The Canadian Transportation Fuel Cell Alliance

MILESTONES

WWW.CTFCA.NRCAN.GC.CA

PROGRESS REPORT 2004-2005

Natural Resources Canada is proud to highlight the CTFCA's accomplishments over fiscal year 2004-2005. This past year saw a great increase in activities with over 50 active projects and events including multi-year funding support of British Columbia's Hydrogen Highway; the Vancouver Fuel Cell Vehicle Program, and Toronto's Hydrogen Village.

The CTFCA relies heavily on the commitment of individuals representing Canadian hydrogen and fuel cell companies, industry associations, non-government organizations, municipalities, gas and electric utilities, academic institutions, provincial governments, and other federal government departments and agencies. Through this partnership, we strengthen Canada's leading-edge position in the emerging hydrogen economy, and support Canada's climate change and sustainability objectives for a clean-energy future.

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), managed by Natural Resources Canada (NRCan), is an important element of the federal government's climate change strategy. The $33 million initiative was established in 2001 and has received funding through to March 2008.

The CTFCA focuses its efforts on showcasing hydrogen fuelled vehicles and hydrogen fuelling station demonstration projects. It also evaluates options for the production and delivery of hydrogen to light-, medium- and heavy-duty vehicles, monitors the resulting greenhouse gas emission reductions and develops training, certification and safety standards in support of hydrogen and fuel cell technologies.

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CTFCA
Working Groups Update

1 Light-Duty Vehicle Fuelling Demonstration Working Group

In British Columbia, the Vancouver Fuel Cell Vehicle Program put five Ford Focus fuel cell vehicles on the road for a three-year testing period. Fuelling is provided by the Pacific Spirit and Powertech stations in the Vancouver area and by the Victoria Station. As a world-first, the Powertech station was upgraded to dispense hydrogen at 700 bar pressure. Preliminary engineering was completed for the North Vancouver Station that will use hydrogen recovered from an industrial process.

In Winnipeg, a winterized electrolysis-based hydrogen fuelling station was installed to fuel an internal combustion engine transit bus undergoing cold weather testing.

In the Toronto area, an electrolysis-based fuelling station was installed to support a Purolator fuel cell delivery van; an indoor electrolysis-based hydrogen fuelling station was installed to service fuel cell forklifts at an automotive plant; and a feasibility study for a natural gas reformer was completed.

In Ottawa, preliminary engineering for an electrolysis-based fuelling station to service hydrogen-powered internal combustion engine shuttle buses was initiated.

In Prince Edward Island, preliminary engineering began for up to three wind-powered electrolysis-based fuelling stations to service hydrogen-powered vehicles, including internal combustion engine shuttle buses and trucks, and fuel cell utility vehicles.

2 Heavy-Duty Vehicle Demonstration Working Group

The CTFCA completed an extensive fuel cell transit bus study and BC Transit is developing a business plan aimed at putting 20 fuel cell buses on the road in Whistler in time for the 2010 Winter Olympic and Paralympic Games.

International involvement included participation in an International Working Group to aid in the collection and sharing of data from fuel cell bus/hydrogen fuelling station demonstrations around the world.

In Ontario, a preliminary engineering study on the use of off-peak nuclear power for the production of hydrogen by electrolysis for fuelling a small fleet of intra-and inter-urban buses was initiated.

3 Codes and Standards Working Group

The CTFCA is providing funding support for the Canadian Hydrogen Installation Code being developed under the auspices of the Bureau de normalisation du Québec. Included in the code are recommendations for setting clearance distances and other safety factors for hydrogen fuelling stations

An intelligent Virtual Hydrogen Fuelling Station was created to provide designers with the tools to model and evaluate different station configurations. Station components are linked to the appropriate codes, standards and regulations that currently apply.

An emergency response guide for light-duty and heavy-duty vehicles and hydrogen fuelling stations, developed in cooperation with the California Fuel Cell Partnership, is now available.

Four projects that make up the "Canadian Hydrogen Safety Program" are underway. They are: A Quantitative Risk Assessment; Computational Fluid Dynamics Modeling; Frequency, Probability and Consequence Analysis; and Hydrogen Sensor Project. This is Canada's contribution to the International Energy Agency Annex 19, Hydrogen Safety.

4 Studies and Assessments Working Group

GHGenius, NRCan's Greenhouse Gas evaluation model, was extensively updated to include several new hydrogen production pathways including coal and biomass gasification, nuclear thermocracking and hydrocarbon reformation.

A GHGenius website was launched that contains the model, a users' manual, and supporting documentation. GHGenius workshops are also being developed.

The CTFCA is participating in a four-year research and outreach program addressing the transition to a hydrogen economy at the University of California at Davis.

5 Communications Working Group

The CTFCA was involved in numerous communications activities including CTFCA website updates, and publication of the 2003-2004 progress report, a codes and standards newsletter and the fuel cell transit bus study. Other activities included input to Canada's Fuel Cell and Hydrogen Industry Capabilities Guide, the production of an interactive website and CD Rom, public opinion research, support for the Hydrogen and Fuel Cell Mission to India and the production of a CTFCA tradeshow display.

Significant support was provided to the Hydrogen and Fuel Cell Committee through the production of the program roadmap brochure "Charting the Course" and corresponding bookmarks and website.

Communications strategies were developed and supporting activities carried out for multiple CTFCA programs such as the Hydrogen Highway, Hydrogen Village and the Vancouver Fuel Cell Vehicle Program (VFCVP).

For more information, visit

www.ctfca.nrcan.gc.ca

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