



International Atomic Energy Agency

**INTERNATIONAL CONFERENCE ON  
INNOVATIVE TECHNOLOGIES FOR  
NUCLEAR FUEL CYCLES AND NUCLEAR POWER**

23-26 June, 2003  
Vienna International Centre,  
Vienna, Austria

**ANNOUNCEMENT  
AND  
CALL FOR PAPERS**

## **1. INTRODUCTION**

There are a number of indicators that lead to the suggestion that there will be an increase in the demand for the applications of nuclear systems within the immediately foreseeable future. In this regard several national governments have indicated that they intend to construct and deploy new power reactors within the next ten to fifteen years. Members of industry and government agencies have been considering non-power applications of nuclear systems and considerable developments have been made in concepts for innovative systems that could meet perceived societal needs. In some quarters it is suggested that nuclear systems could be used to meet increased power demands, sustainably, yet avoid the adverse effects of global warming. These and other factors indicate that in the near future there could be a renaissance of the nuclear industry and an increased deployment of nuclear systems.

With this awareness, national and international agencies need to understand the social, political, economic and physical environments in which new nuclear systems will be used. Insights on how the next generation of nuclear systems might meet present and future needs will assist the development of national and international policies on near term future deployments. An appreciation of the possible, and likely, next generation nuclear systems will assist in the development of concepts for more advanced, innovative, systems that will be designed to meet the longer term needs of society in general and the international nuclear industry in particular. This Conference is intended to assist the development of a common understanding of these matters and, particularly, will be focussed on longer term needs.

## **2. OBJECTIVE**

This Conference will provide a forum for the exchange of information between senior experts and policy makers from developed and developing countries relating to evolving and innovative nuclear technologies that are being considered for future applications. Strategists, decision makers, managers and technical leaders in public and private institutions are expected to both contribute to and benefit from participation in the programme. The background social, environmental and economic conditions in which sustainable nuclear technologies can be expected to be developed in the foreseeable part of the 21<sup>st</sup> Century will be examined. The demands placed by these expected conditions on technological solutions for the peaceful use of nuclear applications will be discussed. An awareness of ongoing national and international programmes will be developed within the Member States of the IAEA and opportunities for developing collaborative work will be made available.

## **3. PROGRAMME STRUCTURE**

The Conference will include the presentation of invited papers, contributed papers and panel discussions. There will be no parallel sessions. All presentations will be made to all participants in full session. Ample time will be provided for questions and answers with opportunities for personal interactions with the speakers. The purpose is to develop a list of questions to be considered by an expert panel the views of which will provide a foundation for future development activities.

## **Keynote speakers**

Prominent experts will be invited to provide their perspectives, give rationales and expound on the needs for innovation in nuclear technologies. Views of the evolution of nuclear systems to their current states and degrees of application will be considered. Projections for their near term evolution will be made and possible longer term innovations will be speculated.

The programme is for three and one half days and will be broken into the following sessions:

### **Session 1 Welcome**

- Inaugural Address
- Introductory matters

### **Session 2 Needs, Prospectives and Challenges for Innovation**

The purpose of this Session is to establish a general understanding of the background factors in which future innovative technologies will be implemented and the needs which the technologies will be expected to meet. Some appreciation of the challenges with which innovative technologies will be expected to contend, and problems for which innovative solutions will be required, will be developed. The Session will be devoted to presentations by three invited speakers who represent major international organizations (governmental and non-governmental) and are renowned for their expertise in the following subject areas:

- Energy demands and the nuclear role
- Environment, sustainability and economics
- The present status of nuclear systems and a vision for their evolution.

### **Session 3 Evolution of Social, Economic and Political Conditions**

The theme for this Session follows directly from the material developed in Session 2. However, Session 3 is more specific to nuclear innovations than Session 2 and will be covered by five addresses by invited speakers, as follows.

First, in a keynote address, a well-known commentator and specialist on innovative nuclear technologies will provide an opinion on the question “What do societies expect of innovative nuclear technologies?”.

