SEVENTH ITER NEGOTIATIONS MEETING
By Dr. J.-P. Rager, European Commission

The Barcelona World Trade Centre, overlooking the old harbour of Barcelona, Spain, was the venue for a successful seventh ITER Negotiations Meeting that took place on 9-10 December 2002. The European Union hosted the meeting, which was also attended by delegations from Canada, Japan and the Russian Federation. Pablo Fernandez Ruiz, Director for Energy Research of the European Commission's Directorate General for Research, was moderator of the meeting.

The delegates were welcomed by Mr. Josep Piqué, Minister of Science and Technology of the Spanish Government, and Mr. Antoni Gurgui, General Director of Industry of the Catalan Government. In his welcoming remarks, Minister Piqué referred to Spain's recognition of the impressive scientific and technological challenge that ITER represents and how close the ITER participants are to making the dream of fusion energy come true.

In their opening comments:

- Canada reported that the current Canadian offer had been put forward in a context that had changed; the Canadian government was therefore reviewing its offer with a view to indicating a revised position early in 2003.
- Japan reported that discussions both on the basic approaches to the safety management of ITER and on the safety regulations for hosting ITER in Japan were continuing; an interim report was to be issued by the end of 2002.
- Europe reported on exchanges between the European Commission and the research ministers of France and Spain concerning their respective site proposals, and on the Joint Assessment of Specific Sites (JASS), which was nearing completion with the assessment in the previous week of the European site at Cadarache, France.
- The Russian Federation reported on a recent review of the status of fusion research by the Governing Board of the Academy of Science that had strongly supported the participation of the RF in the ITER project.

Dr Robert Aymar, the International Team Leader, reported on a mission to Garching by a United States Department of Energy Committee of costing experts to undertake an assessment of ITER cost estimates. (For the Executive Summary of the Committee's report, please see the separate article in this issue.) The Committee's findings, which are now also available on the web (at http://fire.pppl.gov/doe_iter_lehman.pdf), were very positive.

This was the last Negotiations Meeting within the duration of the Co-ordinated Technical Activities (CTA) for ITER. The final report from the CTA Project Board for ITER was presented. The delegations thanked the Chairman of the Board, Academician Evgeny Velikhov, for his leadership and for the important role he has
played in the development of ITER. From January 2003 the “ITER Transitional Arrangements”, put in place by the Participants to supersede the CTA, will ensure technical and engineering continuity until the ITER International Fusion Energy Organization is established.

The Negotiators noted the successful completion of the joint assessment of the candidate EU site of Cadarache on December 3-6 2002. The fourth (and last) assessment was be done immediately after the Negotiations Meeting at the other proposed European location of Vandellòs, Spain. A final report on the Joint Assessment of Specific Sites is due to be submitted to the Negotiators in February 2003.

The meeting discussed the draft of the proposed Agreement on Joint Implementation of ITER, settled a number of outstanding points and identified key issues for further development, for instance the management structure of the organization to be established under the Agreement to undertake the ITER project. Progress was also noted on subsidiary documents to the Agreement such as an Annex on Privileges and Immunities. The Negotiators’ Standing Sub-Group (NSSG) will continue its development of the draft Agreement and related work.
A report was presented on a visit to China by legal experts from the Participants. This followed up on an informal meeting about Chinese interest in possibly joining the ITER Negotiations held with a Chinese delegation in November 2002 just after the last ITER Negotiations Meeting.

After the end of the meeting the delegations had a similar informal exchange of views with representatives of the Republic of Korea, which has also expressed an interest in possible participation in ITER joint implementation.

**FINAL ITER CTA PROJECT BOARD MEETING**  
by Dr. V. Vlasenkov, Project Board Secretary

The ITER Co-ordinated Technical Activities Project Board (PB) met for its final meeting on 8 December 2002 in Barcelona, Spain.

The PB took note of the comments concerning the status of the International Team (IT) and the Participants Teams (PT). In particular, it was noted with satisfaction that in all four ITER Parties, namely in Canada, the European Union, Japan, and the Russian Federation, appropriate measures are being taken to advise the

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**EXCERPTS FROM THE REPORT “FROM ITER TO A FUSION POWER REACTOR”**

“The present ITER design allows the main issues of an electricity generating fusion plant to be addressed. It has been shown that ITER will probably achieve the plasma parameters needed to operate a power plant, and towards this goal, it will have to reach a fusion power higher than its nominal value and to overcome the same limiting factors as identified for a power plant. If practical solutions are experimentally identified and implemented during ITER operation, there is no doubt that the way to a “first of a kind” fusion reactor would be largely open.”

“Besides these essential conclusions, ITER can and will provide a very large amount of practice and know-how from its operational programme, a necessary asset for any fusion reactor following ITER. The official testing programme in ITER of a reactor relevant tritium breeding blanket could probably be enlarged to provide the possibility of testing more power plant technology development.”

“The preceding chapters have shown that the plasma operation in ITER should be truly representative of the operational conditions of a fusion power reactor; they have also identified the main challenges to be overcome - density and divertor heat load limiting factors - in order to provide a practical solution in ITER which can be also implemented in the reactor.”

“Nevertheless, in addition there will be many other aspects experienced during ITER operation that will have great value for a future power reactor. Without being exhaustive, the list of available experimental know-how will include:

- control of all plasma parameters needed for a reliable operation, associated diagnostics and feedback controllers;
- safe, efficient and reliable operation of a tritium fuel cycle, the size of which is suitable for ITER;
- mastering practical experience in all safety issues, including licensing and operational incidents;
- handling of dust issues;
- reliability database on all components and systems;
- maintenance methodology and remote handling procedures.”

“The capacity in ITER to replace components during its lifetime may offer the opportunity to test new technologies. The development of a tritium breeding blanket relevant to a power reactor, through modules introduced into ITER vessel ports, is until now the only case retained officially in the programme. More new cases might be envisaged, such as

i) the testing of new divertor target concepts potentially capable of handling a larger power density than the present ITER design and

ii) similarly, the testing of novel blanket shield designs, using high efficiency materials such as metallic hydrides, which will be situated behind a breeding blanket to complete the necessary shielding factor in a reactor.”

“It can be suggested that a review is undertaken to ensure that the maximum advantage is taken of ITER to investigate minor but independent aspects of power plant technology, mostly related to 14 MeV neutron irradiation.”