

SMR REGULATORS' FORUM

PHASE 3

DESIGN AND SAFETY ANALYSIS WORKING GROUP

PUBLICATION ON

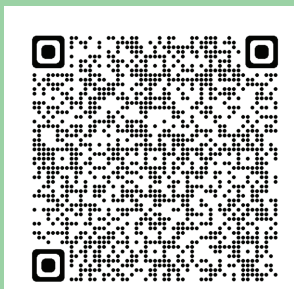
SAFETY, SECURITY AND SAFEGUARDS FROM A REGULATORY PERSPECTIVE: AN INTEGRATED APPROACH

Identifies key aspects of SMRs relevant to the adoption of the 3S-by-design

Outlines a range of 3S interfaces

Provides possible methodologies for integration of 3S

Recommends good regulatory practices



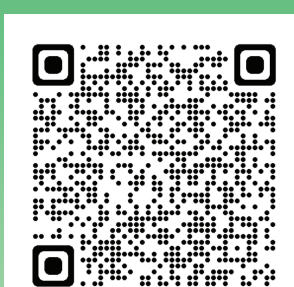
SMALL MODULAR REACTOR (SMR)

- SMRs have an opportunity to address safety, security, and safeguards (3S) risks during the design stage (3S-by-design).
- Regulatory bodies need to be prepared to interface with all 3S stakeholders by having sufficient capacity, facilitating information sharing among the 3S disciplines, and ensuring their guidance to regulation enables the 3S approach.

PUBLICATION ON

CONTAINMENT SYSTEMS

Provides common regulatory positions on aspects relating to SMR containments approaches



- Traditional light water-cooled reactors (LWRs) rely on containment structures, systems, and components to protect against external and internal hazards. The containment building / structure serves as the primary barrier against radionuclide release during accidents.
- Some non light water-cooled SMRs propose using “functional containments” instead of leak-tight, pressure-retaining containment structures. These designs leverage inherent and passive safety features to reduce reliance on traditional containment systems.
- Regulatory bodies need to continue developing or reviewing regulatory requirements and guidance for SMR with containment system designs different from typical large LWRs.

MANUFACTURING, CONSTRUCTION, COMMISSIONING AND OPERATION WORKING GROUP

PUBLICATION ON

REGULATORY CONSIDERATIONS IN PRE-LICENSING ENGAGEMENT FOR LONG-LEAD REQUESTS AND ITEMS

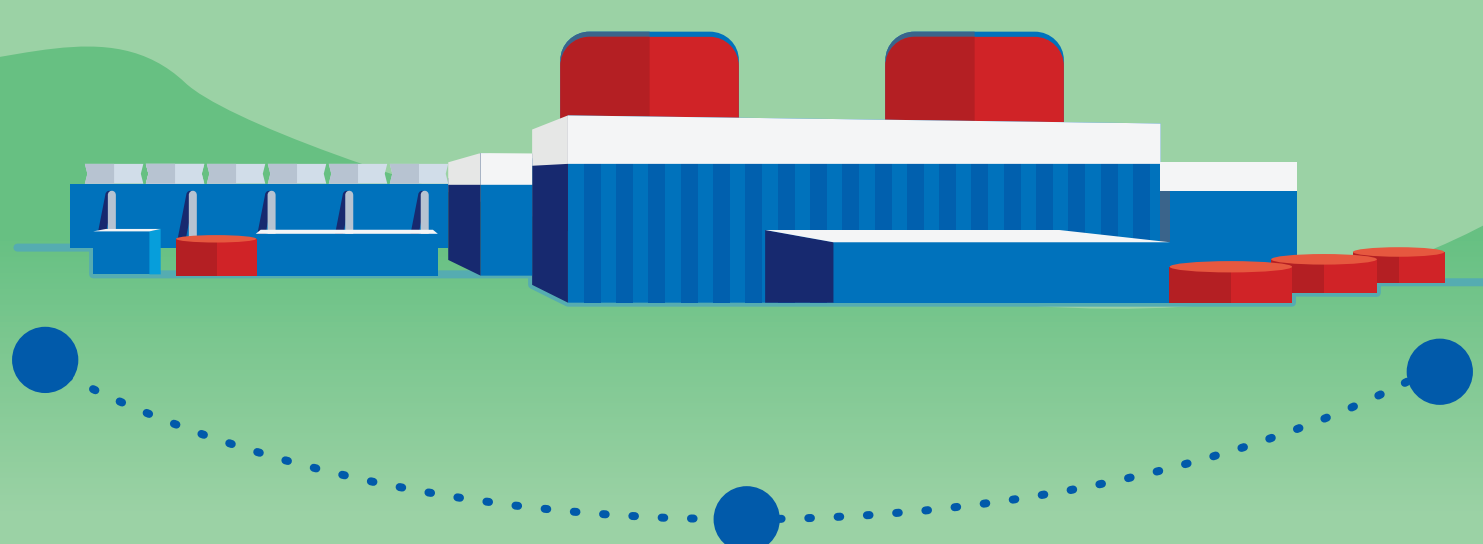
Explains long-lead items for SMRs and associated regulatory challenges

Considers the regulation of long-lead procurement if licensee is not known

Identifies regulatory consideration of “off the shelf” manufacturing business model



SMR SUPPLY CHAIN



PUBLICATION ON

CONDUCT OF AUTHORIZED ACTIVITIES IMPACT ON STAKEHOLDERS' ORGANISATIONAL CAPABILITIES (DESIGNERS, VENDORS, MANUFACTURERS, SUPPLY CHAINS, OPERATORS)

Explains differences in the SMR business model and its effect on licensee's ability to conduct authorized activities

Considers changes in size and capability of the licensee

Highlights the responsibility of the licensee



KEY DIFFERENCES FOR LONG-LEAD ITEMS FOR SMRS COMPARED TO THE TRADITIONAL NUCLEAR POWER PLANT (NOT ALL INCLUSIVE)

- Long-lead items are likely to be procured by vendors and not licensees.

FUTURE LICENSEE DOES NOT HAVE ABILITY TO PROVIDE OVERSIGHT OF MANUFACTURE OF THEIR LONG-LEAD ITEMS (LLIS)

- Whole safety system modules may be manufactured as LLIs. In some instances, the entire SMR plant may be delivered as a single package.
- Some SMRs using advanced manufacturing will require LLIs which are not covered by existing codes.
- Supply chain for novel technology may not be familiar with regulations.
- Licensees (or future licensees) placing orders for LLIs on vendors proceed “at commercial risk” with the objective of reducing the projects' risk overall.
- Member State regulatory bodies treat SMR LLIs consistent with conventional nuclear power stations in terms of the level of regulatory oversight, proportionate to the safety significance of the items.

OTHER POTENTIAL DIFFERENCES FOR SMR LICENSEES

- The licensee may be a smaller organization for a SMR.
- The licensee may be more reliant on supply chain organizations and contractors.