The keynote address will be followed by four invited presentations on the following subjects:

- Reliability and safety of nuclear systems
- Environmental effects including all aspects of the fuel cycle
- Economic conditions (system costs and innovative applications)
- Political factors (including Proliferation Resistance and Nuclear Security).

**Session 4      Challenges for the Deployment of Innovative Technologies  
(Panel Discussion)**

During Sessions 2 and 3 questions will be limited to matters for clarification only. Here, in Session 4, there will be an opportunity for opinions to be presented from participants of the meeting. Through this process a broadly based and, generally, supportable statement of the challenges facing the development and deployment of innovative nuclear technologies will be established.

A distinguished Chairperson will organize the Panel for the Session. It is expected that the panel of 8 to 10 people will include representatives from a broad range of regions. In addition, representation of the viewpoints of non-governmental organizations will be sought.

**Session 5      International Programmes on Innovative Nuclear Systems.**

By invitation, papers will be presented on the status and results from international programmes that are either recently completed or well in progress. Specifically, the Session will include invited papers on the following programmes:

- Generation IV Initiative
- INPRO
- Michelangelo (MICANET)
- Other International collaborations

**Session 6      Innovations for Nuclear Systems and related R&D programmes.**

This Session presents opportunities for members of the scientific and engineering community to describe the progress in their work. Particularly, technical papers are sought on the following three main subject areas:

- Innovative reactor technologies
- Innovative fuel cycle and materials technologies
- Integrated concepts for Innovative Nuclear Systems according to the needs being met (e.g. H<sub>2</sub> production, desalination, nuclear batteries, etc.) –

It is stressed that the subject of the Session, as indeed that of the Conference, is Innovative Nuclear Systems, which includes the complete fuel cycle from resource extraction to waste disposal. Papers that are not restricted to the technicalities of nuclear systems but also deal with perceived needs and expectations and how the innovative technologies being presented might fulfill these needs are particularly sought.

**Session 7      Final Panel Discussion**

A panel led by a distinguished Chairperson will be created. The backgrounds of the panelists will be various. They will range from senior members of the nuclear industry to independent voices, including NGOs and representatives of the younger generations.

The Chairperson and, as appropriate, other panelists will first act as rapporteurs

for Session 6, summarizing the major points raised not only in the presented papers but also in other contributed papers. This summary will be used to start discussion, which will address the following questions:

- Are all of the perceived needs for 2030 being met by ongoing activities?
- How can the current programmes be improved?
- What mechanisms are needed to ensure that the means are in place to realize the enhanced programmes?
- What recommendations can be made for future directions of programmes on innovative technologies for nuclear fuel cycles and nuclear power
- How might future work be distributed between national and international programmes?

#### **4. CONTRIBUTED PAPERS**

Session 6 is the only Session for which contributed papers can be accepted and there may be insufficient time for the verbal presentation of all of the papers accepted. However all accepted papers will be published in the Conference proceedings and will be considered by the rapporteurs in Session 7. Best efforts will be applied in the selection of the contributions for verbal presentation such that the disparity of views and expectations that exist between Member States can be presented in a way that is fair and balanced. Member States with less well developed programmes are particularly encouraged to give their views. No papers - apart from invited review papers- should have been published elsewhere.

##### **(a) Submission of Extended Synopses**

Persons who wish to present a paper or poster at the Conference must submit an extended synopsis (in English) together with the completed Form for Submission of a Paper (**Form B**), and the Participation Form (**Form A**) to the competent national authority for official transmission to the IAEA in time for them to be received by the IAEA by **16 November 2002**. The synopsis should also be sent electronically to the IAEA Scientific Secretary, Mr. M. Gray, e-mail: [m-n.gray@iaea.org](mailto:m-n.gray@iaea.org). Authors are urged to make use of the Extended Synopsis Template in Word 2000 on the Conference webpage. The specifications and instructions for preparing the synopsis and how to use the synopsis template are given in the attached "Instructions on how to prepare the extended synopsis and how to submit it electronically". Attached to this Announcement is a sample extended synopsis.

The synopsis will be considered by the Programme Committee only if the Participation Form A and Paper Submission Form B have been received by the IAEA through the official governmental channels.

