

Spent Nuclear Fuel Waste Management Market Size and Forecasts (2020 - 2030), Global and Regional Share, Trends, and Growth Opportunity Analysis By Reactor Type (Pressurized Water Reactor, Boiling Water Reactor, Gas-Cooled Reactor, and Others); Disposal Type (Near Surface Disposal and Deep Surface Disposal); and Geography

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Abstracts

The spent nuclear fuel waste management market was valued at US\$ 6,124.1 million in 2022 and is projected to reach US\$ 6,632.6 million by 2030; it is expected to grow at a CAGR of 1.0% during 2022–2030.

Regulatory Framework and Safety:

The management and long-term disposal of radioactive waste generated by nuclear power plants pose significant challenges. Developing safe and secure storage and disposal solutions is complex and can be met with public opposition and regulatory hurdles. The regulatory framework for spent nuclear fuel waste management is crucial to ensuring safety. Governments of various countries across the globe set strict guidelines for the handling and storage of radioactive waste. For example, the US employs the Nuclear Regulatory Commission (NRC) to oversee nuclear waste activities. The NRC enforces rules such as the Waste Isolation Pilot Plant (WIPP) in New Mexico, which stores transuranic waste deep underground. These regulations require strict safety measures, including secure packaging and geological isolation, to prevent potential environmental and health hazards. Compliance with these frameworks is critical to protecting the public and the environment from the long-term risks associated with nuclear waste. Thus, regulatory framework and safety measures related to nuclear

fuel waste management drive the growth of the spent fuel nuclear waste management market.

The global spent nuclear fuel waste management market has been segmented based on reactor type and disposal type. Based on reactor type, the market has been segmented into pressurized water reactors, boiling water reactor, gas-cooled reactor, and others. By disposal type, the market has been bifurcated into near surface disposal and deep surface disposal. The global spent nuclear fuel waste management market has also been analyzed on the basis of five major regions: North America, Europe, Asia-Pacific, the Middle East and Africa, and South America.

The US is among the leading countries in the global spent nuclear fuel waste management market, with a significantly higher number of reactors in operation for the generation of electricity through nuclear power plants. The US spent nuclear fuel waste management market has been experiencing significant growth for the past few years due to the rise in nuclear power generation in the country. The US is known for having a high inclination towards nuclear power, as the country is the largest producer of nuclear power. The country has 60 nuclear power plants and 92 nuclear reactors in operation. The US alone generates about 30% of total global nuclear energy.

As per the US Energy Information Association (EIA), the country generated about 772 TWh of electricity in the year 2022 from nuclear power plants. Spent nuclear fuel waste management in the US is driven by several key factors. The rise in demand for secure and safe spent nuclear fuel waste management in the US, with the rise in nuclear power generation, is expected to drive the growth of the market during the forecast period. In addition, political and regulatory pressures also exert a significant influence as both federal and state governments grapple with addressing public concern, ensuring compliance with legal mandates, and aligning waste management strategies with existing laws. Economic considerations, including the costs of storage and potential liabilities, underscore the need for sustainable, cost-effective, and efficient solutions. Thus, the factors mentioned above are also projected to fuel the growth of the spent nuclear fuel waste management market in the coming years.

Augean Plc, Perma-Fix Environmental Services, Inc., Svensk Kärnbränslehantering AB, Ansaldo Energia, US Ecology, Inc., Veolia Environmental Services, Bechtel Corporation, EnergySolutions, BHI Energy, and Waste Control Specialists, LLC are among the key spent nuclear fuel waste management market players profiled during this study. In addition, several other important spent nuclear fuel waste management market players have been studied and analyzed during the study to get a holistic view of

the spent nuclear fuel waste management market and its ecosystem.

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