

Global Hydrogen Landscape: Selected IEA HIA Member Programs and Initiatives

On 10 June 2010 in Washington, DC the International Energy Agency Hydrogen Implementing Agreement (IEA HIA) in cooperation with the National Hydrogen Association (NHA) held a briefing that featured presentations by three IEA HIA Representatives on their hydrogen and fuel cell programs and initiatives. The panel and their key highlights of their presentations included:

- Dr. Aksel Mortensgaard, Director of the Danish Partnership for Hydrogen and Fuel Cell
 - Denmark is decentralizing energy production
 - Targeting a cluster strategy with hydrogen infrastructure.
 - Connected with Berlin and Hamburg to link hydrogen highways
 - Danish have 20% energy from wind power; look to 50% market penetration by 2025
 - By 2020, 50% of electricity produced from wind
 - Have utilized the Triple Helix Model to form the Hydrogen and Fuel Cell Partnership-consistence of government, industry and academia
 - Denmark seeks international collaboration as it sees this approach the best way to advance this technology forward.
- Dr. Marc Steen, from the Joint Research Centre Institute for Energy of The Commission of the European Union
 - European Union has 27 member states covering 500 million people
 - Targets 20-20-20 by 2020
 - Decrease greenhouse gas emissions by 20%
 - produce 20% of its energy from renewable energy
 - increase energy efficiency by 20%
 - EU Council of Ministers committed to 80% reduction of 1990 carbon emission by 2050
 - Fuel Cells and Hydrogen Joint Undertaking (FCH JU) comprised of European Commission, industries and research community that supports research, technological development and demonstration (RTD) in hydrogen energy and fuel cells.
 - Aims to accelerate market introduction. It is the legal entity where partners come together to implement RTD activities.
 - 1/3 of the budget is for hydrogen transportation and refueling infrastructure: total €40 Million Euros
- Dr. Youngsug Tak from the Ministry of Knowledge Economy (MKE) from Korea
 - Korea is 97% dependent on foreign imports for energy; 2nd largest LNG importer
 - Goal: decrease use of fossil fuels by 10% by 2030
 - 4th largest vehicle producer and 6th largest vehicle exporter
 - Korea has a Fuel Cell Vehicle Roadmap that calls for:
 - By 2012: have 10 hydrogen stations, 500 fuel cell vehicles and 20 Fuel Cell buses
 - Through 2013-20 have 500 hydrogen stations and 50,000 FCV

In addition to the presentations provided by the panel, IEA highlighted key aspects of other IEA HIA Members' programs, including:

- 16 May 2010 Japan and Germany signed a Memorandum of Understanding (MoU)

- Share information on infrastructure and applications for transportation and stationary technology
- Germany:
 - H₂ station in Hurth is final link in 600 mile hydrogen highway from Munich to Amsterdam
 - National Innovative Program's budget is \$1.4 billion; split evenly by industry and government
- Canada:
 - 2010 Winter Olympics in Vancouver had 20 Fuel Cell buses
 - H₂ village in Toronto
 - Chair of ISOTC 197
 - Largest producer of H₂ in OECD
- France
 - Invests €200 million Euros in R&D
 - Focuses on H₂ production from nuclear energy
 - 7 years program
- Finland
 - FinH₂
- Spain
 - H₂FC technology platform: Wind Energy is an important component as a source of energy
- Italy
 - Has 5 year plan tin include H₂FC
- Sweden
 - BioHydrogen
 - Joint Technology initiative in 2008
- Netherlands
 - DutchHy
- Iceland
 - H₂SMART; H₂ Boats
- Greece
 - CRESS intergrating H₂ and renewable energy for islands
- Norway
 - HyNor is the Hydrogen Hyway
- Lithuania
 - H₂ is a priority in their National Energy Strategy
- Australia
 - 5-25% reduction in carbon emissions by 2020
- UNIDO ICHET: demonstration and facilitation of H₂ in developing countries