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THIRD ITER INTERNATIONAL INDUSTRY LIAISON MEETING

by Dr. D. Dautovich, Managing Director, ITER Canada

Following previous meetings held in 1996 in San Diego and in 1997 in Tokyo, the Third ITER International Industry Liaison Meeting (IILM) meeting was held under European Chairmanship in Toronto, Canada, on 7 - 9 November 2000, with meeting arrangements and facilities provided by ITER Canada (Canada participates in ITER EDA through the EU). Such meetings are intended to provide a forum for industrialists of the ITER EDA Parties and other interested countries to develop common understandings on important issues such as how and when Industry would be involved, and how industry may help to promote and execute the project.

The ITER project has made significant progress since the Tokyo meeting. The ITER Joint Central Team has developed a reduced cost design for ITER that meets the overall programmatic objective to provide all the necessary answers to technical issues and allow a demonstration fusion power plant to be built. During 2000, non-committal Explorations between the Parties have been carried out to prepare for Negotiations towards the realization of the joint implementation of ITER among interested parties. Canada, Europe and Japan each are known to be interested in the possibility of hosting ITER. The Joint Central Team has issued procurement documents for the main ITER systems to the Parties to enable the industrial costing of the reduced cost ITER, and to help the Parties to consider their possible contributions. This excellent progress on ITER design and decision making prompted industrialists of the Parties to convene the 3rd IILM.

Participants in the Meeting

Industry participants from Europe, Japan and the Russian Federation attended the meeting. Participants from Canada and the US were also invited to attend. The participants represented the world's leading companies in systems engineering and supply of high technology. Invited guests included representatives of the respective fusion programs of the current ITER-EDA Parties and the ITER Director. Their role was to provide an update of the status in each of the Parties and current progress.

The participants confirmed the following main topics for the meeting as a focus for industry to provide its advice to the ITER Parties:

- Preconstruction phase including site selection, site-specific design, licensing and safety analysis, construction agreement;

- Construction phase including project structure and organization and industrial involvement within the project structure;

- Cost/benefit sharing schemes including work sharing and intellectual property rights.

The participants took advantage of the proximity of the Clarington site to visit the site including the tritium plant. They found the tour to be very informative and useful. They also commented on the strong support in the surrounding communities for ITER.

Immediately following the site visit, the delegation leaders were joined by elected community officials in a meeting with representatives from local print media and TV. This resulted in positive statements from the media, which in the past have generally been supportive of the possibility of hosting ITER at Clarington.

Industry's Concluding Views

1. Preconstruction Phase

During the preconstruction phase a key event is the choice of the site since it is on the critical path. For the efficiency of the project, the choice of a preferred site, subject to final agreement to terms, should be made as soon as possible and certainly well before the end of 2002, to allow site specific design, licensing, final costs and cost sharing to be established and a final agreement to be negotiated. During the period before site selection, site specific activities should be limited to those necessary to select the site.

2. Construction Phase

The ITER Legal Entity should be established as the owner, licensee and operator of the ITER facility. The ILE would have overall responsibility for the design, licensing, construction, operation, deactivation and financial provisions for decommissioning.

The ITER Legal Entity should have overall responsibility for the project including the following items:

- Achieving overall project objectives
- Project engineering
- Project management
- Procurement package technical specification
- Safety objectives and licensing
- Quality assurance
- Contract management
- Cost and schedule
- Technology transfer and intellectual property rights
- Public relations

Appropriate functions may be delegated to industry.

The participants concurred in the concern that construction of ITER will require many skills not now present in the JCT. The project will be international in scope, will be of truly large and complex scale and will

require assembly of the missing skills in a timely manner. The additional skills required include, but are not limited to, large-scale project management and integration, procurement, and quality assurance.

Many of the skills are well represented in industry. The participants agreed that these skills must be brought into the ITER project structure, but had different views on the preferred method. Two were suggested; the first could be by contract(s) to an experienced company or international consortium of experienced companies to provide project management and coordination of all elements of the construction project, and the second by assignment of personnel from industry to the ILE. Some rules would also be needed to supervise and coordinate the contributions of the Parties.

It is anticipated that essentially all components will be procured from industry. As the first option, the participants felt that it was important to minimize 'built-to-print' contracts in order to intellectually engage the best people in industry in the design and manufacture of components and subsystems. As the second option, they confirmed that high technology, novel or first of a kind components would be ordered by the ILE under 'built-to-print' specifications while conventional components would be ordered with engineering included in the industrial contract.

3. Cost/benefit sharing schemes

The participants agreed with the well understood and agreed upon set of principles adopted by the Explorers and in force during the EDA. Central to this is the principle that for technical information developed under ITER, credit should be held by the Joint Central Team (and later by the ITER Legal Entity) and made available to all Parties for fusion energy applications. In addition, technical information developed for ITER but not supported by ITER credit, e.g., that termed "business confidential information" in the EDA, should be subject to the usual protection provided to intellectual property.

