

International Conference on

Topical Issues in Nuclear Installation Safety

Strengthening Safety of Evolutionary
and Innovative Reactor Designs

IAEA Headquarters
Vienna, Austria
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IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Background

The IAEA International Conference on Topical Issues in Nuclear Installation Safety (TIC) is organized periodically bringing together nuclear safety regulators, plant designers and operators, technical support organizations and other stakeholders from interested Member States, as well as other international organizations to discuss current practices and challenges related to nuclear installation safety. The first in the TIC series was organized in 1998. Subsequent conferences took place in Vienna, Austria (2001, 2013, 2017), Beijing, China (2004) and Mumbai, India (2008).

The focus of the previous conferences covered the areas from continuous safety improvement and ensuring safety for existing nuclear installations to the issues related to safety demonstration of advanced water cooled nuclear power plants (NPPs).

In recent years, the Member States' spotlight has been shifting towards safety of the evolutionary and

innovative reactor designs. The growing interest of Member States for the deployment of these reactors, in particular advanced small modular reactors (SMRs) and next generation nuclear power plants, is notable.

In light of these rapid developments, the robust safety demonstration and suitable regulatory framework are paramount prerequisites for the safe and successful deployment of these advanced reactors and public acceptance. Responding to these dynamic developments in the Member States, the IAEA is currently implementing a wide spectrum of activities related to the safety of evolutionary and innovative reactors. These activities are mainly aimed at the application of IAEA Safety Standards for evolutionary and innovative reactors, providing platform to discuss safety related challenges and experiences as well as on potential safety interfaces with security and safeguards considerations in the context of evolutionary and innovative reactor designs.

During the recent IAEA General Conferences, the Member States have requested the IAEA to promote and support the implementation of the IAEA Safety Standards and strengthen them by addressing scientific and technological innovations.

Member States have also reiterated their request to the IAEA to continue organizing meetings and activities on the safety and related technology aspects of evolutionary and innovative reactors — stressing the importance of ensuring the highest standards of safety and performance.

The TIC2022 Conference is organised to respond to these emerging trends and needs. Specifically, the conference is designed to comprehensively address the issues related to the safety of evolutionary and innovative reactor designs, and thus foster harmonization of safety approaches in this area and further enhance regulatory frameworks to cope with these challenges. In addition, specific emphasis is laid on the practices and challenges of utilizing the holistic approach to safety, security, and safeguards in the design of evolutionary and innovative reactors¹.

Purpose and objectives

The purpose of the Conference is to foster the exchange of information on wide-ranging aspects, capturing the progress and challenges in safety and licensing of evolutionary and innovative reactor designs.

The Conference aims to generate an increased understanding of the safety approaches and practices used in evolutionary and innovative reactor design and their licensing strategies. Specifically, the Conference is focused on the safe use of the evolutionary and innovative technologies in relation to fuel, plant systems and components, materials and design concepts (e.g. covering both water cooled and non-water cooled reactors, including SMRs and microreactors). There is an increasing interest in achieving harmonization of design related safety standards and a more consistent approach to licensing. It is thus expected that the Conference could be of interest to various organizations by facilitating international collaboration and exchange of experiences.

The Conference will also provide the IAEA with valuable insights for its activities related to the safety of evolutionary and innovative reactor designs. In particular,

the feedback from the Conference is important in directing the IAEA work on the applicability of the IAEA Safety Standards to these reactors, and facilitating the IAEA support to Member States by focusing capacity building activities, strengthening advisory and peer-review services, and further enhancing international cooperation in this area.

Audience

Participation in the Conference is solicited from nuclear safety professionals from regulatory bodies, designers, operating organizations, technical support and research organizations as well as consultants who are engaged in activities related to the safety of evolutionary and innovative reactor designs. The Conference foresees the participation of the invited speakers to provide keynote presentations and/or take part in the panel discussions.

Main topics

The papers are invited within the following topical subject areas:

- Applying safety approaches and standards for evolutionary and innovative reactor technologies;
- Enhancing safety by innovative design features;
- Supporting integrated decision making through safety/ risk analyses;
- Accelerating innovations for safety assessment through the advanced simulation and modelling, and experimental programmes.

Key deadlines

- 31 January 2022:** Submission of abstracts and submission of the Forms A and B (and Form C, if applicable)
- 28 March 2022:** Notification of acceptance of abstracts
- 27 May 2022:** Electronic submission of full papers
- 29 July 2022:** Notification of review of full papers
- 9 September 2022:** Submission of revised full papers
- No deadline:** Registration only (no paper submission, no grant request) using Form A through the InTouch+ Platform

¹ These reactor designs as defined by the IAEA in ARIS database (<https://aris.iaea.org>):

- *Evolutionary design*: is an advanced design that achieves improvements over existing designs through small to moderate modifications, with a strong emphasis on maintaining proven design elements to minimize technological risks
- *Innovative design*: is an advanced design which incorporates conceptual changes in design approaches or system configuration in comparison with existing practice

Registration

No registration fee is charged.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants.

Language

The working language of the conference will be English.

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Conference web page



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