



Contribution ID: 135

Type: Poster

Issues and Challenges of Regulatory Framework for Deployment of SMRs ☒ Pakistan Perspective

ABSTRACT

The increasing interest in Small Modular Nuclear Reactors (SMRs) is primarily governed by the climate change. SMRs are unique in design in contrast to existing fleet of nuclear power plants thus regulatory framework should be tailored in areas of licensing, design, siting, manufacturing including emergency preparedness and response. Nuclear regulatory agencies around the world including Pakistan Nuclear Regulatory Authority (PNRA) is facing new challenges e.g. licensing of smaller-scale reactor, different FOAK designs, factory production of units, innovative safety measures, multiple-modules with one control center, deployment near populous areas with application of co-generation (e.g. hydrogen production, district heating, desalination) smaller site footprint etc.

SMR designs concepts may challenge our existing national laws and regulations and may need to be tailored to support graded approach to facilitate the licensing process e.g. unique design, multi-modules, national/international design certification, third party nuclear civil liability etc. There might be many legal issues that need to be resolved among different countries such as Intellectual Property Rights (IPRs), safeguard issues. The harmonization and standardization at global scale is another challenge. The smooth licensing process for SMRs is the key to their successful deployment.

The safety requirements for design also facing new challenges such as devising a mechanism for application of defense-in-depth (DiD) in parallel with innovation, integration and modularity. Also, application of design extension conditions and practical elimination of high consequences and low probability event with high confidence level will be a principal challenge.

Site specific conditions also pose challenges in the deployment of SMRs. It includes, but not limited to, proximity of SMRs to hazardous facility such as hydrogen, chemical industries, refineries etc., fulfillment of exclusion area boundary and low population zone requirements near population centers, feasibility of emergency planning zones and protective actions in close proximity of cities etc.

Country OR International Organization

Pakistan

Email address

ue970121@gamil.com

Confirm that the work is original and has not been published anywhere else

YES

Author: ASGHAR, Muhammad (PAEC)

Presenter: ASGHAR, Muhammad (PAEC)

Track Classification: Topical Group B: Legislative and Regulatory Frameworks: Track 7: Regulatory Considerations for SMRs