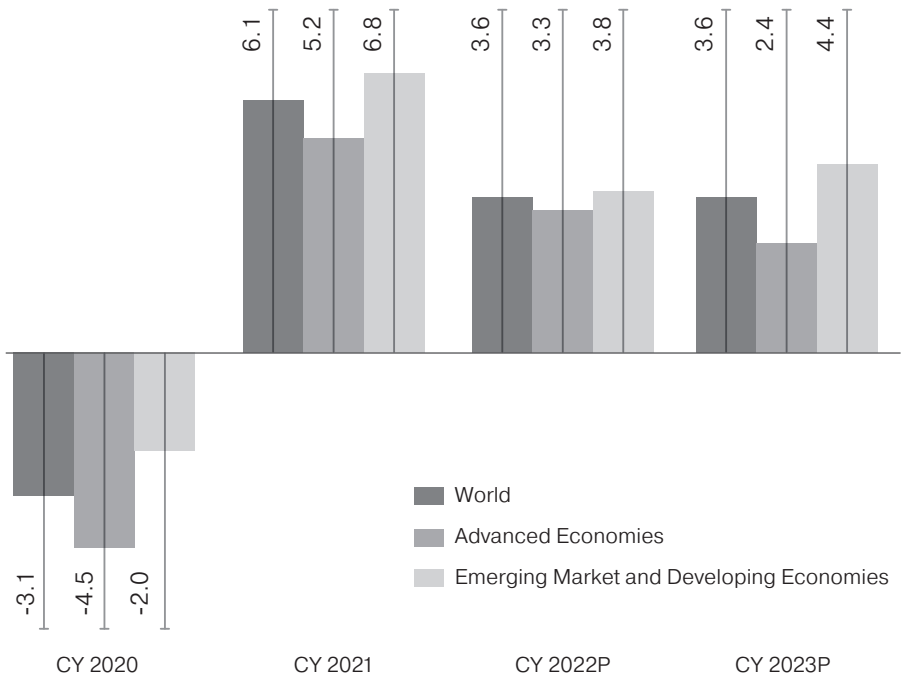
MANAGEMENT DISCUSSION AND ANALYSIS (MDA)

I. Economy Overview

Global Economic Overview

The expectations of an economic recovery in 2021 were dampened as supply chain issues caused by the pandemic persisted during the year. Disruptions in transportation and manpower, just-in-time logistics, and lean inventory management exacerbated supply chain challenges, resulting in global shortages and inflation. As pressure on the economy escalated due to the Russia-Ukraine conflict and China's high viral infection load - which impacted mobility - global growth is predicted to decline from 6.1% in 2021 to 3.6% in 2022 and 2023. Many governments under severe inflationary pressure, tightened their monetary policy due to higher, broader, and more persistent pricing stress. Overall risks to economic prospects have increased sharply.

World Economic Output (%)



Source: IMF World Economic Outlook April 2022
P: Projections

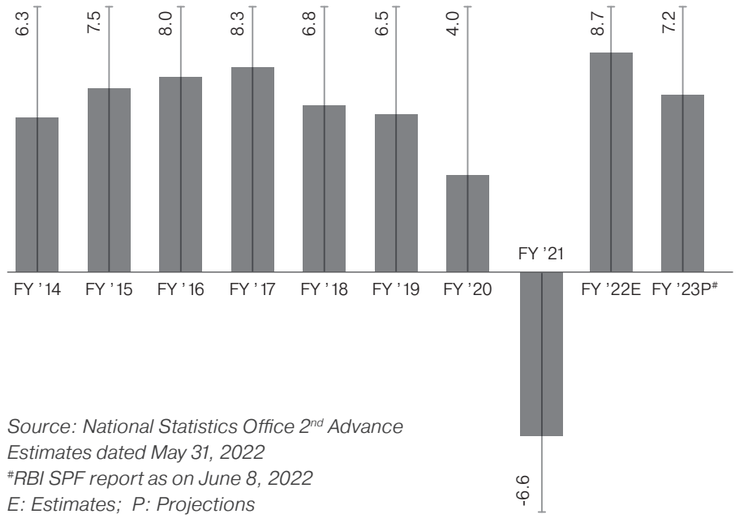
Indian Economic Overview

India emerged as the world's fastest-growing major economy, and is expected to become one of the top three economic powers in the near future. However, achieving this feat looks elusive with the Covid-19 pandemic-induced downturn that reduced India's GDP by 6.6% in FY 2020-21.

Post the slowdown, the Indian markets are slowly but steadily stabilising; the manufacturing business is improving with customer confidence increasing.

Annual inflation rate in India increased to 6.95% in March 2022, the highest since October 2020. Consequently, the RBI raised the policy repo rate by 50 basis points to 4.90%. The RBI study predicts that conflict-related inflation would slow India's GDP growth to 7.2% in FY 2022-23. Nonetheless, the outlook for private sector investment predominantly in energy and the environment is positive. As a leading company providing energy and environment solutions, Thermax is geared to support this recovery.

Indian Economic Outlook (%)



Source: National Statistics Office 2nd Advance Estimates dated May 31, 2022
#RBI SPF report as on June 8, 2022
E: Estimates; P: Projections

II. Industry Overview

The top sectors that contributed to Thermax's order book during the year are power, transportation, refinery & petrochemical, metals, steel, chemicals and cement.

For more details on these orders, refer to section VI - Business Segments of the Company on page 60, and section VIII - Performance on Strategy on page 68 of the MDA.

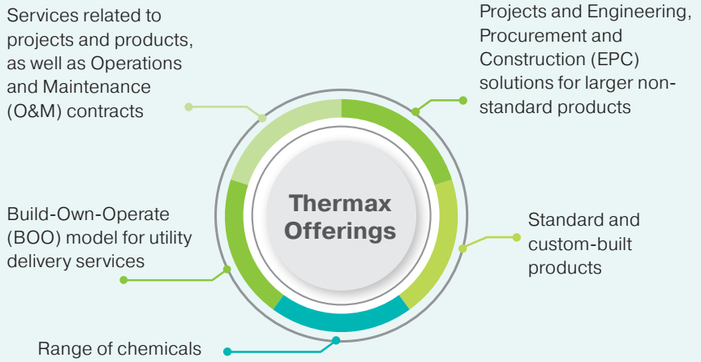
III. Company Overview

Brief Introduction

Thermax Limited is an engineering and capital goods firm based in Pune, India. The Company operates globally through 34 international and 22 domestic offices, and 14 manufacturing facilities, of which 10 are in India, and four are overseas. Thermax is present in over 90 countries across Asia Pacific, Africa, the Middle East, CIS countries, Europe, and the Americas.

