

Power Plant Boiler Market: By Type (Pulverized fuel combustion, Fluidized bed combustion and Others); By Technology (Subcritical, Supercritical and Ultra-critical); By Fuel type (Petroleum, Nuclear, Natural gas, Coal and Renewables); By Capacity (

Abstracts

Product Overview

Power Plant Boiler is a type of machine used to produce heat through the generation of electricity using water heat energy. The boiler is built into a furnace that combusts fossil fuels and creates heat to form steam that is passed into the water. Over the years, the efficiency of these boilers has improved dramatically, with some systems having up to 90 percent fuel-to-steam efficiency. The dimensions of these boilers depend on their utility in power plants and industry and primarily on their steam-based or hot water operations. Fluidized boilers, multi-tube boilers, and pulverized boilers, each of which has a particular meaning, are the various types of power plant boilers. These boilers are used in different industries, depending on their use. Mobile steam engines such as portable engines, steam locomotives, compared to power stations and industrial plants, make use of the smaller boiler connecting them to piping points of use.

Market Highlights

Power Plant Boiler Market is expected to project a notable CAGR of 4.5% in 2030. Power Plant Boiler Market to surpass USD 24.3 Billion by 2030 from USD 19.5 Billion in terms of value growing at a CAGR of 4.5% throughout the forecast period, i.e., 2020-30. Due to the rapidly growing demand for industrialization and urbanization around the world, the Power Plant Boiler Market is experiencing major growth. Besides, government organizations are investing in upgrading existing power plants, and the construction of new power plants is driving demand growth in response to rising customer needs. Besides, developments in technology, such as the introduction of supercritical boilers, have had a positive effect on the growth of the market.

Power Plant Boiler Market: Segments

Fluidized bed combustion segment to grow with the highest CAGR of 13.2% during 2020-30

Power Plant Boiler Market is segmented by Type as Pulverized fuel combustion, Fluidized bed combustion, and Others. The pulverized fuel combustion segment is estimated to lead the market with a share of over 54.2% in 2019 which is universally

adopted for large-scale power plants. The method of pulverized fuel combustion requires powdered coal, which is used to increase the area of combustion exposure. By using hot air, the powdered form of coal is blown into the furnace, secondary air is provided in the combustion chamber to allow the fuel to be completely combusted. The turbulence created by the secondary air allows air and fuel to be mixed uniformly. Therefore, with greater efficiency, the outcome of this process allows combustion at a faster rate. It is likely that developments in the process of raising efficiency and reducing carbon emissions would push the industry towards innovation. Boiler manufacturers are investing heavily in studying and designing new processes to increase performance.

Supercritical Segment to grow with the highest CAGR during 2020-30

Power Plant Boiler Market is segmented by Technology into Subcritical, Supercritical, and Ultra-critical. The subcritical segment accounted for the largest revenue share of 70% in 2019 and is projected to maintain its lead over the forecast period. The development can be due to the reliance on coal for power production. The number of coal-based power plants, especially in developing economies, is that at a modest pace. The easy availability and low input costs are likely to be the main drivers over the projected timeframe for the growth of the segment. The highest rising CAGR over the forecast period is likely to be observed by the supercritical segment. The technology is becoming widely popular, particularly in OECD countries and China. China has tremendously expanded its power generation potential from supercritical boiler technology. The main aspect responsible for the growth of the segment is the high performance achieved by this technology. Higher performance is provided by ultra-critical technology, which is the highest among the different types of technologies available for boiler power generation. In contrast to other technologies, the cost of production using this technology is high.

Power Plant Boiler Market: Market Dynamics

Drivers

Rapid Industrialization in Developing Countries

Market growth is boosted by factors such as rising urbanization, increasing demand for electricity, demand for boilers based on coal fuel, and the number of projects to increase power capacity. Moreover, technical developments and advancements in the process of raising efficiency and reducing carbon emissions are likely to drive industry innovation. The use of coal is expected to increase in the coming years, despite concerns about high carbon emissions. With the implementation of successful coal-based emissions control technologies, policymakers worldwide are exploring different alternatives. Developing steam conditions has created the ability to use supercritical technology. The transmission/distribution system & power industry is projected to have

the largest investment projects in the industrial world, offering sufficient opportunities for business growth.

Increasing electricity demand

In order to produce high-pressure steam, power plant boilers use various fuels such as coal, natural gas, petroleum, and biomass/wastes to enable plants to generate electricity. The fastest-growing source of demand for energy is electricity. Huge quantities of energy continue to be consumed by developed countries, thus rising demand in developing countries. Electricity demand is powered by increasing sales, expanding manufacturing production, and growing services sectors. In countries like Canada, Brazil, and Russia, economic growth and industrial demand have also increased the use of electricity. Electricity consumption in the Middle East and Africa, especially in Egypt and Iran, has also increased. Rising demand for electricity is therefore likely to drive the boiler market for power plants.

