



2010 REASONS TO DO BUSINESS IN CANADA



CANADA RUNS ON HYDROGEN AND FUEL CELLS

The 2010 Olympic and Paralympic Winter Games marked a historic moment for Canada's hydrogen and fuel cell sector. Canadian excellence in hydrogen and fuel cell technologies was showcased worldwide as athletes and spectators from all corners of the world made use of Canadian hydrogen technologies.

From hydrogen fuel cell electric buses to hydrogen fuelling stations, the 2010 Olympic and Paralympic Winter Games showcased the very best in Canadian innovation. The Hydrogen Highway, based in the province of British Columbia, offers the largest concentration of hydrogen and fuel cell development and deployment activity in the world.



Photo courtesy of Canadian Hydrogen and Fuel Cell Association

During the 2010 Winter Games, spectators, athletes and dignitaries who visited British Columbia valued the reduced greenhouse gas emissions and improvements in energy efficiency imparted by products demonstrated including:

- world's largest fleet of hydrogen-powered fuel cell electric buses
- seven hydrogen fuelling stations, including the largest capacity hydrogen station in the world
- hydrogen-powered fuel cell electric cars
- hydrogen internal combustion engine trucks and shuttle buses
- hydrogen fuel cell forklift trucks
- hydrogen internal combustion engine baggage tugs
- stationary back-up power

As the Hydrogen Highway showed, Canadian expertise extends across all facets of the global hydrogen and fuel cell value chain. From hydrogen production to fuel cell product assembly, Canada is helping to lead the way towards a cleaner, more sustainable future. This contribution has been recognized with the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games's "Sustainability Star" awards program that recognizes partner sustainability innovations in economic, environmental and social initiatives.

World-Renowned Expertise

Canada is a world leader in the hydrogen and fuel cell sector. Between 2003 and 2008 alone, Canada's hydrogen and fuel cell sector invested over \$1 billion dollars towards research, development and deployment. Canadian firms are currently exporting hydrogen and fuel cell technologies to the United States, Europe, Asia and



Oceania, with considerable recognition for the commercialization of their products. With each passing day, global consumers continue to validate Canada's presence in a wide range of near-term markets as Canadian firms continue to exhibit global industry breakthroughs in the performance, reliability, durability, and cost-competitiveness of a number of hydrogen and fuel cell products.

Today, Canada is globally recognized for its unique capabilities in a number of areas, including:

- hydrogen production, purification, distribution storage and fueling
- balance of plant and parts production
- hydrogen codes and standards
- fuel cell stack and fuel cell systems development
- financial, engineering and consulting services
- product development and systems integration
- manufacturing systems
- industry research and development

Source: Canadian Hydrogen and Fuel Cell Association



Photo courtesy of Canadian Hydrogen and Fuel Cell Association

Near-Term Markets

Canadian expertise in near-term hydrogen and fuel cell markets has evolved significantly. Over the past several years, Canadian firms have developed

extensive expertise in a number of near-term market applications, including:

- Motive Power**– Canadian firms continue to produce and export hydrogen and fuel cell technologies for use in a number of vehicles, ranging from transport buses to industrial forklifts.
- Back-Up Power** – Canada is well-known for its ability to provide back-up power using hydrogen and fuel cell technologies. Back-up power technologies are used for a number of applications, ranging from telecommunications to database networks.
- Portable Electronics** – Canadian firms have developed unique expertise in the development of micro fuel cells for use in a number of portable electronics, including laptops, cell phones and communication handsets. Micro fuel cells have also been developed for use in military applications.
- Residential Cogeneration** – Canada has developed distinct capabilities in the production of hydrogen-based technologies for residential cogeneration. Presently, Canadian firms have established global partnerships in countries such as Japan to provide hydrogen technologies for residential heat and electricity.

International Demonstration Projects

Canadian expertise extends to a number of demonstration projects that are currently being undertaken across the country. Through these demonstration projects, Canada has developed unique expertise and extensive infrastructure for the hydrogen and fuel cell industry.

Presently, Canada is home to some of the world's largest and most innovative hydrogen demonstration projects, such as the Hydrogen Highway. Other notable projects include the Hydrogen Village in Toronto, Ontario, which seeks to incorporate hydrogen and fuel cell technologies for a number of

end-user community applications, and the Vancouver Fuel Cell Vehicle Program (VFCVP) in Vancouver, British Columbia, which seeks to demonstrate the use of sustainable hydrogen-powered fuel cell electric vehicles in a real-world setting.

Canadian firms are also helping to raise the bar in industry excellence. As world leaders in the provision of innovative solutions for clean energy technologies, Canadian firms have begun to integrate hydrogen and fuel cells with other forms of renewable energy. One such project is the Prince Edward Island Wind-Hydrogen Village. This project seeks to integrate wind and hydrogen technologies to provide clean, reliable power to the residents of Prince Edward Island. Another project in Bella Coola, a remote area in British Columbia without access to the electrical grid, is reducing greenhouse gases from diesel generators by producing hydrogen via an electrolyzer operating from a renewable run-of-river source.

Canada's Future

With one of the most extensive hydrogen and fuel cell clusters in the world, Canada remains a global focal point for the development of this clean energy technology. With significant expected growth in the hydrogen and fuel cell sector worldwide, Canada is well-positioned to play a significant role in the development of a cleaner, more sustainable future.

The Canadian Trade Commissioner Service (TCS)

The Canadian Trade Commissioner Service is a key resource for anyone interested in doing business internationally. Our global network of trade offices and dedicated officers are there to provide assistance and resources to maximize engagement with companies and government. For more information on Canadian expertise, we encourage you to contact one of Canada's local Trade Commissioners. You can access their knowledge and networks at:

www.tradecommissioner.gc.ca

For More Information...

Foreign Affairs and International Trade Canada:

www.dfait-maeci.gc.ca

Industry Canada:

www.ic.gc.ca

National Research Council Canada – Institute for Fuel Cell Innovation:

www.nrc-cnrc.gc.ca/ifci-iipc/index.html

Natural Resources Canada – CanmetENERGY:

canmetenergy-canmetenergie.nrcan-rncan.gc.ca

Natural Sciences and Engineering Research Council of Canada – Solid Oxide Fuel Cells Canada (SOFCC):

www.sofccanada.com

Sustainable Development Technology Canada:

www.sdtc.ca

Canadian Hydrogen and Fuel Cell Association:

www.chfca.ca