Key Segments

Energy, Environment, and Chemical are the Company's three main business segments.



For more details, refer to the Core Business segment on page 08.

IV. Outlook for Thermax

As energy transition is gaining momentum, new technologies are coming into play, opening a world of possibilities for Thermax to become a champion in this transformation. With its five decades of deep domain expertise in understanding the energy matrix and a team of dedicated engineers, Thermax will act as a catalyst in ensuring energy security and affordability for customers.

The Company is focussed on leveraging its brand to strengthen current relationships through new offerings, enhancing capital allocation, margin improvement and seeking new development options with worldwide partnerships.

The Company has a large order pipeline in waste heat recovery for the cement and steel industries, besides orders for FGDs, waste to energy and build-own-operate based solutions.

Thermax has benefitted from clients' increasing focus on energy efficiency and carbon footprint reduction. The Company is investing in green and clean technology and expanding its product portfolio. The global and domestic shift in energy towards renewables is ideally suited to the Company's solutions in waste to energy, waste heat recovery, and renewables for local and international enterprises.

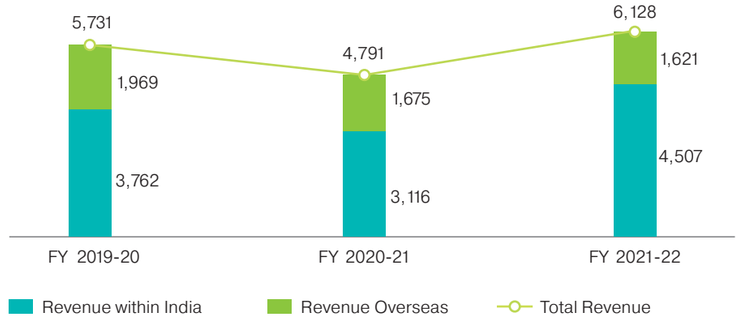
Moving forward, the Thermax of the future is one that is closely aligned with the needs of a cleaner, greener, and healthier world. The Company is committed to its philosophy of 'Conserving Resources, Preserving the Future' with more sustainable projects in clean air, clean energy, and clean water.

V. Operational Performance

Thermax Group's overall income for the FY 2021-22 was Rs. 6,128 crore, up from Rs. 4,791 crore in the previous year. International business revenues for the Group were Rs. 1,621 crore in FY 2021-22, down from Rs. 1,675 crore in FY 2020-21. The Group's consolidated order booking for the current fiscal was the highest ever at Rs. 9,410 crore, up from Rs. 4,784 crore in the previous fiscal year. However, international business accounted for 20% of total order booking. International orders were Rs. 1,878 crore in FY 2021-22, up 38% from Rs. 1,363 crore in FY 2020-21.

The Company's management placed a strategic emphasis on cost containment, particularly in the areas of selling, general, and administrative expenses.

Geographical Revenue Generation (Rs. in crore)



For more details, refer to note 21 of the Consolidated Profit & Loss Account on page 186.

VI. Business Segments of the Company

Energy Segment

The increasing demand for energy globally, coupled with issues of current scarcity and adverse environmental impact of traditional sources of energy generation, points to a likelihood of an energy crisis in the future. As an energy and environment solutions provider, Thermax is well-positioned to partner with industries that are looking to reduce their carbon and water footprint.

Thermax's Energy segment includes Process Heating, Absorption Cooling and Heating, Boiler & Heater (TBWES), Projects and Energy Solutions, Renewable Energy Solutions (FEPL), as well as ancillary services. The Group also offers Build-Own-Operate (TOESL) utility distribution solutions. Products for process heating include packaged boilers, thermal oil heaters, heat recovery boilers, and hot water generators. Its vapour absorption cooling and heating systems are used for industrial refrigeration, air conditioning, process cooling, and heating. It also offers wet and dry process cooling options for significant energy savings.

Thermax Babcock & Wilcox Energy Solutions (TBWES), a wholly-owned subsidiary, provides steam generation for process and power needs, as well as waste heat recovery solutions. It also retrofits boilers and process furnaces.

With a current contracted base of more than 3,500 MW, Thermax has a strong edge in constructing best-in-class captive power, cogeneration, and trigeneration plants on an EPC basis. Solar business, which is now part of First Energy Private Limited (FEPL), has executed more than 150 predominantly rooftop projects, totalling more than 72 MW of green power output.

Thermax's recently launched ultra low temperature hot water chiller

Thermax Onsite Energy Solutions Limited (TOESL), a wholly-owned subsidiary, delivers 'green' utilities on a long-term contractual basis. The business model encompasses investing in, constructing, and operating plants on customer premises, as well as managing the supply chain for all consumables, including biomass fuels.

Recognising the expanding opportunity in this segment, Thermax continues to enhance its digital capabilities to maintain a competitive advantage. In addition to focussing on digitalisation (IIoT-enabled services), the Company is developing innovative technologies in the green energy sector.

Prime Drivers

- Energy transition and action on climate change are major priorities of governments globally
- Emphasis on clean energy driving shift in energy mix, creating opportunities for greenfield projects and brownfield replacements
- Increasing demand for EPC, renewable energy, waste to energy, waste heat recovery plants and biofuels due to focus on sustainability and energy-efficient solutions
- Gradual shift from capex to opex based models
- Increase in demand for dry cooling solutions and adiabatic cooling towers on account of sustainability and water consumption regulations
- Growth across industries such as food, pharma, chemicals, cement, and steel, owing to encouraging policies and macro-economic factors
- In FY 2022-23, as a part of government borrowing, sovereign green bonds are to be launched in order to fund green infrastructure
- India is best placed to benefit from the altered situation post-Covid owing to its competitive advantage in various industries, favourable factors of production, conducive business environment, and incentivising government policies

Key Focus Areas

- Diversification of EPC offering into international markets, unconventional fuels, and renewable energy
- Bridging the gap between energy availability and sustainability
- Waste heat recovery, waste to energy and municipal solid waste (MSW) incineration in line with the demand to increase the green portfolio
- Considering the volatile nature of fuels available as well as their cost, focus on multi-fuel fired boilers for higher flexibility
- Continued momentum of domestic growth in opex-based biomass solutions and penetration in international markets
- Penetrate India as well as Asian and African markets for solar opex-based solutions
- Scaling up of energy management solutions for comprehensive operations and maintenance
- Modularisation in international markets for reduction in on-site construction work
- Due to considerable industry pressure, focus on complete solutions to minimise energy costs and carbon footprint
- Continued investments in value-added service offerings, such as industrial internet of things (IIoT) solutions, remote assistance technology, and automation
- Business development collaborations with industrial associations, OEMs, process licensors, and consultants in important markets

