



Hybrid 320 Ton Off Highway Haul Truck: Quarterly Technical Status Report 8, DOE/AL68080-TSR08

This eighth quarterly status report for the Hybrid Off Highway Vehicle (OHV) project, DOE Award DE-FC04-2002AL68080 presents the project status at the end of September 2004, and covers activities in the eighth project quarter, July-September 2004.

Project Management Events

Tim Richter has replaced Lembit Salasoo as principle investigator. This will allow Lembit to focus primarily on Locomotive efforts and Tim to pay full-time attention to the Mine Haul project.

A team meeting was held at Global Research Center in Niskayuna to discuss full-scale prototype testing, review ZEBRA battery lab testing, and to review benefits assessment analyses. Attendees included Henry Young and Tarun Shivlani from GETS, Erie and core team members from Niskayuna.

Tim Richter attended the Las Vegas Mine Expo where Komatsu displayed their new 240 ton 830E-AC mine haul truck. This is the truck that will be used for the demonstration of hybrid equipment in late 2005 at the Komatsu Proving Ground in Tucson, AZ. A first-hand look at battery locations and interfaces to the control cabinet was taken and meetings with key Komatsu personnel were arranged.

Data supporting the completion of the first milestone was formally presented to the Department of Energy for review. Prior to submission, GE management reviewed this data and concurred to continue with the project.

Technical Status

In order to improve the accuracy of modeling predictions, coastdown testing at the Komatsu Proving Grounds using both 320t and 360t trucks, loaded and unloaded was performed. A range of rolling resistance values was defined for these configurations, adding confidence to the model.

The initial hybrid system utilizing NiCad and ZEBRA batteries has been replaced with a single system of ZEBRA batteries. This arrangement significantly reduces the weight of the inductors required and simplifies the control strategy. Utilizing an interleaved chopper design, the ripple current experienced by the batteries can also be reduced.

Installation of the full-scale static testing equipment has been started. A full-time GETS employee has been secured to oversee and perform much of this work. Several test fixtures have been fabricated and electrical schematics have been finalized. Four of the twelve Z12 ZEBRA batteries have undergone acceptance testing at Global Research and have been shipped to Erie for installation in the test fixture. Four additional batteries will be sent in October and the remaining four in December. Full-scale testing is planned for completion in late January.