



In response to growing energy demand and the imperative to cut emissions, the power sector is undergoing a profound transformation towards cleaner, more sustainable energy sources. This marked shift is expected to accelerate going forward, as countries and corporations intensify their climate commitments.

### Indian Energy Demand and Indian Power Sector

The significant demand in energy in recent years is attributable to the country's rapid economic growth, industrial expansion and urbanisation. This has catalysed a stronger emphasis on sustainable development and climate-focussed policies.

According to MOSPI's Energy Statistics for India 2024, the country experienced a healthy growth of 6.5% in consumption of energy from 33,018 Petajoule (PJ) in 2021-22 to 35,159 PJ in 2022-23(P). India's power sector has also undergone significant transformation, aligning with the global energy trends. As of March 31, 2025, of the country's total installed electricity generation capacity of 475.21 GW, renewable energy accounted for 43%, according to the Central Electricity Authority (CEA). This milestone achievement reflects India's growing commitment to clean energy and steady progress towards a sustainable future.

Biopower, comprising biomass and biogas, has further emerged as a strong driver of the clean energy transition, contributing an additional 11.58 GW, and playing a crucial role in converting agricultural and organic waste into energy and further diversifying the renewable mix.

These developments are reducing India's reliance on fossil fuels, and advancing its shift to a more resilient, low-carbon energy system. They are aiding the nation in its journey towards achieving 500 GW of renewable energy capacity by 2030, with expectations of a continually accelerating transition toward environmentally sustainable "Green Power" solutions.

### Indian Manufacturing Sector – Significance of Captive Power Generation

A major energy consumer, the industrial sector requires power for machinery, heating, cooling and various operational processes. Triveni Turbines offers efficient solutions tailored to various industrial heating and cooling needs. The current limited adoption of renewable energy in this sector highlights a significant opportunity to develop robust steam turbine generator systems.

Driven by the Government's 'Make in India' initiative, the industrial sector is emerging as a high-growth area. Rising

input costs, particularly energy expenses and stricter regulations, are prompting investments in captive power plants to ensure reliable, cost-effective and sustainable energy supply. Captive power generation has assumed a major significance for manufacturers, especially those vulnerable to grid disruptions. The high cost of industrial electricity, improved coal availability, growing awareness of renewable alternatives, and supportive green energy policies are expected to accelerate captive power capacity expansion in the country.

Industries such as cement, steel, petroleum refining and chemicals, are key drivers of this demand. Captive power units provide operational flexibility, utilising both fossil fuels and renewable sources – including hydro, solar PV, wind, bio-power, waste-to-energy, waste heat recovery, concentrated solar power and geothermal energy.

### Advantages of Steam Turbines for Combined Heat and Power Applications (CHP) Efficient cogeneration solutions

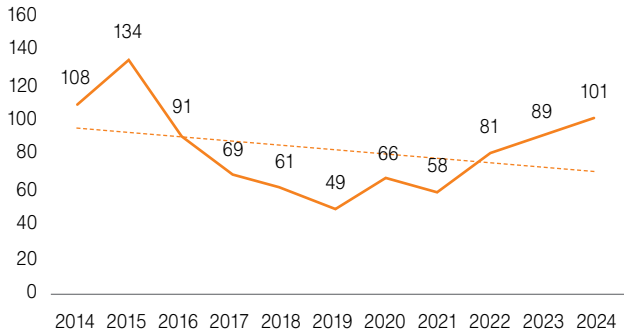
As a key player steering energy transition, Triveni Turbines offers steam turbine solutions that utilise low-pressure steam from extraction turbines for heating applications, enabling simultaneous production of heat and electricity. This cogeneration approach reduces power generation costs by 14–15% compared to Independent Power Producers (IPPs). Unlike solar power, which operates only during daylight hours, cogeneration provides continuous energy, effectively meeting a plant's combined heat and power needs, thus lending a distinct advantage to manufacturers.

The rising demand for electricity, along with a growing emphasis on biomass energy, waste-to-energy solutions and waste heat recovery, is propelling sustainable and cost-efficient power generation through cogeneration technologies. This remains a major area of investment and focus for the turbines industry in general, and Triveni Turbines in particular.

### Global Steam Turbine Market Overview

According to industry reports, the global steam turbine market declined at a CAGR of 0.7%, from 108 GW in 2014 to 101 GW in 2024. In 2024, the global steam turbine market, grew by 13% year-on-year, at the back of increased electricity demand and growth in utility turbines. Excluding China and Japan, the market grew by 68% year-on-year, supported by rising demand in industrial heat and power solutions.

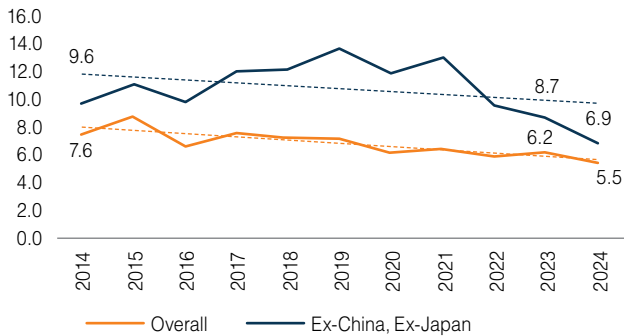
### Overall global steam turbine market (in GW)



The beyond 100 MW range constitutes 93% of the overall market and is driven by the utility turbines.

Triveni Turbines operates in up to 100 MW industrial steam turbines market. In 2024, its addressable market (ex-China and ex-Japan) declined by 12% year-on-year to 5.5 GW. Within this, the sub-30 MW range saw a decline of 5% year-on-year, while in the 30.1 to 100 MW range, the decline was at 20% year-on-year.