##### **(b) Acceptance of papers**

Authors will be informed whether their paper has been accepted by the Programme Committee on the basis of the extended synopsis submitted. The accepted synopses will be reproduced in unedited form in the Book of Extended Synopses.

## **5. PARTICIPATION**

All persons wishing to participate in the Conference are requested to complete a Participation Form (see attached Form "A") and send it as soon as possible to the competent official authority (Ministry of Foreign Affairs or national atomic energy authority) for subsequent transmission to the IAEA. A participant will be accepted only if the Participation form is transmitted through the government of a Member State of the IAEA or by an organization invited to participate.

Participants whose designations have been received by the IAEA will be notified directly two to three months before the meeting

## **6. EXPENDITURES**

No registration fee is charged to participants.

As a general rule, the IAEA does not pay the cost of attendance, i.e. travel and living expenses, of participants. However, limited funds are available to help meet the cost of attendance of selected specialists from Member States eligible to receive technical assistance under the IAEA's Technical Co-operation Programme. Generally, not more than one grant will be awarded to any one country

If governments wish to apply for a grant on behalf of one of their specialists, they should address specific requests to the IAEA Secretariat to this effect. Governments should ensure the applications for grants are:

- (a) submitted by **16 November 2002**, and
- (b) accompanied by a duly completed and signed Grant Application Form .

Applications that do not comply with conditions (a) and (b) cannot be considered.

The grants awarded will be in the form of lump sums usually covering only part of the cost of attendance.

## **7. PROCEEDINGS**

The proceedings of the Conference will be published in camera-ready (unedited) form as a CD ROM by the IAEA as soon as possible after the meeting. All participants will receive a free copy of the proceedings.

## **8. WORKING LANGUAGE**

The working language of the Conference will be English only. All communications, synopses and papers must be sent to the Conference Secretariat in English.

## **9. DOCUMENTS**

Information on the Conference as available will be placed on the IAEA website:  
<http://www.iaea.org/worldatom/Meetings/>.

A preliminary programme of the Conference will be sent to participants before the meeting.

The final programme and Book of Extended Synopses will be distributed at registration.

## **10. ACCOMMODATION**

Detailed information on accommodation and other items will be sent directly to all designated participants well in advance of the meeting.

## **11. VISA**

If you require a visa to enter Austria (the ‘Schengen visa’), please submit the necessary applications to the nearest diplomatic or consular representative of Austria as early as possible (please note that this procedure may take up to three weeks).

## **12. SECRETARIAT**

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The Scientific Secretaries for the Conference are Mr. Juergen Kupitz, (telephone extension 22814; e-mail address: [j.kupitz@iaea.org](mailto:j.kupitz@iaea.org)), and Mr. Malcolm N. Gray (telephone extension 21535, e-mail address: [m-n.gray@iaea.org](mailto:m-n.gray@iaea.org)), both of the Nuclear Power Technology Section, Division of Nuclear Power, and Mr. Kosaku Fukuda, Nuclear Fuel Cycle and Materials Section, Division of Nuclear Fuel Cycle and Waste Technology (telephone extension 22766, e-mail address: [k.fukuda@iaea.org](mailto:k.fukuda@iaea.org)). Communications related to technical aspects of the Conference should be addressed to Mr. Gray. Meeting organization is provided by Ms. Karen Morrison, Conference Service Section, Division of Conference and Document Services (telephone extension 21317 & ext. 21311, e-mail address: [k.morrison@iaea.org](mailto:k.morrison@iaea.org)).

### **13. CHANNELS OF COMMUNICATION**

The Participation Form and the Form for the Submission of a Paper, together with two copies of each synopsis, and, if applicable, the Grant Application Form, should be sent to the competent official authority (Ministry of Foreign Affairs, national atomic energy authority) for transmission to the Director General of the International Atomic Energy Agency.

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary and correspondence on administrative matters to the IAEA Conference Service Section.

### **14. CONFERENCE WEB PAGE**

Please visit the IAEA Conference webpage regularly for new information regarding the Conference under: <http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=108>