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Contact: william.dowell2@us.army.mil

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Landmark Investment in Michigan's Battery Technology Future Fuels On-Going TARDEC Research and Development Endeavors

DETROIT ARSENAL, WARREN, MI — Energy is an issue that affects all of us. It is becoming more and more imperative that the Nation find ways to make our vehicles more efficient and develop alternative means of powering them. At the U.S. Tank Automotive Research, Development and Engineering Center (TARDEC) those are among its top priorities.

As private sector needs and military vehicle requirements demand ever more efficient vehicles and alternative fuel sources, TARDEC is responding to the call. With Vice President Joe Biden in Detroit earlier this week to announce the first round of \$2.4 billion in federal battery and electric vehicle research grants, the U.S. government is clearly identifying and prioritizing battery research technology as a critical, long-term component to help build the Nation's future.

In particular, TARDEC researchers and scientists are aggressively advancing battery research and development (R&D) technology to develop inexpensive, lightweight, reliable and long-lasting batteries. Taking the lead in working with industry, academia and various government agencies, TARDEC-initiated efforts include:

- The Advanced Automotive Battery Initiative — bringing together military and commercial vehicle users to establish a cost-competitive, flexible domestic production base of high-quality advanced automotive battery materials and components that have dual-use applications to both military ground vehicles and commercial vehicles by the year 2015.
- The ManTech Program — advancing the performance of modern energy storage technologies while reducing production costs to deliver high-quality functioning products that will benefit commercial and military programs.
- Lithium-ion Battery R&D — researching and developing advanced materials such as non-flammable electrolytes to increase safety and product reliability; advanced cell chemistries to achieve higher power and energy for more lightweight batteries; improving battery life; and expanding temperature operating range through thermal modeling of cells.



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“We’re here to help address the Nation’s challenges. We have the technical expertise to drive the right solutions so that in the future we can truly be energy independent,” remarked Dr. Grace M. Bochenek, TARDEC Director. “These are issues the Army is addressing for current and future ground vehicle systems, which is why the Department of Defense (DOD) is building the Ground Systems Power and Energy Laboratory (GSPEL) at the Detroit Arsenal.”

Housed at TARDEC, the GSPEL’s eight-labs-in-one complex will have capabilities unlike any other facility in the world. It will be able to test entire vehicles and individual vehicle components in a wide variety of different environmental and operational load conditions. Designed with an eye toward the future, the GSPEL will serve as the cornerstone for the Army’s next generation of research, development and engineering to deliver advanced power and energy solutions.

TARDEC is hosting a groundbreaking ceremony for the 30,000 sq. ft. facility on 9 a.m. Aug. 17, 2009 on the Warren, MI, campus. Dignitaries from throughout the Army, state and local government, industry and academia are expected to attend the celebration.

Among the eight unique labs in the GSPEL complex are the Hybrid-Electric Lab and the Fuel Cell Lab. These labs will evaluate hybrid-electric (HE) powertrains and develop and evaluate fuel cell components and systems. TARDEC supports *all* of the Nation’s military ground vehicles, which means finding solutions that will work across a variety of tactical vehicles and robotic platforms. TARDEC and its partners have spent years researching and developing hybrid-electric systems, hydrogen fuel cells, alternative fuels and energy storage devices.

Example programs and initiatives include the Fuel Efficient Ground Vehicle Demonstrator (FED), Hydrogen Cooperative Refueling Program, Hybrid-Electric Vehicle Experimentation and Assessment Program, and ongoing Army Technology Objective vehicle testing programs. These new labs will help further R&D into alternative fuels, and propulsion systems, and focus efforts to address critical combat vehicle fuel efficiencies, auxiliary power requirements and field sustainability issues.

TARDEC’s work in the areas of fuel efficiency and energy security ensure our warfighters have the most advanced, high-tech vehicles imaginable. The solutions developed will help the Army’s ground vehicles sustain power they need to do their job and set the path for the Nation’s future energy independence.

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TARDEC is the Nation’s Ground Systems Enterprise to ensure U.S. Soldiers continue to be the best-equipped and most lethal, survivable and sustainable fighting force on Earth. For



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additional information or to schedule an interview, please contact Bill Dowell at (586) 574-5144, william.dowell2@us.army.mil or wdowell@brtrc.com.

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