



## **Terms of Reference**

### **Regulator Forum for Small Modular Reactors**

**August 2015**

#### **Purpose**

To identify, understand and address key regulatory challenges that may emerge in future SMR regulatory discussions. This will help enhance safety, efficiency in licensing, and enable regulators to inform changes, if necessary, to their requirements and regulatory practices.

#### **Background**

The idea of establishing an international forum for regulators to discuss issues associated with licensing SMRs was first raised in mid-2012 after bilateral discussions between the U.S. and Canada. The first thought was that the forum could be associated with NEA/MDEP. Four factors contributed to the decision to ask the IAEA to function as the Scientific Secretariat, (1) the MDEP Technical Steering Committee decided not to expand the scope of MDEP to include SMR issues, (2) the U.S. and Canadian regulators noted that IAEA/INPRO had sponsored several well-attended meetings on SMRs, (3) senior managers at the IAEA were supportive of the idea of an SMR Regulators' Forum, and (4) the membership of the IAEA is much larger than MDEP and would allow for discussions with a much more diverse group of countries.

The IAEA hosted a Consultancy Meeting in December 2012, in Vienna to plan for an INPRO Dialogue Forum to be held during the summer of 2013. The Consultancy Meeting was jointly sponsored by the IAEA Departments of Nuclear Energy and Nuclear Safety and Security. The participants in the Consultancy Meeting produced a detailed draft prospectus for the INPRO Dialogue Forum and agreed to explore the possibility of further meetings between regulators.

At the INPRO Dialogue Forum on Licensing and Safety Issues for Small and Medium-sized Reactors (SMRs), held in Vienna in July/August 2013, there was explicit interest expressed by a number of IAEA Member States to evaluate and discuss the benefits of forming a regulators' forum which would specifically address regulatory issues in safety and licensing of SMRs.

Subsequently during the IAEA 57<sup>th</sup> General Conference in September 2013, the Member States agreed to add language related to improving cooperation and collaboration among regulators of SMRs. Specifically, GC57/RES9 (5: 46-47) and GC57/RES12 (B.1.2) were updated.

Resolution 9 encourages Member States to exchange regulatory information and share experiences with regard to new nuclear power plant designs and design certification, taking into account that nuclear power plants should be designed, constructed and operated with the objectives of preventing accidents, and, should an accident occur, mitigating its effects and avoiding off-site contamination. It also recognizes that there are ongoing projects to construct transportable nuclear power plants, and requests the Secretariat to facilitate information exchange on this issue and the Secretariat and Member States to continue considering the safety and security aspects related to such facilities throughout their life cycle, including through INPRO.

### **Scope / Definitions**

The scope of the forum would be to identify, understand and address key regulatory challenges that may emerge in future SMR regulatory discussions to inform changes, if necessary, to their requirements and regulatory practices.

The forum will distinguish itself from existing fora/organizations with similar scopes and objectives such as MDEP, GIF and WNA/CORDEL, whose focus lies more on specific technical issues of particular designs. Issues covered by the working groups of this forum would be cross-cutting in nature, covering common issues of selected technologies.

SMR Definition: Small Modular Reactors typically have several of these features:

- Nuclear reactors typically <300 MWe or <1000 MWt per reactor
- Designed for commercial use, i.e., power production, desalination, process heat (as opposed to research and test reactors)
- Designed to allow addition of multiple reactors in close proximity to the same infrastructure (modular reactors)
- May be light or non-light water cooled
- Claims of preventive measures to reduce risk, e.g., inherently safe fuel, enhanced coolants, practical elimination of large releases has been achieved (EPZ size implications)
- The IAEA publications on SMR designs serve as references for the discussion

Note: There are questions about how having multiple SMRs on one site affect the definition

When consensus is reached on common regulatory issues of high importance, the forum will provide feedback and recommendations to the Safety Standards Committees on potential enhancements to the IAEA Safety Standards with regard to SMRs.

The forum will exclude security and safeguards issues taking note that security may need to be included in the future due to claims that SMRs may result in reduced security requirements.

## **Objectives and Outcomes**

### *Objectives*

Share SMR regulatory knowledge and experience among the members and other stakeholders to:

- Facilitate robust and thorough regulatory decisions;
- Encourage enhanced nuclear safety.

Identify and discuss common safety issues that may challenge regulatory reviews associated with SMRs and, if possible, recommend common approaches for resolution.

### *Outcomes*

- Positions statements on regulatory issues;
- Suggestions for revisions to or new IAEA documents;
- Generate and share information that regulators may use to enhance their regulatory framework;
- Description of the regulatory challenges and discussion on paths forward;
- Suggestions for issues to be raised to international codes and standards organizations.

## **Guiding Principles**

The output of this forum shall not replace national regulators' responsibility for licensing and regulatory decisions.