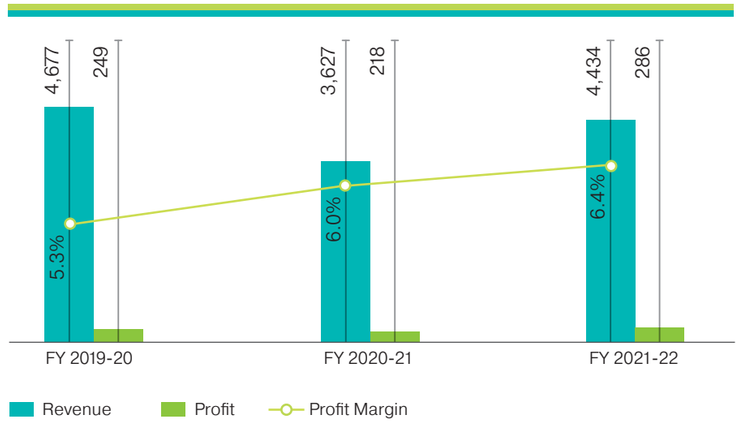
Performance in FY 2021-22

In FY 2021-22, the Energy segment accounted for 70.8% (74.8%) of the Group's gross operating revenue. The Group's operating revenue (net) for the year was Rs. 4,434 crore (Rs. 3,627 crore), while segment profit was Rs. 286 crore (Rs. 218 crore) for the same period.

In FY 2021-22, order booking was Rs. 6,237 crore, up from Rs. 3,724 crore in the prior year.

With an increased focus on clean energy, energy efficiency, and decarbonisation solutions, as well as the opening up of markets post-Covid, revenues and profit margins for the Energy segment have improved.

Financial Performance – Energy Segment (Rs. in crore)



Case Study

Reducing Sulphur Compounds from a Refinery Process

Thermax concluded an order of Rs. 1,176 crore from an Indian public sector refinery to set up their sulphur recovery block on a lump sum turnkey basis.

In order to meet the BS VI emission standards of low sulphur fuels, the refinery is reducing sulphur content in fuels it produces. The sulphur recovery block will treat the resultant H_2S gases and deliver about 500 TPD elemental sulphur in liquid form. This sulphur can be further used for conversion to sulphuric acid, a basic raw material for many industrial processes that produce fertilisers, industrial explosives, storage batteries, etc.

The sulphur recovery block will be a part of the customer's ongoing refinery expansion project and is being pursued as a part of the Government of India's North East Hydrocarbon Vision 2030. The scope of supply includes project management, engineering, procurement, manufacturing, construction, and commissioning. The project is slated to be completed in 28 months.

Environment Segment

Concerns about air pollution and wastewater management have prompted process-oriented industries to develop and follow stricter environmental regulations. The Environment segment includes the Water and Waste Solutions (WWS) and Air Pollution Control (APC) businesses.

The WWS business supports industrial and commercial establishments to recycle water for their process requirements, clean sewage and treat effluents through its water treatment, wastewater treatment/recycling plants, zero liquid discharge, sewage treatment/recycling and desalination solutions. It has completed more than 25,000 standard and over 600 industrial large-scale installations up to FY 2021-22.

For more than four decades, the APC business of Thermax has been a focal point entity for all industrial and utility sectors concerned with controlling hazardous emissions. Besides pollution control systems, the APC business also provides flue gas desulphurisation (FGD) systems to mitigate sulphur dioxide (SOx) emissions in thermal power plants. A diverse range of solutions offers multi-fold benefits to various industries, helping them not only improve air quality but also comply with stipulated emission norms. The business has successfully completed over 25,000 installations across a wide range of industries including power, cement, steel, sugar, refinery & petrochemicals, paper, chemical, food, textiles, fertiliser sectors.

The Company's technological know-how, customised solutions and well-trained field engineering staff have aided the expansion of the Environment segment. It has a full-fledged in-house R&D setup, including testing equipment, prototypes, pilot plants, and shop floor plant installation to validate product performance.

Thermax has installed an electrostatic precipitator (ESP) for a power company in Thailand to control emissions from their 26 MW biomass power plant

Prime Drivers

- Lack of access to water
- Stringent regulatory norms for water and effluent treatment
- Market demand for modularised/ plug-and-play water and wastewater treatment products
- Shift from coal to biomass or agro-based fuels
- Government's mandate to power companies on installation of FGD systems within a stipulated timeframe to mitigate SOx emissions
- Enforcement of air pollution emission norms globally

Key Focus Areas

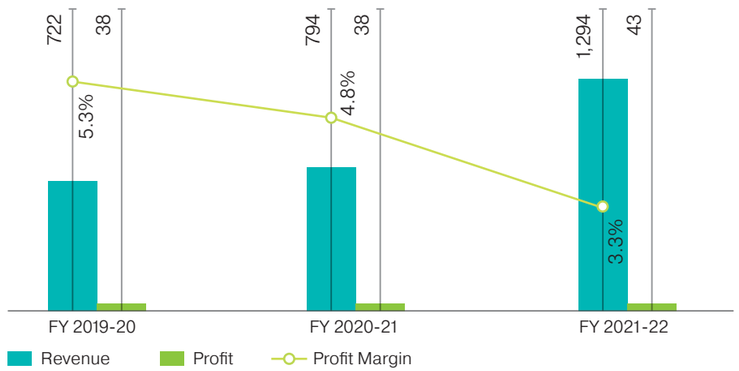
- Continued focus on digitalisation and remote monitoring of products and solutions
- Modularisation of new products
- Focus on urban and commercial segments to offer sewage recycling solutions with newer compact products based on membrane bioreactor (MBR) and sequential batch reactor (SBR) technologies
- Emphasis on zero liquid discharge (ZLD) systems with advanced multi effect evaporator (MEE) and mechanical vapour recompression (MVR) technologies, developed in-house
- Improve and upgrade plant operations through modernisation projects
- Development of new air pollution control technologies to manage diverse versions of gaseous pollutants and enable agro-based fuel combustion
- Expansion of spares and services portfolio
- Strengthen presence in the overseas markets

Performance in FY 2021-22

In FY 2021-22, the segment accounted for 20.6% (16.4%) of the Group's gross operating revenue. The Group's operating revenue (net) for the year was Rs. 1,294 crore (Rs. 794 crore), while segment profits were Rs. 43 crore (Rs. 38 crore) for the same period.

In FY 2021-22, order booking for the segment was Rs. 2,604 crore, compared to Rs. 636 crore in the previous year. Higher emphasis on the urban and commercial sectors led to an increase in order bookings for WWS. In APC, there was an improvement in revenue due to the two major FGD orders received in FY 2021-22.

