

Modular Nuclear Reactor Market Forecasts to 2034 – Global Analysis By Reactor Type (Light-Water Modular Reactors, Heavy-Water Modular Reactors, Fast Neutron Modular Reactors, High-Temperature Gas-Cooled Modular Reactors and Molten Salt Modular Reactors), Power Capacity, Deployment Mode, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Modular Nuclear Reactor Market is accounted for \$6.1 billion in 2026 and is expected to reach \$8.8 billion by 2034 growing at a CAGR of 4.6% during the forecast period. A Modular Nuclear Reactor is a small-scale nuclear energy unit produced in factories and delivered in prefabricated sections for quick on-site assembly. This modular approach helps decrease project timelines and expenses when compared to traditional large reactors. It uses enhanced safety mechanisms, including passive systems, to improve operational security. These reactors serve multiple purposes such as generating electricity, providing industrial heating, and powering isolated areas. Due to their compact design and flexibility, they support clean energy goals and allow gradual expansion of power capacity based on demand while ensuring dependable and efficient energy supply.

According to the NEA SMR Dashboard (2025, Edition III), 127 SMR technologies have been identified globally, with 74 featured in the current edition for detailed tracking. The NEA evaluates SMR deployment readiness across 6 dimensions: licensing, siting, financing, supply chain, engagement, and fuel readiness.

Market Dynamics:

Driver:

Rising demand for clean and low-carbon energy

Growing concerns about climate change and the need to cut carbon emissions are significantly boosting interest in modular nuclear reactors. Countries and businesses are turning toward energy sources that deliver stable electricity without harming the environment. These reactors produce power with very low emissions, making them an attractive substitute for traditional fossil fuel plants. Their compatibility with renewable energy sources strengthens their value in modern energy systems. As global commitments to achieve net-zero emissions increase, modular reactors are gaining importance as a dependable and eco-friendly solution for meeting rising energy needs across diverse regions worldwide.

Restraint:

High initial capital investment

A major challenge for modular nuclear reactors is the considerable upfront investment required to develop and deploy them. Even though they can reduce costs in the long term, the early-stage expenses related to design, regulatory approval, production, and construction are quite high. This discourages investors who are concerned about long return periods and financial risks. Raising funds becomes especially difficult in emerging economies with constrained budgets. Dependence on policy incentives and public funding adds complexity to implementation. As a result, these financial constraints can slow down adoption, particularly when compared with lower-cost renewable energy options available globally.

Opportunity:

Deployment in remote and off-grid areas

Modular nuclear reactors present valuable opportunities for supplying electricity to isolated and off-grid regions. Many areas around the world struggle with limited access to stable power due to challenging terrain and inadequate infrastructure. These reactors are small and portable, making them suitable for deployment in such locations. They can support industries like mining, remote communities, and military bases with reliable energy. By replacing traditional diesel-based systems, they help reduce fuel dependency and improve sustainability. As governments aim to expand electrification

and support rural development, these reactors offer a practical solution for addressing energy shortages globally.

Threat:

Policy uncertainty and changing government priorities

Uncertainty in policies and shifting government priorities present a serious risk to the modular nuclear reactor market. These projects require consistent long-term support, including stable regulations and financial backing, which may change with political transitions. Unexpected policy changes or funding cuts can disrupt or halt development plans. Variations in how countries approach nuclear energy add to global uncertainty. Investors often become cautious when faced with unpredictable environments. This lack of stability complicates planning and reduces confidence in long-term returns, making it harder for companies to invest in and expand modular reactor technologies across different regions worldwide.

Covid-19 Impact:

The COVID-19 outbreak affected the modular nuclear reactor market in both negative and positive ways. Early in the pandemic, disruptions in logistics, labour shortages, and halted construction activities delayed project execution and approvals. Financial uncertainty and redirected government spending toward emergency response limited investments in new nuclear initiatives. Despite these setbacks, the situation emphasized the need for dependable and secure energy infrastructure. Modular reactors, known for their reliability and clean energy output, attracted renewed focus as part of long-term energy strategies. This growing recognition helped the market recover gradually and regain growth prospects in the period following the pandemic worldwide.

The light-water modular reactors segment is expected to be the largest during the forecast period

The light-water modular reactors segment is expected to account for the largest market share during the forecast period because of their proven technology and broad industry acceptance. Built on designs widely used in traditional nuclear plants, they benefit from established reliability and simpler regulatory processes. Their familiarity to stakeholders, including regulators and investors, lowers uncertainties and speeds up project development. Strong supply networks and experienced workforce further support their expansion. These reactors also demonstrate dependable safety and operational

efficiency. Consequently, they maintain a dominant position in the market, outperforming emerging reactor types that are still in earlier stages of commercialization worldwide.

