IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Member State Experiences in Supporting Operator Actions Before, During and After Severe External Event Scenarios: Measures to Enhance Resilience

IAEA Headquarters
Vienna, Austria

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Information Sheet

Introduction

The International Atomic Energy Agency (IAEA) assists Member States in strengthening the safety of nuclear installations against external events such as earthquakes, floods, tropical cyclones, landslides, tsunamis and events of human origin. These efforts are implemented through the development of IAEA Safety Standards, Site and External Events Design (SEED) Review Services, and related capacity-building activities under the External Events Safety Section - Extrabudgetary Programme (EESS-EBP).

In recent years, Member States have faced an increasing number of severe external event scenarios driven by evolving climatic and environmental conditions and complex hazard interactions. These developments have highlighted the importance of enhancing site safety, design robustness, and operational preparedness to maintain and restore safety functions when facing severe external events.

In this context, the role of operator actions, before, during and after such events, has become a critical element in ensuring the resilience of nuclear installations. The capacity of operators to anticipate, respond to, and recover from external event impacts is a key component of overall nuclear safety and a fundamental part of national safety frameworks.

Building on the outcomes of the IAEA SEED Review Service, the IAEA Climate Change and Nuclear Safety Initiative, the International Conference on Resilience of Nuclear Installations against External Events from a Safety Perspective – Focus on Climate Change (20-24 October 2025), and other relevant activities under the EESS-EBP, this Technical Meeting will bring together Member State representatives to share experiences, lessons learned and good practices.

The discussions will focus on how technical, procedural and organizational measures can support operator actions, reinforce design and site safety, and enhance resilience under severe external event scenarios.

Special attention will also be given to innovative reactor technologies and non-traditional or emerging site concepts, recognizing their potential to introduce new challenges and opportunities for external event safety and resilience enhancement.

Objectives

The objectives of this meeting are to:

- Share Member State experiences, lessons learned, and good practices on operator actions and supporting measures before, during and after severe external event scenarios, with emphasis on maintaining and restoring safety functions;

- Discuss technical, organizational, and procedural approaches that enhance the resilience of nuclear installations against external hazards, including those influenced by changing environmental and climatic conditions;

- Identify and review effective resilience-enhancing strategies applicable to both operating nuclear installations and those under development, addressing innovative reactor technologies and non-traditional or emerging site concepts;

- Provide input and recommendations for the development and enhancement of IAEA Safety Standards, SEED Review Services, and related technical publications on site and external event safety for nuclear installations.

Scope and Topics

The meeting will focus on Member State experiences, lessons learned, and best practices related to operator actions and supporting measures before, during and after severe external events, emphasizing their integration into site safety, design, and safety assessment frameworks.

The discussions will highlight how technical, procedural, and organizational actions contribute to maintaining and restoring safety functions and enhancing resilience of nuclear installations against severe external event scenarios.

Proposed topical areas are:

1. Site Safety and Hazard Preparedness for Severe External Events
   - National approaches to identifying and evaluating external events characteristics (e.g. time of development, time between onset and hitting the plant, max values, duration, combination with other hazards, typical challenges posed to nuclear safety) affecting nuclear installation sites;
   - Integration of hazard monitoring and early warning systems to support operator preparedness, and identification of critical variables to be monitored;
   - Consideration of climate-induced impacts and evolving hazard profiles in site safety management.

2. Design and Assessment Measures Supporting Operator Actions
   - Design features and engineered safety margins that facilitate effective operator response;
   - Lessons learned from performance of SSCs during severe external events;
   - Feedback from post-event assessments to improve design robustness and operator interfaces.

3. Operator Decision-Making and Emergency Actions During Severe External Events
- Coordination between operators, regulators, and emergency organizations;
- Strategies for resilience: temporary measures, shutdown, interfaces with external organizations, implementation of the emergency measures, etc.
- Real-time data, decision support tools, and communication systems during external events;
- Maintaining control and safety functions under degraded or uncertain conditions.

4. Recovery and Learning for Resilience Enhancement after Severe External Events
- Strategies for rapid recovery of safety functions and re-establishment of safe plant conditions after severe external events;
- Post-event inspection, verification, and lessons-management processes;
- Institutional learning and incorporation of feedback into design, training, and procedures.

5. Integration of Resilience Measures into Site and Design Practices against External Events
- Application of resilience-by-design concepts in siting and plant design;
- Incorporation of adaptation and mitigation measures into existing facilities;
- Use of IAEA SEED Reviews and Safety Standards to strengthen resilience frameworks.

6. Special Considerations for Innovative Reactors and Site Concepts
- Operator actions and resilience measures specific to innovative reactors and non-traditional site concepts (e.g. repurposed, underground, extreme-environment, transportable, or floating reactor sites);
- Lessons from Member State programmes and IAEA initiatives on external event resilience for innovative technologies and non-traditional sites).

Target Audience

The target audience is represented by Member States with an established nuclear programme, and countries at an advanced stage of embarking on nuclear power programmes for conventional nuclear power plants (NPPs), Small Modular Reactors (SMRs), and other types of innovative reactors.

The meeting is intended for:

- Operators of nuclear installations and utilities;
- Regulatory bodies and technical support organizations (TSOs);
- National emergency response authorities;
- Research institutions and consultants involved in resilience and site safety evaluation;
- Representatives from Member States embarking on, or expanding nuclear power programmes, including those deploying SMRs and advanced reactors.

Working Language(s)

English

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 **6 February 2026**, 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 **6 February 2026**.

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 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 the IAEA InTouch+ platform.

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 **6 February 2026**.

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: https://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.

Organization

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