Financial Performance – Environment Segment (Rs. in crore)



Case Study

Making every drop count

A glass-making major in Gujarat wanted to treat the wastewater generated in their wet coater and vacuum coater and reduce the quantity of rejects in order to meet the norms prescribed by the Pollution Control Board.

Thermax suggested a comprehensive solution to the problem of wastewater treatment. The Company worked on a specific design project to treat the wastewater by providing equalisation, filtration membrane, and zero liquid discharge solutions to treat the wastewater generated during coating operations.

The facility designed by Thermax has the capacity to reduce fresh water intake and save water by 800 KLD, while adhering to the principle of delivering clean water.

ZLD plant installation at the customer site

Chemical Segment

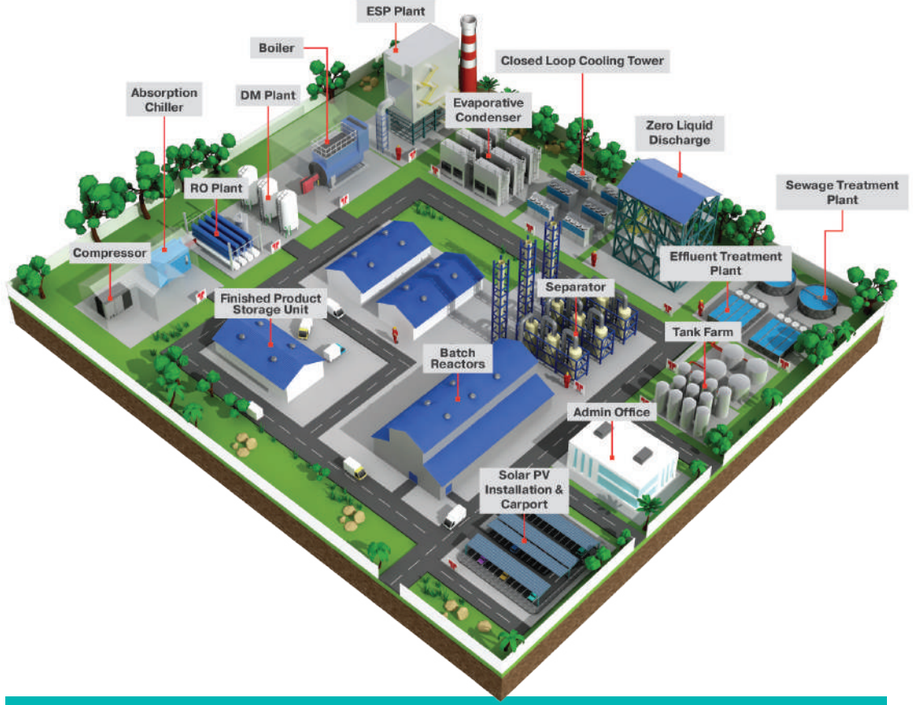
Thermax is widely recognised as a leading manufacturer and exporter of ion exchange resins and a pioneer in water and wastewater treatment chemicals. Within its Chemical segment, the Company manufactures and markets a vast array of specialty chemicals that aid in the enhancement of various processes. In addition, the product portfolio encompasses construction chemicals for improving, protecting and repairing concrete structures as well as chemicals for oilfield operations. Providing custom and cost-effective solutions to industrial sectors and clients around the globe gives the Company a distinct advantage. The segment is guided by research and supported by production facilities that meet global standards.

Prime Drivers

- Increase in demand for solvent-free and low total organic carbon (TOC) resins for ultrapure water applications in industries such as food, pharma, and electronics
- Increasing emphasis and government push towards recycling of water in the wake of the worldwide water crisis and severe regulatory criteria for water and wastewater treatment
- Rise in demand for RO, multi effect evaporator (MEE), and incinerators which help boost water treatment chemicals that aid in zero liquid discharge and effluent treatment
- Investments in the petrochemical sector are leading to opportunities for monoethylene glycol (MEG) and catalyst resins
- New demand from infrastructure segments - cement and steel, supported by infrastructure expansion and government policies

Key Focus Areas

- Enhance market presence and broaden the portfolio of specialty resins, build references for specialty applications
- Expand global market presence through dealer network and collaboration with industrial licensors and consultants
- Widen the market reach of water treatment chemicals by focussing on digitalisation and remote monitoring of water treatment products and systems

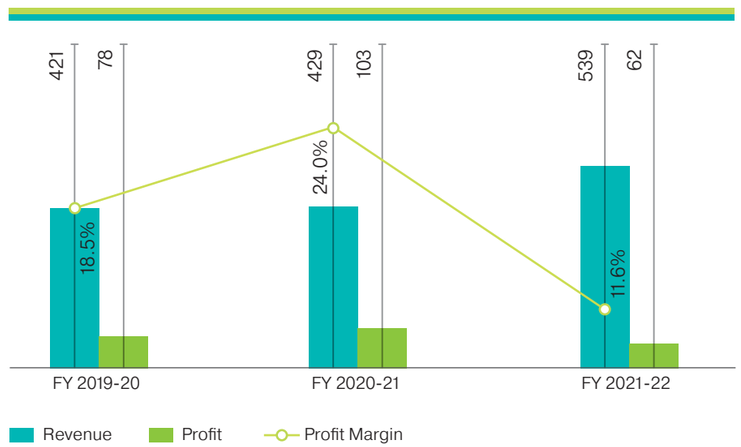


An isometric view of a chemical plant, showcasing an array of Thermax's utility solutions

Performance in FY 2021-22

The segment accounted for 8.6% (8.8%) of the Group's gross operating revenues in F Y 2021-22. The Chemical business posted an operating revenue of Rs. 539 crore (Rs. 429 crore). Profit for the year stood at Rs. 62 crore, compared to Rs. 103 crore in the previous year. The second wave of the coronavirus outbreak at the beginning of the fiscal caused a near-catastrophic blow to the economy, followed by the Russian-Ukrainian conflict. A combination of these factors, along with unprecedented increases in the cost of key raw materials, rising ocean freight charges, and the highest inflation rate seen globally, adversely affected the profitability. The Company has adopted measures such as passing on the cost to the customers to mitigate the impact.

Financial Performance – Chemical Segment (Rs. in crore)



Ion exchange resins

Case Study

Chemical Breakthrough Order for Demineralisation (DM) and Condensate Polishing Applications

Africa's largest producer of granulated urea fertiliser for DM and condensate polishing applications was experiencing issues with existing uniform particle size (UPS) resins and wanted assurance of enhanced performance. Due to its established reputation in ion exchange resins and the technical expertise of the team, Thermax Chemicals won the order from the customer against strong competition, conditions of tight payment terms and freight challenges.

