



The Canadian Transportation Fuel Cell Alliance (CTFCA)

**An Update on Activities
presented to the
PEI Wind-Hydrogen Symposium
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Natural Resources
Canada

Ressources naturelles
Canada

Canada



Outline of Presentation

- **Program Overview**
 - Background
 - Federal Coordination
- **Program Description**
- **Project Selection**
- **Activities Update**





CTFCA Background

- Initiative under Government of Canada's Action Plan 2000 for Greenhouse Gas (GHG) emission reduction
- Launched June 2001
- Natural Resources Canada (NRCan) is the lead federal department
- NRCan funding is \$23 million over 5 years
- Focus on hydrogen fuelling infrastructure development for fuel cell vehicles

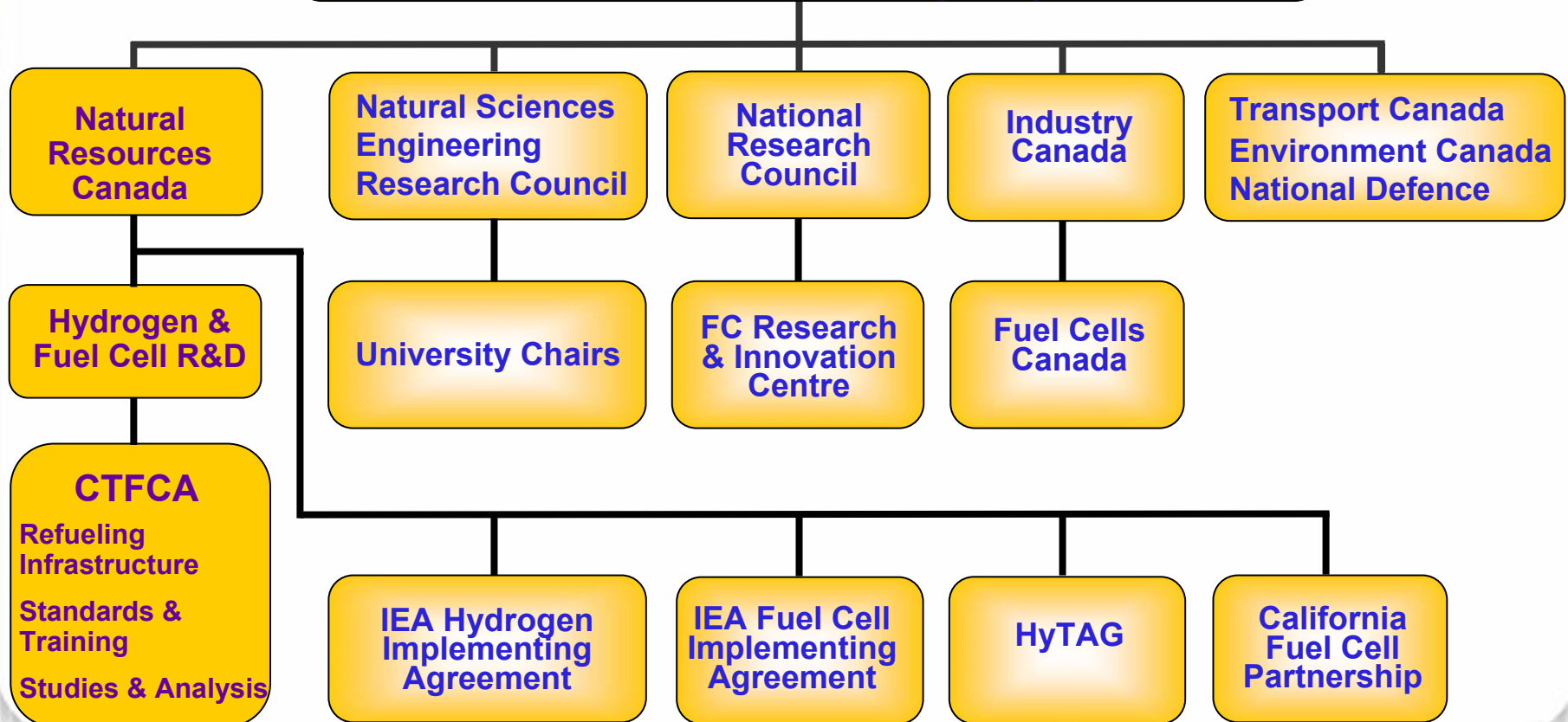




Federal Coordination

Federal Fuel Cell Coordination Committee

- Stationary & Mobile Fuel Cells
- R&D and Other Funding Programs





Program Objectives

- **Position Canada strategically**
 - showcase fuelling and fuel cell technologies
 - integrate key related activities
- **Highlight GHG reduction potential**
- **Initiate fuelling infrastructure deployment**
- **Accelerate fuel cell vehicle introduction**
- **Expand international linkages**





