

Asia-Pacific Nuclear Power Plant and Equipment Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Asia-Pacific nuclear power plant and equipment market is expected to register a CAGR of more than 5% during the forecast period, 2022-2027. The COVID-19 outbreak in Q1 2020 led to an unprecedented and sustained decline in demand for electricity in many countries, at 10% or more, compared to 2019 levels. This has created challenges for both electricity generators and system operators. Factors such as increasing power consumption, the government's aims to expand the nuclear energy share, and therefore, upcoming nuclear power plant projects are expected to drive the market during the forecast period. However, high initial investment cost, growing emphasis on renewable energy, and the difficulties associated with obtaining finance for the nuclear power plant projects are expected to restrain the market growth during the forecast period.

Key Highlights

Pressurized water reactors (PWR) are expected to dominate the market and register the highest growth rate during the forecast period.

With advanced nuclear technology, China ingeniously developed CAP1400 and CAP1000 domestic reactors, which are expected to create ample opportunities for the Asia-Pacific nuclear power plant and equipment market in the coming years.

China is expected to be the largest and fastest-growing market in the Asia-Pacific nuclear power plant and equipment market during the forecast period.

APAC Nuclear Power Plant & Equipment Market Trends

Pressurized Water Reactor (PWR) to Dominate the Market

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Due to the increasing concerns for the safety of nuclear power plants, operators prefer pressurized water reactors, which are the safest among all the available types of nuclear reactors. Additionally, the PWR reactor prevents water from contaminating radioactive materials, avoiding environmental damage.

As of 2021, there were 442 operational reactors across the world, out of which there are 302 PWRs, with a capacity of 287 Gigawatts electric (GWe). China has 47 PWRs with a capacity of 45.54 GWe.

Since PWR requires a sturdy piping and a heavy pressure vessel to ensure that the highly pressurized water remains at a liquid state when sustaining high temperatures, making the construction of the PWR is costly. Therefore, the growing demand for PWRs is expected to significantly impact the nuclear power plant equipment market during the forecast period.

Moreover, China is expected to be dominated by the PWR because more than 90% of the nuclear plants are going to have the PWR type of reactor.

PWR is the most commercialized nuclear reactor design type, and due to this, PWR type reactor is dominant in the nuclear power plant and equipment market. Despite lower efficiency and high initial investments, PWR is a mature technology and has a relatively lower operational cost. Due to this, most countries with both mature and young nuclear energy sectors are investing in PWR technology, and the reactor type is expected to dominate the market during the forecast period. ?

China to Dominate the Market

China is one of the largest nuclear power producers across the world, accounting for almost 13% of the global nuclear power generated, and nuclear power generated held 4.9% of the country's electricity in 2020. The country has 53 operable nuclear reactors, with a combined net capacity of 50.8 GWe.

The Chinese government is planning to achieve 150 GW by 2030 and has planned a drive-build program for nuclear power, and the strong project pipeline strengthens the outlook for the nuclear power plant equipment market.

As per International Atomic Energy Agency statistics 2021, China had about 47,528 MW(e) of nuclear power net capacity connected to the grid in 2020. The net capacity increased by 4.4% compared to 2019.

According to the National Development and Reform Commission, China aims to have 200 GWe of nuclear-generating capacity in place by 2035. This is expected to drive the nuclear power plant equipment market during the forecast period.

In July 2021, China National Nuclear Corporation (CNNC) commenced the construction of the ACP100 small modular reactor demonstration project at the Changjiang nuclear power plant on China's island province of Hainan. The project will be the world's first land-based commercial small modular reactor (SMR). The multi-purpose 125 MWe pressurized water reactor (PWR) is designed for electricity, heating, steam, and seawater desalination. The project is expected to enter commercial operation by the end of 2026.

Also, in May 2021, China and Russia announced the ground-breaking ceremony of their biggest nuclear energy project in two Chinese cities. Two countries will jointly build units 7 and 8 of the Tianwan Nuclear Power Plant and units 3 and 4 of the Xudapu Nuclear Power Plant. The Tianwan Nuclear Power Plant is located in the city of Lianyungang in Jiangsu province. The Xudapu Nuclear Power plant is located in Xingcheng in Liaoning province.

Therefore, with the construction of new plants, the demand for nuclear power plants and equipment is projected to increase in the country during the forecast period.

APAC Nuclear Power Plant & Equipment Market Competitor Analysis

The Asia-Pacific nuclear power plant and equipment market is moderately consolidated. The key players in the market include Larsen & Toubro Limited, Shanghai Electric Group Company Limited, China General Nuclear Power Corporation, Korea Hydro & Nuclear Power Co. Ltd, and Doosan Heavy Industries & Construction Co. Ltd.

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