Electric Mobility Canada / Mobilité électrique Canada

Plug-In Electric Vehicles Are Coming To Canada

Electrical vehicles (EVs), up and comers in the marketplace, will soon offer customers a new driving experience, with significant environmental, operating-cost and energy-security benefits in Canada and globally.

Plug-in EVs are the ultimate in energy flexibility, taking advantage of new and cleaner sources of electrical energy as they are developed.

What are Plug-In Electric Vehicles?

Plug-in electric vehicles are designed to be powered, in whole or in part, by electricity sourced from the grid, an alternative to conventional vehicles, which are powered by fossil fuels and an internal combustion engine (ICE). There are two types of plug-in electric vehicles. The battery electric vehicle (BEV) is solely powered by batteries. The plug-in hybrid electric vehicle (PHEV) can run on electricity, fuel, or a combination of the two.

EV availability

Within the next year, Canadians are expected to be able to purchase full-performance passenger EVs, including such models as the recently announced Nissan LEAF (BEV), the Chevrolet Volt (PHEV), and the Toyota Prius Plug-In (PHEV)[1]. Other major manufacturers may soon offer plug-in electric vehicles in specific markets, including Mitsubishi, Ford, Chrysler, Volkswagen, BMW, Tesla and others. In addition to passenger vehicles, it is expected that there will be commercial and specialty vehicles available. Ford, in conjunction with Azure Dynamics, is now offering the Transit Connect delivery van.

Plug-In electric vehicles have significant potential to displace conventional transportation fuels and reduce Canada's greenhouse gases.

Nissan LEAF – Photo: Nissan

Ford Transit Connect – Photo: Ford

Powering up performance and reliability

Driving an electric vehicle is inherently a quiet and smooth experience, similar to that of a luxury vehicle. Accelerator response is instant, and braking energy is captured for re-use during deceleration. On a single charge, the BEV can operate over a driving range that meets the typical daily needs of most Canadians. It has few moving parts and a simplified maintenance schedule (e.g. no oil changes). The PHEV offers both an electric-only drive (typically over a shorter range than a BEV) and an ICE for longer trips.

EV Economics

Canada has relatively low electricity costs, which are projected to remain stable in the future. The energy cost of driving an EV is significantly less than the cost to fuel a gasoline vehicle--to go the same distance. The EV offers the owner a hedge against future fuel-price increases or the anticipated shortages of gasoline fuel. The initial cost of a BEV or PHEV is expected to be higher than a conventional vehicle. But lower operating cost over the life of the electric vehicle will offset the higher initial cost.

Beyond the benefit to individual Canadians, the commercialization of EVs leads to the creation of new and highly technical green jobs and a global market for Canadian EV goods and services. Canada already has important clusters of companies involved in EV-related technologies, and several of these are now marketing their products globally.

Several incentives for EV purchasers exist in Canadian provinces, currently largely for Hybrid Electric Vehicles (HEVs) and other fuel-efficient vehicles and/or systems. Publicly funded incentive programs to support the purchase of BEVs and PHEVs are expected to be announced shortly in several provinces. Please see *www.emc-mec.ca* for information on incentives to date.

EV "Environomics"

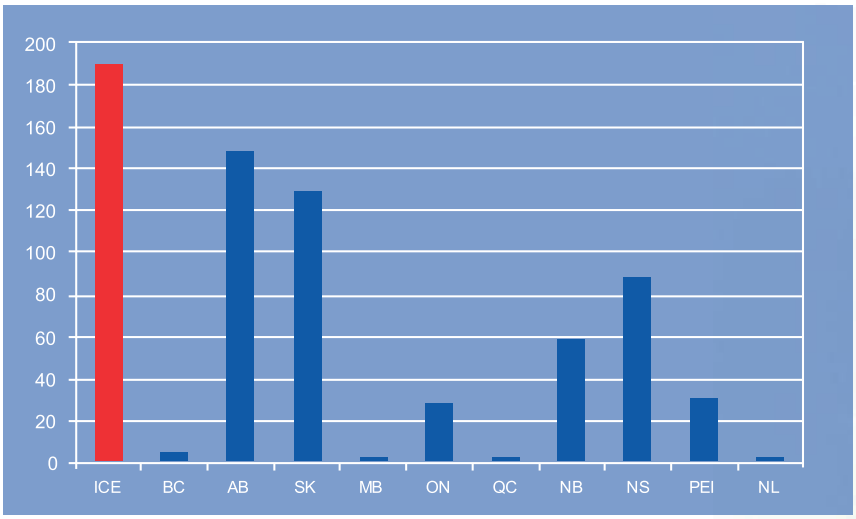
Gasoline vehicles create at least 25% of Canada's greenhouse gas emissions[2]. Conversely, almost 75% of Canada's electricity is generated from carbon-free hydroelectric and nuclear facilities[3], while renewable energy sources, such as wind power, are increasing each year. Plug-In electric vehicles, therefore, have significant potential to displace conventional transportation fuels and reduce Canada's greenhouse gases. Even when the vehicle's electricity is generated in part by fossil fuels such as coal, electric vehicles create fewer emissions per 100 km driven than conventional vehicles.

1. Based on best available current information and subject to car manufacturers' launch plans and the purchase incentives available in areas of Canada and internationally.

2. Office of Energy Efficiency. 2006. Energy use data handbook: 1990 and 1998 to 2004. See: *http://oee.nrcan.gc.ca/publications/statistics/handbook06/pdf/handbook06.pdf*

3. Statistics Canada. 2005. Electric power generation, transmission and distribution. 57-202-XIE. See: *http://www.statcan.gc.ca/bsolc/olc-cel/olc-cel?catno=57-202-XIE&lang=eng*

FIGURE 1, COMPARING EMISSIONS OF A BEV VERSUS AN ICE



The red bar indicates the emissions of a compact ICE car. The blue bars indicate the emissions reduction achieved through electrification, depending on the source of electricity. Where it is generated from renewable sources, as in British Columbia, Manitoba, Newfoundland and Labrador, and Quebec, the reduction can approach 100%. Where electricity is generated almost entirely from fossil fuels, as in Alberta, the reduction, while less, is still important.

Electric Mobility Canada – Mobilité électrique Canada
is a national membership-based not-for-profit organization dedicated exclusively to the promotion of electric mobility as a readily available and important solution to Canada's emerging energy and environmental issues.

Our Mission
is to establish electric mobility, in all its forms, as the primary solution to Canada's growing transportation energy issues and to assist its members in the fulfillment of their mandates.

Our Vision
The Vision for Electric Mobility Canada – Mobilité Electrique Canada is a Canadian society that accepts electric mobility, in all its forms, as the first choice for the transport of persons and goods. This has been achieved though collaborative efforts between government at all levels and the private sector, supported by an informed public faced with increasing energy costs and concerned about the impacts of burning fossil fuels on the environment and quality of life.

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