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## **European activity in nuclear fusion**

*Check Against Delivery  
Seul le texte prononcé fait foi  
Es gilt das gesprochene Wort*

Commissioner's visit to JET (Joint European Torus)

**Culham, 3 March 2005**

Ladies and gentlemen,

I am delighted to have this opportunity to visit JET for the first time and to talk with the staff responsible for this remarkable example of European (and now international) scientific and technical co-operation. Knowing JET by its reputation, I came expecting to be impressed. But seeing this facility in person has surpassed my highest expectations.

### **My views on fusion**

Allow me to say a few words on how I see fusion energy, about which I have learnt more in recent months. The case for pursuing fusion energy is, in my mind, clear and compelling.

Global economic development and the climatic and geo-political risks associated with continued dependence on fossil sources have led to a rapid growth in energy needs. This requires us to take a look at how we intend to address our energy needs in the future.

I do not believe that there is one single solution to which we should pin all our hopes. It is our responsibility to keep options open, for ourselves and for our children and for our grandchildren. Therefore we should strive to have a sustainable energy mix. Fusion energy is certainly one of the major elements of this mix that we should be working to place at the disposal of future generations.

### **Fusion research is an excellent example of advantages of international co-operation and European integration**

Even at the height of the cold war, in the 1960's the Culham team with late Derek Robinson was in Moscow helping validating Russian claims on newly invented tokamak configuration. This was a milestone in scientific cooperation spanning political boundaries.

At the same time fusion research is a major success story of European integration. From its earliest days the fusion programmes throughout the Euratom Member States have been co-ordinated through the Contracts of Association this has allowed the European programme to develop into the world's leading programmes.

### **JET has been a remarkable success story ...**

Some thirty years ago, Europe stepped into unknown territory, by embarking on JET's construction. The amazing results of that step I have been privileged to see for myself today. Even now, almost thirty years after its construction started, JET remains the world's leading device for magnetic fusion research and the flagship of European fusion research. JET's is a testimony to the talents of its designers and builders who came from all over Europe to work under Paul-Henri Rebut and Hans-Otto Wüster. JET gives us a striking demonstration of what happens when the scientists and engineers of Europe act together with a common goal.

As I understand, the efforts of the last decades have yielded abundant results. And JET has been at the very forefront of the advances achieved in key fusion parameters towards the conditions needed for energy production.

Important work has also been done in the laboratories of the European Fusion Associations which have produced new discoveries and developments in plasma behaviour and operation, and have broadened the scope of the database from which to analyse and extrapolate new domains of operation.

In parallel the long-term technology programme has been generating the technological knowledge base that should allow Europe to design and operate fusion power plants.

Without this accompanying work, JET would probably have not achieved its remarkable success. It is this coordinated effort and integration of the overall Fusion Community which has allowed Europe to lead the world in this field of research.

### **... and a good predecessor for ITER**

In many respects the European Fusion programme is a model for the European Research Area.

The experience the EU has gained in managing a highly complex scientific and technological programme such as JET gives us confidence to embark, in partnership with the leading fusion programmes throughout the world, on the next step towards the realisation of fusion. That step is to construct and operate ITER with the widest possible international co-operation, in the context of a broader approach to the realisation of fusion energy. Europe has decided that Cadarache is the right site for ITER. It is best placed to assure the success of the project in view of the scientific and technical characteristics of the site and the quality of its environment.

ITER will be the flagship of world fusion and Europe's contributions to ITER will ensure that the EU stays at the forefront of this field. However one should not forget that the ultimate objective is developing Fusion energy. To that end, the ITER programme should be accompanied by a dynamic and programme of supporting R&D. This should include continued JET operation, both for ITER itself and for developing the fusion materials, technologies and physics needed to establish fusion as a practical energy source for mankind.

That is why, in our ongoing discussions on the coming Framework Programme for Europe, I shall be arguing for an increase in the budget to support the construction of ITER and the conduct of a vigorous accompanying programme. These will be the main elements of the EURATOM seventh framework programme.

### **Construction of ITER at Cadarache – an International Challenge**

Since the meeting of the Competitiveness Council last November, Europe is ready to proceed with ITER; the Commission is working with its international partners to complete the ITER negotiations, and submit the proposed agreement for Council Decision.

We spared no effort to find a consensus among the six negotiating parties to realise ITER at Cadarache, in the context of a broader approach to fusion energy. In a letter to the ITER negotiation parties that I sent jointly with the Dutch Presidency last November, we outlined the European Union's vision of such a consensus. We recognise the special role that Japan has played to date and should continue to play in the ITER project and in the fusion energy. The EU has spared no effort and has made an offer to Japan that in all respects is comparable to the Japanese proposal. For example, it includes provision for a real partnership of Japan and the EU in ITER and for the EU to procure some key systems from Japanese Industry.

Technical discussion has now gone as far as it can. I have proposed to our Japanese partners to sit together and find an acceptable compromise at a high political level. For the sake of Fusion development. This suggestion has not yet been taken up.

## **Conclusion**

Ladies and gentlemen, dear colleagues,

We stand at another historic point of departure when the new generation has to take a brave step into the unknown, just as their predecessors did when deciding to embark on JET's construction and operation.

The joint efforts of the ITER parties to date have brought the project within our grasp. Its scale and the scientific and technical challenges that it embodies call for a pooling of resources and expertise at global rather than European level. The ITER partners now must now have the courage to make this co-operation possible and to take the next step together into unknown territory.

Europe is ready to play its role. As stated in the context of the November Council meeting, Europe wants to see the start of the construction of ITER in Cadarache in 2005 in the broadest possible international partnership. This is a challenge and responsibility we have to take. I intend to do everything in my power to make it happen.

Allow me to thank you again for giving me this opportunity to marvel at the results of your work today. I am now even more convinced that we have to vigorously pursue our objective to realise fusion energy. For safer and sustainable future of our planet.

Thank you very much for your attention.