Program Elements

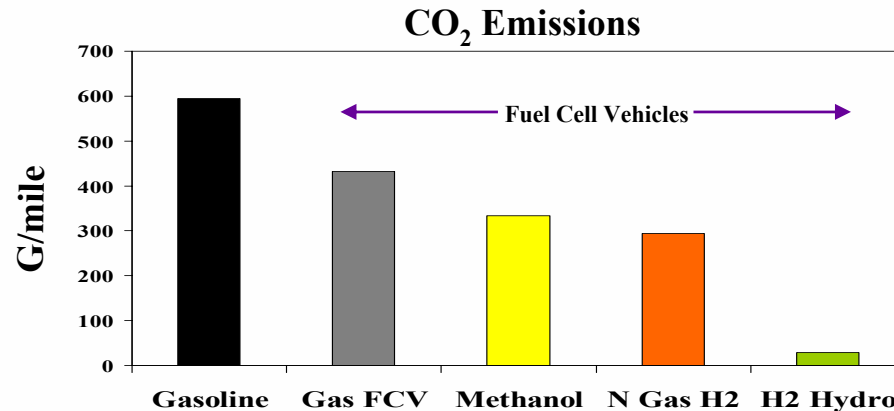
- **Fuelling Demonstrations and Evaluations**
 - the major program element: 70% of the budget
 - profile different fuel and fuelling systems by 2006
 - electrolytic H₂, methanol & natural gas reforming, others
 - light-duty vehicles, transit buses, and other vehicles





Program Elements (cont'd)

- **Fuelling Pathway Assessments**
 - parallel, iterative activity with the demonstrations
 - early focus on comparative GHG emissions to aid in project evaluation
 - will report on fuelling pathways using emissions and cost data from the demonstrations





Program Elements (cont'd)

- **Standards and Procedures Development**
 - codes and standards for fuelling systems
 - training and certification for installing and maintaining fuelling facilities
 - safety issues and procedures
 - coordination with Canadian and International standards activities





Program Elements (cont'd)

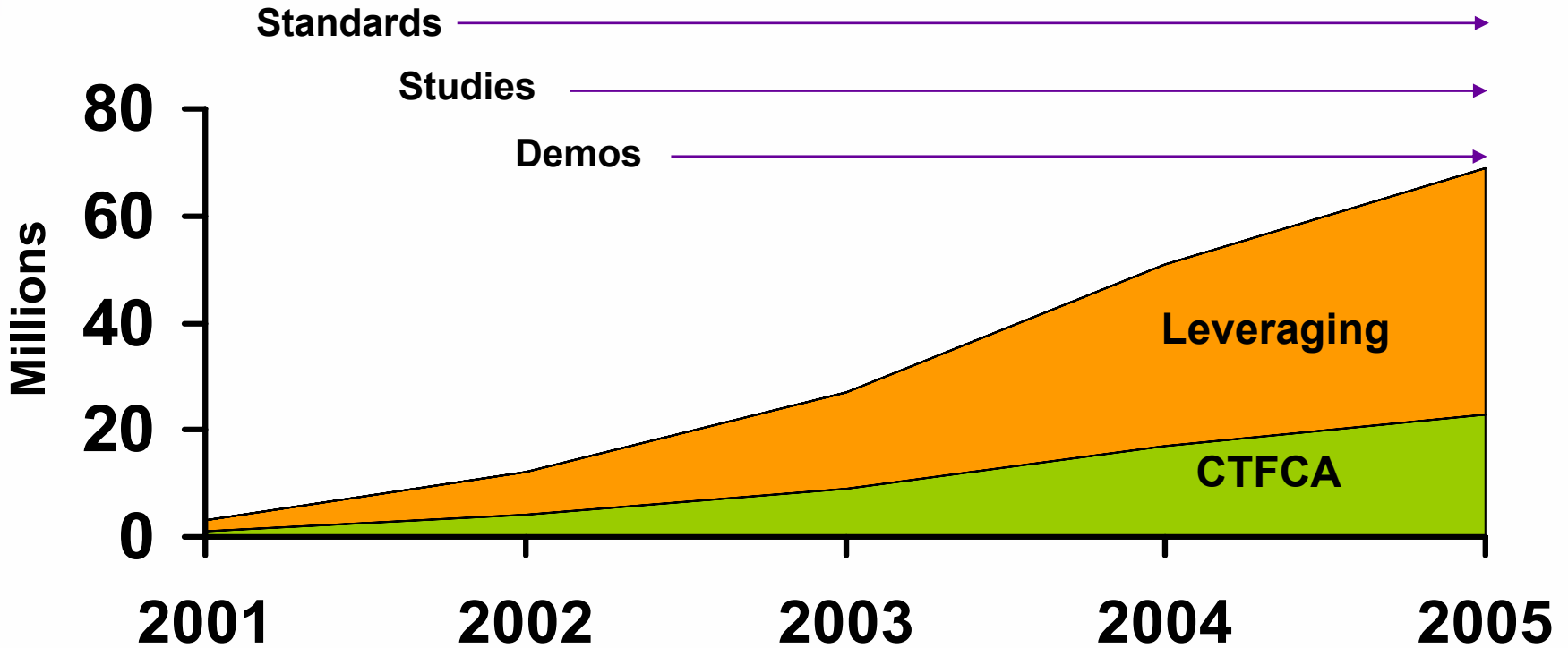
- **Communications and Outreach**
 - communications support to the CTFCA program and projects
 - raise the awareness of hydrogen and fuel cell technologies among the Canadian public





