



“Greening The Fleet” Initiative – On The Road And Reducing Greenhouse Gas Emissions

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The Issue: GHGs - Truck Energy & Emissions

- Transportation currently generates more GHG emissions than any other sector
- Fossil fuels in transportation represents 27% of GHG emissions in Canada
- Within the transportation sector truck energy use has been a leading contributor
- 1990 - 2003 GHG emissions from Light Duty Gas Trucks increased by 93%, emissions from Light Duty Gas Vehicles decreased by 8%



 **Video**



→ The Opportunity

- Apply principles of sustainable development
- Use fleet of curbside delivery vans to prove commercial viability, environmental and societal benefits of HEVs & FCHEVs.
- Potential application - similarly-sized duty trucks used by courier, mail, food & beverage, service trucks used by largest municipalities
- Purolator has:
 - one of the largest commercial fleets in Canada,
 - the power to make significant difference to environment, public health and future of “green” vehicle market



→ Hybrid Electric Vehicle (HEV)

- ‘On-the-road’ in October 2002 - Azure Dynamics delivered to Purolator a trial hybrid diesel-electric vehicle
- Used for parcel delivery in Vancouver and then in Alberta to test its cold weather suitability.
- Signed deal with Azure for second-generation HEVs
- HEVs introduced into the city of Toronto where air pollution is of particular concern
- Goals: 50% reduction in GHGs currently emitted by conventional courier vehicles and to significantly reduce other pollutants such as smog causing emissions



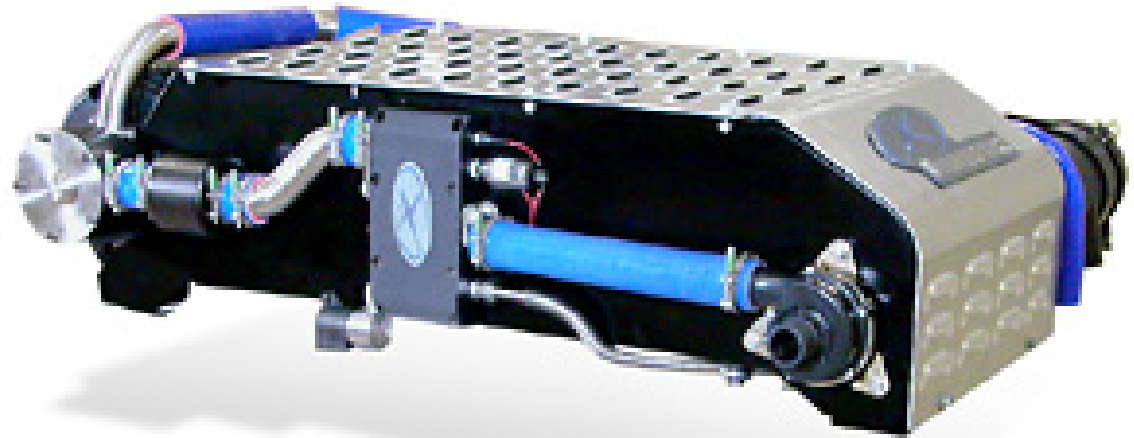
➔ 3 Years After - Hybrid Electric Vehicle (HEV)

- 2005 – Q1/06: 12 HEVs deployed
- 116,877 km driven (over 1,200 operating days)
- Fuel consumption and GHG emissions from HEVs 40% lower (on average) compared to Purolator's current curbside gasoline powered vehicle
- Consumed 20,500 fewer liters of fuel
- Prevented the emission of **48,380** kilograms of CO2
- **Substantially reduced GHG and smog-causing emissions, fuel consumption and operating costs**



→ Fuel Cell Hybrid Electric Vehicle

- Partners Hydrogenics Corp. (Mississauga), Natural Resources Canada and Industry Canada
- Built on HEV platform
- **FCHEV eliminated 100% of GHGs and smog-causing emissions**





→ H2 Electrolyzer

- Vehicle refueled with hydrogen produced and stored using Purolator's on-site electrolyzer fuelling station
- Hydrogenics Proton Exchange Membrane electrolyzer produces hydrogen via electrolysis of city water
- 70 kg of hydrogen / day
- Supports government's desire to create a network of hydrogen refueling stations





→ Findings to date

- Possible to significantly cut fuel consumption and reduce GHGs and other emissions in a cost-effective way
- Validated results in 2001 report “Greening the Canadian Courier Fleet: Strategies for Improved Fuel Efficiency” submitted to Greenpeace and Sierra Legal Defence Fund
- **Purolator has ordered another 115 hybrid electric vehicles to be delivered in 2006 and 2007**