Tulsion® ion exchange resins from Thermax met the customer's requirements, resulting in a second order for another DM plant from its cement group.

VII. Subsidiaries

The MDA captures the growth trends and outlook of only those subsidiaries that have a reasonable impact on the segmental performance.

For more details on each subsidiary, refer to AOC-1 on page 222.

Thermax Babcock & Wilcox Energy Solutions Limited (TBWES)

TBWES, a 100% subsidiary of Thermax, provides steam generation solutions for process and power needs, using fuel as well as waste heat. Additionally, it offers renovation and modernisation along with upgrades for old boilers and furnaces. In an effort to expand its green portfolio in conjunction with the trend toward clean energy, TBWES has developed newer technologies and formed strategic partnerships focussed on waste to energy, municipal solid waste (MSW) incineration and waste heat recovery, all of which are gaining traction. One of the most recent additions is the newly-launched FlexiSource multifuel boiler.

On the order front, TBWES secured several large orders, consolidating its green order book. These include an MSW-fired boiler for the waste management sector and a travelling grate boiler for one of the largest distilleries, both of them in Thailand and waste heat recovery boilers for cement and steel plants in West Bengal, India.

The subsidiary is also continuing its focus on modularised equipment with significant value addition due to customer demand, which is well supported by the Company's manufacturing facilities in India. However, the Company is exposed to volatile commodity prices, which leads to cost uncertainties. Across all industry segments, a recovery following Covid-19 resulted in an increase in revenue primarily due to the execution of a substantial order backlog.

Danstoker A/S, Denmark

Danstoker Group

Danstoker A/S, Boilerworks A/S, and Danstoker Poland Spółka Z Ograniczona Odpowiedzialnoscia (DSPL), a step-down subsidiary of Danstoker A/S comprise the Danstoker Group. Through these companies, the Group designs, manufactures, and sells biomass boilers, heaters, and related equipment in the European market.

During FY 2021-22, the subsidiary's order booking was affected by Covid-19, which was further dampened by the rising costs of steel and construction materials as well as the tensions between Ukraine and Russia. In spite of the steel price hike, order booking resumed by the end of 2022. Due to higher input costs, the subsidiary had to increase the price of equipment for new orders to retain the margin on the order backlog. As a recognised player in electrical boilers with expertise in low voltage technology, the Group has received a noteworthy order to produce pressure parts for high voltage electrical boilers from one of the major players in the region.

Despite a challenging year, the subsidiary reflected positive profitability after many years of decline. The subsidiary plans to continue the momentum aided by enquiries for biomass boilers and boilers with fuel flexibility in the future, in view of Europe's waning dependency on Russian natural gas.

PT Thermax International, Indonesia (PT TII)

PT TII designs, manufactures, delivers, installs, commissions, and services boilers, heaters, and related equipment. Throughout the year, the subsidiary has made sustained efforts to improve product design and manufacturing. Volatility in crude pricing, which caused higher sea freights, led PT TII to improve its local execution capabilities.

In addition, PT TII has set up sales and service teams in major industrial clusters in the South East Asian market and built a local supply chain for a few commodities. A number of channel partners have also been approved in specific islands in order to expand the Company's presence and business.

During the year, the subsidiary ventured into new areas with the aim of expansion. As part of the strategy, Thermax launched NeoTherm to compete in oil & gas, pharma and food & beverages and developed a low-cost grate technology/boiler for combusting palm fibre to enter the vast crude palm oil market.

Thermax Europe

Thermax Europe installs absorption chillers and heat pumps that have a capacity ranging from 35 kW to 12,000 kW. These chillers and heat pumps are driven by hot water, steam, oil & gas, and waste energy, making them energy-efficient, innovative and sustainable. The technology is often used for cooling commercial establishments as well as industrial processes and other district heating applications. Through its vast network of service outlets, Thermax also provides start-up services for absorption chillers and heat pumps; offers maintenance contracts and supply of spare parts.

The Absorption Cooling and Heating business continues to be driven by the on-site power generation market in Italy, Germany, Spain and UK. Moreover, the commitment made by some of the European countries to reduce their dependency on fossil fuels and increase energy efficiency is providing opportunities for Thermax to supply steam-fired heat pumps in the district heating sector. The highlights of the year are large heat pump orders from Germany and Poland and a large chiller order for a steel company in Taiwan. The service and spare parts business has been in line with the overall business strategy.

Thermax Onsite Energy Solutions Limited (TOESL)

TOESL is a sustainable utility provider that uses the build-own-operate (BOO) business model to deliver utilities such as steam, heat, treated water, and cogeneration power.

TOESL invests capital, establishes the utility plant, and operates it on client premises for the duration of the plant's lifecycle, performing comprehensive operation and maintenance, including supply chain management of fuel, spares, and consumables. Customers are relieved of the burden of owning and operating these utilities, allowing them to concentrate more on their core production operations.

Thermax Inc., USA

Thermax Inc., the US sales and service arm of the Company, operates in two segments - Energy (sale of absorption chillers) and Chemicals (sale of ion exchange resins). Despite the difficulties posed by Covid-19 and supply chain issues during FY 2021-22, Thermax Inc.'s Cooling business unit recorded a 25% increase in business. The Cooling business in Brazil has resumed with a well-known industry participant after a brief break. The Company secured an order from a recognised chemical company in North America and from a healthcare customer in Puerto Rico. Furthermore, two prominent cogeneration orders have been secured from new customers. The subsidiary also bagged chemical orders for MEG processing, water treatment, mixed bed resins, and biotech applications from key customers in the geography.

First Energy Private Limited (FEPL)

Thermax's Group Company, FEPL restructured on November 1, 2021, to expand its presence in the renewable


The vibrant team of FEPL at their new office

energy sector and assist customers in the energy transition journey. With this new infrastructure, Thermax extends its sustainable offerings with solar hybrid farms and storage batteries, besides solar PV plants, catering to customers in the commercial and industrial space. To begin with, renewable energy-based power delivery solutions will cover both capex and opex bespoke offerings within India and will be expanding across African and ASEAN geographies in the near future.

FEPL commands an edge in understanding the unique energy matrix and designs a custom-made solution to suit different industries, applications, and energy management goals. FEPL manages the entire energy corridor, from behind to beyond the meter. This assures dependable and reliable green power for its customers round-the-clock (24x7x365).

