

INTERNATIONAL SEMINAR ON THE HYDROGEN ECONOMY FOR SUSTAINABLE DEVELOPMENT

27-29 SEPTEMBER 2006
REYKJAVIK, ICELAND

Co-organized by



Government of Iceland

including

Special Event
A Hydrogen Economy Based on Geothermal
Resources:
Current Developments and Potentials



Background

The provision of reliable, affordable and clean energy services is critically important to achieving the objectives of sustainable development and the Millennium Development Goals. Of the many sustainable energy pathways that have emerged, a hydrogen-based energy system has received particular attention. The so-called "hydrogen economy" is regarded as a viable and preferable option for delivering high-quality energy services in an efficient, clean and safe manner while generating little or no polluting emissions at the point of use. Hydrogen can be produced from various sources. For such a system to be environmentally friendly the primary source would have to be renewable. Hydrogen can be used for mobile transportation, as well as in distributed stationary applications for power and heat.

The last two decades have seen significant progress in hydrogen as an energy carrier as a result of concerns about climate change and diversifying of energy resources. The development of fuel cell technology is opening a new opportunity for the use of hydrogen fuel. Further development of this technology will provide a wide range of applications from powering vehicles to supplying electricity and heat, with environmental advantages over other energy technologies.

However, a number of technological, institutional and economic hurdles will have to be overcome if the potential of hydrogen is to be further developed. Technological breakthroughs are necessary to improve reliability and performance, and significantly reduce both the financial and energy costs of production, storage, conversion, transportation and utilization. The market uptake and widespread deployment of hydrogen-based energy systems

require visionary thinking, intensive R&D efforts, increased cooperation across academic disciplines, industrial sectors and national borders. Ultimately government leaders and policy-makers will need to support the development and implementation of such a system.

A hydrogen economy offers an attractive opportunity to developing countries that lack fossil fuel resources but possess renewable energy sources. For instance, small island states that heavily rely on costly imported fuel could become an initial niche market for hydrogen energy systems. However, advancing a hydrogen economy requires strong technical and financial capacity, which many developing countries lack. This should not discourage developing countries from the pursuit of a hydrogen economy. Initially, hydrogen can be produced from natural gas and progressively a shift to a renewable energy source base can occur. In many developing countries natural gas and renewable energy sources are both available in sufficient quantities. To realize improvements and a conversion to a renewable energy source base it is important for these countries to be engaged in and keep abreast of progress in hydrogen energy systems in terms of technological improvement, economic viability and a supportive policy framework.

Against this backdrop, the Government of Iceland and the United Nations Department of Economic and Social Affairs (UNDESA) propose to convene an International Seminar on the Hydrogen Economy for Sustainable Development from 27 to 29 September 2006 in Reykjavik. The Seminar will serve as a follow-up to the World Summit on Sustainable Development (WSSD) and the fourteenth session of United Nations Commission on Sustainable Development (CSD) with the aim of bringing together a wide range of stakeholders to explore the role and

future of the hydrogen economy in the context of sustainable development.

Objectives

The principal objective of the International Seminar is to provide a forum for distinguished experts from the scientific community and academia, representatives of the industry and financing community, strategic planning and policy-making officials from governments, of both developed and developing countries, as well as from international organizations, to discuss technical, policy and financial issues related to hydrogen fuel and sustainable development.

The Seminar will focus on the following key topics:

A. Status and trends of the hydrogen economy

- Latest development of hydrogen-based energy systems;
- Hydrogen production/conversion, transportation and storage, infrastructure and applications;
- Long-term vision from the viewpoint of sustainable development;
- Successful demonstration projects;
- Cross-disciplinary and cross-country cooperation.

B. Developing Country Perspectives and Experiences with Hydrogen Production and Use

- Need for and potentials of early involvement of developing countries;
- Identify capacity-building needs and explore feasible and effective ways of assisting developing countries;
- Discuss in particular perspectives for island economies.

C. Perspectives for the Development and Use of Renewable Energies and Potentials for Hydrogen Production

- Project experience and proposals on the utilization of renewable energies, including for hydrogen production;
- Focus on regions and countries with abundant renewable energy sources, particularly among developing countries
- Special attention for small island developing countries and their development of renewable energy sources.

D. International Financing of Energy Projects in Developing Countries – including Hydrogen

- Discussion on the need for and benefits of strengthened international financing of energy projects;
- Recommendations for priority areas and effective approaches, including bilateral, regional and global cooperation, partnerships, and North-South and South-South cooperation

- Special Event -

A Hydrogen Economy based on Geothermal Resources: Current Developments and Potentials

Representatives from the private sector and research institutions of Iceland present on the current situation of developing and using hydrogen-based energy technologies using the abundant geothermal resources of the country.

The Seminar is expected to lead to:

- (A) a better understanding of the role and potential of hydrogen energy in promoting sustainable development,
- (B) improved understanding of the technological, institutional, economic and financial challenges facing the development of a hydrogen economy,
- (C) recommendations on priority areas for international cooperation and support for the early involvement of developing countries. The outcomes of the Seminar will be widely shared throughout the international community and submitted to the CSD for consideration at its fifteenth session.

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