Market Reports Dramatically Undercount the True Size of the EV Electric-Motor Market, New Analysis Finds

Distorted accounting obscures real propulsion costs, rare-earth dependency, and emerging alternatives

BOSTON, MA, UNITED STATES, February 16, 2026 /EINPresswire.com/ -- A newly released technical analysis finds that many widely cited electric motor system (e-motor) market reports substantially understate the true size of the electric-vehicle (EV) propulsion e-motor market, leading to misleading conclusions about cost, technology maturity, and rare-earth dependence.

According to the analysis, the distortion arises from narrow accounting practices that count only externally sourced, stand-alone motors while systematically excluding three dominant contributors to EV propulsion systems: in-house motor production by original equipment manufacturers (OEMs), fully integrated drive units combining motors with power electronics and gear reduction, and large portions of Chinese domestic manufacturing.

As a result, some reports conclude that EV traction e-motors represent approximately one percent of permanent-magnet (PM) e-motor demand. This conclusion contradicts basic unit-count economics and observed global EV production. In particular, reports often simultaneously claim that more than 85–90 percent of EV traction motors rely on rare-earth permanent magnets, yet estimate the EV motor market at under US$1 billion while projecting a US$75 billion permanent-magnet motor market overall—a discrepancy exceeding a factor of 100× that cannot be reconciled by legitimate segmentation or reasonable average selling price assumptions.

The disconnect becomes evident when examining commercially available EV propulsion systems. Integrated rare-earth permanent-magnet drive units in the 150-kilowatt class are priced near US$70–75 per kilowatt even at scale, benefiting from their state-sponsored rare-earth supply conditions. Yet automated online summaries and secondary sources frequently cite figures near US$20 per kilowatt—levels that fall below the combined cost of copper, electrical steel, magnets, insulation, and power electronics and are therefore physically and economically infeasible.

From a physics standpoint, the analysis explains, all asymmetric electric motors with passive rotors—including permanent-magnet, induction, reluctance, and field-wound synchronous machines—converge toward similar torque-speed and efficiency limits when optimally designed using comparable materials, cooling methods, and manufacturing processes. Absent rare-earth

subsidies, these architectures also converge toward similar cost structures. This convergence has driven many major EV OEMs to internalize motor production, further masking true system costs from third-party market surveys.

Growing geopolitical risk, concentrated rare-earth supply chains, and escalating magnet costs have prompted OEMs to seek rare-earth-free alternatives. However, nearly all commercially proposed alternatives remain asymmetric e-motors constrained by passive-rotor physics and therefore deliver only incremental performance gains through established packaging techniques.

Against this backdrop, the report highlights the emergence of symmetric, active-rotor electric-motor architectures as a distinct departure from conventional designs. Unlike passive-rotor systems, symmetric architectures allow both stator and rotor to contribute independent working electromagnetic power, enabling a genuine step-change in performance rather than incremental gains through packaging.

When combined with axial-flux form factors, established packaging techniques, and scalable manufacturing methods, such active-rotor systems break the long-standing performance-cost parity inherent to passive-rotor electric motors.

One example cited is SYNCHRO-SYM™, a rare-earth-free symmetric active-rotor electric-motor architecture developed by Best Electric Machine (BEM). Based on BEM's internal CAD-driven cost modeling, a 150-kilowatt-class SYNCHRO-SYM system is projected at approximately US$57 per kilowatt after commercialization, while delivering higher torque density without permanent magnets or gearbox maintenance penalties.

A brief technical overview explaining the physics and system-level advantages of symmetric active-rotor electric-motor architectures is available at https://youtu.be/TJgzSnfsqJU.

About Best Electric Machine
Best Electric Machine (BEM) is a U.S.-based electric-machine technology company focused on rare-earth-free propulsion systems. BEM's SYNCHRO-SYM™ architecture and reprogrammable MOTORPRINTER™ manufacturing platform enable symmetric, active-rotor electric machines designed to improve performance, reduce cost, and eliminate dependence on rare-earth permanent magnets.

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