

EIC INSIGHT REPORT

SMALL MODULAR REACTORS

Executive summary

The global framework for the nuclear energy market has faced radical changes over the past decade. In the face of increasing opportunities in the nuclear decommissioning sector and with key markets moving away from the nuclear power sector, small modular reactors (SMRs) display an enhanced safety performance through inherent and passive safety features, offering a renewed overall interest in nuclear energy. SMRs are defined by their capacity to produce up to 300MW of electric power and are a sub-category of Advanced Modular Reactors (AMRs). With flexible power generation demands and the race to reach net zero carbon emissions, the development and use of SMRs may lend a helping hand to reach the world's green future. There is still a highly anticipated market for supply chain opportunities with new nuclear technology advancements.

Although this is a new market, the technology can date back to the 1830s, with the development of nuclear icebreakers – large ships fuelled by nuclear power, to break through miles of ice. More recently, the UK's defence programme includes nuclear powered submarines. This can be valued as a proven foundation for the SMR market, providing a glimpse of

the opportunities and highly flexible deployment. There are about 50 SMR designs and concepts globally in various developmental stages, with some considered to be approaching market deployment and several concepts are gradually reaching the stage of market deployment. There are currently four SMRs in advanced stages of construction in Argentina, China, and Russia, and several existing and newcomer nuclear energy countries are conducting SMR research and development.

This EIC Insight Report explores the different technologies available and their respective providers/suppliers. There is a focus on certain emerging markets, including Canada, China, Russia, and the United Kingdom, as well as the key project developments in each respective market. The report also offers insight to the political drivers of the industry, particularly in recent light of the UK's 10-step plan, which firmly puts nuclear in the power mix to achieve carbon neutrality.

SMRs can generate clean and low-cost energy for both on-grid and off-grid communities, connect more remote and rural areas, and benefit energy-intensive industries, including the mining and manufacturing sectors. It could also drive economic growth and export

opportunities as these technologies are further adopted across the country and around the world. There is an international climate race under way and with low carbon energy sources on the rise, and technology continuing to improve, it is undeniable that SMRs will play a fundamental role in the world's energy transition.

With the international race towards net-zero, its growing need for low-carbon energy sources as well as continued technological advancement, it is undeniable that SMRs can/will play a fundamental role in the world's energy transition.



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