

Small Modular Reactors: A Sustainable Solution for Future Energy Needs

The SMR market is set for rapid growth, offering scalable, safe nuclear energy to meet global carbon-neutral goals and diverse power needs.

WILMINGTON, DE, UNITED STATES, March 6, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "[Small Modular Reactor Market](#)," The small modular reactor market was valued at \$5.8 billion in 2022, and is estimated to reach \$13.4 billion by 2032, growing at a CAGR of 8.7% from 2023 to 2032. Primary differences in small modular reactors (SMRs) in comparison with larger nuclear power plants are their low power output (typically below 300 MWe per unit), modularity, and integrated design. Older generations of nuclear power plants are large and require huge amount of capital and construction time. Moreover, installation location of nuclear reactor is far away from large power grid system, which led to increase in cost. Hence, setting up a nuclear reactor is not feasible in remote locations, thus paving for the development of smaller nuclear reactors. Small modular reactors have smaller footprints and as they are prefabricated in factories, constructing them takes less time and cost. In addition, SMRs can be readily installed in brownfield sites in place of decommissioned coal-fired plants.

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Thus, retrofitting is possible in the case of SMRs. With rise in emphasis on achieving political and technological solutions to climate change, many experts in the global community are turning their focus to virtually emissions-free power produced by nuclear reactors. Therefore, continuous development of small modular reactors (SMRs) offers a potential opportunity to overcome many hindrances presented by larger nuclear power plants, including high costs, complex supply chains, large physical infrastructure, and unsuitability in harsh environments, such as the Arctic. However, hazards around the safety of nuclear energy and more focus on wind and solar energy generation are key hindrances to the global small modular reactor industry. The abovementioned factors will provide small modular reactor market opportunities for the further development in the forecast period.

Small Modular Reactor Market Growth Factors

- Energy Transition Initiatives: Increasing investments in nuclear energy as part of clean energy strategies.
- Energy Security Needs: Rising demand for stable and reliable power supply in remote areas.

- Cost-Effective Deployment: Modular design enabling faster and lower-cost installations.
- Government Support & Regulations: Policies and funding for nuclear energy infrastructure.
- Technological Advancements: Innovations in reactor safety and efficiency.

The small modular reactor market scope is segmented into reactor type, connectivity, deployment, power rating, location, application, and region. On the basis of reactor type, the market is segmented into heavy water reactor (HWR), light water reactor (LWR), fast neutron reactor (FNR), and others. On the basis of connectivity, the market is bifurcated into off-grid and grid-connected. On the basis of deployment, the market is bifurcated into single module power plant and multi module power plant. On the basis of power rating, the market is segmented into up to 100 MW, 101 to 200 MW, and 201 to 300 MW. On the basis of location, the market is bifurcated into land and marine. By application, the market is segmented into desalination, power generation, and industrial. Region-wise, the small modular reactor market growth is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

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Key players engaged in the small modular reactor market analysis include Brookfield, Fluor Corporation, General Atomics, General Electric, Holtec International, Mitsubishi Heavy Industries, Rolls Royce Plc, TerraPower LLC, Terrestrial Energy, Ultra Safe Nuclear, Moltex Energy, NuScale Power LLC, Westinghouse Electric Company, and X Energy LLC. Agreement was the key strategy adopted by players such as Rolls Royce and General Electric.

Key Market Drivers

- Rising Demand for Clean Energy: Global push to reduce carbon emissions and achieve net-zero targets.
- Energy Security Needs: SMRs provide a reliable, consistent power source for both urban and remote regions.
- Technological Advancements: Innovations in reactor design and safety features.
- Cost-Effective Solutions: Lower capital costs compared to conventional nuclear reactors.

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Key Findings Of The Study:

- On the basis of reactor type, the heavy water reactor segment emerged as the global leader by acquiring nearly half of the small modular reactors market share in 2022 and is anticipated to continue this small modular reactor market trends during the forecast period.
- On the basis of connectivity, the grid connected segment emerged as the global leader by acquiring more than two-third of the market size in 2022 and is anticipated to continue this trend during the small modular reactor market forecast period.
- Depending on deployment, the single module power plant segment emerged as the largest market share in 2022, which accounts for nearly three-fourths of the small modular reactors

market share.

- Depending on power rating, the up to 100 MW segment emerged as the largest market share in 2022, which accounts for nearly half of the small modular reactors market size.

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