

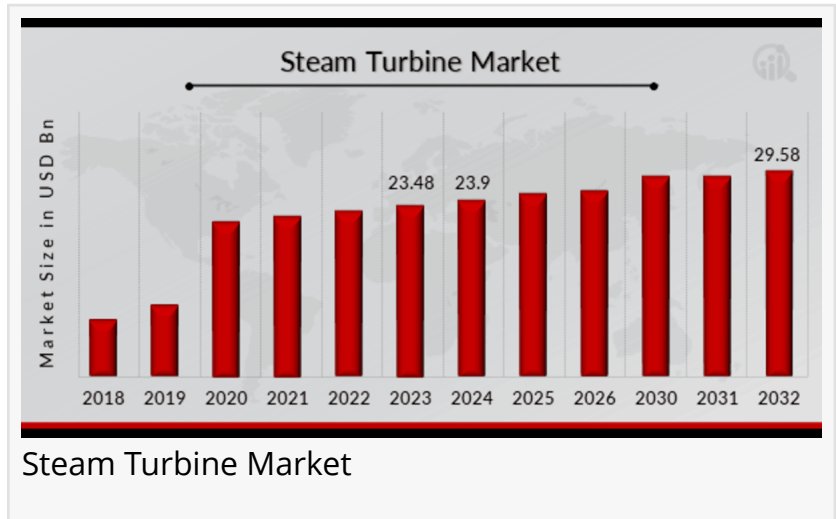
# Steam Turbine Market to Experience 2.40% CAGR, Growing from USD 23.9 Billion in 2024 to USD 29.58 Billion by 2032

*The Steam Turbine Market is growing due to rising demand for efficient energy generation across industries.*

COLORADO, CO, UNITED STATES,  
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According to a comprehensive research report by Market Research Future (MRFR), the Steam Turbine Market Information by Type, Rated Capacity,

Heat Source, End User and Region- Forecast Till 2032. the [Steam Turbine Market Size](#) was valued at USD 23.48 Billion in 2023. The Steam Turbine market is projected to grow from USD 23.9 Billion in 2024 to USD 29.58 Billion by 2032, exhibiting a CAGR of 2.40% during the forecast period 2024 - 2032.



The Steam Turbine Market is projected to grow due to increasing demand for renewable energy and industrial applications, driving advancements in turbine technology.”

MRFR

## Steam Turbine Market Overview

The steam turbine market is experiencing significant growth due to its extensive use in power generation, oil refineries, and various industrial sectors. A steam turbine is a mechanical device that extracts thermal energy from pressurized steam and converts it into mechanical energy, often driving electricity generators. Steam turbines have been crucial in power plants, providing an efficient method for converting thermal energy into usable energy, which is

why they play an integral role in the global energy infrastructure. The market for steam turbines is driven by an increasing demand for energy, the shift towards cleaner energy production, and technological advancements aimed at improving efficiency.

Over the years, the design and functionality of steam turbines have evolved, with manufacturers focusing on innovations like combined cycle power plants, which integrate steam turbines with gas turbines to increase efficiency. With growing concerns over environmental impact, the demand for energy-efficient and eco-friendly turbines has grown, especially in renewable energy sectors such as solar and biomass, where steam turbines are increasingly being used.

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Key Companies in the Steam Turbine market include

General Electric (US)  
Siemens AG (Germany)  
Mitsubishi Heavy Industries Ltd (Japan)  
Shanghai Electric (China)  
Dongfang Electric Corp Ltd (China)  
Harbin Electric Corporation (China)  
Bharat Heavy Electricals Limited (India)  
Toshiba (Japan)  
Doosan (South Korea)  
Ansaldo Energia (Italy)  
MAN Energy Solutions (Germany)

Market Trends Highlights

The steam turbine market is witnessing several emerging trends that are reshaping its dynamics. One of the key trends is the growing popularity of combined heat and power (CHP) systems, also known as cogeneration systems. These systems utilize steam turbines to simultaneously produce electricity and useful heat, increasing overall energy efficiency. As industries and power plants strive to reduce energy consumption and minimize carbon footprints, CHP systems are becoming more favorable.

Moreover, the rise of advanced technologies like supercritical and ultra-supercritical steam turbines, which operate at higher pressure and temperature levels, is another notable trend. These turbines offer superior efficiency compared to traditional turbines and have been widely adopted in modern power plants. Such technological advancements are expected to drive market growth, particularly in regions where power demand is rising, and the focus is on reducing emissions.

The integration of renewable energy sources such as wind and solar power into the energy grid has also had an influence on the steam turbine market. As renewable energy gains traction, steam turbines are being used in hybrid systems that combine conventional and renewable energy sources. This has further spurred the development of steam turbines that can operate efficiently under varied load conditions, ensuring a stable energy supply even when renewable

sources fluctuate.

## Market Drivers

**Rising Energy Demand:** The growing global population and industrialization, especially in emerging economies like India and China, are increasing the demand for power. Steam turbines play a critical role in meeting this demand, particularly in power generation plants, making them a significant contributor to the overall energy infrastructure.

**Technological Advancements:** Innovations such as ultra-supercritical steam turbines and improvements in turbine materials are increasing the efficiency and lifespan of steam turbines. These advancements help utilities reduce operational costs, improve energy efficiency, and lower emissions, all of which are driving market growth.

**Shift to Renewable Energy:** The adoption of renewable energy sources like biomass, geothermal, and solar power is driving the need for steam turbines in hybrid power generation systems. Steam turbines play a vital role in these systems, offering a way to stabilize energy output while minimizing environmental impact.

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## Market Restraints

**High Initial Capital Investment:** One of the primary constraints facing the steam turbine market is the significant capital required for their installation, particularly in large-scale power plants. The high upfront costs can be a deterrent, particularly in developing economies with limited financial resources.

**Complex Maintenance and Downtime:** Steam turbines require regular maintenance to ensure their optimal performance. The downtime and costs associated with their maintenance can hinder market growth, especially for small-scale and independent power producers who may lack the resources for frequent repairs and upkeep.

## Steam Turbine Market Segmentation

The steam turbine market can be segmented based on capacity, application, and region.

## Steam Turbine Type Outlook

Condensing

Noncondensing

## Steam Turbine Rated Capacity Outlook

Up to 150 MW

151-300 MW

Above 300 MW

## Steam Turbine Heat Source Outlook

Coal

Nuclear

Biomass

Others

## Steam Turbine End User Outlook

Industrial

Power & Utility

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## Regional Insights

Each region has its unique demand and regulatory landscape, which influences the steam turbine market. In North America and Europe, the market is primarily driven by the adoption of cleaner technologies and regulatory push for sustainable power generation. In Asia Pacific, the rapid industrialization and power demands are expected to drive significant market growth. Emerging economies in the Middle East and Africa are also making strides toward improving their energy infrastructures, thereby creating opportunities for the steam turbine market.

The steam turbine market is poised for growth, driven by rising energy demands, technological innovations, and government sustainability initiatives. Despite challenges such as high capital investment and competition from alternative technologies, the market is set to benefit from the increasing adoption of energy-efficient and environmentally friendly solutions. With strong growth prospects in emerging economies and the continued evolution of turbine technologies, the steam turbine market is well-positioned for a sustained upward trajectory in the coming

years.

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