

ISOBEL DAVIDSON

Dr. Isobel Davidson is a senior research officer and competency group leader at the National Research Council. Isobel has been involved in developing advanced materials for rechargeable batteries for most of her 25- year career. She currently leads the Advanced Electrical Storage Project at the National Research Council's Institute for Chemical Process and Environmental Technology (ICPET). The battery research at ICPET is, at present, largely focused on making the lithium ion battery technology, ubiquitous to portable electronics, safe and cheap enough for plug-in hybrid and electric vehicles.

Additionally, Isobel is the program manager for an interdepartmental research program on Plug-in Hybrid Electric Vehicles sponsored by Natural Resources Canada's Program of Energy R&D (PERD) and the Task Leader for Advanced Battery Technologies for the International Energy Agency's Transportation Annex XV on Plug-in Hybrid Electric Vehicles.

Plug-in Hybrid Electric Vehicles – Making Transportation Sustainable

Dr. Isobel Davidson, ICPET, Canada

Transportation is a significant source of air pollution emissions in Canada. The resulting emissions contribute to the formation of smog and have very real costs to the Canadian economy in terms of environmental and health impacts. Furthermore, the transportation sector ranks second only to industrial processes (including electrical power generation) in greenhouse gas (GHG) emissions. Aside from the health and environmental concerns associated with emissions, there is growing concern on a global basis for the availability and affordability of future supplies of fossil fuels, particularly liquid and gaseous hydrocarbons.

A technology that appears to offer benefits on all three fronts is the Plug-in hybrid electric vehicle (PHEV). It is seen as the best power train concept to significantly reduce air pollutants, GHG emissions and fossil fuel consumption. The American Council for an Energy-efficient Economy estimates that PHEVs would reduce CO₂ emissions by 15% compared to current hybrid vehicles.

This presentation will explore the potential benefits and technological challenges facing the broad scale implementation of plug-in hybrid electric vehicles.