



## GROUND VEHICLE POWER & MOBILITY



### Energy Storage

The U.S. Army Tank Automotive Research, Development and Engineering Center's (TARDEC's) energy storage mission is to pursue advanced energy storage technology, development, component testing and evaluation.

In response to the energy demands for electric power in Future Combat Systems and other military programs, TARDEC, through its GVPM Directorate, is maturing energy storage technologies to support warfighter performance requirements. Advancements in energy storage are needed to enable vehicle systems to accommodate hybrid-electric vehicle propulsion, improved auxiliary power units, silent watch capability and pulse power applications.

**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

## Primary Focus

The energy storage primary focus areas include:

- In July 2004, TARDEC awarded a 6-year Manufacturing Technology (ManTech) Program contract to establish a domestic supply of Lithium-ion (Li-ion) batteries while reducing the cost of a 30-kilowatt-hour pack by 50 percent and increasing the battery's power and energy density through technology and automated manufacturing process improvements.
- TARDEC developed the VL34P battery cell through the ManTech Program, which upgraded the VL30P battery cell with a 14-percent improvement in energy density, 11-percent improvement in weight, 75-percent improvement in power density and 63-percent decrease in the number of labor hours needed to produce the battery cell.



Through initiatives such as the ManTech Program, TARDEC is advancing modern energy storage technology performance while reducing production costs to deliver high-quality functioning products to the battlefield.

## Future Development Capabilities

TARDEC is further advancing Li-Ion battery technology through the Advanced Automotive Battery Initiative, which aims to establish a cost-competitive, flexible domestic production base for high-quality, advanced automotive battery materials and components that have dual-use applications for both military ground vehicles and commercial vehicles by 2015. To this end, TARDEC chaired a Battery Planning Summit where military and commercial vehicle users worked together to reach a consensus on the near-term approach required for launching and executing the initiative. The summit's results will be used to develop a final, multiyear strategic plan by defining dual-use requirements and identifying key characteristics that influence battery cell and module manufacturing. Maximizing commonality between military and commercial batteries will serve to reduce overall production costs by limiting the need for manufacturing flexibility to address unique requirements.