VIII. Performance on Strategy

SO1: Increase the Share of Green Offerings

All non-fossil fuel-based operations or applications in the Energy and Environment segments are deemed 'green' by the Company. During the year, Thermax's green offering accounted for 74.7% of the total orders received.

During the year, TOESL bagged several contracts for 100% biomass-based green utility delivery solutions. These include a 15 TPH biomass-based boiler (agrochemical); two 22 TPH biomass-based boilers (F&B); 30 TPH biomass boiler (biopharmaceutical), resulting in huge cost savings and carbon footprint reduction for the customers.

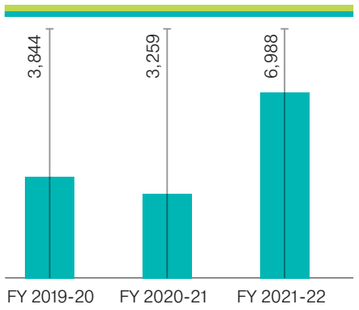
In accordance with its energy transition initiative, Thermax has negotiated two substantial contracts with one of the world's leading equity funds players to produce roughly 15 tonne of CBG (compressed biogas) and prevent the annual burning of approximately 36,000 tonne of stubble in Punjab per project. Projects and Energy Solutions (P&ES) commissioned a 15 MW captive power plant utilising coke oven waste gas for a renowned manufacturer of pig iron and ductile iron pipes in West Bengal as well as a 3 x 9 MW cement waste heat recovery power plant for a large cement mill in Andhra Pradesh, India.

The Air Pollution Control business received two large FGD orders for thermal power plants in Uttar Pradesh.
For more details, refer to the Key Highlights on page 01.

Multiple orders were won by Water and Waste Solutions business, notable among them include an 800 m^3/day water and wastewater treatment plant (WWTP) and zero liquid discharge (ZLD) plant for a major glass manufacturing company
For more details, refer to the case study in the Environment Segment on page 62; a 5,000 m^3/hr raw water treatment plant (WTP) for a leading oil and gas major. The Company has also installed the first 10 KLD MVR built in-house at a pump OEM.

During the year, TBWES successfully installed a waste heat recovery boiler at one of the largest cement factories and a spent wash fired boiler in Maharashtra.
For more details, refer to the TBWES subsidiary on page 66.

Order Booking from Green Offerings (Rs. in crore)



Case Study

A Step Forward in Waste-to-Energy

Thermax Onsite Energy Solutions Limited (TOESL) partnered with a multinational food major for their greenfield project in Gujarat that would help them achieve sustainability and cost savings.

The customer required a 100% agro-waste biomass fuel fired boiler to generate food-grade steam for direct heating in noodle production.

Addressing the customer's need, TOESL commissioned a world-class biomass-based boiler facility under its build-own-operate model – a first for the customer. The facility comprises two biomass-based hybrid boilers of 16 TPH capacity each and other allied equipment such as an air pollution control system to follow the strict norms set by the Gujarat Pollution Control Board.

As part of the long-term contract, TOESL is responsible for handling the operations and maintenance as well as managing the biomass fuel supply chain to ensure consistent fuel quality at the right price.

With the solution provided by TOESL, the food major shall save approximately Rs. 6 crore and achieve an estimated CO_2 reduction of over 16,000 tonne annually against natural gas.

State-of-the-art biomass based boiler plant set up for a leading food major

SO2: Grow Products and Services Portfolio

For FY 2021-22, the Company's order booking from products and services was Rs. 3,596 crore, up from Rs. 2,546 crore in the previous year. Under the Process Heating business, the Company dispatched and installed its first low voltage electric boiler to a customer in Bhutan. It also launched the new version of Combipac - a multi-fuel fired boiler and Revomax *Nxt* – a next-generation instant steam generator. Most of the domestic as well as international businesses were received from industries such as F&B, pharma, chemical and textile sectors during the year.

In a significant move, the Cooling business launched an ultra low temperature hot water chiller to cater to very low grade waste heat recovery of 60°C to 80°C that can be used for cooling and heating utilities in processes.

In FY 2021-22, the Chemical business developed non-phosphate environment-friendly chemicals for cooling water treatment and won major orders from steel and oil & gas companies, besides signing several major corporate accounts. Thermax also received significant government infrastructure projects in West India as well as breakthrough orders for pour point depressants (PPDs) from existing customers.

TOESL has diversified its offerings to include 'operations and fuel' as an offering to cater to companies who have already invested in a biomass asset and look for assured biomass supply chain management and efficient operations and maintenance from technical experts.

Through its newly-formed Energy Management Solutions business, Thermax provides customers with an end-to-end offering to help measure and reduce the energy consumed by their plants by identifying and implementing energy-saving solutions. Using advanced digital capabilities, the business measures and analyses the

specific energy consumed by the plant and its utilities.

Under the New Energy business portfolio, Thermax expanded its solar business under FEPL, transitioning from the rooftop-based capex model to the solution-based opex model, projected to grow to a GW scale based on its predominant opex strategy.

Thermax has also developed in-house multi effect evaporator (MEE) and mechanical vapour recompression (MVR) technologies for ZLD applications.

During the year, WWS developed and launched CuBe, a completely modularised and aesthetically appealing sewage treatment plant; E Series RO, a specialised end-to-end package and a completely modularised RO plant, and a new variant of atoM, ultra-compact sewage recycle system.

Case Study

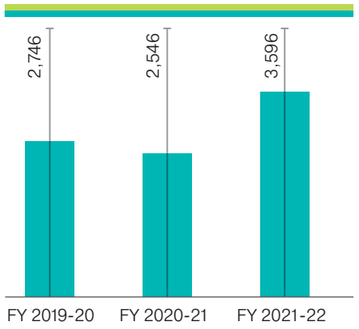
Facilitating the transition to clean energy

Thermax supplied its first electric boiler from India to a customer in Bhutan through our channel partner. The 600 kg/hr boiler provides clean energy in the form of steam for the customer's process requirements.

Thermax collaborated with its subsidiary, Danstoker, to design and customise the boiler as per the customer's specifications. In spite of the pandemic, the boiler was commissioned remotely on schedule while adhering to all Covid-related protocols. In addition to providing clean energy, this electric boiler has helped the customer achieve higher efficiency at lower operating costs.

The first electric boiler from India commissioned overseas

Order Booking from Products and Services (Rs. in crore)



SO3: Focus on Internationalisation

In FY 2021-22, Thermax's order booking was Rs. 1,878 crore, compared to Rs. 1,363 crore in FY 2020-21. Currently, the overseas segment accounts for 20% of overall bookings. International business revenue for the Group was Rs.1,621 crore, down from Rs. 1,675 crore in FY 2020-21 due to lower international order backlog against the backdrop of Covid-19.

