Investorstack Research Report

Triveni Turbine Limited

What Triveni Turbine Limited does

Triveni Turbine Limited (TTL) designs, manufactures, and supplies industrial steam turbine generator sets up to 100 MW, including API-compliant turbines for oil and gas applications. It also provides lifecycle aftermarket services—spare parts, refurbishment, upgrades, and remote monitoring—for its own turbines and other rotating equipment of any make. The company operates two manufacturing facilities in Bengaluru (Peenya and Sompura), plus turbine assembly and repair facilities in Johannesburg, South Africa, and Houston, Texas, USA.

With over 50 years of experience, TTL has installed more than 6,000 turbines across 80+ countries, generating over 16 GW of combined power. It is ranked among the top two globally in its addressable market (the up to 100 MW industrial steam turbine segment) according to the McCoy Report 2024. As of FY25, the company had 928 standalone employees. Its customers include independent power producers, process industries (sugar, cement, steel, chemicals, pulp and paper), oil and gas majors, and renewable energy plants (biomass, waste-to-energy, waste heat recovery). Export revenue contributed 48% of total revenue in FY25 and grew to 58% in FY26.

> *"Against the backdrop of multiple challenges, including geopolitical disruptions, tariff-related uncertainties and a volatile global environment, we delivered a satisfactory performance for the financial year 2026." – Nikhil Sawhney, Vice Chairman and MD, Q4 FY26 concall (May 2026)*

Business segments

Product Business (68% of revenue in FY25): This segment covers the design, manufacture, and supply of steam turbine generator sets for power generation, drive applications, and combined heat and power. End markets include renewable power (biomass, waste-to-energy, waste heat recovery), industrial process cogeneration (sugar, cement, steel, chemicals, pulp and paper), oil and gas (API drive and power turbines), and utility auxiliary power. The product order booking in FY25 grew 38% year-on-year to a record high, driven by strong demand from renewables, industrial clients, and API turbines.

Aftermarket Business (32% of revenue in FY25): This segment provides lifecycle support including spare parts, services, refurbishment, upgrades, and remote monitoring. It serves not only TTL's own installed base but also turbines and other rotating equipment of any make—including steam, gas, geothermal, and utility turbines, as well as compressors and pumps. In FY26, aftermarket order booking grew 121% year-on-year in Q4 and contributed 50% of total order booking in that quarter. The company's refurbishment division, Triveni REFURB, targets complex upgrades and efficiency enhancements for ageing equipment.

Products and business detail

Condensing Steam Turbines: Available in straight, bleed, uncontrolled/controlled extraction, injection, reheat, and axial exhaust configurations. Used by independent power producers, renewable energy plants (biomass, waste-to-energy), combined cycle plants, and district heating. The company has won several axial exhaust turbine orders in Europe for district heating.

Backpressure Steam Turbines: Straight, bleed, uncontrolled/controlled extraction configurations providing process heat and power. Used by process industries including sugar, distillery, food processing, pulp and paper, textiles, palm oil, cement, steel, and chemicals.

API Steam Turbines: Compliant with API-611 (General Purpose) and API-612 (Special Purpose) standards for drive and power generation in oil and gas. Used by petroleum refineries, petrochemical plants, and fertiliser plants globally. TTL has secured vendor registrations with major oil and gas companies and won order finalisations for both drive and power turbines across the Middle East, Southeast Asia, Central and South America, and Europe. The API segment is a key growth and profit driver; management expects it to contribute a meaningful 10% or more of order booking and revenue going forward.

CO2 Turbines (Subcritical/Supercritical): Turbines using carbon dioxide as a working fluid for energy storage (subcritical CO2) and power generation (supercritical CO2). TTL won a landmark turnkey order from NTPC for a 160 MWh long-duration energy storage system at its Kudgi supercritical thermal power plant, using a subcritical CO2 turbine developed indigenously. The first 20 MW subcritical CO2 turbine for the European market was designed, manufactured, and tested in FY25. TTL has also developed Transcritical CO2 cooling skids and heating pumps.

CO2-based Heat Pumps: India's first high-temperature CO2 heat pump, capable of delivering heat up to 122°C with a coefficient of performance (COP) of 6. Uses natural refrigerant with zero ozone depletion potential and a global warming potential of 1. Suitable for industrial processes in pharma, food and beverage, chemicals, textiles, distilleries, and district heating. TTL set up a heat pump test centre at its Peenya facility.

MVR Compressors: Mechanical vapor recompression compressors for low-pressure steam compression, adjacent to the heat pump solutions. TTL picked up initial orders and expects deliveries in FY27.

