

# **BEM Unveils SYNCHRO-SYM™, a Magnet-Free E-Motor Solution to Rare-Earth Shortages**

[Press Release Preview – EIN Presswire – Press Release Distribution Service \(Aug. 20, 2025\)](#)

[<https://www.einpresswire.com/article/840901475/bem-unveils-synchro-sym-a-magnet-free-e-motor-solution-to-rare-earth-shortages>]

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## **Best Electric Machine Launches Early-Access Program for the SYNCHRO-SYM E-Motor**



[https://www.prnewswire.com/news-releases/best-electric-machine-launches-early-access-program-for-the-synchro-sym-e-motor-302513576.html?tc=eml\\_cleartime](https://www.prnewswire.com/news-releases/best-electric-machine-launches-early-access-program-for-the-synchro-sym-e-motor-302513576.html?tc=eml_cleartime)

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## [Best Electric Machine](#)

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### A Rare-Earth-Free Breakthrough in Electric Motor-Generator Technology

BEDFORD, Mass., July 29, 2025 /PRNewswire/ – Best Electric Machine (BEM), an American innovator in variable-speed electric motor-generator systems, announces the launch of its patented SYNCHRO-SYM™—the first truly novel electromagnetic motor-generator circuit and control architecture in over a century.

SYNCHRO-SYM eliminates rare-earth permanent magnets (RE-PMs) while doubling nominal power density, halving losses and cost, reducing copper and core material usage, and achieving up to 8× higher peak torque. Unlike today’s “same-old” motors with passive rotor asymmetry—based on RE-PMs, slip induction, reluctance saliencies, or DC field windings—SYNCHRO-SYM features a patented brushless, dual-active topology where both stator and rotor actively contribute to torque and power. This symmetric design delivers unmatched efficiency, sustainability, and affordability—and further multiplies performance when paired with wide-bandgap semiconductors or advanced packaging techniques.

“SYNCHRO-SYM reinvents the electric motor-generator system for the clean energy economy,” said Frederick William Klatt, CTO of Best Electric Machine. “We exceed the performance of rare-earth PM motor systems—at a fraction of the cost—and eliminate dependence on hostile, polluting supply chains.”

Backed by decades of R&D and a pilot retrofit program with a major U.S. motor manufacturer, SYNCHRO-SYM was validated as

“transformational” and is now redesigned and ready for commercialization. At 2,000 RPM and just \$23/kW, CAD analysis shows BEM’s 280kW (560kW peak) axial-flux system—with controller included—achieves a power density of 83kW/L, specific power of 20kW/kg, and torque density of 93Nm/kg.

BEM’s MOTORPRINTER™—a patented additive manufacturing method—enables just-in-time production using advanced materials once considered impractical, reducing both supply chain and environmental risks while enabling modular, scalable domestic manufacturing.

SYNCHRO-SYM is strategically aligned with U.S. energy and defense initiatives under the DOE, DOD, and CHIPS Act, offering a credible, scalable solution to re-shore manufacturing and de-risk critical infrastructure.

With electric motors consuming over 40% of global electricity and powering EVs, renewables, and aerospace systems, SYNCHRO-SYM delivers a once-in-a-generation leap in electric motor performance and national competitiveness.

Best Electric Machine is actively seeking customers for direct purchase—offering early-access to BEM’s leadership in motor-generator innovation through downpayment-based sales funding commercialization—while also welcoming strategic partners, investors, and public funding support.

SOURCE Best Electric Machine

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