consumption, reduced mechanical complexity, and minimal maintenance requirements. Their compatibility with closed or restricted environments, such as tunnels, dense urban job sites, and indoor agriculture facilities, further enhances their utility. The quiet operation of BEVs also makes them increasingly favored in noise-regulated environments, supporting broader adoption across multiple off-highway sectors.

China Off-highway EV Component Market held 46% share and generated USD 3.25 billion in 2024, underpinned by consistent support from national policies aimed at reducing industrial emissions and improving equipment efficiency. With advanced manufacturing capabilities, especially in battery production and electric powertrain technologies, China supplies high-performance EV components at scale. The nation's comprehensive EV infrastructure, combined with widespread deployment across agriculture, mining, and construction sectors, continues to reinforce its leadership and accelerate the region's overall market expansion.

To reinforce their market positions, companies such as Tata Elxsi, Volvo AB, Komatsu, Liebherr, and Deere & Company are focusing on vertical integration and long-term collaborations. Strategic investments in next-gen battery systems, power electronics, and digital platforms enable these firms to lead electrification trends. Partnerships with tech providers and co-development of customized solutions allow these players to cater to sector-specific needs while maintaining cost competitiveness.

Companies Mentioned

Bell Equipment, Caterpillar, CNH Industrial, Dana, Deere & Company, Doosan, Epiroc, Hitachi Construction Machinery, JCB, Komatsu, Kubota, Liebherr, Manitou Group, Sandvik, Sona Comstar, Sumitomo Heavy Industries, Tata AutoComp, Tata Elxsi, Terex, Volvo AB

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