International Conference on

# small modular reactors

### and their applications

**21–25 October 2024 Vienna, Austria**

**IAEA**
International Atomic Energy Agency

## Background

Nuclear power is currently the second-largest source of low carbon electricity and accounts for about 25% of the world's clean electricity. Thirty-one countries operate more than 400 nuclear power reactors, and about 30 others are interested in introducing nuclear into their energy mix. While the current fleet is at the forefront of decarbonization in many countries, new technologies such as small modular reactors (SMRs) may offer a viable option for making clean and abundant energy accessible to more countries.

SMRs generally have a power capacity of up to 300 MW(e). They are designed to be factory-built and then installed on site, which may reduce upfront costs and lead to faster construction time. They may also be sited in remote locations and in areas with small grid capacity. SMRs are being considered for both electric and non-electric applications, offering stability and flexible operation in integrated energy systems and providing resilient, clean energy to different users in the form of heat, electricity, and hydrogen.

There are over 80 SMR designs at different stages of development and deployment globally, with various types of reactor technology. They may use innovative technologies such as passive and inherent safety features as well as new approaches to reactor operation. SMR designers may also consider adopting optimized security procedures and safeguards by design. As with conventional nuclear power reactors, SMR developers must demonstrate that these novel design aspects comply with safety and regulatory requirements.

## Purpose

The conference will provide an international forum for relevant stakeholders to discuss opportunities, challenges and enabling conditions to accelerate the development of safe and secure SMRs. The conference is intended to help advance ongoing activities and bolster the prospects of timely SMR deployment to provide options for achieving energy supply security and climate targets in both embarking and expanding countries.

## Main topics

The IAEA welcomes high-quality contributions in the following topical groups:

**Topic A.** SMR Design, Technology and Fuel Cycle: Research and development of SMR designs including microreactors, for electricity generation and non-electric applications; advanced fuel designs and fuel cycles, including High Assay Low Enriched Uranium (HALEU); engineering, codes and standards, supply chain, operation & maintenance, design for decommissioning, and waste management, including transport of spent fuel and waste.

**Topic B.** Legislative and Regulatory Frameworks: Legislative and regulatory aspects related to SMRs; the applicability and suitability of existing international legally binding instruments in the areas of nuclear safety, security, safeguards, and civil liability for nuclear damage; the potential impact of SMRs on national nuclear laws, regulatory roles and functions, as well as other relevant areas of law,

such as environmental and maritime law; different regulatory approaches based on various deployment scenarios; cooperation among regulators.

**Topic C.** Safety, Security and Safeguards: safety, security, and safeguards aspects of SMR development and deployment, including safety demonstration for SMRs, challenges and opportunities related to safety by design, such as design simplification, integration, modularity and new SMR deployment models; emergency preparedness and response for SMR deployment models; physical protection considerations and computer security aspects of novel technologies applied to SMRs, in addition to security by design; safeguards by design, including technical solutions to cope with specificities of safeguards implementation for SMRs; and challenges related to safety, security, and safeguards interfaces.

**Topic D.** Considerations to Facilitate Deployment of SMRs: nuclear infrastructure development to facilitate deployments, energy planning to meet energy demand and climate goals, integration of SMRs in innovative energy systems, stakeholder engagement, financing, cost, and economic appraisals, contracting approaches, business models for viable deployment; and international cooperation for harmonization and standardization.

## Audience

Potential users and operators, regulators, relevant industries and technology holders, government officials, technical support organizations, international organizations, technical and legal experts working in SMRs and nuclear power programmes, non-governmental organizations, and academic institutions.

## Registration

No registration fee is charged.

## Language

The working language of the conference will be English.

## Key deadlines

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| **Extended final deadline: 15 March 2024** | Submission of abstracts through IAEA-INDICO |
| | Submission of Form B (together with Form A) through the InTouch+ platform |
| | Submission of Form C (together with Form A) through the InTouch+ platform |
| **29 March 2024:** | Notification of acceptance of abstracts for oral or poster presentation |
| **31 May 2024:** | Electronic submission of full papers through IAEA-INDICO |
| **31 July 2024:** | Notification of review of full papers |
| **6 September 2024:** | Deadline for submission of revised full papers submitted through IAEA-INDICO |
| **16 October 2024:** | Submission of Form A only (no paper submission, no grant request) through the InTouch+ platform |

## IAEA contacts

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## Conference web page

Please visit the IAEA conference web page regularly for new information regarding this conference.

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