



**IAEA**

International Atomic Energy Agency

*Atoms for Peace and Development*

# **Technical Meeting on Advancements and New Developments in Water Cooled Reactor Designs**

**IAEA Headquarters, Vienna, Austria**  
and virtual participation via Cisco Webex

**6–9 May 2025**

**Ref. No.: EVT2303983**

## **Information Sheet**

### **Introduction**

The global energy landscape faces increased demand for more efficient, adaptable, and safer power sources. Water Cooled Reactor (WCR) technologies, which are essential to both current and future nuclear energy strategies, are central in addressing these needs. This meeting aims to gather insights from international vendors, researchers, and stakeholders in nuclear power on advancements in WCR designs that meet evolving criteria for safety, environmental impact, and economic performance. Given the industry's challenges, such as increasing thermal efficiency, improving safety, minimizing environmental impact, and supporting non-electric applications, this meeting will explore the latest developments in the WCR technology.

Insights from this meeting will inform new approaches for integrating WCR designs with future energy infrastructures, especially in hybrid systems that incorporate renewable energy sources. Building on priorities identified in previous Technical Working Group discussions, the meeting will focus on collaborative research and development. Key areas of emphasis include the integration of artificial intelligence, advanced materials, and flexible operational capabilities. These efforts aim to achieve high reliability and cost-effectiveness across diverse global contexts.

By consolidating global perspectives on WCR advancements, this meeting promotes collaboration and a shared vision for WCR technologies that meet objectives of efficiency, sustainability, and safety. Through

harmonized international understanding and new research directions, participants will drive forward WCR technologies that enhance energy resilience and adaptability to meet changing energy demands.

## Objectives

The purpose of the meeting is to gather insights and perspectives from vendors and research organizations on potential game changers that could lead to new developments in water -cooled reactor concepts and designs aimed at improving safety features to prevent accidents and mitigate their consequences, increase thermal efficiency, reliability, and overall performance, and facilitate integration with future energy systems.

Specific objectives of the meeting are as follows:

- Share knowledge on current and emerging WCR advancements: facilitate the exchange of insights on the latest developments in WCR designs, with a focus on features that enhance operational flexibility, safety, and efficiency;
- Identify drivers and opportunities for WCR development: explore key factors driving progress in WCR technology, including the integration of new materials, artificial intelligence, digital technologies, and advanced systems designed to minimize accident risks, enable real-time monitoring, and improve overall performance;
- Address technological challenges: discuss critical technological difficulties, including the development of solutions for modular construction and transportability, to support the scalability and deployment of WCR designs;
- Evaluate future research directions and collaboration opportunities: identify promising areas for future research, promote international collaboration, and explore potential co-development projects that can accelerate WCR advancements, meet growing global energy demands, and ensure both safety and sustainability.

Furthermore, the event will offer a platform for participants to engage in interactive discussion sessions, allowing them to contribute to event summaries, share key insights, and propose future initiatives to the IAEA. Contributions in the form of technical papers, presentations, and session discussions will be compiled into an IAEA publication. This publication will serve as a valuable reference for stakeholders such as technology developers, technical support organizations, computer code developers, licensees, and national regulators, while also providing the public with a comprehensive overview of ongoing efforts in this field.

## Target Audience

The event is open to representatives of nuclear power organizations from Member States considering, planning or expanding a nuclear power programme, including government organizations (policy makers, analysts, national regulators, technical support organizations and R&D organizations), and industry (vendors, engineering companies, plant operators and technology developers).

## Working Language(s)

English.

## Topics

Presentations are invited to address emerging trends, key challenges, and lessons learned in relation to the WCR technology development. The topics to be discussed in the meeting encompass a wide range of areas, including advancements in development of WCR structures, systems and components; high-performance materials resilient to extreme conditions, such as temperature, radiation, and mechanical stress; improvement of the durability and reliability of new WCR components; advanced manufacturing; design improvements that support continuous and repetitive load following capabilities; development of AI-driven technologies and digital solutions for WCRs, with a focus on predictive maintenance, real-time monitoring, and operational optimization; development of technologies for minimizing the environmental footprint of WCRs, including design updates that address climate change impact; design technological solutions for the integration of WCR technology with renewable energy sources to expand its functional versatility.

## 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 or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **28 February 2025**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
  - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
  - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
  - Complete or update their personal details under 'Complete Profile' and upload the relevant supporting documents;
  - Search for the relevant event under the 'My Eligible Events' tab;
  - Select the Member State or invited organization they want to represent from the drop-down menu entitled 'Designating Authority' (if an invited organization is not listed, please contact [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org));
  - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
  - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);

- Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **28 February 2025**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org).

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. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

## Papers and Presentations

The IAEA encourages participants to submit technical papers and to give presentations on the work of their respective institutions that falls under the topics listed above.

Participants who wish to give presentations are requested to submit a technical paper or an extended abstract of their work. All contributions will be reviewed as part of the selection process for presentations. The manuscript should be in A4 page format, should be at least two pages for the extended abstracts, and should extend to no more than 12 pages for the technical papers (including figures and tables). The abstracts and technical papers should be sent electronically to Mr Alexei Miassoedov, the Scientific Secretary of the event (see contact details below), not later than **28 February 2025**. Authors will be notified of the acceptance of their proposed abstracts and papers by **15 March 2025**.

In addition to the registration already submitted through the InTouch+ platform, participants have to submit the abstract, together with the Form for Submission of a Paper (Form B), to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA not later than **28 February 2025**.

## 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, together with the submission of the application, by **28 February 2025**.

## **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](http://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 Secretaries:**

**Mr Alexei Miassoedov**  
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Subsequent correspondence on scientific matters should be sent to the Secretaries and correspondence on other matters related to the event to the Administrative Secretary.



# Form for Submission of a Paper

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06 to 09 May 2025

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](mailto: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 [A.Miassoedov@iaea.org](mailto:A.Miassoedov@iaea.org) and to the Administrative Secretary [h.gauna-nunez@iaea.org](mailto:h.gauna-nunez@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: 28 February 2025**

Title of the paper:		
If applicable: Abstract ID in IAEA-INDICO:		
Family name(s) and first name(s) of all author(s) (same as in passport(s):	Scientific establishment(s) in which the work has been carried out	City/Country
1.		
2.		
3.		
Family name(s) and first name(s) of author presenting the paper (same as in passport):	Mr/Ms:	
Mailing address:		
Tel. (Fax):		
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I plan to attend virtually:

Yes  No

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Furthermore, I herewith declare:

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**Date:**

**Signature of main author:**