### Global steam turbine market, up to 100 MW (in GW)



### Triveni Turbines: Sustained market leadership through innovation

Over the past decade, Triveni Turbines has consistently outperformed broader market trends, reinforcing its market leading position. The Company's performance has been driven by the growing demand for industrial heat and power in its target markets, and its increasing market share. Its growth in market share has been built on a foundation of strong and continuously evolving research, development and engineering capabilities.

A customer-centric approach, with a strong focus on product performance and lifecycle cost, has enabled Triveni Turbines to set industry benchmarks in turbine efficiency, durability

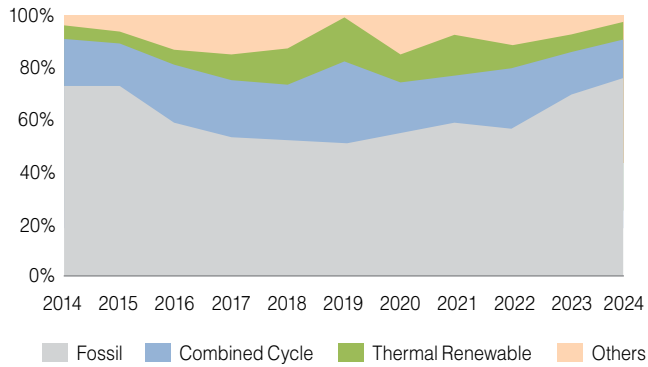
Source for exhibits: McCoy Report 2024

and uptime. This has led the Company to rank among the top two globally, in a technically challenging market traditionally dominated by large multinationals. Triveni Turbines also holds a leading position in renewable-fuel-based segments, including biomass, Waste-to-Energy (WtE) and Waste Heat Recovery (WHR).

### Shift towards renewable thermal energy

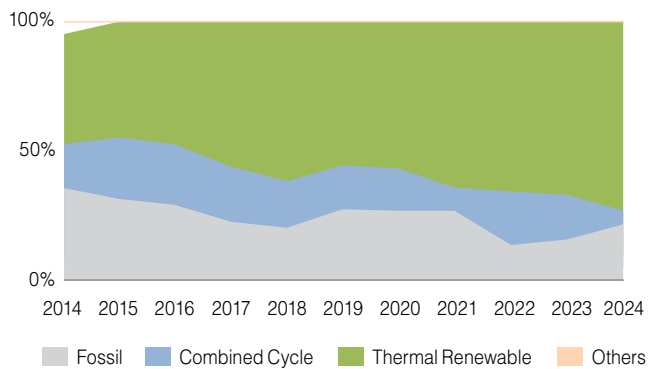
According to a McCoy Report, the past decade has seen a clear shift away from conventional fossil fuels globally. However, fossil fuel-based power generation increased from 73% in 2014 to 76% by 2024 in the global steam turbine market. The share of thermal renewable fuel-based generation went up from 5% to 7% during the same period.

### Overall Global Steam Turbine Market by Fuel Type (%) - 2014 to 2024



However, in up to 100 MW range where Triveni Turbines operates, thermal renewables have shown a robust and consistent growth. The share of biomass, Waste-to-Energy (WtE) and Waste Heat Recovery (WHR) increased from 42% in 2014 to 73% in 2024, while the share of fossil fuels declined sharply from 36% to 22%.

### Global Steam Turbine Market, Up to 100 MW (%), By Fuel Type – 2014 to 2024



### Summary of change from 2014 to 2024 in fuel type in the global steam turbine market (including China & Japan)

	Fossil	Combined Cycle	Thermal Renewable	Others
<strong>Global Steam Turbine Market</strong>				
2014	73%	18%	5%	3%
2024	76%	14%	7%	2%
<strong>Up to 100 MW Steam Turbine Market</strong>				
2014	36%	17%	42%	0%
2024	22%	5%	73%	0%

Source: McCoy Report 2024

### Product Business Overview

#### Strong order booking momentum resulting in highest-ever annual order booking in FY 25

FY 25 was a good year for the Company's Products business, as product order booking achieved an impressive growth of 38% y-o-y, increasing to ₹ 17.41 billion. The growth in product order booking was led by finalisation of orders in the renewable energy sector, industrial clients, power producers and API turbines. Domestically, the Company's strategic foray in CO<sub>2</sub> energy storage solutions further pushed its product order booking. In the API segment, the enquiry base expanded geographically, resulting in order finalisations for both drive and power turbines across the Middle East, Southeast Asia, Central & South America and Europe. As a result, the Company achieved its highest-ever annual product order booking for the fourth consecutive year, representing a key milestone in its pursuit of sustainable and innovative solutions.

### Milestone CO<sub>2</sub>-based order opens new horizons

In FY 25, Triveni Turbines crossed a significant milestone with the award of a turnkey contract for a CO<sub>2</sub>-based energy storage system (ESS) project by NTPC. The project offers discharge cycles well beyond the typical 2 to 4 hours of lithium-ion batteries. Leveraging industrial-grade mechanical components, such as turbines, compressors and pressure vessels, the system provides a location-agnostic and durable (20 years or more) energy storage alternative to other long duration (8 hours or more) systems such as pumped hydro storage. Absence of dependency on critical minerals (e.g. lithium, cobalt, nickel, manganese, etc.) make this a sustainable alternative to conventional Battery Energy Storage Systems (BESS). Successful demonstration of this system could unlock substantial opportunities in the energy storage sector, opening new horizons of growth for the Company.



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