

Hydrogen and Fuel Cell Technology Platform
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View and role from the Member States

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Commisioner

..... It is an honour and a great pleasure to address this distinguished gathering on the views and role of Member States with regard to the Hydrogen and Fuel Cell Technology Platform.

Introduction and background

The EU has an impressive and ambitious set of goals that relate mainly to the reduction of GHG emissions and the security of supply in the provision of clean power and heat for the Community.

The main driving force for these goals has been the Kyoto Protocol which calls for the reduction of GHG, and the sequence of subsequent measures and strategies established by the EU in pursuant of these objectives.

Some of the main drivers have been:

- Lisbon strategy with the vision of making the EU the most competitive knowledge based economy in the world.
- The Green paper on methods for the security of energy supply
- The Gothenburg Summit which adopted a strategy on sustainable development
- The White Paper on European transport policy emphasizing the need to increase the proportion of renewables
- The Barcelona summit opening up the electricity and gas markets

The EU has recognised that economic growth increasingly depends on research, and many of the present and foreseeable challenges for industry and society can no longer be solved at national level alone.

The Role of the RTD Programmes

These issues were addressed in practice by the framework programmes which are the EU's main instrument for research funding in Europe.

The four Framework Programmes that were mounted between 1984 & 1998 were based on Community policy to:

- Promote industrial competitiveness
- Strengthen Europe's S&T base
- Coordinate Community & national activities
- Encourage collaboration between industry, academia & Member States

In the Fifth Framework Programme (1998 to 2002) the priorities were to increase industrial competitiveness and to improve the quality of life for European citizens. The focus was on combining technological, industrial, economic, social and cultural aspects. An important difference in FP5 from previous programmes was the focus on the major socio-economic challenges facing Europe. Hydrogen was identified as a priority within this context.

Turning specifically to hydrogen research programmes, we note that the USA and Japan have taken a leading role in fuel cell research. President Bush announced last year the FreedomFUEL Initiative to complement the FreedomCAR Partnership Plan with a total budget of \$1.7 billion over the next 5 years. In Japan the WE-NET project of New Energy and Industrial Technology Development Organisation (NEDO) has allocated about \$11 billion for a 28-year period running in three stages up to the year 2020

How do we fare in the European Union? Research on Hydrogen and FC is carried out in at least 20 countries in Europe. Until recently these countries were totally independent. A survey conducted in 2000 reveals that there were 336 RD&D activities in Europe between 1988 and 1999.

European state-funded research in 2001 is estimated to be €200 million. Of these hydrogen research programmes some are collaborative whereas many are still on a national level.

The IEA has for more than 20 years supported collaborative activities focused on the advancement of hydrogen technologies. There is an increasing interest in collaboration and there are now at least 10 national hydrogen associations in France, Germany, Greece, Italy, The Netherlands, Norway, Portugal, Spain, Sweden and Switzerland. We also have a European Hydrogen Association that was founded in 2000.

Despite all of these activities in the EU research on hydrogen is still perceived as

- Fragmented
- Under funded
- Lagging behind USA & Japan

The establishment of the H&FCTP is thus a very welcome development for the member states, particularly for those who may be relatively newcomers to the field. We believe that it will provide a mechanism to address all of the above issues by facilitating a more structured approach to European energy policy in terms of research, education and training and for the development of political and public awareness.

Whereas hydrogen technologies may have been developed and advanced to a greater degree in certain centres where the economic drivers have been stronger for one reason or another, the application of these technologies should be across the entire community for the benefit of all member states and for the EU in general.

Importance of Hydrogen from perspective of Portugal

The development of the Hydrogen economy is important to Portugal as our country is 100% dependent on imported fuel. Furthermore it has good potential for producing energy from a variety of renewable sources including solar thermal and photovoltaic, biomass, wind, wave and geothermal. The deployment of these technologies is especially important for pollution in the bigger cities and for the many remote areas that Portugal has including the islands of Madeira and the Azores which depend primarily on diesel as a source of energy.

Portugal has a demonstrated interest in hydrogen as illustrated by the range of RTD and demonstration activities under the national programme as well as FP5 and FP6 activities and projects being undertaken in our country. We currently participate in the CUTE project. The three hydrogen fuel-cell busses were inaugurated only this month in the city of Porto. It is the only city in the CUTE project in which the normal route covered by the hydrogen busses will also be serviced by buses running on natural gas and diesel allowing for the direct comparison of the same mode of transport on the same route using three different types of energy sources in exactly the same environment.

Portugal is the leader of the accompanying measure “HySociety” in the Fifth Framework Programme being undertaken by a consortium of 20 institutions from 14 countries in Europe. HySociety addresses some of the regional and social measures that need to be implemented by examining the barriers to the introduction of a hydrogen-based society and preparing an action plan for overcoming the identified barriers. HySociety will define the problems areas to be addressed in the introduction of hydrogen in the European Union.

Portugal is a member of the team in the project FC-Home Heat and Power – a programme for the development, demonstration and commercialization of a network of fuel cells in a virtual power plant across three countries in Europe.

