



Panel Discussion

A New Electric Driving Era?
General Motors Chevy Volt EREV
and
US Hybrid's Commercial HEVs

Thursday, September 8, 2011, 2:00 PM – 3:40 PM

Panel Moderator: John Hayes, University College Cork

Panelists: Edward Tate, General Motors
Joe LoGrasso, General Motors
Abas Goodarzi, US Hybrid Corporation

Panel Summary: In this panel, electric vehicle experts, all GM EV1 veterans, will discuss the state-of-the art in electric and hybrid-electric vehicles and battery technologies. Dr. Ed Tate of General Motors will present recently-developed traffic survey analysis underpinning the energy storage, conversion and management systems behind the Chevy Volt. Dr. Abas Goodarzi, CEO and president of US Hybrid, will present on the development of a wide array of military and on-road and off-road commercial hybrid-electric systems. Roland Matthe of General Motors will present on the recent advances and challenges for automotive batteries. Dr. John Hayes will moderate the panel. Dr. Hayes will briefly review recent industry developments and government policies and will ask the panel if we are in a new era of sustainable and greener transportation for the mass market.

Short Biographies:

Dr. Edward Tate has worked on the powertrain development for the past 20 years. While at GM, he has contributed directly to the EV1 and the Volt. He has multiple patents in use by GM's advanced powertrains. His research includes the study of the costs and benefits of different powertrain architectures including HEVs, PHEVs, EREVs, and BEVs. This research has been influential in selecting GM's future product direction. He has contributed to EV standards including SAE J2841 and SAE J1711. His work on

estimating the fleet and individual benefits of various electrification approaches has helped shape the regulatory framework for all plug-in vehicles. He continues to contribute to the evolution of GM's powertrain portfolio through the development of tools and methods to evaluate these systems in test and real-world usage.

Joe LoGrasso is Engineering Manager in GM's Global Battery Systems Engineering group. Joe has been with GM for 27 years including the past 20 in development of advanced propulsion technology and energy storage systems for electric, hybrid, and fuel cell vehicles. He was a key contributor on the GM's early electric drive programs including the EV1 Electric Vehicle, Precept and Autonomy Fuel Cell prototype vehicles, and most recently has led GM's technology development of Lithium Ion batteries for GM's hybrid, plug-in hybrid, and extended range electric vehicle programs including the Chevy Volt. His responsibilities at GM include managing battery pack system requirements, performance & safety, as well as cell engineering, and is responsible for battery technology assessment, qualification, and strategy. Joe has a Bachelor's degree in Electrical Engineering as well as two masters degrees, one in Systems Engineering from Oakland University and another Technology Management from Rensselaer Polytechnic Institute (RPI). Joe is a 30 year IEEE member as well as member of the SAE Battery Standards Committee and is a frequent speaker at industry conferences on battery related topics and electrification.

Dr. Abas Goodarzi is the founder, CEO and president of US Hybrid, a leading company in the development and production of heavy-duty electric power trains for on-road and off-road commercial vehicles. After a recent acquisition he is also CEO and president of Magmotor technologies, a world leader in servo motor drives. He was co-founder and CTO of Enova Systems, one of the first California companies to supply electric vehicle components and technology to global automotive companies. He was a technical director at General Motor Hughes Aircraft and played a key role in the development of the GM EV1 in the early to mid 1990's.

Dr. John Hayes has over twenty years of automotive experience. He worked as an R&D engineer and technical manager at General Motors on the EV1 program for the decade of the 1990's before joining University College Cork as an academic specializing in power electronics and energy systems. For the EV1 program, he specialized in propulsion inverter, EMI, and charging technologies, contributing to SAE J1773. The main area of his academic research and industrial consultancy is in power electronics and magnetics for electric powertrains. He has several patents and many publications.