IAEA
Atoms for Peace and Development
الوكالة الدولية للطاقة الذرية
国 际 原 子 能 机 构
International Atomic Energy Agency
Agence internationale de l'énergie atomique
Международное агентство по атомной энергии
Organismo Internacional de Energía Atómica

Vienna International Centre, PO Box 100, 1400 Vienna, Austria
Phone: (+43 1) 2600 • Fax: (+43 1) 26007
Email: Official.Mail@iaea.org • Internet: https://www.iaea.org

In reply please refer to: EVT2202451
Dial directly to extension: (+43 1) 2600-25823

The Secretariat of the International Atomic Energy Agency (IAEA) presents its compliments to the IAEA's Member States and has the honour to draw their attention to the **Technical Meeting on Safety Demonstration of Innovative Technology in Power Reactor Designs** (hereinafter referred to as "event") to be held at the IAEA's Headquarters in Vienna, Austria, from **26 to 28 June 2023**.

The purpose of the event is to provide a platform for the participants to share experiences in resolving or mitigating uncertainties associated with innovative technology while demonstrating the safety of such technology. It is also planned to discuss the challenges and potential solutions related to the safety demonstration of innovative technology in power reactors covering different stages (such as design, licensing, manufacturing and construction).

The attached Information Sheet provides further details of the event.

The event will be held in English.

Member States are invited to designate one or more participants for this event. Member States are strongly encouraged to identify women participants.

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. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event. The application for financial support should be made at the time of designating the participants using the attached Grant Application Form (Form C).

It should be noted that compensation is not payable by the IAEA for any damage to or loss of personal property. The IAEA also does not provide health insurance coverage for participants in IAEA events. Arrangements for private insurance coverage on an individual basis should therefore be made. The IAEA will, however, provide insurance coverage for accidents and illnesses that clearly result from any work performed for the IAEA.

Designations should be submitted to the IAEA through the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) not later than **13 March 2023** using the attached Participation Form (Form A). Completed and authorized Participation Forms should be sent either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Copies should be sent by email to the Scientific Secretary of the event, Mr Shahen Poghosyan, Division of Nuclear Installation Safety, Department of Nuclear Safety and Security (Email: S.Poghosyan@iaea.org) and to the Administrative Secretary, Ms Sanja Hadzic (Email: S.Hadzic@iaea.org. The Scientific Secretary of the event will liaise with the participants directly concerning further arrangements, including travel details, as appropriate, once the official designations have been received.

The Secretariat of the International Atomic Energy Agency avails itself of this opportunity to renew to the IAEA's Member States the assurances of its highest consideration.

2022-12-22

Enclosures: Information Sheet

Participation Form (Form A)

Grant Application Form (Form C)

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Safety Demonstration of Innovative Technology in Power Reactor Designs

IAEA Headquarters, Vienna, Austria

26–28 June 2023

Ref. No.: EVT2202451

Information Sheet

Introduction

The current set of IAEA Safety Guides for nuclear power plants was primarily developed for water cooled reactors based on proven technology. However, there is now a need to consider designs with innovative technology, and this need is expected to increase in the coming years. Accordingly, the IAEA has recently completed a high-level review of applicability of the IAEA safety standards to various technologies, including SMRs and non-water-cooled reactors[1]. The outcome of this review identified areas for enhancement of IAEA safety standards in relation to the development and assessment of the safety case for first-of-a-kind (FOAK) reactor designs.

There is a growing interest amongst IAEA Member States in advanced reactors such as small modular reactors (SMRs) and other FOAK designs. Such new types of reactors may employ new approaches and concepts which are different from existing practices (at all different levels, including the component level, system level, and reactor level). These reactors include designs with first of a kind design features, non-water-cooled technologies, inherent safety features, highly integrated software-based systems,

[1] Pre-print version is available using this link https://inis.iaea.org/collection/NCLCollectionStore/_Public/53/077/53077569.pdf?r=1

advanced manufacturing techniques, and other advanced solutions that may not be extensively used in current operating reactors.

Amongst the challenges that reactor developers can face when making safety demonstrations for FOAK reactor designs, the following are of particular importance: limitations in the traditional application of approaches and methods for safety assessment (e.g. probabilistic safety assessment (PSA), and deterministic safety assessment (DSA)), limited information and research on phenomenology, limited or no operating experience, lack of applicable codes and technical standards, and limitations in the application of the design safety approaches used in the current fleet of reactors (e.g. system design criteria and functional design criteria).

These issues, if not adequately addressed, may challenge the developers', operators' and other stakeholders' ability to demonstrate the safety of innovative technologies, and may also impact the evidence available for regulatory bodies to take timely decisions on the safety of first of a kind reactor designs involving innovative technology (e.g. granting a licence).

