
Plug-In Hybrid Electric Vehicle (PHEV) Value Proposition Study

Team Members:	ORNL, SENTECH, GE, and EPRI
Client:	U.S. DOE Office of FreedomCAR and Vehicle Technologies and Office of Electricity Delivery and Energy Reliability
Project Timeline:	December 2007 - December 2009

Project Overview:

SENTECH, Inc., Oak Ridge National Laboratory, General Electric Company, and Electric Power Research Institute are conducting an in-depth study of the benefits, barriers, opportunities, and challenges of grid-connected Plug-in Hybrid Vehicles (PHEV) in order to establish potential value propositions that will lead to commercially viable PHEVs by reducing consumer costs and/or increasing consumer value to assure a sustainable market that can thrive without the aid of Federal incentives or subsidies. Candidate value propositions will enhance consumer acceptance of PHEVs and/or compatibility with the grid. Potential benefits of such grid-connected hybrid vehicles include their ability to supply the peak load or emergency power requirements of the grid, enabling utilities to size their generation capacity and contingency resources at levels below peak. The project will explore and evaluate different models for vehicle/battery ownership, leasing, financing and operation, as well as the grid, communications and vehicle infrastructure needed to support the proposed value-added functions. Rigorous power system, vehicle, financial and emissions modeling will help identify the most promising value propositions and market niches to focus PHEV deployment initiatives.

A Guidance & Evaluation (G&E) Committee composed of representatives from various stakeholder organizations will contribute expertise throughout the study. Committee members include executives and entrepreneurs from the automotive, energy storage, utility, and finance arenas. This project is expected to begin with the initial workshop in December 2007 and conclude with the final report to DOE in December 2009. Visit www.sentech.org/phev to find out more about this study.

Purpose of Study:

PHEVs have gained interest over the past decade due to their high fuel economy, convenient low-cost recharging capabilities, and reduced use of petroleum contributing to President Bush's goal of "Twenty in Ten." However, PHEVs will likely cost significantly more to purchase than other hybrid or conventional vehicles due to technical challenges such as expensive battery technology. In spite of the potential savings to the consumer and value to other stakeholders in the long run, the initial vehicle cost presents a major market barrier to their widespread commercialization. This project is directed at overcoming that market barrier and assuring that the extensive funds provided by industry and government during their development have been a valuable investment.

Project milestones:

- Workshop with G&E Committee and other stakeholders to brainstorm potential PHEV business models (12/07)
- Prioritization of potential PHEV business models from workshop results; select region of the country to perform case study (2/08)
- Determination of data, models, and analysis procedures to evaluate business models (6/08)
- Evaluation of business models and conditions that will be most attractive to consumers (4/09)
- Identification of DOE research and policy strategies to overcome barriers and stakeholder risks associated with selected business models (6/09)
- Evaluation of the country's remaining regions culminating in a final report (12/09)