With the increasing enforcement of air pollution rules and owing to its experience in project execution, the APC business has built a strong reputation throughout South East Asia in recent years. The business kept working hard to break into new foreign markets and establish itself as a global player in the air pollution control domain and received orders from Turkey, Germany, Greece, Brazil, and the United States, contributing to the share of order booking.

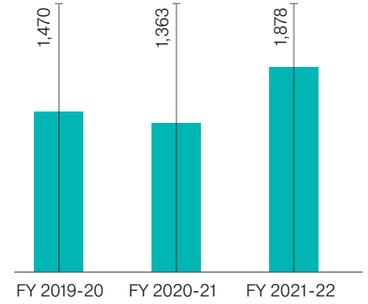
In the Chemical segment, topline growth was driven by US and European markets as well as South East Asian markets. A multitude of orders was received from large OEMs worldwide for specialty resins used in sugar decolourisation applications; MEG processing and biotech application; supply of mix beds and water treatment resins; chelating resins for heavy metal removal; and resins for water treatment.

TBWES successfully commissioned an MSW-fired boiler and a travelling grate boiler at one of Thailand's largest distilleries.

P&ES carried out the successful synchronisation of the second unit of the 2 x 25 MW power plant in Mtwara, Tanzania, for Africa's reputed cement manufacturer during the year.

Thermax concluded major Cooling orders for vapour absorption machines from the United States, Nigeria, Malaysia, Spain, Germany, Thailand, and Bangladesh.

International Order Booking (Rs. in crore)



Case Study

Electricity-free Cooling

Thermax commissioned a multi-energy absorption chiller for a leading Nigerian polyfilm manufacturing and printing company. The 280 TR chiller is driven by the exhaust from a natural gas generator at the plant in Ogun. The chilled water from the chiller finds application in both process and comfort cooling at the manufacturing plant. While the chiller delivers 160 TR cooling for the internal bubble cooling (IBC) system of the polyfilm manufacturing process, the rest is used for cooling the factory premises.

By means of repurposing exhaust, the chiller has enabled the customer to save USD 2,25,000 annually. Through electricity-free cooling, the polyfilm's manufacturer has achieved payback for the chiller in less than 18 months.

IX. Financial Performance

During FY 2021-22, the Group recorded an operating revenue of Rs. 6,128 crore as compared to Rs. 4,791 crore in the previous year. The basic and diluted earnings per share for the year were at Rs. 27.73 per share (Rs. 18.34). The analysis of major items of the financial statements are given below:

a. Revenue from Operations

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Revenue from projects and products	5,384	4,061	33
Revenue from services	680	649	5
Other operating revenue	64	81	(21)
Total operating revenue	**6,128**	**4,791**	**28**

The increase is mostly due to normalisation of the business that was disrupted by the pandemic and recurring lockdowns in the previous year. The revenue in Energy, Environment and Chemical segments have grown by 22%, 63% and 25% respectively. The service revenue increased primarily in domestic business by 5%.

Other operating revenue from exchange gain was lower than last year, mainly from international projects.

b. Cost of Material Consumed

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Cost of material consumed	3,485	2,539	37%
% of total revenue	56.8%	53.0%	

With the increase in orders, our raw material consumption across all businesses grew significantly. The increase in the commodity prices for steel, chemicals, and other raw materials thus affected the Company adversely.

c. Employee Benefit Expenses

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Employee benefit expenses	813	759	7%

During the year, employee benefit expenses increased primarily on account of headcount increase and increment cycle.

d. Other Expenses

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Consumption of stores and spare parts	103.04	69.70	48
Power and fuel	52.31	38.59	36
Freight and forwarding charges (net)	176.09	116.05	52
Site expenses and contract labour charges	652.90	537.01	22
Drawing, design, and technical service charges	24.65	21.10	17
Sales commission	25.34	17.49	45
Advertisement and sales promotion	10.48	11.25	(7)
Rent	19.19	14.89	29
Rates and taxes	20.09	13.51	49
Insurance	11.88	13.25	(10)
Repairs and maintenance	68.18	56.55	21
Travelling and conveyance	60.14	37.51	60
Legal and professional fees	103.52	77.66	33
Director sitting fees	1.00	0.84	19
Provision for impairment allowance and advances of financial assets (net)	(4.4)	11.24	(139)
Warranty expenses (net)	35.39	41.00	(14)
(Gain) / loss on sale / discard of assets (net)	(7.64)	0.76	(1,105)
CSR expenditure	7.54	7.84	(4)
Miscellaneous expenses	49.41	52.47	(6)
Total	**1,409.11**	**1,138.71**	**24**
Less: Capitalised during the year	(0.12)	(0.04)	200
Net total	**1,408.99**	**1,138.67**	**24**

As compared to the previous financial year, the expenses were higher because the situation had returned to normal, and revenues and activities had increased.

Certain expenses like site expenses, contract labour charges, drawing, design and technical charges occur more during certain phases of the project and are not uniform over the life of various projects. There was a large increase in export freight throughout the year due to disruption in the global supply chain. The costs were lower in the previous year owing to restrictions on travelling during the pandemic. A reversal was recorded in the provision for impairments of financial assets, advances, and one-time gain on the disposal of surplus properties.

e. Exceptional Items

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Exceptional item	Nil	52.53	-

Details of exceptional items for the previous year are as follows:

- Impairment of goodwill for Rs. 32.88 crore related to the stepdown subsidiary of Thermax Netherlands B.V. (i.e. Thermax Denmark ApS)
- Impairment of certain assets of Boilerworks Properties ApS (Denmark) of Rs. 8.82 crore on account of discontinuation of service operations
- The Group has made provision for closure of Omnical Kessel & Apparatebau GmbH, Germany of Rs. 1.68 crore
- The Group, as on October 05, 2020, announced a Voluntary Retirement Scheme (VRS) for its eligible employees. The amount of scheme benefits payable to employees who opted for it is Rs. 9.15 crore (gross value Rs. 10.96 crore)

f. Property, Plant and Equipment

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Property, plant and equipment	990.95	1,042.69	(5)
Capital work-in-progress	44.32	21.06	110
Right-of-use assets	163.24	167.40	(2)
Goodwill	3.03	3.03	0
Other intangible assets	37.52	28.92	30
Intangible assets under development	Nil	3.10	(100)
Total	**1,239.06**	**1,266.20**	**(2)**

Capital work-in-progress is driven mainly by solar assets under construction at First Energy Private Limited. Intangible assets under development represent ERP implementation, software, and research & development related assets.

