

HYDROGEN

An Economic & Community Development Opportunity

TACTICAL ACTION PLAN DRAFT



May 12, 2004



**SARNIA-LAMBTON
BUSINESS DEVELOPMENT CORPORATION**

A Community Futures Development Corporation



EXECUTIVE SUMMARY

The *Sarnia-Lambton Economic Partnership* mandated MARCON-DDM to determine whether and how the Sarnia-Lambton region could take advantage of the currently accelerating trends towards the use of H₂ as a major renewable energy source.

The basic key components of a hydrogen economy are production, delivery, storage, conversion and the end-use applications. Each of the components of the hydrogen economy infrastructure has its own challenges in terms of costs and safety issues.

The economic region is well known across Canada and abroad for its petrochemical complex. Accordingly, the labour force is structured for such an economic base where technical and trade skills prevail and therefore represent a significant portion of employment.

The economic structure of the region has a number of major producers (Praxair, Air Products) and customers (Transalta, Bayer, Esso) of hydrogen. The research undertaken in the context of this mandate indicates that several partnerships can be established with a variety of economic actors.

There is a real opportunity for the region to envision a hydrogen economy. However, moving from one economic structure to another requires approximately a fifty-to-sixty year cycle. Most experts agree that fossil fuels will dominate the energy supply until 2040-2050. Transition from the "Old Economy" to a "New Hydrogen Economy" requires a combination of new technologies, market awareness and substantial investments.

The SWOT matrix analysis clearly indicates that Sarnia-Lambton possesses the potential to envision a hydrogen economy.

The Tactical Action Plan submitted to the *Sarnia-Lambton Economic Partnership* has defined the focus for the New Hydrogen Economy. The transition from one economic structure to another relying on emerging energy sources is an important step and the challenges are significant. The challenges stem from three sources: the economic issues, building the business case and dealing with technical issues.

The recommended course of action for Sarnia-Lambton is to commit the required resources to a flagship project that is readily achievable and highly visible and that will launch and accelerate the transition to the Hydrogen Economy.

The recommended project consists in converting a conservative yet sizeable portion (200 vehicles by 2010 and 200 per subsequent year) of the local commercial fleet to hydrogen locally by «importing» other Canadian technologies and effecting a

significant transfer of know-how in the process. Moreover, the project must include the construction and operation of a fuelling and filling station to service the fleet. The station will use NOVA Chemicals by-product hydrogen stream as supplied by the existing pipeline and must have an appropriate supply of high-pressure hydrogen available at all times.

Lambton College will be called upon to supply training in the vital areas of safety, operations and maintenance related to hydrogen and hydrogen technologies.

Federal & Provincial governments will be called upon to share into the cost of this project by:

- Contributing substantially to the cost of fuelling infrastructures
- Sharing into the cost of conversion
- Exempting hydrogen fuel from taxes

In order to do so, existing programs such as the Green Municipal Enabling Fund (for feasibility studies), the Canadian Fuel Cell Transportation Alliance, the Green Municipal Investment Fund (GMIF) and Technology Partnership Canada Early Adopters H₂ Program will be called upon. However, other representations will be made at all levels of government for additional and exceptional funding.