The participants commented on the excellent organization and meeting arrangements provided by ITER Canada and expressed their appreciation for this effort.

The participants have manifested their wish to convene a fourth meeting when sufficient progress has been achieved in the planned negotiation phase, likely in the second half of 2001.

LIST OF ATTENDEES

EU

Industry

Mr Alain Vallée, (Meeting Chairman) Point of Contact, Vice President Corporate Research, Framatome, France
Mr Marcel Gaube, General Manager, Belgatom Nuclear Engineering and Consulting Services, Belgium
Mr Alfredo Heinen, Director of Fusion Technology, Ansaldo Ricerche, Italy
Mr Bogdan Bielak, (Organization Committee), Research and Technology Division, Framatome, France

Other

Mr Jean-Pierre Rager, European Commission, Representing the EU Fusion Programme Directorate
Mr Roberto Andreani, Associate Leader for Technology, EFDA, Garching
Mr Harry Tuinder, European Commission, Representing the EU Fusion Programme Directorate
Mr Gerald Newi, Consulectra, Hamburg, Germany
Mr David Maisonnier, EFDA, Garching

JA

Industry

Mr S. Mochizuki, Assistant to Division Manager, Nuclear Systems Tokyo Division, Power and Industrial Systems, Hitachi Ltd, Japan
Mr A. Ozaki, Deputy Senior Manager, Energy Systems Group, Nuclear Fusion Development Department, Toshiba Corporation, Japan
Mr T. Sasaki, Project Manager, Engineering Department, Mitsubishi Fusion Centre, Mitsubishi Electric Corporation, Japan

Other
Mr Y. Hirotani, Point of Contact, General Manager, Department of Project Planning and Promotion, JapanAtomic Energy Industrial Forum, Japan Industrial Forum, Inc., Japan
Mr M. Nagami, Deputy Home Team Leader, JAERI, Japan
Mr K. Kurihara, JAERI, Japan

RF

Industry
Mr Eduard. K. Kolpishon, Head of Department, SC "Izhorskie Zavody", St. Petersburg, Russia
Mr Alexander N. Ogurtsev, Head of Department, AS "Chepetski Metallurgicheskii Zavod", Glasov, Russia
Mr Yury L. Yarovinsky, Deputy Director of Division, Rocket-Space Corporation, "ENERGIA" by S. P. Korolev, Moscow Region, Russia

Other
Mr Lev G. Golubchikov, Point of Contact, Director of Fusion Division, Minatom of Russia

Canada

Industry
Mr C. Andognigni, Ontario Power Generation, Toronto, Canada
Mr B. Murdoch, Canadian Nuclear Utilities Service, Oakville, Canada
Mr S. Smith, Wardrop Engineering Inc., Mississauga, Canada

Other
Mr P. Barnard, ITER Canada, Toronto
Mr D. Dautovich, ITER Canada, Toronto
Mr M. Stewart, ITER Canada, Toronto

USA

Industry
Mr W. R. Ellis, Raytheon, New York, U.S.A.
Mr D.E. Baldwin, General Atomics, San Diego, U.S.A.
Mr S. O. Dean, Fusion Power Associates, Gaithersburg, U.S.A.
Mr C. Hamilton, General Atomics, San Diego, U.S.A.

ITER JCT

Mr R. Aymar, ITER Director

INFORMAL MEETING ON ITER DEVELOPMENTS

by Dr. E. Canobbio, IFRC Chairman

Responding to the wide interest in the ITER developments by the world fusion community, the International Fusion Research Council (IFRC), advisory body of the IAEA, organized an informal meeting on the General Status and Outlook for ITER. The Meeting was held, under IFRC and IAEA auspices, on 9 October, at Sorrento, Italy, in conjunction with the 18th IAEA Fusion Energy Conference. Almost all IFRC members and more than 100 Conference participants were present.

In his introductory remarks, the IFRC Chairman said he was gratified to see the breadth of interest represented in the meeting, in particular, members of scientific communities from countries not currently involved in ITER. He encouraged those interested in pursuing possible participation in ITER in the future to make their interests known to their governments.

Following this introduction, three well-known scientists, one from each of the present ITER Parties, presented their personal views on the issues related to the ITER General Status and Outlook. The following is a compressed version of their presentations.

Speaking on the ITER General Status, **Professor V. Smirnov (Russian Federation)** gave a brief history of the ITER Engineering Design Activities (EDA), specifically referring to Article 2 (e) of the EDA Agreement. This Article indicates what Activities the ITER Parties shall conduct jointly during the EDA. Among those