Restrain

High capital requirement to install power plant boilers

High capital expenditure and high installation costs for power plants are major factors that limit the growth of the global power plant boiler market. Moreover, post-construction stages, such as repair and technology installation, often entail significant capital investment. Besides, the final construction cost is influenced by strict environmental legislation and the high cost of technology used in supporting power plants. Due to design specifications and varying levels of after-sales service, the cost of power plant boilers varies considerably. High pressure and high-temperature requirements increase the expense of the boiler. There is also a tremendous need for capital to build power plant boilers. Furthermore, the device used in the boiler for coal firing or gas firing also influences the boiler cost. Besides, several boilers and different fuels are used by a power plant, which raises costs. Due to the high degree of technological expertise involved in the operation of industrial boilers, these costs are likely to remain the same, thus limiting the existing demand for power plant boilers.

Power Plant Boiler Market: Key Players

Dongfang Electric Corporation Ltd.

Company Overview, Business Strategy, Key Product Offerings, Financial Performance, Key Performance Indicators, Risk Analysis, Recent Development, Regional Presence, and SWOT Analysis.

IHI Corporation

Doosan Heavy Industries & Construction

Siemens AG

Thermax Ltd.

GE Power

Babcock & Wilcox Enterprises Inc.

Bharat Heavy Electricals Ltd.

Harbin Electric Corporation Co. Ltd.

Mitsubishi Hitachi Power Systems Ltd

Power Plant Boiler Market: Regions

Power Plant Boiler Market is segmented based on regional analysis into five major regions. These include North America, Latin America, Europe, APAC, and MENA.

Power Plant Boiler Market in APAC led the market with a lion share of more than 50% in 2019 and is projected to maintain its lead over the forecast period. As power consumption in the area increases at an exponential rate, APAC is experiencing a huge demand for the product and is witnessing growth potential. The region's rapid urbanization is a crucial growth factor. The fastest growth in the urban population is expected to occur in India and China. It is expected that rapid industrialization and the rising transportation sector in India and China would increase energy demand. To minimize carbon emissions, both nations plan to implement electric vehicles in their respective countries. Unique subsidies are provided by the central government in China to manufacturers of electric vehicles and plug-in hybrid cars to encourage the selling of electric vehicles in the region. Factors such as government-led initiatives to sell electric vehicles are likely to further strain power resources, resulting in the need for excess power.

Competitive Landscape:

The Power Plant Boiler market, which is highly competitive, consists of several major players such as Babcock & Wilcox Enterprise (US), Dongfang Electric Corporation (China), Doosan Heavy Industries & Construction (Korea) hold a substantial market share in the Power Plant Boiler market. Other players analyzed in this report are General Electric (US), and Mitsubishi Hitachi Power Systems (Japan) are the leading players in the power plant boiler market. Siemens, IHI Corporation, John wood Group, Bharat Heavy Electrical Limited, Thermax, Andritz Group, Sumitomo Heavy Industries, Valmet, and Harbin Electric among others.

Key players are adopting inorganic growth strategies such as product launches in the global nutritional supplement market. For instance, In February 2020, General Electric was awarded a contract by Hitachi Zosen Corporation. Under the contract, General

Electric will offer a steam turbine generator, CFB boiler, and air quality control system to the Kamisu Biomass Power Generation plant in Japan.

Power Plant Boiler Market is further segmented by region into:

North America Market Size, Share, Trends, Opportunities, Y-o-Y Growth, CAGR – United States and Canada

Latin America Market Size, Share, Trends, Opportunities, Y-o-Y Growth, CAGR – Mexico, Argentina, Brazil, and Rest of Latin America

Europe Market Size, Share, Trends, Opportunities, Y-o-Y Growth, CAGR – United Kingdom, France, Germany, Italy, Spain, Belgium, Hungary, Luxembourg, Netherlands, Poland, NORDIC, Russia, Turkey, and Rest of Europe

APAC Market Size, Share, Trends, Opportunities, Y-o-Y Growth, CAGR – India, China, South Korea, Japan, Malaysia, Indonesia, New Zealand, Australia, and Rest of APAC

MENA Market Size, Share, Trends, Opportunities, Y-o-Y Growth, CAGR – North Africa, Israel, GCC, South Africa, and Rest of MENA

Power Plant Boiler Market report also contains analysis on:

Power Plant Boiler Market Segments:

By Type:

Pulverized Coal Towers

Circulating Fluidized Bed Boilers

Other

By Technology:

Subcritical

Supercritical

Ultra-critical

By Fuel Type:

Petroleum

Nuclear

Natural gas

Coal

Renewables

By Capacity:

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