IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Instrumentation and Control and Computer Security for Small Modular Reactors and Microreactors

**IAEA Headquarters, Vienna, Austria
and Virtual Participation via Cisco WebEx**

21–25 February 2022

Ref. No.: EVT2100684

Information Sheet

Introduction

In the last decade, there has been significant development in Small Modular Reactor (SMR) and Microreactor (MR) technologies. SMRs and MRs provide low carbon energy like traditional nuclear power plants, but they are more affordable, more adaptable for load following demands, and suitable for off-grid applications. SMRs and MRs usually have simplified and compact designs with built-in passive safety systems.

The increased digital automation, unique environmental conditions, remote supervisory control and remote maintenance, with reduced on-site staffing, reinforces the need for instrumentation and control (I&C) solutions and computer security measures being considered and maintained during the entire SMR/MRs lifecycle, from design to operation to decommissioning.

One of the biggest challenges for the near-term deployment of SMR/MRs is to accelerate their technology development and to demonstrate the level of readiness both for electricity and non-electricity applications, while maintaining compliance with standards for safety and security.

The IAEA, in playing its central role in strengthening and improving cooperation in, and the coordination of international efforts in the nuclear field, will bring together relevant subject matter experts, from nuclear and non-nuclear organizations, to discuss and identify I&C and computer security related issues and challenges related to the unique technological and operational characteristics of SMR/MRs.

Objectives

The objective of the event is to serve as an international forum for enhancing interaction and information exchange among international experts for I&C and computer security aspects, including challenges for the near-term deployment of SMR/MRs. The intention is also to foster Member States' cooperation and technical exchange on activities that have the potential to advance the safety and security of SMR/MRs.

Target Audience

Professionals such as system designers, operators, regulators and subject-matter experts in industrial control systems, cybersecurity and nuclear technology, and other stakeholders, as well as professionals from international and technical organizations that support the design, development and deployment of SMR/MRs.

Working Language

English.

Expected Outputs

The results of the event will be summarized in a report that will provide a catalogue of potential future activities and cooperation in the areas of I&C and computer security, coordinated by the IAEA, which could provide effective and efficient support to Member States and stakeholders interested in the early deployment of SMR/MRs.

Structure

The event programme will consist of:

- **Plenary Sessions** dedicated to invited speakers and that are related to the I&C and computer security thematic areas.
- **Working Group Sessions** dedicated to speakers who have submitted an abstract related to the I&C and computer security topics. These sessions include panel and group discussions.

The plenary and the working group sessions' organizers will be responsible for the overall scientific content, including selecting the speakers, organizing the technical and discussion sessions.

Topics

The plenary sessions will cover the following I&C and computer security thematic areas:

- **Challenges for Innovative I&C Technologies and Computer Security for SMR/MRs**

  Keywords: instrumentation and control, computer security, smart sensor, sensor and actuator miniaturization, unique environmental conditions, processing capacity, wireless communication, load-following, smart grid connections, application of systems engineering approach, autonomous and remote operation.

- **Safety and Security Integration of I&C and Computer Security for SMR/MRs**

  Keywords: safe and secure by design, interfaces between safety and security, risk-informed approach, common computer security framework, analysis of consequences: postulated design-based accidents, computer security scenarios, multi-unit plants, independence of modules, autonomous and remote operation, one-house approach.

- **Regulatory Approach for SMR/MRs**

  Keywords: computer security regulatory framework, I&C innovations regulatory readiness, computer security by design, prescriptive and performance-based regulations, technology-neutral regulations, harmonization of international regulation, design basis treat (DBT).

The working group sessions will cover some of the following topics:

- **Integration of Safety and Security for SMR/MRs**

  Keywords: instrumentation and control, common computer security framework, diversity of design, multi-unit plants, independence of modules, autonomous operation, remote operations, safety and security by design, system engineering approach.

- **Innovations on I&C and new Digital Technologies**

  Keywords: instrumentation and control, computer security, anomaly detection, data integration, performance assessment, new sensors and actuators, unique environmental conditions, optimization, digital twin, machine learning, artificial intelligence, OPC-Unified Architecture, Time Sensitive Network.

- **SMR/MRs Regulation**

  Keywords: DBT, postulated attack vectors, technology-neutral regulation, prescriptive and performance-based approaches, regulation for international market, I&C innovations regulatory readiness.

- **I&C and Computer Security Supply Chain for SMR/MRs**

  Keywords: instrumentation and control, computer security throughout the supply chain, commercial off the shelf, off-site modular construction, management of supply chain security risks.

- **Advanced I&C and Computer Security Modelling and Simulation**

  Keywords: integrated modelling, I&C digital twin and virtual systems, threat scenario simulation, network data capture, data integration, data management, training, vulnerability management.

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 **29 October 2021**. 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. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Papers and Presentations

The IAEA encourages participants 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 an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should extend to no more than 4 pages (including figures and tables) and should not exceed 1200 words. It should be sent electronically to Mr Rodney Busquim e Silva, the Scientific Secretary of the event (see contact details below), not later than **29 October 2021**. Authors will be notified of the acceptance of their proposed presentations by **29 November 2021**.

In addition, participants have to submit the abstract together with the **Participation Form (Form A)** and the attached **Form for Submission of a Paper (Form B)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than **29 October 2021.**

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 **29 October 2021.**

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.

Additional Information

The event will commence at 10:00 on Monday, 21 February 2022, and is expected to end at 12:30 on Friday, 25 February 2022.

The event agenda and the information on local arrangements will be sent to the designated participants approximately one month before the beginning of the event.

IAEA Contacts

Scientific Secretary:

Mr Rodney Busquim e Silva
Division of Nuclear Security
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 26729
Fax: +43 1 26007
Email: R.Busquim@iaea.org

Administrative Secretary:

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

Tel.: +43 1 2600 26635
Fax: +43 1 26007
Email: C.Semper@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:

www.iaea.org/events/EVT2100684

Enclosure: Form for Submission of a Paper (Form B)