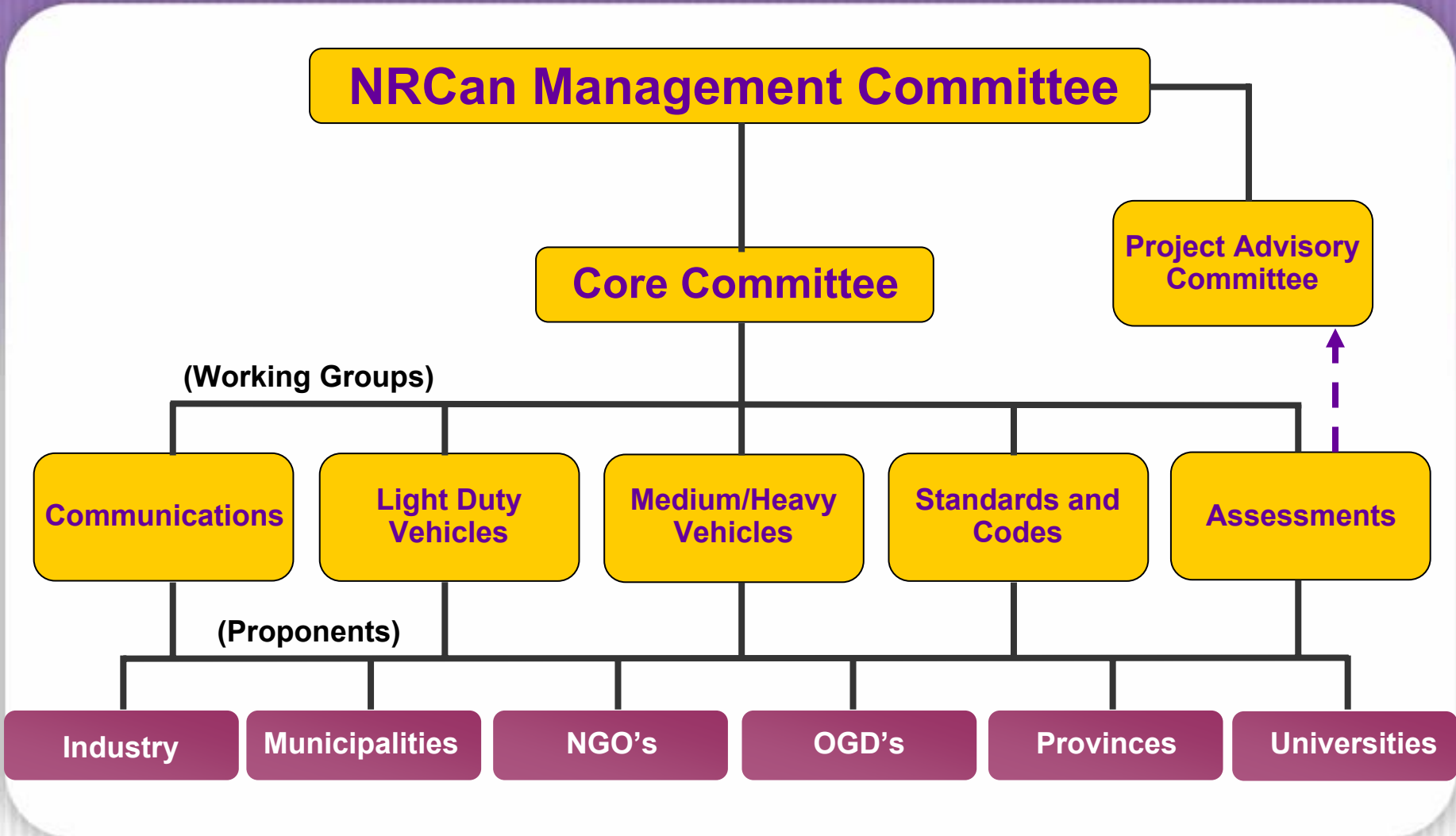
Program Schedule

Year 1	Year 2	Year 3	Year 4	Year 5
\$1 Million	\$3 Million	\$5 Million	\$8 Million	\$6 Million





