



RDECOM



GROUND VEHICLE **POWER&MOBILITY**

DRIVING THE **ARMY** FORWARD



Hybrid Electric Mobility Team

The TARDEC Ground Vehicle Power and Mobility Hybrid Electric Mobility (HEM) Team **MISSION** is to:

- Develop Hybrid-Electric Vehicle (HEV) component technology.
- Conduct test and evaluation on hybrid-electric components and systems.
- Develop technical solutions as the team of experts for hybrid-electric components and systems.
- Support customers including Program Executive Offices, Product/Project Management Offices (PMs), Soldiers and government agencies in all hybrid-electric-related matters.

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



Application Areas

The TARDEC Ground Vehicle Power and Mobility HEM Team works in the following application areas:

- Motors and inverters.
- DC-DC converters.
- Thermal management.
- HEV demonstrators test and evaluation.
- Hybrid-electric vehicle fuel economy measurement and Test Operating Procedure development and validation.
- Military exercises, such as the Air Assault Expeditionary Force.

Services

By developing and evaluating enabling technologies, the TARDEC Ground Vehicle Power and Mobility HEM Team is able to provide the following services:

- Advanced component technologies for Future Combat Systems.
- Improved components and system technologies.
- Breakthrough, emerging technologies vis-à-vis technical barriers.
- In-house testing capabilities for motors and power electronics.
- Hybrid system evaluation in the Systems Integration Laboratory (SIL).
- Fuel economy testing at Aberdeen Proving Ground and test data to validate established models.
- Support for PM decisions with test data.



Major Programs & Initiatives

The TARDEC Ground Vehicle Power and Mobility HEM Team is engaged in the following major programs and initiatives:

- HEV experimentation and assessment.
- SiC MANTECH program with the Army Research Laboratory.
- Thermal management of hybrid-electric components.
- Electromagnetic compatibility/electromagnetic interference/electromagnetic pulse.
- DC-DC converter interaction with batteries.
- High power density interior permanent magnet traction motor generators.
- Advanced boost generator control.

The Power and Energy (P&E) Hardware in the Loop SIL, located in Santa Clara, CA, is the Army's primary lab for research and development of hybrid-electric propulsion system technology. The P&E SIL provides a cost-effective, advanced and highly instrumented environment for evaluating, integrating and demonstrating performance of the enabling technologies for a compact, reduced-weight hybrid-electric power system for Future Combat Systems ground vehicles in the 20- to 25-ton range. The P&E SIL can develop, characterize and demonstrate advanced architectures, system controls, P&E generation, thermal management, power distribution, intelligent management and compact components and subsystems to iteratively evolve system designs and configurations.

