



# Technology Roadmaps

## Fuel cells

### The Context

Our economy and society are highly dependent on energy. But this reliance comes with a price - greenhouse gas emissions, pollution, and uncertain geo-political supply arrangements. We need energy alternatives that can be produced domestically, are clean, free of CO2 emissions, cost competitive, and supported by a national delivery infrastructure. Fuel cells will provide part of the answer, from running vehicles to powering industry.

### The Challenge

Canada is an acknowledged leader in most facets of fuel cell technology - from hydrogen production and storage, through fuel cell development and testing capabilities. Commercial products, particularly in the portable and backup power applications are already available. In order to capture the benefits of years of research and development, we need to accelerate the adoption and the commercialization of fuel cells, and of the industrial infrastructure needed to support this new energy source.

### The Promise

The economic promise is impressive. The demand for fuel cell technologies is estimated to be \$46 billion by 2011. Environmental and health benefits may be at the top of the benefits list, but there will be industrial benefits too. Fuel cells use fewer parts, are more reliable, and require lower maintenance than an internal combustion engine.

### The Objective

The Canadian fuel cell industry needed a way to formulate a strategy to accelerate the commercialization of its current technology. It needed a plan to translate Canada's research leadership into market leadership.

The Canadian Fuel Cell Commercialization Roadmap is aimed at accelerating full-scale commercialization of this promising climate change technology. It was developed through the participation, input and assistance of many leaders in industry, government and academia from over 45 organizations across the fuel cell sector.

### Key Participants

**Industry:** More than twenty-eight private sector members, such as Ballard Power Systems and Dupont Canada.

**Non-government Organizations:** Fuel Cells Canada, Automotive Parts Manufacturers' Association, Centre for Automotive Materials and Manufacturing, University College of the Fraser Valley, University of Victoria, Auto21 (University of Windsor).

**Government:** Industry Canada, Natural Resources Canada, National Research Council, National Defense, Environment Canada, Technology Partnerships Canada, Transport Canada, Western Economic Diversification; Provincial government partners (BC and Ontario)

### Benefits and Key Results

- \$ 215 million from the federal government for transition to the hydrogen economy. The funding is for early adoption of hydrogen solutions, establishing a hydrogen infrastructure, and R&D of innovative new applications.
- \$ 1.5 million over five years from Western Economic Development to Fuel Cells Canada
- \$ Vancouver Fuel Cells Vehicle Project (\$2.3 million to demonstrate 5 Ford Fuel Cell vehicles)
- \$ Hydrogen and Fuel Cell Committee, co-chaired by Industry Canada and NRCan, to agree on strategic priorities and develop a hydrogen vision for Canada.

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