



The Canadian  
Transportation  
Fuel Cell Alliance

# MILESTONES

WWW.CTFCA.NRCAN.GC.CA

PROGRESS REPORT 2003 - 2004

**W**ELCOME to the 2003-04 update of Milestones, a snapshot of the progress and highlights stemming from the activities of the Canadian Transportation Fuel Cell Alliance (CTFCA).

The CTFCA's Core Committee, Project Advisory Committee and five Working Groups rely on the vision and energy of more than 100 individuals representing Canadian hydrogen and fuel cell companies, industry associations, non-government organizations, municipalities, gas and electric utilities, academic institutions, provincial governments, and federal government departments and agencies.

The CTFCA is proud to report the accomplishments made by these individuals and organizations whose contributions are helping advance the commercialization of hydrogen and fuel cell technologies for vehicles and vehicle fuelling systems.

*Nick Beck, S&T Director*

*Hydrogen, Fuel Cells and Transportation Energy*

*CANMET Energy Technology Centre*

*Natural Resources Canada*



*The Canadian Transportation Fuel Cell Alliance (CTFCA) is a Government of Canada initiative led by Natural Resources Canada (NRCan) to demonstrate and evaluate options for the production of hydrogen and its delivery to light-, medium- and heavy-duty fuel cell vehicles through fuelling stations in Canada. This initiative is also helping develop standards, training and testing procedures related to fuel cell and hydrogen technologies. The CTFCA is part of Canada's Action Plan 2000 on Climate Change and was launched in 2001 with \$23 million of federal funding over five years. In October 2003, Canada's Technology and Innovation initiative provided the CTFCA with an additional \$10 million, funding the program through to 2008.*

## PARTNERS

ATCO Gas  
Ballard Power Systems  
BC Hydro  
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BMW of North America  
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# CTFCA WORKING GROUPS UPDATE

## 1 Light Duty Vehicle Fuelling Demonstration Working Group

Progress was made across Canada. In the West, the Vancouver Fuel Cell Vehicle Program was initiated. Hydrogen Highway initiatives included the commissioning of a hydrogen storage and dispensing system at NRC-IFCI in Vancouver, the upgrading of a hydrogen fuelling station in Surrey and the continuing development of a fuelling station based on recovered industrial waste hydrogen for North Vancouver.

In Saskatchewan, a dual hydrogen/diesel-fuel internal combustion engine pick-up truck was developed.

In the Toronto area, Hydrogen Village projects included the creation of a mobile hydrogen fuelling station and continuing progress on both natural gas- and electrolysis-based fuelling stations. Preliminary engineering is underway for fuelling stations in Toronto, Ottawa and Charlottetown.

## 2 Heavy Duty Vehicle Fuelling Demonstration Working Group

Progress was made at home and abroad. In Canada, a major fuel cell transit bus study was initiated. Continuing involvement with fuel cell bus programs in the U.S. and the European Union kept CTFCA members engaged internationally. The European Fuel Cell Bus Club invited two members of the Working Group to join, providing them with access to EU practices and opportunities to promote Canadian solutions.

## 3 Codes and Standards Working Group

Major objectives were achieved last year, including the initiation of the Canadian Hydrogen Installation Code. A project to develop clearance distances and other safety factors for hydrogen fuelling stations was also launched and is being coordinated with a similar project for the U.S. Department of Energy. A Virtual Hydrogen Fuelling Station was also developed. This design tool enables the modelling of hydrogen filling stations and links station components to codes, standards and regulations.

## 4 Studies and Assessments Working Group

The Electrical Capacity Project – *Greenhouse Gas and Cost Impacts of Canadian Electric Markets with Regional Hydrogen Production* – was completed. This study estimates to 2020 the electricity supply expected to be available for electrolysis as a fuelling pathway to hydrogen and determines the associated greenhouse gas emissions. The Policy/Economic Analysis Project – *An Economic Analysis of Various Hydrogen Fuelling Pathways from a Canadian Perspective* – was also completed. It assessed the economics and socio-environmental implications of nine off-board hydrogen fuelling pathways and outlined policy tools to enable these technologies to better compete in

the current economic environment. NRCan's GHGenius was expanded to include new hydrogen pathways. The Working Group is participating in a University of California, Davis, market study concerning hydrogen economy pathways and strategies.

## 5 Communications Working Group

Numerous CTFCA communications materials were produced and distributed including annual and progress reports, a GHGenius fact sheet and bookmark, and a Team Canada brochure. Public education and outreach initiatives included a display at the National Museum of Science and Technology, support to the National Hydrogen

Association's Hydrogen Refueling Design Competition and the development of an interactive educational website. Support was also provided to the Vancouver Fuel Cell Vehicle Program through the development of its communications strategy, display and brochure. Several CTFCA projects were also announced.

*"Through the CTFCA, NRCan is leading a government and industry partnership focused on advancing fuel cell and hydrogen technology commercialization. Developing codes and standards and demonstrating hydrogen fuelling infrastructure are critical to success."*

*Christopher Curtis, Interim President and CEO, Fuel Cells Canada*

For more information, visit

[www.ctfca.nrcan.gc.ca](http://www.ctfca.nrcan.gc.ca)

or contact Richard Fry, Program Manager, Fuel Cell Infrastructure, Natural Resources Canada, at (613) 943-2258 or [rifry@nrcan.gc.ca](mailto:rifry@nrcan.gc.ca).