- The forum is a regulator-to-regulator<sup>1</sup> forum driven by its members;
- Each member shall supply the appropriate expertise to contribute effectively to forum activities and ensure that the views of the regulatory body are represented;
- Each member will make best endeavours to share its regulatory experiences and lessons learned within the scope of the Forum;
- Within the scope of confidentiality agreements, information can be shared;

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<sup>1</sup> The regulator may choose to be represented by a TSO

- The forum will appropriately control proprietary information;
- Members may, for the purposes of completing research, seek assistance from other members;
- The forum activities shall be periodically assessed for continuous improvement according to the project plan;
- The issues to be addressed in the forum may be proposed by any member;
- The forum will strive to maintain awareness of other organizations' work and align its own tasks accordingly;
- The forum will attempt to develop consensus-based documents on technical and regulatory issues of interest to forum members;
- The forum will take into account IAEA Safety Standards and safety objectives from other organizations such as WENRA for new reactor designs.
- The forum will strive to avoid duplication of work done by other organizations and fora;
- The Forum will seek to draw information from existing sources where possible, including specific information discovered during design reviews by Member States and international organizations.
- This forum will establish and maintain relationships with other organizations such as the GIF, IAEA, IFNEC, MDEP and WNA/CORDEL. The forum may, on occasion, invite selected representatives of these organizations to participate in forum activities.

## **Membership**

For the pilot phase of this forum, membership to the forum is limited to the IAEA Member States who participated in the initial sessions of this forum: Canada, China, Finland, France, Republic of Korea, Russian Federation, United States - and others who may be invited to join the forum. However, if a Member State is a SMR technology holder or developer, has operating experience or already has commitments<sup>2</sup> for new build or firm plans to have commitments for licensing in the near future, it may apply for membership with the forum, which will then be subject to an approval process.

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<sup>2</sup> Commitments should be considered to be pre-licensing discussions between the regulator and the vendor.

The forum will consider opening membership to other IAEA Members States after the pilot phase.

Membership presupposes a commitment to devote adequate resources to ensure that the Forum purpose and objectives can be fully accomplished.

## **Structure**

The structure of this forum will be:

- Steering Committee
  - A chairperson and vice-chairperson will be selected from the Steering Committee membership;
  - As secretariat, the IAEA will be part of the Steering Committee;
  - Every member should provide a representative to the Steering Committee.
- Task-specific Working Groups (one WG per issue)
  - There will be a working group leader, who will coordinate the group's activities;
  - Any member may participate in the forum working groups.

Steering Committee members must fully represent the regulatory body and have the authority to supply resources to the Forum.

Issues covered by the Working Groups will be cross-cutting in nature, covering common issues of selected technologies;

The Steering Committee will:

- Manage and approve the detailed programme of work including defining topics and working methods, establishment and closure of working groups and nomination of a lead country;
- Approve reports developed by the working groups;
- Establish interfaces with other international organizations to benefit from available work and avoid duplication;

- Review progress on a periodic basis to ensure that Working Groups are achieving their goals according to the programme plan;
- Approve membership applications;

The working groups will implement their specific portion of the project plan and report progress to the Steering Committee.

## **Finances**

This effort will be financed by voluntary contributions. The following activities during the pilot phase will require the use of IAEA resources to support the forum.

- IAEA staff member costs, both salary and travel needed to participate in forum (both general and professional staff)
- Support for communications including web site support and other.

Forum members will finance their own participation in the forum.

With completion of the pilot phase, an evaluation should take place to assess the forums' performance and to determine its further financial support.

## **Communications (Internal / External)**

A structured web space will be developed within the Global Nuclear Safety and Security Network (GNSSN) (currently maintained by the IAEA) including a restricted, password protected part to share information among the Steering Committee members or working group participants.

Dissemination of relevant information important to other stakeholders and the public will be handled through the public IAEA web portal.

Acknowledging the importance of face-to-face meetings, it is envisioned that the Steering Committee meets on a regular basis. Working groups should meet prior to each Steering Committee meeting. Additionally, meetings may be held using online virtual meeting software such as Webex, whenever desired.

Representation of the forum at relevant international conferences and meetings will be handled as needed. The channels through which communications occur, is subject to a communications plan to be developed as part the project plan.

Organizations the forum expects to interface with include:

#### Regulator forums

- MDEP
- RCF
- ENSREG/WENRA

#### Industry forums

- GIF
- WNA/CORDEL
- IFNEC
- INPRO

The forum may, on occasion, invite selected representatives of these organizations to participate in forum activities.

#### **Role of IAEA**

At request of forum members, the IAEA will function as Scientific Secretary and, subject to the availability of extra-budgetary resources, promote and facilitate the forum. The IAEA will provide general and professional support staff to facilitate open collaborative meetings, develop and maintain a communication platform and provide advice on the IAEA Safety Standards.