The industrial enterprises segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the industrial enterprises segment is predicted to witness the highest growth rate as they increasingly seek dependable and clean energy solutions. Industries like refining, chemical processing, mining, and hydrogen production need uninterrupted power and process heat, which these reactors can deliver effectively. Their potential for combined heat and power generation helps reduce reliance on traditional fuels and lowers emissions. The option to install reactors directly at industrial sites improves efficiency and energy independence. With growing pressure to achieve environmental targets, industries are rapidly turning toward modular reactors, driving strong growth in this segment worldwide.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, supported by robust policy backing, developed nuclear capabilities, and early implementation of advanced technologies. The region has well-defined regulatory systems and receives substantial funding for innovation and development. Major industry players and pilot projects contribute to its strong market position. Growing emphasis on sustainable energy and reliable power supply further boosts demand. Government incentives and collaborations between public and private sectors enhance growth prospects. Together, these elements make North America the most prominent region in the global modular nuclear reactor market.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, driven by expanding industrial activities, increasing electricity needs, and a shift toward cleaner energy sources. Governments in the region are actively promoting nuclear innovation to strengthen energy independence and reduce carbon emissions. Rapid urban growth and large-scale infrastructure projects are increasing demand for consistent power supply. Policy support and strategic investments are encouraging the adoption of modular reactors. Rising demand for distributed energy solutions and industrial energy applications further supports growth, making Asia-Pacific the most

dynamic and rapidly expanding regional market worldwide.

Key players in the market

Some of the key players in Modular Nuclear Reactor Market include NuScale Power, TerraPower, X-energy, Westinghouse Electric Company, GE Hitachi Nuclear Energy, Rolls-Royce SMR, Holtec International, Moltex Energy, Oklo Inc., Terrestrial Energy, Ultra Safe Nuclear Corporation (USNC), LeadCold, Seaborg Technologies, BWX Technologies, Framatome, Korea Hydro & Nuclear Power (KHNP), China National Nuclear Corporation (CNNC) and Rosatom.

Key Developments:

In April 2026, Rosatom State Corporation, through its subsidiary JSC Engineering and Technology Centre “GET” announced a pilot training program for nuclear industry specialists in India, developed in a strategic partnership with the Indian Institute of Technology Bombay and ProSIM R&D Pvt Ltd. The trail training session will teach how to use simulators and digital twin technologies for nuclear power plants, for practical learning and operational understanding.

In January 2026, TerraPower and Meta announced an agreement to develop up to 8 Natrium reactor¹ and energy storage system plants in the United States. This would provide Meta with up to 2.8 GW of carbon-free, baseload energy; with the Natrium technology's innovative built-in energy storage system providing the capacity to boost total output to 4 GW of power. Under this commercial agreement, Meta will provide funding to support the deployment of the Natrium plants, with delivery of initial units as early as 2032.

In June 2025, Terrestrial Energy Inc announced a collaboration with Ameresco, Inc to advance the commercial deployment of Terrestrial Energy's IMSR plant. The collaboration covers site identification and IMSR plant project development, design, licensing, construction, operation across the United States.

Reactor Types Covered:

Light-Water Modular Reactors

Heavy-Water Modular Reactors

Fast Neutron Modular Reactors

High-Temperature Gas-Cooled Modular Reactors

Molten Salt Modular Reactors

Power Capacities Covered:

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL MODULAR NUCLEAR REACTOR MARKET, BY REACTOR TYPE

- 5.1 Light-Water Modular Reactors
- 5.2 Heavy-Water Modular Reactors
- 5.3 Fast Neutron Modular Reactors
- 5.4 High-Temperature Gas-Cooled Modular Reactors
- 5.5 Molten Salt Modular Reactors

6 GLOBAL MODULAR NUCLEAR REACTOR MARKET, BY POWER CAPACITY

- 6.1

List Of Tables

LIST OF TABLES

Table 1 Global Modular Nuclear Reactor Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Modular Nuclear Reactor Market Outlook, By Reactor Type (2023-2034) (\$MN)

Table 3 Global Modular Nuclear Reactor Market Outlook, By Light-Water Modular Reactors (2023-2034) (\$MN)

Table 4 Global Modular Nuclear Reactor Market Outlook, By Heavy-Water Modular Reactors (2023-2034) (\$MN)

Table 5 Global Modular Nuclear Reactor Market Outlook, By Fast Neutron Modular Reactors (2023-2034) (\$MN)

Table 6 Global Modular Nuclear Reactor Market Outlook, By High-Temperature Gas-Cooled Modular Reactors (2023-2034) (\$MN)

Table 7 Global Modular Nuclear Reactor Market Outlook, By Molten Salt Modular Reactors (2023-2034) (\$MN)

Table 8 Global Modular Nuclear Reactor Market Outlook, By Power Capacity (2023-2034) (\$MN)

Table 9 Global Modular Nuclear Reactor Market Outlook, By

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