



## 3rd CESSA Conference

### Prospects for a European Hydrogen Economy

(Madrid, April 14 & 15, 2008, Comillas University)

Universidad Pontificia de Comillas - C/ Alberto Aguilera, 23 - 28015 Madrid - Spain

The main objective of this meeting is to explore the role to be possibly played by hydrogen in the context of the security of energy supply in the EU. At the moment, hydrogen is a promising alternative. However, in order for hydrogen to become a working part of the energy system, huge amounts have to be invested in research, development and new infrastructure. The conference aims at clarifying the magnitude of the challenge, identifying the most promising tracks to be followed, and setting the frame to discuss the expected gains, given the expected costs.

## **Monday, April 14<sup>th</sup>**

8:00 **Registration & coffee**

8:30 **Welcome and Introduction**

*Ignacio Pérez-Arriaga (IIT, Comillas University, Spain)*

8:45 **Keynote speech**

*Arturo Gonzalo Aizpiri (Pollution and Climate Change General Secretary, Spanish Government)*

9:30 **Prospective analysis of a hydrogen economy**

*Antonio Soria (IPTS, EU Joint Research Center)*

This opening talk will provide a general background of the different hydrogen technologies from a policy point of view, as well as some rough estimates of the time required for their deployment, and of the impact and requirements imposed on the primary energy mix and energy transmission and distribution infrastructures.

10:15 **Coffee break**

10:45 **Session 1: Technological and economic aspects of hydrogen production**

Hydrogen is not an energy source but, as electricity, an energy vector. This session will explore the different ways in which hydrogen can be obtained from different primary energy sources, with an emphasis on issues like transformation efficiency, costs, environmental impacts, and available indigenous and foreign EU resources. In particular, the implications on security of supply and the potential for reduction of GHG emissions will be examined.

Chair: *Vaclovas Miskinis (LEI, Lithuania)*

- *Francisco García Peña (Elcogas, Spain):* From fossil fuels
- *William J. Nuttall (Electricity Policy Research Group, University of Cambridge, UK):* From nuclear energy
- *William D'Haeseleer (University of Leuven, Belgium):* From renewable energy sources

12:45 **Buffet lunch**

**14:00 Session 2: Technological and economic aspects of hydrogen utilization**

Huge investments in energy infrastructure are forecasted in the medium to long term. The specific nature of these investments is to be dependent of the role to be played by hydrogen. This session will focus on the infrastructure requirements, and on the actors and applications that can push these investments forward in the early stages.

Chair: *Iñigo Sabater (European Commission)*

- *Martin Wietschel (Fraunhofer Institut, University of Karlsruhe, Germany):* Infrastructure build up of hydrogen
- *Francisco Aparicio (INSIA-UPM, Spain):* Transport
- *Adolfo Sanz Izquierdo (Carrier España, Spain):* Non-transport applications

**16:00 Coffee break**

**16:30 Panel on technological & economic perspectives for a hydrogen economy**

Based on the material to be presented and discussed in the previous sessions, the objective of this panel is to evaluate the pros and cons of investing in the development of a hydrogen economy in the EU.

Chair: *Antonio González García-Conde (Spanish Hydrogen Association)*

**17:30 End of the session**

**20:00 Social dinner**

## **Tuesday April 15<sup>th</sup>**

### **8:30 Session 3: R&D programs for hydrogen**

Forecasting the features of a future hydrogen-based energy system is a difficult task, as most required technologies are still in a R&D phase. It is expected that, by reviewing R&D programs, insights can be gained on the extent of the present uncertainties, the potential of different deployment strategies, and the weaknesses and strengths of the available technologies.

Chair: *Christian von Hirschhausen (Dresden University of Technology, to be confirmed)*

- *César Dopazo (University of Zaragoza, Spain):* In the EU
- *Steven Stoft:* In the USA

### **10:15 Coffee break**

### **10:45 Session 4: Regulation for a hydrogen economy**

Talking about regulation could be seen as premature when the technologies under discussion are still mostly in the drawing boards. However, there is a substantial body of experience related to the introduction of once futuristic technologies that are standard ones nowadays. The speakers in this session will focus on how these experiences can be applied in order to boost industrial innovation in hydrogen technologies and to facilitate its subsequent deployment.

Chair: *Jean-Michel Glâchant (University Paris-Sud)*

- *Tim Foxon (University of Leeds, UK, to be confirmed):* Promoting innovation in low carbon industrial processes and technologies
- *Christian Egenhofer (CEPS, Belgium):* Regulatory instruments for low carbon technology development

### **12:15 Break**

### **12:30 Panel on policy instruments to introduce a hydrogen economy**

This panel will focus in what should be done, from the EU policy point of view and in the short to medium term, to take advantage of the possibilities that could be brought about by hydrogen-based technologies.

Chair: *Steven Stoft*

### **13:50 Conference closure**

### **14:00 Lunch**