

HYDROGEN AND FUEL CELL TECHNOLOGY – MAKE IT WORK FOR YOU

Wherever you are in the shift toward clean energy, Canadian companies can help. Canada has a diverse hydrogen and fuel cell sector with proven technologies and products – and commercial ventures in place around the world. With 20+ years of experience in engineering and research, you can trust Canadian expertise to help establish your clean energy sector.

APPLICATIONS



Cars & Buses

Full performance with zero tailpipe emissions

Hydrogen fuel cell cars and buses will play a key role in reducing vehicle emissions. While battery electric vehicles reduce emissions, only fuel cell cars match the extended range and rapid refueling demanded by consumers. Mercedes has seen the advantage and established their fuel cell manufacturing facility in Vancouver Canada, while in nearby Whistler, one of the world's first zero emission hydrogen fuel cell bus program has logged over a million miles. Canada's fuel cell bus systems are also operating in Europe, Brazil, China and the U.S.

Canadian Market Leaders: Automotive Fuel Cell Cooperation (AFCC), Ballard Power Systems, Hydrogenics Corporation



Stationary Power

Stable and predictable electricity

Canadian-developed stationary fuel cell power plants are reducing emissions and improving operating efficiencies through the recovery of by-product heat for homes, industry and commercial applications. These systems can be grid-tied or grid-independent; remote or urban; distributed or centralized; and provide baseload, continuous or peak power. Toyota, FirstEnergy Corporation and Village Farms utilize Canadian technologies to meet their energy requirements.

Canadian Market Leaders: Ballard Power Systems, Hydrogenics Corporation, Quadrogen Power Systems



Back-up Power

Fast start-up for critical power support

Canada is a pioneer in the development of fuel cell back-up power generators for data centers and hospitals or telecom transmission towers with poor grid reliability or susceptibility to severe weather conditions. Offering reduced emissions and noise, fast start-up, extended run times, and lower operating costs, telecom network operators in North America, Indonesia, India, China, South Africa, Mexico and the Bahamas are reaping the benefits of Canadian fuel cell technology.

Canadian Market Leaders: Ballard Power Systems, Hydrogenics Corporation, LOOP



Motive Power

Full performance with zero emissions

Canadian fuel cells are being used to power forklift trucks, airport tugs and underground mine transport vehicles, which provide benefits through improved productivity and environmental profile, reduced operating costs, faster refueling time, and the elimination of handling and storage of toxic materials. Customers include Anglo American Platinum, Walmart, Sysco, FedEx, Coca-Cola, and BMW.

Canadian Market Leaders: Ballard Power System Systems, Hydrogenics Corporation, Plug Power



INFRASTRUCTURE



Hydrogen Infrastructure

Economically viable fueling

Canadian companies have demonstrated that a hydrogen infrastructure to support the wide-scale commercialization of fuel cell vehicles is both economically viable and logistically feasible. With the arrival of commercially-available FCVs in Canada and the U.S., parts of Asia and Europe, Canadian firms are leading the way with their unparalleled expertise in building the necessary fueling infrastructure to support the development of FOVs.

Canadian Market Leaders: Air Liquide, Enbridge, HTEC, Hydrogenics, Powertech Labs, ITM Power Canada



Hydrogen Production

Local resource flexibility

Canada is one of the largest hydrogen producers in the world. We have developed the technologies to produce hydrogen cleanly and economically using fossil fuels, methanol, biomass, renewable energy sources such as solar, wind, hydroelectric or from industrial byproduct waste hydrogen capture. The world's first waste-hydrogen capture system was at a chemical plant in Vancouver, Canada.

Canadian Market Leaders: Air Liquide, Atlantic Hydrogen, Blue Fuel Energy, Enbridge, HTEC, Hydrogenics, Next Hydrogen, NORAM, Quadrogen, Western Hydrogen



Renewable Energy

Making hydrogen and storing for later use

To improve the use of renewable energy sources, Canadian-developed technology is using excess wind, solar or hydro power to produce hydrogen. The hydrogen may then power a fuel cell, when renewables are unavailable, or be fed into the natural gas grid for use beyond the generation site. Critical renewable support is now being realized by WIND-projekt in Germany and Enbridge in North America.

Canadian Market Leaders: Air Liquide, Enbridge, Hydrogenics Corporation, Powertech Labs

SERVICES



Test Stations & Equipment

Full range of support

To support fuel cell research and development programs, Canada is providing research organizations, material developers, stack manufacturers, and system integrators with the most sophisticated array of industry-leading test stations and equipment to safely and accurately measure data to optimize fuel cells, batteries, reformers, ultracapacitors, electrolyzers and hybrid electric vehicle performance.

Canadian Market Leaders: Greenlight Innovation



Research & Engineering

Turn-key solutions

Canada's internationally recognized scientists and engineers help emerging fuel cell industries accelerate their development efforts through the provision of specialized research and engineering services such as materials research and integration, stack and system design, applications engineering, product development and manufacturing process development. Manage and grow with industry insights and service packages tailored to meet your needs like Ballard who is providing engineering services to advance the development of fuel cells for Volkswagen's next generation demonstration cars.

Canadian Market Leaders: Ballard Power, Dana, Greenlight Innovation, HTEC, Hydrogenics Corporation, NORAM, PowerDisc, Powertech Labs, Sacré-Davey Engineering, UBC-CERC