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“Hydrogen, a universal energy carrier - a crossroad for global  
Energy policies”

International Partnership for the Hydrogen Economy” (IPHE)-  
Ministerial Meeting

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It is a pleasure for me to participate in this Ministerial meeting and to  
emphasise:

- why hydrogen energy systems are important for the European  
Union's future, and
- how we intend to support the International Partnership for the  
Hydrogen Economy (IPHE)

I would like to congratulate Mr Abraham on his initiative to create the  
International Partnership for the Hydrogen Economy. The European  
Commission is very pleased to join this Partnership.

**Global energy policies cooperation: Hydrogen an area of convergence**

The Energy policies of the countries sitting around this table today are  
not identical. But the basic policy drivers are common for many of us,  
notably: energy security, competitiveness and environmental concerns  
and climate change. Security, competitiveness and sustainability are  
the three key elements. Sometimes in the translation of these objectives  
into concrete measures appear some differences.

Despite these differences, hydrogen represents a broad area of  
convergence. The joint statement on hydrogen made last June during  
the last EU-US summit, clearly affirms our commitment to cooperate in  
accelerating the development of the hydrogen economy.

Hydrogen is a potentially clean, universal energy carrier that addresses  
in a rather unique way our energy concerns. That justifies the substantial

efforts we are making to develop the related technologies. This Ministerial meeting confirms the uphill fight that it requires on all fronts: production, distribution, storage and use of hydrogen.

The European Commission believes that working together in this partnership is much more effective and efficient than working separately. By joining our efforts we will move faster.

### **What Europe is doing**

The European Commission's "Green Paper: Towards a European strategy for the security of energy supply" in 2000 acknowledged the potential of hydrogen as a transport fuel for the future. In our Alternative Motor Fuel Communication in 2001, we suggested a development scenario for 2020 achieving 20% substitution of petrol and diesel. Among the identified fuels, a possible market share of 5% by 2020 for hydrogen was suggested.

But we are not leaning back waiting for this to happen.

**Firstly**, through our **framework programmes for research**, the European Union is supporting efforts to overcome the barriers to production, distribution, storage and use of hydrogen as an energy carrier.

Among more than 70 on-going research and development projects, in 2001, we decided to support the **CUTE** demonstration project. (CUTE stands for Clean Urban Transport for Europe). This project is now starting to operate a fleet of 27 hydrogen fuelled fuel cell buses in 9 European cities. For a two year period, millions of Europeans will be offered the hydrogen mobility experience. Madrid started operating the first CUTE bus in June 2003 today the sole buses of Madrid have driven more than 10.000 Kilometres and carried more than 30.000 passengers.

**Secondly**, a **contact group** with industry and other stakeholders was created to envisage strategies that could turn the scenario of 20% oil substitution by 2020 into a reality. The contact group will present the results of their work by the end of the year. I am aware that they are discussing mechanisms to accelerate market entry by bridging the gap between the current phase of development and commercially viable alternative motor fuels.

For hydrogen one option is large-scale deployment projects that could integrate under real life conditions, all the actors and the most advanced technology of the hydrogen economy. We hope that these projects would show us the way forward and we call them Lighthouse Projects.

**Thirdly**, conscious of the challenge that hydrogen presents, in October 2002 I convened a Hydrogen and Fuel Cell **High Level Group**. We asked it to develop a European Vision. In May 2003 this group completed its task and delivered a Vision report with several recommendations to make it a reality.

Mr Abraham took part in the Hydrogen Conference we organised in Brussels in June 2003 to present and discuss this Vision report.

The report acknowledges the length of the road and the hills we have to climb to develop the hydrogen economy but emphasises that work should start now and calls for action. It proposes to establish a Technology Platform where interested stakeholders should work together to simultaneously address research and deployment issues. The report also suggests the use of Lighthouse Projects as an enabling mechanism for triggering the market. I confirmed on the occasion of the conference, the need for stepping up the scale of deployment activities as a condition for accelerating market penetration.

**Fourthly**, we have now put these recommendations into practice. We are creating the **European Platform for the Sustainable Hydrogen Economy** with public and private entities. The First General Assembly will take place in Brussels on the 20<sup>th</sup> and 21<sup>st</sup> of January 2004. We are ready to envisage inviting the countries present today which would be interested in attending this event.

As I said before, we are not leaning back waiting for things to happen on their own.

I would like to propose today to use all of these European assets as building blocks of the International Partnership for the Hydrogen Economy.

For instance, many of us are supporting substantial efforts to demonstrate the feasibility of hydrogen use as a transport fuel with fuel cell power-trains. These are very expensive activities which require

years of work to set up. Sharing the results of the demonstration projects that are going on such as the CUTE project, and working together in the preparation of future ones, will multiply their added value and increase their impact.

