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Synergizing Innovation and Security: A Holistic Approach to SMRs

Small Modular Reactors (SMRs) represent a promising advancement in nuclear technology, offering scalable and flexible energy solutions. This paper discusses the crucial link between small modular reactors and security by design, emphasizing the need to integrate security considerations into the development framework of these innovative nuclear systems. SMRs, characterized by their compact size and modular design, pose unique challenges and opportunities for ensuring robust nuclear security.

The paper addresses various aspects of security by design specific to SMRs, encompassing key principles such as physical protection and computer security. It examines the inherent security features of SMRs and their potential to enhance overall nuclear security by minimizing the risk of malicious actions and improving control mechanisms. The paper highlights the importance of collaborative efforts among industry stakeholders, regulators, and security experts in establishing a comprehensive security framework for SMRs.

By emphasizing the synergies between small modular reactors and security by design, this abstract contributes to the discourse on next-generation nuclear technologies and advocates for a holistic approach that prioritizes safety and security alongside energy innovation. Ultimately, it calls for a proactive and integrated strategy to ensure the responsible deployment of small modular reactors in the global energy landscape.

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