Program Structure



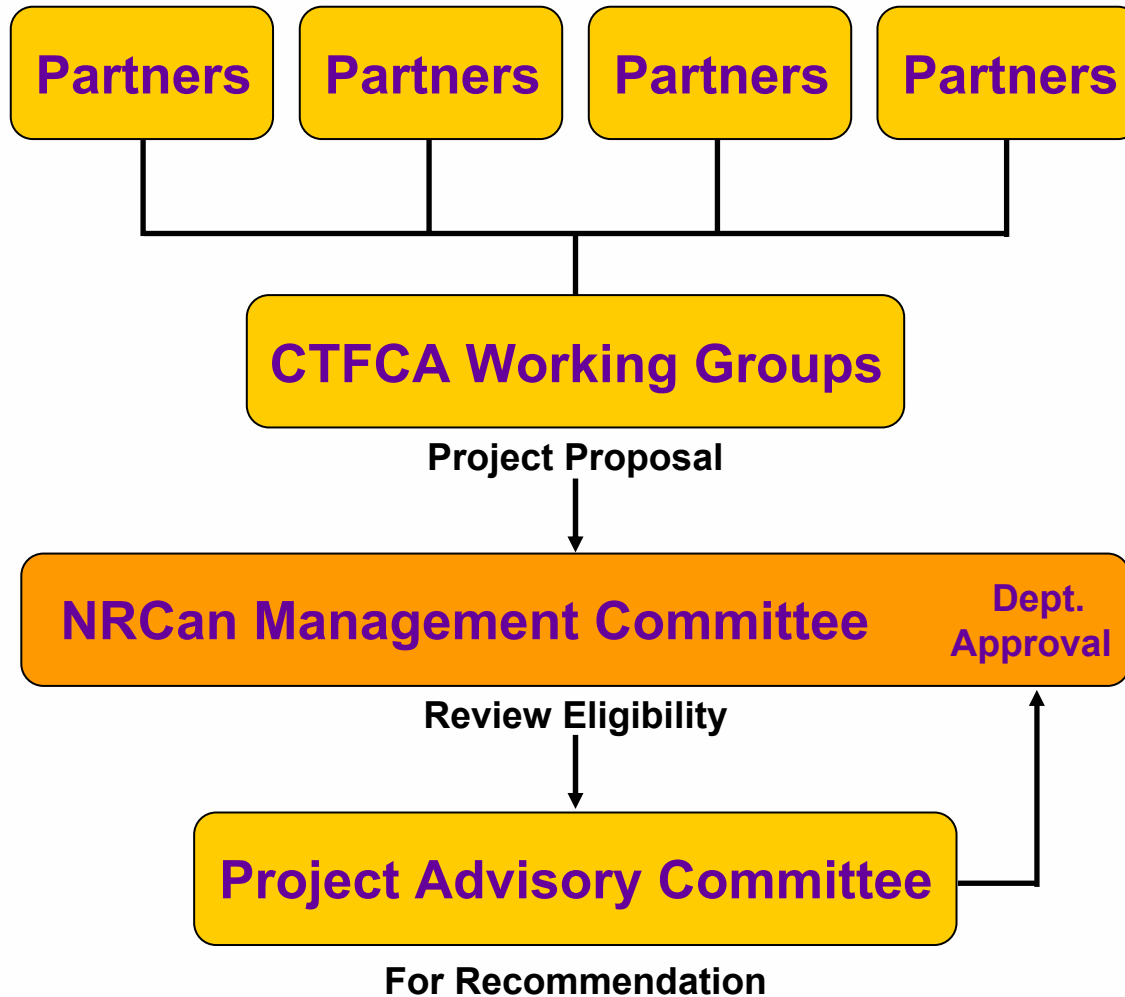


Program Support

- **NRCan manages the program by:**
 - providing Secretariat support to the committees and working groups**
 - coordinating meetings and other CTFCA related activities**
 - **distributing information and acting as a clearing house**