The company also has an Organic Rankine Cycle (ORC) turbine under development for low-temperature waste heat recovery. Management notes that while new products like heat pumps and MVR compressors will not be meaningful to revenue for a couple of years, they enhance technical relationships with customers and open doors.

Customers

TTL serves over 1,000 customers across 80+ countries. No single customer accounts for a material share of revenue; the company describes its customer base as diversified. Notable specific customers and orders include:

- NTPC: Strategic order for a 160 MWh CO2-based long-duration energy storage system at Kudgi.
- Major oil and gas refineries globally (API turbine orders), including a leading petroleum refinery in the MENA region that ordered API-612 compliant direct drive and condensing turbines for power generation.
- Large EPC contractors in the Middle East, such as a Kuwait-based EPC contractor for the TAZIZ Industrial Complex in the UAE.
- Biomass power plants in Europe and the USA (e.g., a biomass facility in Florida, and a plant in Emlichheim, Germany).
- Waste-to-energy facilities in Europe (e.g., an extraction-condensing turbine for a WtE facility in Italy).
- Paper mills in the USA (e.g., a paper mill in Augusta, Georgia, replacing a 50-year-old third-party turbine).
- Sugar mills in South Africa (e.g., a leading Kenyan conglomerate acquired a sugar mill and ordered two STG sets from TTL).
- Petrochemical plants in India (e.g., Haldia Phenol plant for India's largest phenol facility).
- Leading utility-based power plants in the MENA region (backpressure STG for a utility project).

The buying decision for a steam turbine involves the end customer's engineering team, often working with EPC contractors. Key factors in supplier selection are technical reliability, efficiency, delivery timelines, long-term service support, and cost. Switching costs are high once an order is placed because turbines are custom-engineered and advances are non-refundable. However, before order placement, customers can switch vendors, and competition is intense. TTL's ability to provide on-ground aftermarket support through its international facilities strengthens customer confidence.

Competitive landscape

The global industrial steam turbine market (up to 100 MW) is an oligopoly with high barriers to entry due to technology, certifications, and long-standing customer relationships. TTL competes with:

- **Siemens Energy**: The primary global competitor, especially in industrial steam turbines. TTL and Siemens together dominate the Indian domestic market in the industrial space.
- **BHEL**: A significant competitor in India for utility and some industrial segments, particularly in larger turbine sizes.
- **Mitsubishi Power, GE Steam Power, Toshiba, Fuji Electric, Elliott Group**: Other global manufacturers with varying degrees of presence in the addressable segment.
- **Smaller unorganised players in the domestic market**: Their impact is limited to a few turbines per year.

TTL's competitive advantages include its 50+ years of OEM expertise, deep engineering capabilities, API certifications (API-611, API-612, API-Q1), a strong global installed base of 6,000+ turbines, and a growing aftermarket presence. The company wins orders not primarily on price but on technical reliability, efficiency, delivery speed, and long-term service support. Management notes that "we don't lose orders based on price" and that the market is "a question to be able to provide the right value proposition to customers rather than be cheapest." TTL operates in a duopolistic situation in certain markets and an oligopolistic one in others.

The competitive intensity has lessened somewhat over time as the number of players has declined, but remains high. In the US market, TTL faces established brands with stronger recognition, but its local facility and growing enquiry book (nearly 1,000% increase in North America enquiries, albeit from a low base) are helping it gain traction. In geothermal and CO2-based products, TTL is among a small set of companies globally with the technical capability.

Industry

Market size and structure: According to the McCoy Report 2024, the global steam turbine market (all sizes) declined at a CAGR of 0.7% from 108 GW in 2014 to 101 GW in 2024. TTL's addressable market – industrial steam turbines up to 100 MW, excluding China and Japan – was estimated at approximately 5.5 GW in 2024, down 12% year-on-year. Within this, the sub-30 MW range declined 5%, while the 30.1 to 100 MW range declined 20%.

Thermal renewables shift: The share of thermal renewable fuels (biomass, waste-to-energy, waste heat recovery) in the up to 100 MW segment increased from 42% in 2014 to 73% in 2024, while fossil fuel share declined from 36% to 22%. TTL has positioned itself strongly in this shift; over 70% of its turbine applications are renewable in nature.

Demand drivers: Rising industrialisation, energy security needs, captive power demand, renewable energy targets (especially waste management regulations), data centre growth (combined cycle applications), and energy efficiency imperatives. India's domestic market grew approximately 35% in FY26, according to management. The enquiry book for TTL nearly doubled over the past year to about 18 GW.

