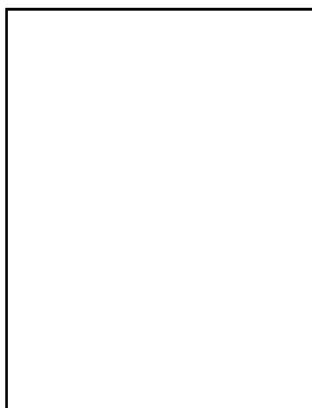


Prospects for a “hydrogen economy”

Seth Dunn

Many national and international initiatives are being taken to promote the transfer and adoption of clean energy technologies throughout the world. Both business and political interest in fuel cells and hydrogen are now on the rise. There is also increasing support from several international agencies, including the Global Environment Facility (GEF) in particular. The article discusses the prospects, challenges and opportunities for commercialization and technology transfer of this environment-friendly energy technology.



Mr. Seth Dunn
Research Associate
Worldwatch Institute
1776 Massachusetts Ave., NW
Washington, DC 20036-1904, USA
Tel: (+1-202) 452 1992
Fax: (+1-202) 296 7365
E-mail: sdunn@worldwatch.org

Introduction

Several megacities may be getting a small breath of fresh air in the next few years if a new UN initiative is successful. In January 2001, the Global Environment Facility - which operates through the World Bank and the UN Development and Environment Programmes - announced its approval of a clean bus demonstration project that had been half a decade in the making. The project is planned to deliver and deploy 40 to 50 buses using fuel cells - which combine hydrogen and oxygen to generate electricity and only water as exhaust - to major cities and capitals with some of the world's most serious air pollution problems. Sao Paulo, Mexico City, Cairo, New Delhi, Beijing and Shanghai are among the cities expected to take part in this stage of the project.

The next stage of the fuel cell bus project - commercialization - is anticipated to start around 2004. At US\$ 2 million each, fuel cell buses are not yet cost-competitive with diesel buses. However, as they are mass-produced,

their cost is projected to fall to below \$ 500,000 per bus - making them commercially competitive - between 2007 and 2010, at which point the GEF's role will diminish and that of industry will grow.

Why is the world's largest multilateral aid agency getting involved in catalyzing fuel cell projects? Richard Hoser, technical adviser for the project, explains that the GEF is increasingly interested in making “technological leapfrogging” a priority for addressing greenhouse gas emissions in developing nations. “Transfer of new technologies is more challenging than transfer of established technologies,” he acknowledges, and “the risks are potentially large.” But in terms of reducing global greenhouse gas emissions, the return on these early investments could be enormous.

Drivers of change

As the recent GEF project suggests, the problems of urban air pollution and global climate change are causing growing attention to be paid to the prospect of employing fuel cells and hydrogen as