Project Selection Process





Project Selection Criteria

- **Address technical and market barriers**
- **GHG and other emissions reductions**
- **Canadian content and benefit to Canada**
- **Potential for replication**
- **Engagement of strategic industries**
- **Funding leverage**



Project Funding

- **Non-Repayable Contribution Agreement**
 - between NRCan and proponents
 - covers cost-sharing arrangements, eligible costs, statement of work and schedule
- **Intellectual Property resides with the proponent**



Activities Update

- **2nd Annual General Meeting in Calgary, October 2, 2002**
- **Currently the CTFCA has over 100 participants from the fuel cell and hydrogen industry, fuel suppliers, vehicle manufacturers, utilities, associations, universities and colleges, provincial governments, non-government organizations and the federal government.**





Activities Update

- **3 Committees and 5 Working Groups are operational**
- **Their memberships reflect expertise and program needs**
- **Members function as contributors and participants-not as observers**





Activities Update

- **Core Committee**
 - 18 members from industry and governments
 - provides strategic and operational advice to the CTFCA
 - meets twice a year to receive reports from the Working Groups and consider issues



Activities Update

- **Project Advisory Committee**
 - composed of 12 technical experts from industry, universities, provincial governments and the federal government
 - evaluates proposals for the demonstration of different hydrogen production and fuelling systems
 - makes recommendations to the CTFCA management committee



Activities Update

- **Light Duty Demonstration Working Group**
 - currently over 30 members from auto industry, fuel cell and hydrogen industry, fuel suppliers and governments
 - developed an overall strategy for a Canadian hydrogen fuelling technology
 - sub-groups are developing demonstration proposals
 - two prototype fuelling stations are being assembled by Hydrogenics Corporation
 - has met eight times to date





Activities Update

Heavy Duty Demonstration Working Group

- currently 30 members from bus suppliers, transit operators, fuel cell and hydrogen industry, fuel suppliers and governments
- a Fuel Cell Transit Bus study to assess the variables for consideration for the long term introduction of fuel cell buses to the transit market will start in September 2003
- sub-groups considering demonstration projects
- has met seven times to date



Activities Update

- **Codes and Standards Working Group**
 - currently 16 members from industry, utilities and governments
 - involved in national and international codes and standards development for hydrogen fuel and fuelling systems
 - developing a Canadian Hydrogen Installation Code to apply to fuelling stations is a priority
 - dealing with safety and training issues
 - has met eight times to date





Activities Update

- **Studies and Assessments Working Group**
 - 20 members from industry and government
 - evaluates the economic, energy and emissions implications of different hydrogen production processes and fuelling systems
 - projects underway: future electrical capacity for water electrolysis; policy/economic analysis of seven fuelling pathways; environmental marketing label for hydrogen; and fuel cell and hydrogen market analysis and forecasts
 - has met seven times to date





Activities Update

- **Communications Working Group**
 - 12 members from industry, government and utilities
 - communicates the mandate, objectives and activities of the CTFCA and promotes Canada's fuel cell and hydrogen industry
 - completed a Strategic Communications Plan, detailed 5-year work plan, fact sheets, annual progress report, website and information folder
 - participated in the development of a 2-day introductory course on hydrogen and fuel cells for regulatory officials and the general public
 - has met four times to date





Issues and Considerations

- **CTFCA should not duplicate but complement, where possible, the efforts of others, such as:**
 - **California Fuel Cell Partnership**
 - **United States Department of Energy**
 - **Fuel Cells Canada**
- **CTFCA must maintain a current awareness of international hydrogen infrastructure developments**



Issues and Considerations

- **Fuel Cell Vehicle Availability**
 - in the short term there will be a limited number of fuel cell cars and buses available to provide the total load for the hydrogen fuelling stations
 - adopted the “energy station” concept, where the base load provided by hydrogen fuel cell vehicles could be augmented by supplying hydrogen to internal combustion engine vehicles and/or to stationary fuel cells for power generation on site
 - recently announced the acquisition of 5 Ford fuel cell cars for three years of testing in the Vancouver area
 - continuing to pursue access to fuel cell vehicles with other auto OEM's





Outlook for 2003/04

- **start the installation of at least two more fuelling stations**
- **complete the Fuel Cell Transit Bus Study**
- **produce educational materials related to the siting of hydrogen fuelling facilities**
- **continue to support the development of the Canadian Hydrogen Installation Code**
- **initiate the development of a training and certification course for fuelling station personnel**
- **hold the 3rd CTFCA Annual General Meeting in Toronto on September 30, 2003**





For Further Information

- **Web Site**

- <http://ctfca.nrcan.gc.ca> (english)
- <http://acpct.nrcan.gc.ca> (french)

Or Contact:

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