

Hybrid Electric HMMWV

Project Objective

Develop and test a hybrid electric (HE) tactical vehicle (HMMWV) for the US Armed Forces that exhibits superior automotive performance (while meeting all existing requirements and specifications of the standard HMMWV), that increases fleet average fuel economy by at least 30% and that provides 30kW of mission and/or off board auxiliary power, thus eliminating the need for towed generators and certain prime movers.

Team Members

- PEI Electronics, Inc.
- US Army Tank Automotive-
armament Command (TACOM).
- AM General Corporation
- UQM Technologies (formerly
Unique Mobility)
- Center for Transportation and the
Environment (CTE)



project overview

This project was intended to demonstrate the viability of hybrid-electric power trains for numerous tactical, combat and support military vehicles and introduce this technology into the force structure, especially as one of the enabling technologies for the Future Combat System (FCS). Objectives included improving vehicle performance, rapid deployability, mobility and fuel economy while reducing the logistics tail of the tactical /support/combat vehicle fleet. Current FCS requirements dictate the requirements for hybrid-electric vehicles.



Project Results

This program successfully demonstrated the overall capability of a hybrid power train to support the very rigorous requirements of the U.S. Army in a battlefield and support role. Through supplier testing and evaluations, numerous demonstrations to many elements of the Army and a year long test of the vehicle at the Aberdeen Proving Grounds, PEI Electronics demonstrated the capabilities of this vehicle to ultimately meet all of its performance objectives and to provide high quality mobile electric power to a wide variety of applications. This program has been instrumental in leading the way for the Army to incorporate Hybrid Drive Technology systems in the Future Combat System where all vehicles are calling for the use of this technology. After the successful completion of testing at Aberdeen Proving Grounds, this vehicle concept was put under a direct contract to the Army through the PM for Light Tactical Vehicles for continued development. At this time, it is the intent of the U.S. Army to introduce this technology for general use in the 2005 / 2006 timeframe.

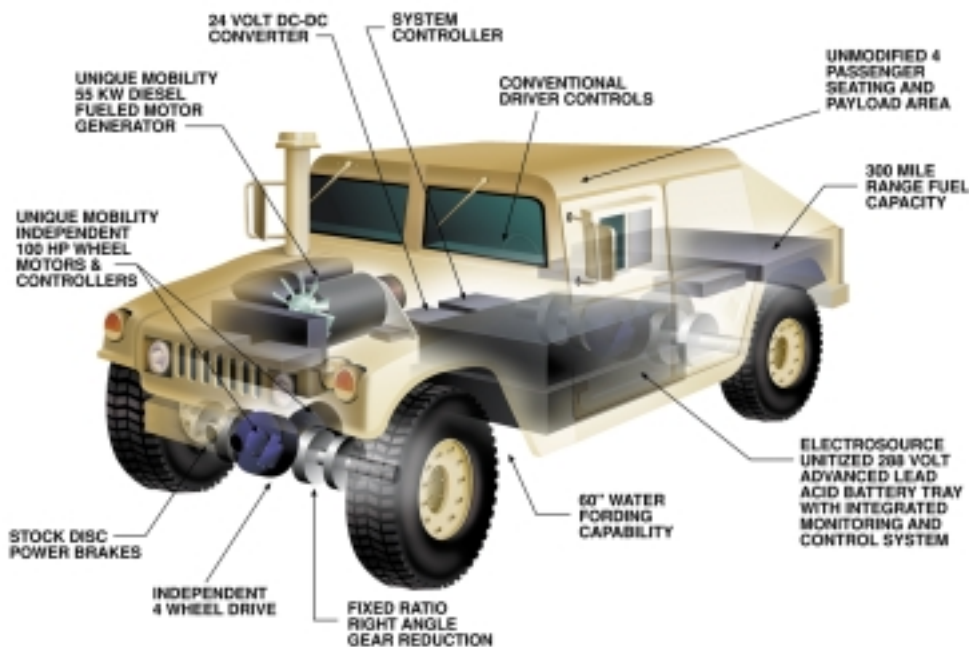
Next Steps

Under the TACOM PM-LTV contract, four new generation vehicles have already been developed and delivered for additional testing at Aberdeen Proving Grounds (APG) and Yuma Proving Grounds (YPG). Two (2) vehicles are at APG and two vehicles (2) are at YPG. Testing will include standard proving ground specification requirements and environmental performance testing. One of the YPG vehicles will be delivered to the Cold Region Test (CRT) facility in Alaska this winter for arctic testing. Additionally, a specific test will be conducted to demonstrate the ability of the vehicle to produce 33 kWatts of electrical power continuously as an alternative to the use of conventional generator systems.

Projected performance:	Units	Stock	Hybrid
Range:	miles	300	300
Top Speed on Grade:			
0%	mph	70	80
60%	mph	6.8	17
0-50 Acceleration:	seconds	14	7
Payload:	lbs.	2240	1700
GVW:	lbs.	9100	9100
Stored Energy:	kw-hrs	.72	24.5

It is anticipated that additional vehicles will be built and delivered to various HMMWV users for test and evaluation. These tests will facilitate the generation of User Requirements and revised Concepts of Operation (CONOPS) based

on the availability of this technology. The Army will then issue a Contract for the full production of Hybrid Electric HMMWV's for general use throughout the tactical fleet



HYBRID ELECTRIC HMMWV

