



International Partnership *for the* Hydrogen Economy



IPHE Stakeholder Briefing



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What is IPHE?

- IPHE is an organization composed of 17 members: 16 nations plus the European Commission
- **Goal:** Efficiently organize and coordinate multinational research, development and deployment programs that advance the transition to a global hydrogen economy.
- **Members have been chosen on the basis of:**
 - substantial, long-term resource commitments to hydrogen and fuel cell technology research and development activities;
 - a well-defined vision and national strategy to advance technology deployment and infrastructure development;
 - and a commitment reflected in policies and strategies that effectively advance private sector development of a hydrogen economy.



IPHE Partners



Russian Federation



USA



Canada



Iceland



IPHE Partners' Economy:

- Over \$35 Trillion in GDP, 85% of world GDP
- Nearly 3.5 billion people
- Over 75% of electricity used worldwide;
- > 2/3 of CO₂ emissions and energy consumption



Japan



Republic of Korea



China



India

United Kingdom



France



Germany



Italy



Australia



Brazil



Norway



European Commission



New Zealand





IPHE Structure

- **IPHE is structured to focus on two levels**
 - **A strategic level, embodied by a Steering Committee (SC)**
 - **The SC is chaired by the U.S. (Under Secretary of Energy David Garman and Assistant Secretary of Transportation Tyler Duvall)**
 - **An implementation level, embodied by the Implementation-Liaison Committee (ILC)**
 - **The ILC is co-chaired by Germany and Iceland (Dr. Hanns-Joachim Neef and Prof. Thorsteinn Sigfusson)**
- **The committees are supported by a Secretariat**
 - **U.S. Dept. of Energy houses Secretariat**
 - **Graham Pugh, Exec. Director; Mike Mills, Assoc. Director; contract support**



IPHE Structure

➤ **Steering Committee**

- Governs the overall framework, policies and procedures of the IPHE
- Periodically reviews the program of collaborative activities
- Provides direction to the Secretariat

➤ **Implementation – Liaison Committee**

- Coordinates collaborative projects
- Identifies promising directions for R,D,&D, and commercial use
- Maintain communications with the private sector and other stakeholders.

➤ **Secretariat**

- Coordinates communications with regard to IPHE activities
- Organizes meetings for the IPHE, its committees and subgroups
- Acts as a clearinghouse of information for the IPHE.



Steering Committee Accomplishments

- Identified Codes and Standards work as an IPHE priority
- Identified means for stakeholder participation (Liaison Group of Stakeholder Organizations)
- Directed ILC to hold international workshops on selected topics
- Endorsed the first 10 IPHE collaborative projects
- Approved creation of the IPHE Priority Scorecard and Activities Matrix
- Approved the IPHE Awards Program – an annual Special Recognition award for an individual and an annual Technical Award for an individual/organization/institution



ILC Accomplishments

- Publication of Scoping Papers on high priority activities
 - Hydrogen production, storage, fuel cells, codes and standards, socio-economics
- Established working groups
 - Codes and Standards; Education; Demonstration
- Created World Atlas on Hydrogen and Fuel Cell Demonstration Projects (on website)
- Conducted international technical workshops on high priority topics



IPHE Workshops

- **Joint IEA-IPHE SOFC Fuel Cell Workshop - May 2005**
Quebec City, Canada
- **Joint IEA-IPHE PEM Fuel Cell Workshop - June 2005**
Mol, Belgium
- **IPHE International Conference on Hydrogen Storage -**
June 2005 - Lucca, Italy
- **IPHE Socio-Economic Workshop - June 2005**
- Paris, France
- **International Conference on Hydrogen Safety -**
September 2005 - Pisa, Italy
- **Hydrogen from Renewable Energy Sources – October**
2005 - Seville, Spain



IPHE Endorsed Projects

- **ILC created a Project Evaluation Team to evaluate IPHE project proposals**
 - **IPHE endorsement of high value collaborative activities**
- **Project Working Principles**
 - **Supported by more than one IPHE member**
 - **Funding source already established**
 - **National environmental, safety, and health concerns addressed**
 - **Project partners willing to share non-proprietary project information with other IPHE Members**



IPHE Endorsed Projects

- **First 10 IPHE endorsed projects approved:**
 - ❖ Preparing For The Hydrogen Economy By Using The Existing Natural Gas System As A Catalyst
 - ❖ Solar Driven High Temperature Thermochemical Production Of Hydrogen
 - ❖ Reversible Solid State Hydrogen Storage For Fuel Cell Power Supply System
 - ❖ Advanced Membranes
 - ❖ Fuel Cell Testing, Safety And Quality Assurance (FCTESTQA)



IPHE Endorsed Projects, Cont'd

- ❖ Application Of Gradient Porous Composite MEAs For Different Types Of Fuel Cells
- ❖ HyWays - The Development And Detailed Evaluation Of A Harmonised "European Hydrogen Energy Roadmap"
- ❖ HySafe - Safety Of Hydrogen As An Energy Carrier
- ❖ Solar Hydrogen From Reforming Of Methane
- ❖ Clean Urban Transport for Europe (CUTE), Ecological City Transport System (ECTOS), Sustainable Transport Energy for Perth (STEP)



Outreach & Education

- **IPHE Representation at International Workshops**

- **IPHE Newsletter**
 - **First edition in September 2005**
 - **Second edition April 2006**

- **IPHE Endorsement of Events**
 - **If you are aware of events and are interested in endorsement, contact the Secretariat**



Stakeholders

- Secretariat maintains a mailing list of over 1,000 names
 - Registration through website
 - Open to individuals from IPHE & Non-IPHE members
 - Receive IPHE announcements, newsletters, reports, etc.
- Liaison Group of Stakeholder Associations (LGSA)
 - Open to associations supporting IPHE goals
 - IPHE members recommend LGSA members to Secretariat
 - Secretariat establishes contact and creates link on IPHE website
 - LGSA members receive additional material, such as meeting announcements, and commit to circulate this to stakeholders



Stakeholder Involvement Options

- The IPHE website:
 - Special section for stakeholders

- IPHE Ministerial, SC, and ILC Meetings:
 - Meetings are open to any who wish to attend
 - Stakeholders frequently give presentations on activities in line with theme of meeting
 - Some sessions expressly intended to facilitate an exchange of views and ideas on issues of substance where stakeholders could weigh in



IPHE and IEA Implementing Agreements

- “Why do we need IPHE if the IEA Hydrogen and Fuel Cell IA’s are successful?”
 - IPHE view is that development of a successful hydrogen economy will depend on governments and industry as well as researchers
 - In the research area, IPHE wants to have a comprehensive view of global activities, including those outside of IEA
 - But, we have no desire to duplicate or exercise control over the excellent work done by the IAs
 - ❖ Our goal is to maintain links to them while avoiding duplication of resources



Next Steps

- IPHE is developing a prioritized list of critical objectives for the hydrogen economy
 - Goal: To achieve consensus on common goals for hydrogen research, development, demonstration and deployment
- Workshop to prioritize these critical objectives - June 2006
- The critical objectives will be ranked according to a risk assessment score
 - The impact of failing to achieve a critical objective multiplied by the difficulty of achieving that objective
- Result: IPHE Priority Scorecard and Initial Activity Matrix



Summary

- IPHE is making progress toward achieving its goal of “efficiently organizing and coordinating multinational research, development and deployment programs that advance the transition to a global hydrogen economy”
- Please feel free to contact the Secretariat for further information



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