The need to address these topics is increasing in urgency considering the dynamic developments in the nuclear industry, and the expected timeline of deployment of advanced reactor designs using innovative technology. Therefore, and in response to the request from the Member States, the IAEA has initiated the development of a *Safety Guide on Safety Demonstration of Innovative Technology in Power Reactor Designs* (DS537). The outcomes of this event will provide important input to tailor the efforts on, and facilitate the development of, the Safety Guide.

Objectives

The objective of the event is to provide a platform for the participants to share experiences in the safety demonstration for first of a kind reactor designs, in particular related to resolving or mitigating uncertainties associated with innovative technology. It is also planned to discuss the challenges and potential solutions related to the safety demonstration for innovative technology in power reactors covering different stages (such as design, licensing, manufacturing and construction).

Special emphasis will be put on key aspects of the safety demonstration, including design safety requirements and safety assessment approaches, covering a wide range of topics related to the use of innovative technology in power reactor designs.

Target Audience

The event is targeted at professionals from regulatory bodies, design development organizations and operating organizations who are engaged in developing or assessing the safety demonstration for innovative technology in power reactor designs (this includes both innovative reactor designs, such as SMRs and non-water-cooled reactors, and existing reactor designs utilizing innovative technologies and solutions). Participation of professionals with experiences in developing methodologies and approaches to address, mitigate, and/or resolve unknowns associated with innovative technology, including systems, components, materials and advanced manufacturing techniques is encouraged.

The IAEA encourages participants to give presentations on the work of their respective institutions that falls under the topics listed below. This will significantly enhance the discussions and effectiveness of the meeting.

Working Language(s)

English.

Topics

The following topics are planned to be covered during the Technical Meeting:

- Development of design, construction and manufacturing requirements, from a safety point of view, for innovative technology in power reactor designs (including practices on pre-operational testing and qualification);
- Practices for safety assessment for innovative technology in power reactor designs (including safety analysis, assessment of engineering aspects, equipment qualification, human factors and long-term safety);
- Means of gathering the data for design and safety assessment of innovative technology (including consideration of tests and experiments);
- Consideration of interfaces between safety, security and safeguards for innovative technology;
- Regulatory expectations in terms of safety submissions for innovative technology in power reactor designs;
- Practices for addressing the knowledge gaps and uncertainties related to innovative technology in power reactor designs.

The IAEA encourages participants to provide presentations and to share their practices and experiences on the topics listed above.

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **13 March 2023**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the Agency's Personal Data and Privacy Policy and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required.

Expenditures and Grants

No registration fee is charged to participants.

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. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C),** which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **13 March 2023**.

Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

www.iaea.org/events.

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

IAEA Contacts

Scientific Secretary:

Mr Shahen Poghosyan
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 25823
Fax: +43 1 26007
Email: S.Poghosyan@iaea.org

Administrative Secretary:

Ms Sanja Hadzic
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 25557
Fax: +43 1 26007
Email: S.Hadzic@iaea.org

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary and correspondence on other matters related to the event to the Administrative Secretary.

Event Web Page

Please visit the following IAEA web page regularly for new information regarding this event:

https://www.iaea.org/events/evt2202451

IAEA
International Atomic Energy Agency

Form A
EVT2202451

Participation Form

Technical Meeting on Safety Demonstration of Innovative Technology in Power Reactor Designs

IAEA Headquarters Vienna, Austria

26–28 June 2023

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary S.Poghosyan@iaea.org and to the Administrative Secretary S.Hadzic@iaea.org.

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Deadline for receipt by IAEA through official channels: 13 March 2023

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Institution:		
Full address:		
Tel. (Fax):		
Email:		
Nationality:	Representing following Member State/non-Member State/entity or invited organization:	
If/as applicable: Do you intend to give a presentation? Yes ☐ No ☐ Title:		

Participants are hereby informed that the personal data they submit will be processed in line with the Agency's Personal Data and Privacy Policy and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required.

IAEA
International Atomic Energy Agency

Form C
EVT2202451

Grant Application Form

Technical Meeting on Safety Demonstration of Innovative Technology in Power Reactor Designs

IAEA Headquarters, Vienna, Austria 26–28 June 2023

To be completed by the applicant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary S.Poghosyan@iaea.org and to the Administrative Secretary S.Hadzic@iaea.org.

Deadline for receipt by IAEA through official channels: 13 March 2023

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yy/mm/dd):	Nationality:	

1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended from	to

2. Recent employment record (starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years worked from	to

3. Description of work performed over the last three years:

4. Institute's/Member State's programme in field of event:

Date: **Signature of applicant:** _____

Date: **Name, signature and stamp of Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority _____**