### **The reality about hydrogen**

No one should dream that hydrogen will solve our energy supply and greenhouse gas emissions problems in the near future. There is a long and challenging way ahead. It is a marathon run and it does not make much sense to start with a sprint.

Cost is one of the main barriers to use hydrogen as an energy carrier. Bringing cost down for its distribution, storage and use technologies is an absolute priority. Hydrogen will of course always be more expensive than the primary energy source used to produce it.

But this should not discourage us from pursuing its development because we may balance the extra production cost with savings either through efficient energy conversion devices like fuel cells or through CO<sub>2</sub> emission reductions.

Taking into account the ever increasing demand for oil and the low likelihood of finding new cheap sources of oil, in the long term oil prices will rise in spite of our efforts to combat its volatility. In addition, CO<sub>2</sub> emissions and its associated costs should also be taken into account. For instance, the cost of any emission trading scheme or the cost of handling CO<sub>2</sub> through carbon sequestration will have to be added to the primary energy source cost.

The future energy scenario is likely to be one with fluctuating oil prices and CO<sub>2</sub> trading and handling costs, and it is under such scenario that hydrogen will have to provide attractive and competitive energy services. Indeed, hydrogen used as a transport fuel will enable both energy diversification and CO<sub>2</sub> reduction.

### **Key messages for a successful roadmap to hydrogen**

#### **Working in partnership with the industry**

As time goes by, we witness that the deadlines fixed by industry for mass production of fuel cell vehicles are steadily moved forward.

Mobile deadlines do not help this process.

It is the task of governments and industry to put in place measures to try to ensure that the deadlines do not keep on moving. No doubt about it, the key is to set realistic targets and deadlines.

However, a possible mechanism that the European Commission is considering jointly with European industry is large-scale deployment projects that I referred to before as Lighthouse projects. This will consolidate the main development lines into a stable frame ensuring the means for proceeding up to the market entry decisions.

As I have explained earlier, in the European Union, governments and industry will work together in the Hydrogen and Fuel Cell Technology Platform to help guide this process.

The International Partnership for the Hydrogen Economy should be a vehicle to multiply the impact of our Hydrogen initiatives, and why not?, to give them a global dimension. In this Partnership we should also compare the targets and deadlines that are suggested in different parts of the world.

#### **Flexible technology and energy choices to launch the process**

In the start up process, gaining the first 1% of the market for hydrogen will be the most difficult step. To achieve it we should be pragmatic and intelligent rather than dogmatic. When building a market from scratch, we cannot afford to ignore any routes to hydrogen that offer early-market opportunities, although they may not on their own be ideal for the mature case that remains our ultimate goal.

Today the bottleneck seems to be more in the vehicle side rather than in the hydrogen supply infrastructure side. However, the debate focuses very much on hydrogen production due to its long term consequences.

In the future, if we want to take advantage of the potential CO<sub>2</sub> benefits of hydrogen, and of course we do, then hydrogen produced from carbon-free energy sources such as renewable is certainly an option, but it remains to be seen whether it is economically viable.

The Carbon Sequestration Leadership Forum, that was established last June, is seeking, in parallel with the Partnership we are signing today, to develop Carbon Sequestration technologies that will enable carbon intensive energy sources like coal, to be used in a carbon-free way.

The potential for hydrogen production with such technologies has to be explored and may prove to be beneficial.

ITER, the international experiment on nuclear fusion also holds promises that may change the perception of nuclear energy in the future and could provide the world with an abundant supply of clean energy. It could very well be used both to produce electricity and hydrogen.

And let me be very clear, we need now to develop hydrogen sources. It would be a mistake to distinguish between good and bad hydrogen sources.

I am convinced that technology options should be kept open. We should support research and industrial development to deliver the most adequate answers. And in the meantime, without dogmatism we should help this market to take off and gain the first 1%.

### **Aligning policies**

The introduction of hydrogen in the energy market cuts across many policy areas. Energy, industrial, environment, research, transport, and even taxation or education policies are in the hydrogen loop. The need to align all these policies to enhance each other is a must and as such it is identified in the Vision report of the hydrogen and fuel cell High Level Group.

The International Partnership should bear this in mind and favour holistic approaches that will take into account all the dimensions of developing a hydrogen economy.

### **Conclusions**

To conclude I would like to stress the following:

- Hydrogen holds great promise in terms of CO<sub>2</sub> emission reduction and energy diversification, the latter helping to improve security of energy supply, in particular in transport;
- Governments and industry should move forward in partnership;
- Technology and energy choices should not be prescribed at this early stage; and
- All concerned policies should be aligned.

I am offering the European assets such as the European Technology Platform for the Sustainable Hydrogen Economy as building blocks for the International Partnership.

Mr Abraham has had the vision to identify hydrogen as cross-roads in our energy policies. Hydrogen is a topic in which not only we can work together but in which we need to work together.

Many thanks for your attention,