

Hydrogen

Hydrogen is the most abundant element on earth. Hydrogen can provide power to vehicles in either combustion engines or fuel cells. In a combustion engine, the compressed hydrogen is injected into the engine and "burned" in a similar way to other fuels. In a fuel cell vehicle, hydrogen reacts with oxygen which produces electricity to power an electric motor. The only by-product of using hydrogen is water.

The hydrogen vehicle market is still in its infancy. There is currently a lack of fuelling infrastructure and cost effective, environmentally friendly hydrogen supply. The Hydrogen Highwaytm is leading the development of hydrogen fuelling infrastructure in British Columbia. The Integrated Waste Hydrogen Utilization Project (IWHUP) in Vancouver is also underway to collect hydrogen as a by-product from a sodium chlorate plant.

A significant amount of research is underway to bring both combustion and fuel cell technologies to market, and both are currently available for demonstrations. For example, five Ford Focus fuel cell vehicles have been placed in five prominent Vancouver fleets.

The Hydrogen Highway is a major initiative of different levels of Government and industry to build out supply infrastructure and demonstrations in key areas of the province.

A common internal combustion engine can be converted to run on gaseous hydrogen. This is seen as a bridging technology in helping to build the market for hydrogen. The Saskatchewan Research Council (pdf) and Powertech Labs (pdf) currently have trucks available for demonstration in fleets.