In the Sixth Framework Programme Portugal has been appointed the leader of the work package on socio-economic analysis in the proposed project “HyWays” for the development and detailed evaluation of a harmonized “European Hydrogen Energy Roadmap.” The proposed project, which is likely to begin shortly, has a consortium of 34 partners including many of the leading industrial institutions involved in the development of a hydrogen economy.

More recently, Portugal has been engaged in the preparation of a proposal for an ERA-NET in the field of hydrogen and fuel cell technologies. One of our institutions is a partner in a consortium that has submitted a bid to host the Secretariat of the Hydrogen and Fuel Cell Technology Platform, which we are launching today.

I believe that this high level of activity and interest in a country that does not have significant commercial investments in hydrogen industries is a demonstration of our

commitment to the hydrogen economy. Furthermore I believe that our example of involvement and positive contribution can serve as a model for other member states that may find themselves in a similar situation.

Portuguese Science and Technology Policy

Portugal has overcome vast challenges in its S&T Policy during the last decades. The latest EU Benchmarking Exercise for National Science and Technology Research Policies was performed in 2001. Its figures reflect the far-reaching improvement in research in Portugal: We have the third highest EU annual growth in *total* R&D expenditure since 1995, (10.1%, in contrast to an EU average of 3.03%). Portugal has also stepped up dramatically its rate of scientific publication and has seen one of the highest rates of growth in high and medium-tech employment, parallel to its growth in total employment.

The Portuguese Government has now set forth a strategy to drive these achievements further, and gear efforts towards the *qualitative* improvement of S&T research. The XV Constitutional Programme for Science and Education promotes the mobilization of resources towards a number of priority objectives, among which we find Energy, Environment and Infrastructure. There is in addition further support for the building of international links of the national S&T structure, the development of advanced industrial clusters and the promotion of scientific webs, fora, on-line scientific libraries and actions for the fostering of S&T among the population.

These exciting changes form a firm basis for the advancement of technologies such as Hydrogen and Fuel Cells in Portugal. The European Initiative for Growth has resulted in the creation of a Portuguese Working Group on Hydrogen as a starting point for the organization of RD&D efforts towards the realization of concrete actions.

EU integrated roadmap and member states

Just as Portugal has an interest in the advancement of hydrogen based technologies, and strives to contribute to the development of a hydrogen economy, so too should all the countries of the EU and especially the new MS be afforded the opportunity of contributing to the H&FC TP.

Member states consider their inclusion in the development of a roadmap at an early stage will ensure the incorporation of the different regional requirements and strategies to achieve the desired results. The advantage to the EU is that collectively the 25 members of the enlarged EU will represent a wide variety of resources and needs in terms of geographical, economic, social and environmental conditions, thus offering the potential to develop a broad spectrum of technologies. The end result of the integrated roadmap can be thought of as a “toolbox” that could be applied to meet the specific energy needs of each region or Member State, as well as of the EU as a whole.

Potential of TP concept

The implementation of the recommendations of the HLG will thus provide an enabling environment across the EU to mobilize all stakeholders to provide inputs for the development and implementation of a strong European programme for developing

the H2 economy. The concept of bringing together expertise will have significant impacts on cost sharing and a more efficient mode of operation.

Member states view the synergies of bringing together a diverse group with common interests as a strong driving force for the hydrogen economy and an opportunity to capture new and innovative ideas through a “bottom-up” approach to complement the traditional “top-down methodology” commonly used.

Consistent and coordinated member state programmes

The perceived image of fragmented research on hydrogen technologies in Europe calls for the adoption of some strong measures. A consistent and coordinated approach to research and activities in hydrogen can be achieved through the establishment of a platform for Member States programmes. The platform will help to achieve critical mass for technology preparation and concurrent development and deployment of regulations and policy measures. It hence paves the way for European programmes that will rival those of the other players in this field.

Promotion and facilitating new MS

With respect to the new EU member states there is a need to promote and facilitate the access to the hydrogen and fuel cell technologies and to gradually integrate them into the Technology Platform where they will be afforded the opportunity of full participation as an equal partner in the development of a hydrogen programme for Europe. The incorporation of the new Member states will serve not only as an additional source of inputs with perhaps a different perspective or emphasis, but could serve as a resource base, particularly for human resources. The new member states have a high literacy rate and an impressive record for producing highly skilled personnel. Additionally the member states will provide an expanded potential market for the future hydrogen economy of Europe.

Mirror Group as key instrument

Within the proposed Hydrogen and Fuel Cell Technology Platform, the Mirror Group provides a key instrument for an efficient interface between the views of Member States and the development of the Advisory council. The success of the actions will be determined by the active, strong and well-coordinated participation of the Mirror Group -a mirror in which the different participants can view their progress reflected from different perspectives”

Portugal's commitment

In conclusion, our actions and activities to date in the field of hydrogen are a testimony to the commitment of Portugal to contribute to the TP both directly in the steering panels and initiative groups assisting the Advisory Council. I here restate this commitment that we shall endeavour to support projects as part of TP operations, and to maintain an active presence in the Mirror Group.

