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Czero successfully demonstrated Hybrid Genset/Mobile Tactical Battlefield Recharger (MTBR) to Army Applications Lab (AAL) and Ground Vehicle Systems Center (GVSC).

Fort Collins, Colorado - October 21, 2024.

Czero developed a functional Hybrid Genset/Mobile Tactical Battlefield Recharger (MTBR) in collaboration with Army Applications Lab (AAL) and Ground Vehicle Systems Center (GVSC), which was successfully demonstrated at the GVSC Detroit Arsenal grounds in August 2024. Czero completed the mechanical design, integration, build, test and controls work necessary to mature the MTBR to a TRL 5/6 platform. This is the second demonstration for the Army; [the previous demo was done in December 2021](#).

The MTBR is a non-synchronous, 330kw continuous and 540kw burst hybrid genset with EV charging capability that can be deployed into austere battlefield environments to provide a recharge capability for plug-in and all-electric combat vehicles. The inclusion of batteries allows the MTBR to choose the most efficient operating point for the engine to meet the current output power demand, reduce fuel costs and provide silent operation.

The demonstration showed the MTBR in action seamlessly changing from various operating modes including exporting power and charging multiple EVs in silent mode in a difficult, tactical environment where the enemy may be in proximity, to normal mode or rapid internal charge mode where acoustic and heat discipline are not factors. Stakeholders from GVSC, AAL, PME2S2, and Enercon attended the demo in-person and via livestream. The project was funded through a SBIR Phase II award from the U.S. Army.

“Today we had the opportunity to demonstrate the latest version of the MTBR to a wide variety of DoD stakeholders. The demo was well received by attendees and garnered a lot of follow-on interest. I’m happy with the Czero team that worked on the TBR; their expertise and experience here really allowed us to knock it out of the park.”

– Travis Johnson, Czero Project Manager/Technical Lead

Czero and Enercon are working together on the commercialization of this high efficiency hybrid power generation system that could play a valuable role in providing expeditionary power as well as EV charging in austere environments. Enercon has extensive experience with packaging tactical power systems for programs like the Missile Defense Agency’s AN/TPY-2 Radar Prime Power Unit (PPU).

About Czero, Inc. | www.czero-solutions.com

A mechanical engineering R&D firm specializing in transportation and electrification, Czero helps companies and government organizations develop innovations for the automotive/heavy truck, oil and gas exploration, renewable energy, and clean tech industries. Czero engineers

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have expertise in high-performance mechanical, electromechanical, and electrohydraulic systems that increase energy efficiency and reduce emissions.

About Enercon | www.enerconpower.com

Enercon Power's mission is to provide customized power solutions, ensuring energy efficiency and operational continuity even in the most challenging environments. They focus on engineering, manufacturing, and delivering innovative systems like paralleling switchgear, controls, and industrial control panels, serving industries such as defense, utilities, and renewable energy.

About AAL | <https://aal.army/>

The Army Applications Laboratory (AAL) solves Army problems. AAL is Army Futures Command's innovation unit and a partner for industry, the Army, and government organizations. AAL discovers practices and processes to speed capability development and turn cutting-edge ideas into real, relevant solutions for Soldiers.

About GVSC | <https://www.usarmygvsc.com/>

The United States Army DEVCOM Ground Vehicle Systems Center (GVSC), located in Warren, Michigan, is the United States Armed Forces' research and development facility for advanced technology in ground systems.

About PM E2S2 | <https://www.peocscss.army.mil/pme2s2.html>

The Project Manager Expeditionary Energy and Sustainment Systems (PM E2S2) is the Army's project management office that provides integrated materiel solutions, force sustainment support, and contingency basing designs to Joint Warfighters across the full range of military operations. PM E2S2 is the lifecycle manager for multiple combat support and combat service support capabilities which include power generation and power distribution; field feeding and field services; shelters and environmental controls; aerial delivery systems; and contingency base engineering design support.

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