India's place in the global supply chain: India is a significant exporter of steam turbines. TTL exports to 80+ countries. Export contributed 48% of revenue in FY25 and 58% in FY26. The US tariff on Indian steam turbines was reduced from 56% to 18% following trade negotiations (Feb 2026 concall). The India-EU free trade agreement is not expected to change tariff dynamics significantly for TTL, but may improve labour mobility for servicing.

Regulation: Environmental norms such as the Kigali Amendment (phasing down HFCs) favour CO2-based heat pumps. Trade tariffs and geopolitical tensions (India-Pakistan conflict, Middle East tensions, US-China tariff wars) directly impact order finalisation and customer inspection schedules. TTL noted that the India-Pakistan conflict in Q1 FY26 led to some customers deferring orders or placing them with European competitors due to force majeure concerns.

Cyclicality: The business is linked to global capital expenditure cycles in industrial and energy sectors. Order booking and revenue recognition are lumpy due to large project sizes and customised engineering. Management expects back-ended growth in FY27 as well. The company's order book provides some visibility, but external disruptions can cause significant quarterly swings.

Import substitution potential: India still imports certain larger and more complex steam turbines, especially in the oil and gas API segment. TTL's growing capabilities in API turbines and larger MW ranges contribute to import substitution. The company's CO2-based energy storage solution is a first-of-its-kind in Asia.

Geothermal and new segments: TTL entered the geothermal products segment in FY26, which management describes as "a key milestone" and a technically demanding segment. Geothermal enquiries are growing, particularly in Southeast Asia and the US. The data centre combined cycle market is a significant portion of TTL's current enquiry book, though management cautions that conversion to orders may take time due to water permitting issues in the US.

Growth triggers

- Data centre combined cycle demand in the US is driving a surge in enquiries for steam turbines as waste heat recovery from gas turbines. The enquiry book from North America has grown nearly 1,000% from a low base, and the company believes data centres contribute a significant portion of the overall enquiry book. (Q4 FY26 concall, May 2026)
- Geothermal new turbine and aftermarket orders globally are opening up a technically demanding segment. Triveni has already secured orders and expects meaningful contribution from geothermal in the coming years. (Q4 FY26 concall, May 2026)
- API turbine order revival in the Middle East and other regions is expected after a year of deferments due to geopolitical tensions. The enquiry pipeline remains strong, and the company is seeing good demand in Q1 of FY27. (Q3 FY26 concall, Feb 2026)
- CO2 energy storage commercialisation after the NTPC project commissioning (expected Q1 FY27) could unlock a new product line for long-duration energy storage. The company is optimistic about future orders once the technology is validated. (Q4 FY26 concall, May 2026)
- US subsidiary is expected to turn profitable in FY27, driven by aftermarket refurbishment orders and new product sales. The subsidiary posted a profitable quarter in Q4 FY26. (Q4 FY26 concall, May 2026)
- Aftermarket refurbishment expansion in Africa and other global markets is gaining traction, with the company consolidating its South African operations and seeing strong demand for utility turbine refurbishments. (Q3 FY26 concall, Feb 2026)

- New product introductions - MVR compressors, CO2 heat pumps, and ORC turbines - are building enquiry pipelines and initial orders. Though small today, they position the company for future growth in adjacent rotating equipment. (Q4 FY26 concall, May 2026)
- The enquiry pipeline nearly doubled over the past year across both domestic and international markets, providing strong visibility for order booking growth. (Q4 FY26 concall, May 2026)

Key risks

- Geopolitical conflicts (India-Pakistan, Middle East, US-China tariffs) cause order deferrals and revenue lumpiness. Customers delay finalisation or invoke force majeure clauses, directly impacting order booking and execution timelines. (Q4 FY26 concall, May 2026)
- Tariff uncertainty in the US affects order finalisation and competitive pricing. Even after a reduction from 56% to 18%, customers wait for clarity, delaying order placement. (Q3 FY26 concall, Feb 2026)
- Currency volatility impacts export margins and mark-to-market losses on hedges. The company reported an over ₹8.5 crore MTM loss in Q4 FY26 due to rupee volatility. (Q4 FY26 concall, May 2026)
- Commodity price inflation (copper, aluminium, steel) can compress margins if not fully passed through. The company mitigates through long-term rate contracts and supplier diversification, but lag effects remain. (Q4 FY26 concall, May 2026)
- Lumpy order booking and execution profile due to large project orders. Revenue recognition is back-ended, causing quarterly swings. The company expects this lumpiness to continue as it wins larger contracts. (Q4 FY26 concall, May 2026)
- Customer inspection and acceptance delays (mechanical run tests) cause dispatch deferrals. This was a major issue in Q1 FY26 due to travel advisories, leading to revenue shortfall. (Q1 FY26 concall, Aug 2025)
- Intense competition from global OEMs (Siemens, BHEL, Mitsubishi) and local players in price-sensitive segments puts pressure on margins. The company relies on technology and service differentiation, but competition is persistent. (Annual Report FY25)

