IP-9

KHNP i-SMR : Advanced Passive Safety Design and Deployment Strategy for Emerging Nuclear Markets

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The i-SMR developed by Korea Hydro & Nuclear Power is an advanced Generation 3+reactor designed to enhance safety, economic efficiency and flexibility for emerging nuclear market.

The i-SMR incorporates fully passive safety system based on natural circulation cooling and gravity-driven safety mechanisms, minimizing the need for active operator intervention during emergency conditions. With the integrated Control Rod Drive Mechanism-CRDM- the risk of control rod ejection accident is inherently eliminated.

Beyond technological innovation, KHNP's i-SMR deployment strategy integrates engineering, procurement, construction (EPC), operation & maintenance (O&M), fuel cycle management, and human resource development. Based on the strong supply chain we've built through large nuclear projects, KHNP already has a reliable supply system that can be applied to the i-SMR as well.

This presentation will introduce the key technical features of the i-SMR, including passively safety architecture, multi-hydraulic design concepts. It will also discuss KHNP's international cooperation roadmap aimed at supporting safe and economically viable SMR deployment in Europe.

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