Steam Turbine Market valued at US$365.514 million in 2021, witnessing significant growth

The steam turbine market was valued at US$365.514 million in 2021.

NOIDA, UTTAR PARDESH, INDIA, December 11, 2023 /EINPresswire.com/ -- According to a new report published by Knowledge Sourcing Intelligence, forecasted between 2021 and 2028, the steam turbine market was valued at US$365.514 million in 2021 and is anticipated to propel significantly over the coming years.

The major factors primarily linked to the market's expansion are the growing demand for district heating systems and the rise in the expansion of renewable energy sources are contributing factors to the market's growth.

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> *Knowledge Sourcing Intelligence*

A steam turbine is a mechanical device designed to convert the thermal energy released from pressurized steam into rotational mechanical energy. This specific type of turbine operates on the impulse and reaction principles, utilizing the high-pressure and high-temperature steam generated by a steam generator or boiler. Steam turbines find extensive applications in large-scale power generation facilities, including fossil fuel power plants, nuclear power plants, concentrated solar power plants, and various industrial settings. Their widespread adoption is attributed to their remarkable efficiency, reliability, and ability to operate across diverse steam conditions, making steam turbines a prevalent choice for electricity generation.

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Based on type, the market can be segmented into impulse turbines, reaction steam turbines, back-pressure steam turbines, and others. Government investments in infrastructure expansion and rising demand from the power generation industries are key drivers for the increasing demand for steam turbines. Furthermore, substantial industrialization and the migration of individuals from rural to urban areas in developing countries have resulted in a substantial need for power.

Based on pressure, the market can be differentiated into low, medium, and high sectors.

The significant growth in natural gas plants is anticipated, particularly concerning the energy source for steam turbines. A gas combined-cycle power plant (CCP) combines the use of gas and a steam turbine, resulting in up to a 50% increase in electricity production compared to traditional simple-cycle plants using the same fuel. The waste heat generated by the gas turbine is directed to a nearby steam turbine, generating additional power. In contrast to coal-fired power plants, natural gas combined-cycle plants emit significantly lower levels of greenhouse gases, such as carbon dioxide (CO2), and other pollutants like sulphur dioxide (SO2) and nitrogen oxides (NOx). This cleaner profile makes them a preferable option for electricity generation, contributing to enhanced air quality and reduced environmental impact. The growing global demand for renewable energy has heightened the appeal of natural gas power plants. The popularity of gas is on the rise, particularly in the Asia-Pacific region, driven by the transition from coal to natural gas. For example, as per the Energy Institute Statistical Review of World Energy statistics for 2022, worldwide natural gas consumption totalled approximately 3941.3 billion cubic meters, indicating a substantial demand for natural gas as a power generation source.

Based on the stages, the steam turbine market can be segmented into single-stage and multi-stage turbines.

Categorized based on end users, steam turbines used for power generation are expected to show growth in the forecasted period. Steam turbines find extensive use in thermal power plants, spanning those powered by coal, gas, and oil. These turbines are driven by steam generated through the combustion of fossil fuels or nuclear reactions, turning generators to generate electricity. The International Energy Agency (IEA) projected a 4.5% surge in global electricity demand in 2021. The escalating global need for electricity, fuelled by population growth, industrialization, and urban development, is propelling the demand for power generation technologies like steam turbines. The growth of the steam turbine market is anticipated to be steered by the increasing requirement for efficient and dependable power generation.

The Asia-Pacific region witnessed substantial growth in the steam turbine market. The surge in energy demand is attributed to rapid industrialization and population expansion, leading to the establishment of new power plants and a rise in steam turbine installations. According to the China Electricity Council (CEC), thermal power plants contributed around 5646.3 TWh, with nuclear power accounting for about 407.5 TWh in 2021, constituting a 72.2% share of electricity generation. This trend has persisted over the past years and is anticipated to continue in the coming years. In 2022, the Institute for Sustainable Energy Policies (ISEP) reported that fossil fuels made up 72.4% of Japan's total electricity generation, indicating a slight increase from the previous year's 71.7%. The share of electricity generated from liquefied natural gas (LNG) decreased to 29.9%, influenced in part by price increases, down from the previous year's 31.7%.

Among the many manufacturers, Doosan Skoda Power stands as a prominent steam turbine manufacturer, offering a diverse range of turbines, encompassing both impulse and reaction types, with a specific emphasis on operational adaptability and superior efficiency. In April 2023, Doosan Skoda Power secured a contract to supply a steam turbine to the South Clyde Energy Centre, an energy-from-waste (EfW) facility located in Scotland. Upon completion, this upcoming facility is anticipated to provide power to around 70,000 homes. The commencement of commercial operations is slated for 2025, aligning with Scotland's prohibition on landfilling biodegradable municipal waste.

The market analytics report segments the steam turbine market using the following criteria:

- BY TYPE

o Impulse Turbine
o Reaction Steam Turbine
o Back Pressure Steam Turbine
o Others

- BY PRESSURE

o Low
o Medium
o High

- BY SOURCE

o Fossil Fuels
o Nuclear
o Geothermal

- BY STAGE

o Single Stage
o Multi-Stage

- BY END-USERS

o Chemical
o Paper & Pulp
o Power & Energy
o Food & Beverage
o Others

- BY GEOGRAPHY

o North America

- USA
- Canada
- Mexico

o South America

- Brazil
- Argentina
- Others

o Europe

- Germany
- UK
- France
- Spain
- Others

o Middle East and Africa

- Saudi Arabia
- UAE
- Others

o Asia Pacific

- China
- Japan
- South Korea
- India
- Australia
- Others

Companies Profiled:

- Boston Scientific Corporation
- MAN Energy Solutions
- Siemens AG

- MITSUBISHI HEAVY INDUSTRIES, LTD.
- General Electric
- Toshiba
- DONGFANG TURBINE CO., LTD.
- Doosan Škoda Power (Doosan Corporation)
- Ansaldo Energia
- NCON Turbo Tech Pvt. Ltd
- Triveni Turbine Limited

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