

New CRP (I31039)

Technologies enhancing the competitiveness and early deployment of SMRs

**Technical Meeting on Codes and Standards, Design Engineering and
Manufacturing of Components for Small Modular Reactors**

10 –13 May 2022, Virtual on Webex Meeting

Benoît LEPOUZÉ

Nuclear Power Technology Development Section (NPTDS)

Division of Nuclear Power, Department of Nuclear Energy (NENP)

OUTLINE

01

Scope of the Common Research Project

02

Expected outcomes

03

Schedule and next steps

Background

- SMRs of major types of technology, in particular the water-cooled reactors and the high temperature gas cooled reactors (HTGRs) are seen as near-term deployable.
- SMRs do not benefit from the scale effect of large reactors and need to find a way to lower their cost and shorten their construction schedule to be competitive.
- Beyond electricity, some SMR designs have the potential to address a range of applications and thus have a positive impact on their deployment.

Overall Objective

- To promote the development of technologies which can enhance the competitiveness of SMR solutions in the near-term or facilitate their deployment through a better compliance with the user requirements.

Finding the common ground for collaboration

- There are over 80 designs currently under development, at different stage of maturity, with sometimes very different approaches. The fierce competition for an emerging market as well as the IP issue does not favour a collaborative approach. But there are generic solutions that apply to different designs

Specific Objectives

- To identify the generic technologies under consideration by developers with near-term effect on the competitiveness of SMRs
- To identify the generic technologies with effect on the uses and applications of SMRs
- To develop a methodology to assess the **technological readiness level** of the identified technological solutions
- To identify the gaps and opportunities in the global supply chain for technological solutions supporting the near-term deployment of SMRs

Structure of the CRP Proposal

Part 1 Development of methodology

Enabling the assessment of technological readiness level

Tool

Part 2 Identification of enabling generic technologies

- Technologies with effect on cost or construction schedule
- Technologies with effect on deployment scheme of non-electric applications

Motivation

Part 3 Identification of gaps and opportunities

Capturing status of identified technologies in the global supply chain

Interaction

Competitiveness:
Cost and Construction Schedule

CRP on Economic Appraisal of Small Modular Reactors Projects:
Methodologies and Applications (I12007)

Overall expected outcomes and results

- IAEA non-serial publication listing generic technologies with explanation of their effects on competitiveness and near-term deployment of SMRs, including a chapter on the importance of these technologies in the global supply chain
- A TECDOC on the topic of deployment scheme of non-electric applications of SMRs, with focus on technological constraints
- A TECDOC describing a methodology to evaluate the technological readiness of technologies for SMR

Positive outcome through collaboration on identified technologies at international level

Incentivising stakeholders into allocating resources on the identified enabling technological solutions

01



Creating an opportunity to develop/adapt commonly applicable codes and standards for technologies not yet covered

02



- The CRP concept was approved on **23 March 2022**
- Call for interest. Deadline **31 July 2022**
- 1st research coordination meeting (RCM) tentatively planned on **10-14 October 2022** (kick-off meeting with expression of interest)
- Three year project, with results in 2025

<https://www.iaea.org/projects/crp/i31039>



IAEA

International Atomic Energy Agency

Atoms for Peace and Development



8 December 1953



1 to 23 October 1957



11 December 1957



1959



10 December 2005



1958 to 1979



23 August 1979

Thank you for your attention!

For inquiries, please contact:

Small Modular Reactor Technology Development Team

IAEA Division of Nuclear Power, Nuclear Power Technology

Development Section

E-mail: SMR@iaea.org

Atoms for peace and Development...