Walk the talk

Management has consistently guided that revenue growth would be back-ended in FY26, with Q3 and Q4 representing higher growth. In the Q2 FY26 concall (Nov 2025), they stated:

> *"We expect the growth for financial year FY 2026 will be back ended. Q3 and Q4 will represent higher growth rates in terms of revenue."*

This materialised as promised. Q3 FY26 revenue grew 24% YoY, and Q4 FY26 grew 26% YoY. Full-year revenue grew 9% to ₹21.81 billion. The company delivered on its back-ended growth forecast.

However, the full-year growth of 9% fell slightly short of the double-digit target hinted at earlier. In the Q3 FY26 concall (Feb 2026), management said they were targeting double-digit top-line growth for FY26. The actual 9% was marginally below that, though management attributed it to geopolitical disruptions and tariff uncertainties.

On the US subsidiary, management had been optimistic about a turnaround. In the Q4 FY26 concall (May 2026), they said:

> *"The US subsidiary will be profitable in FY27; we expect break-even at worst."*

While Q4 FY26 itself was profitable for the US subsidiary, the full-year FY26 still showed a loss of about ₹8 crores. The promise of FY27 profitability remains to be seen, but the profitable Q4 is an encouraging sign.

Management also guided on margins. In the Q4 FY26 concall, they stated:

> *"We anticipate that the company will continue its long-term growth and long-term margin rates that you have seen in the previous quarters and years."*

Full-year EBITDA margin for FY26 was 24.2%, compared to 25.8% in FY25. The compression was driven by lower aftermarket share and a strategic low-margin NTPC order, but management considered this within the normal range and not structural.

On order booking, management had flagged a strong enquiry pipeline. In the Q4 FY26 concall, they noted:

> *"The enquiry book has nearly doubled over the past year – that gives us confidence in order booking going forward."*

Order booking in Q4 FY26 grew 19% YoY to ₹7.54 billion, confirming that the enquiry growth is converting into orders. However, full-year order booking growth was flattish due to deferrals earlier in the year, highlighting the lumpiness.

Overall, management has been reasonably accurate in directional guidance, though specific numeric targets have been subject to external shocks. The back-ended revenue pattern and margin resilience have held true.

Scenarios

Bull case

Global energy demand accelerates, driven by data centre buildout and industrial reshoring. Triveni's US subsidiary breaks even in FY27 and turns profitable in FY28, capitalising on a multi-hundred-million-dollar enquiry pipeline for combined cycle steam turbines and refurbishment. The CO2 energy storage project with NTPC is commissioned successfully, validating the technology and leading to follow-on orders from NTPC and other global utilities. The API turbine segment rebounds strongly as Middle East oil & gas capex resumes. Aftermarket refurbishment expands in Africa, with the South African subsidiary becoming a regional hub. Revenue growth sustains at 15-20% annually, and margins remain above 25% EBITDA due to favourable product mix (higher exports and aftermarket). The company gains market share in geothermal and waste-to-energy, establishing itself as a top-two global player in its addressable market.

Base case

Geopolitical tensions and tariff uncertainties persist, causing lumpy order booking but not derailing the long-term growth trajectory. The US subsidiary achieves break-even in FY27 as planned, with gradual improvement thereafter. The enquiry pipeline remains robust across domestic and export markets, converting at a steady pace. Revenue grows at 10-12% annually, in line with the order book build-up. Margins stay around 24-25% EBITDA, fluctuating with mix but without a step-change. The NTPC CO2 project is completed on schedule, but commercial orders take

another 2-3 years to materialise. API turbine orders recover gradually, supporting the higher-margin product segment. Aftermarket continues to grow at a healthy clip of 15-20%, driven by refurbishment contracts. The company maintains its competitive position against Siemens and BHEL through technical differentiation and service network.

Bear case

A prolonged conflict in the Middle East or a sharp escalation in US-India trade tariffs severely disrupts order finalisations. The US subsidiary fails to achieve break-even in FY27, requiring additional investment and draining cash. The enquiry pipeline fails to convert due to customer indecision, leading to order booking decline. Revenue growth slows to mid-single digits as the order book depletes. Margins compress below 22% EBITDA due to a higher share of low-margin domestic projects and increased commodity costs. The CO2 energy storage project faces technical issues or cost overruns, damaging credibility and stalling future orders. The aftermarket business faces increased competition from local refurbishers in key markets. The company may need to delay expansion plans and focus on cost cutting, missing the data centre and geothermal opportunities.