IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Generic User Recommendations and Considerations for Small Modular Reactor Technologies

IAEA Headquarters, Vienna, Austria

28–30 May 2024

Ref. No.: EVT2304522

Information Sheet

Introduction

There are more than eighty designs of small and medium-sized or modular reactors (SMRs) technology from all types under different phases of development and deployment globally. A floating nuclear power plant with SMR was launched for commercial operation in May 2020 in the Russian Federation. The High Temperature Gas Cooled Reactor-Pebble-bed Module (HTR-PM) at the Shidaowan power plant in China is in commercial operation since December 2023. CAREM25 is in the advanced stage of construction in Argentina with target operation dates in 2024. The ACP100, an integral-PWR has also started construction in Hainan province in China in July 2021 and is planned to start operation in 2026. Several other SMR designs are in advanced development in France, Republic of Korea, and the United States. Some of these aim for construction by 2030. In addition, a number of countries, including embarking countries, are considering SMR designs for deployment in the 2030s.

Several tangible efforts have been performed by the IAEA Department of Nuclear Energy in the past to define user requirements specific to SMRs. In the late 1990s, a guidance document for preparing a user requirements document (URD) for SMRs and their application was published as the IAEA-TECDOC-1167 (2000). The TECDOC contains as an example, a preliminary national URD for SMRs in an embarking country, prepared in accordance with the TECDOC. From 2006 to 2009, under an INPRO project, a set of common user considerations (CUC) by developing countries for future nuclear energy systems was developed. The report of stage 1 of the CUC was published in IAEA Nuclear Energy Series (NES) NP-T-2.1 (2009) that focused on broader nuclear energy systems rather than on a specific reactor technology.

Following the launch of the Nuclear Harmonization and Standardization Initiative (NHSI) in June 2022, the IAEA organized in August 2022 a Technical Meeting on Generic User Requirements and Criteria of Small Modular Reactor Technologies for Near Term Deployment. This Technical Meeting enabled international utility organizations to work on harmonized user requirements for SMRs to develop high-level Generic User Requirements and Criteria (GURC). This work has been presented in a TC workshop held in China in September 2023.

The objective is to publish a document on GURC for SMRs which utility organization could refer to when they develop their own, families of technology-dependent, user requirements. Because this document would not be binding for the Member States, GURC has been renamed in Generic User Recommendations and Considerations.

Objectives

The main purpose of the event is to receive feedbacks from Member States on the work conducted so far and to gather latest progress observed in host countries preparing generic user requirements and top-tier criteria for small modular reactor technologies.

The primary objectives of the meeting are to:

- Discuss user requirements for nuclear power in Member States when SMRs are a technology option for near-term energy mix;
- Present an IAEA's draft guidance document on top-tier GURC for SMR Technology that provides a framework to cover deployable SMR designs and could serve as a reference for utilities organizations to develop more detailed GURC.

Target Audience

The event is open to representatives from organizations in Member States, including government organizations (i.e. national nuclear energy agencies, policymakers on energy technology, nuclear power regulators and research and development (R&D) agencies) and industry (SMR and advanced reactor vendors, engineering companies, plant operators, technology developers and end users).

Working Language(s)

English.

Topics

This event will feature presentations and discussions on the need of Member States particularly that of embarking countries interested in SMRs to have a national capacity in expressing their generic users' requirements and criteria for SMR technology, including plant size/output, energy resilience, economics/cost competitiveness, time to market, nuclear safety, security and safeguards, and so forth.

International utility organizations will also share their views on the same aspects, from the perspective of experienced nuclear utilities. Some SMR vendors or technology developers may also present their approach in meeting a wide set of requirements with a design with no or limited modifications.

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 **5 April 2024**, 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);
   - 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 **5 April 2024**.

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.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and technical 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 prepare and give presentations that will contribute directly to fulfilling the objectives of the event and that cover the following related topics on generic users' requirements criteria for SMR technologies:

- National users' criteria or requirements documents for nuclear power plant, including that for embarking countries. The specific requirements could include: (i) energy resilience; (ii) economics; (ii) time to market; (iii) nuclear safety, security and safeguards; (iv) reference plant; (v) public acceptance; (vi) financing & project management;
- Common technical requirements: plant outputs, design simplification, plant footprint, operational flexibility, incremental capacity addition (i.e. module size), reliability, constructability, designs standardization, safety performance, creditworthiness, cost competitiveness, fuel cycle and waste management technology;
- Specific deployment indicators (including specialized and benchmark indicators) and models (including ownership models, takeback policies, replacement units, etc.);
- Non-electric applications, nuclear cogeneration (including hydrogen production) and integrated energy systems with renewables;
- Other considerations, e.g. legal and regulatory, financing, emergency planning and rationales for deployment; and
- R&D needs to facilitate licensing of the designs.

Presentations should be sent electronically in the form of a Microsoft PowerPoint or PDF document to the Scientific Secretaries (see contact details below), not later than 5 April 2024.

Authors will be notified of the acceptance of their proposed presentations by **19 April 2024**.

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 **5 April 2024**.

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 Secretaries:

Mr Benoît Lepouzé
Division of Nuclear Power
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22565
Fax: +43 1 26007
Email: B.Lepouze@iaea.org

Ms. Man Liu
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 26179
Fax: +43 1 26007
Email: M.Liu@iaea.org

Administrative Secretary:

Ms M. Nicole Córdova Jurak

Division of Nuclear Power
Department of Nuclear Energy
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 22815
Fax: +43 1 26007
Email: M.N.Cordova-Jurak@iaea.org

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