

The IAEA Programme on Small and Medium Sized Reactors (SMRs) to support Member States

With the purpose to facilitate the efforts of Member States in identifying key enabling technologies in development and in addressing the key challenges in deployment of SMRs, the NENP/NPTDS has developed the following programmes.

For 2016 – 2017

Project 1.1.5.2 Near term & small and medium-sized reactor technology development

1. Finalization of the IAEA Nuclear Energy Series report on Technology Roadmap for Small Modular Reactor Deployments
2. Development of IAEA Technical Documents on (a) Designs and operations of water-cooled small modular reactors (b) Human factor engineering issues of multi-module SMR power stations, (c) Emergency planning zone and physical security requirements of SMRs.
3. Finalization of E-Toolkit for SMR Technology Assessment
4. Development of basic principles for integral water-cooled reactor simulators for educational purposes
5. Conduct CRP on the design and performance assessment of non-electric engineered safety features in advanced SMRs
6. Identification on Key Enabling Technologies associated with Molten Salt cooled Small Modular Reactor developments
7. Provide education and training on technology assessment for near term water-cooled reactors and SMRs as a service to the Member States

SMR Activities to support Nuclear Safety Action Plan (NSAP)

From 2012, Nuclear Power Technology Development Section (NPTDS) has carried out activities to support the IAEA's NSAP item 12 i.e. effective utilization of research and development. Through the communication with SMR design organizations, the IAEA's Project on SMR Technology Development has identified key areas of technical lessons-learned from the Fukushima accident to be addressed by SMR designers, stake holders and interested countries, although the lessons-learned are also common to large reactors of any type of technology.

For 2014 – 2015

Project 1.1.5.2 Near term & small and medium-sized reactor technology development

1. Formulation of roadmap for technology development - including licensability, regulatory requirements, fuel cycle and incorporating lessons-learned from the Fukushima Daiichi nuclear accident
2. Defining safety-performance, operability, maintainability and constructability indicators to assist countries in assessing near-term and SMR technologies
3. Development of guidance and tools to facilitate countries with planning for implementation of near term and SMR technologies
4. Support and participate in relevant international and/or topical conferences on nuclear engineering and technology
5. Coordinate CRP on the design and performance assessment of non-electric engineered safety features in advanced SMRs
6. Provide education and training on various aspects of near term and SMR technology development and assessment
7. Provide support to the Department of Nuclear Safety & Security, Planning and Economic Studies Section (PESS), Nuclear Power Engineering Section (NPES), INPRO, Integrated Nuclear Infrastructure (INIG) and Nuclear Knowledge Management (NKM) on the activities relevant to Near Term and SMR Technology Development

For 2012 – 2013

Project 1.1.5.5 Common Issues and Technologies for Small and Medium-sized Reactors

1. Develop roadmap for technology development, assessment and deployment - including countries requirements, regulatory and business issues
2. Define operability-performance, maintainability and constructability indicators to assist countries in assessing advanced SMR technologies
3. Develop Guidance and Tool to Facilitate Countries with Planning for SMRs Technology Implementation
4. Develop economic competitiveness evaluation methodology for SMRs
5. Maintain and update website-based database Advanced Reactor Information System (ARIS) for SMRs
6. Provide support to Innovative Nuclear Power Reactors and Fuel Cycles (INPRO) project on the activities relevant to SMRs deployment
7. Participate in relevant international and/or topical conferences on nuclear engineering and technology
8. Application of Computational Fluid Dynamics (CFD) Codes for the Design of Advanced Water Cooled Reactors - to prepare for an NE series report on Development Status and Prospects for Advanced Computation Methodologies
9. Coordinate a CRP on development of methodologies for the assessment of passive safety system performance in advanced reactors
10. Provide education and training on various aspects of SMR technology development and assessment and SMR applications
11. Provide support to Technical Cooperation (TC) projects

Please contact [NENP Technology Development Section - Contact Point](#) if you have any questions.