g. Investment

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Non-current investment	703.36	119.21	490
Current investment	766.54	115.25	565
Total	**1,469.90**	**234.46**	**527**

The Company invested its funds in longer maturity fixed deposits, debt-based mutual funds compared to the prior year, leading to a shift from shorter tenure bank deposits.

h. Trade Receivable

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Non-current trade receivable	173.52	100.87	72
Current trade receivable	1,423.72	1,237.10	15
Total	**1,597.24**	**1,337.97**	**19**

The non-current trade receivable increased due to the retention of large PSU projects.

i. Cash Flow

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Cash flows from operating activities	324.71	769.48	(58)
Cash flows from / (used in) investing activities	(421.58)	(635.68)	(34)
Cash flows (used in) financing activities	(20.58)	77.24	(127)
Total income	**(117.45)**	**211.04**	**(156)**

The order book and order backlog increased substantially in FY 2021-22, resulting in an increase in operational execution. The rise in commodity prices and supply chain constraints has led to an increase in inventories and other current assets for executing existing jobs and projects. This has had a cascading effect on investing activities. Since the Group had paid a dividend, the outflow of cash was higher than the previous year.

j. Cash and Cash Equivalents and Other Bank Balance

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Cash and cash equivalents	310.78	461.31	(33)
Bank balance	642.72	1,477.89	(57)
Total income	**953.50**	**1,939.20**	**(51)**

The Company transitioned from short to long-term deposits, which resulted in lower bank balances, including short-term deposits.

k. Non-current Other Liabilities

(Rs. in crore)

	FY 2021-22	FY 2020-21	Change (%)
Other liability	40.58	72.18	(44)%

Other non-current liabilities were reduced due to a decrease in long-term customer advances received for project orders.

l. Key Financial Ratios

In accordance with the SEBI (Listing Obligations and Disclosure Requirements 2018) (Amendment) Regulations, 2018, the Company is required to give details of significant changes (change of 25% or more as compared to the immediately previous financial year) in key sector-specific financial ratios.

Particulars	Thermax Limited		Thermax Group	
	2022	2021	2022	2021
Debtors turnover ratio	3.88	3.49	4.13	3.34
Inventory turnover ratio	7.80	6.87	6.16	5.91
Interest coverage ratio	21.26	34.37	17.29	16.88
Current ratio	1.17	1.51	1.26	1.45
Return on capital employed	9.4%	10.2%	12.2%	10.6%
Return on net worth (RONW)	6.7%	4.9%	8.9%	6.4%

Interest cost increased as higher packing credit financing facility was availed due to lower interest rates.

Return on net worth has increased at standalone and group level due to an increase in profitability and significant decrease in exceptional items.

X. Opportunities and Threats

The COP26 Energy Transition Council (ETC) emphasised the importance of an immediate and comprehensive switch to clean energy to achieve the goals of the Paris Agreement. An energy supply system based primarily on fossil fuels would be replaced with renewable energy. Changes in the energy mix would include biomass-based power, bio-fuels, bio-CNG, waste to energy, waste heat recovery, renewable energy – solar, storage batteries, hydrogen, etc. Thermax being an expert in providing excellent solutions in the renewable sector, is poised to gain from such development.

The energy business is not immune to growing threats because it spans worldwide markets, foreign economies, and multiple geopolitical environments. The Company should be prepared to address these pressing concerns as they continue to surface.

Opportunities

- With India's commitment to COP26 to reduce the carbon intensity to less than 45% by the end of the decade and net-zero carbon emissions by 2070, Thermax seizes opportunities in the sunrise areas.
- Tightened ESG standards, decarbonisation, and energy transition would create opportunities for Thermax, with its expertise in heating, cooling, power, and diverse environmental solutions, putting it in a good position to capitalise.
- Air pollution control equipment, such as FGDs to arrest sulphur dioxide (SOx) and related services, would continue to be in demand as environmental regulations tighten in various locations, including MENA and other Asian countries, and would benefit the Company.
- Digitalisation, IIoT and remote online service with dependable systems are helping open up new territories and possibilities to expand and challenge the Company's capabilities beyond its reach, across offerings.
- In a shift from capex to opex, outsourcing is poised to set the pace for growth in the Company's business across the globe.
- Sustainability of industries will be based on the criteria of reduction in operational cost through. the implementation of various efficiency improvement solutions, modernisation, and adoption of new technologies to reduce energy consumption. This will drive demand for Thermax.
- The Company's state-of-the-art facilities in India, capable of providing modularised equipment with significant value addition is witnessing an encouraging response from overseas customers.
- The government announced relief packages to strengthen economies in sectors such as infrastructure, food processing, pharmaceuticals, textile, chemicals, iron & steel, oil & gas, and power in order to mitigate the impact of Covid-19. This would have a favourable impact on industries' willingness to continue investing and fulfil the rising demand.

Threats

- The Russia-Ukraine war continues to be the main risk factor on asset prices, particularly commodity prices. The recent sharp fluctuation in commodity prices has caused investors to reduce their transactions, resulting in lower market liquidity and increased volatility in prices. This has further impacted the interest rates adversely, reducing the buying power and opportunities for greenfield projects and ongoing expansions.
- Increasing raw material prices for certain chemicals and metals, such as steel will have an impact on the previous order backlog, and thus, the Company's profitability.
- With the economy rebounding post Covid-19, and many start-ups across the country, the demand for talent has increased, resulting in attrition. Thermax has already felt the impact.
- Many multinational corporations are making efforts to transition away from the use of fossil fuels and towards biomass. Established local competitors with a robust biomass sourcing network and database offering BOO solutions pose a threat to the Thermax's capex and opex model.
- Due to the fact that many orders received by the Company are sourced from fossil fuel based industries, an industry-wide shift to a green model will have a detrimental effect on revenue.
- An increase in fuel prices, which would raise transportation and freight expenses, could have a negative effect on the Company's profitability.
- Because markets are constantly evolving, there is uncertainty in the global regulatory landscape. Any adverse slowdown or pushback in regulations would impact demand for effluent treatment plants, zero liquid discharge solutions, and flue gas desulphurisation projects - all of which are part of Thermax's Environment portfolio.

XI. Risk Management

The Company has put in place a risk management system that includes an organisational risk management framework, policies, tools, and procedures. It uses a combination of legal requirements, market history, and statistics to measure risk. Strategic, financial, and operational risks are all part of the risk identification process. Once risks have been identified, the designated risk owner is in charge of developing plans

that outline mitigation actions for the risks that have been assigned. The Company's Risk Management Council and Committee keeps a close eye on these risk mitigation plans, assesses them on a regular basis, and conducts a thorough examination of the Company's significant risks, their impact on strategic decisions, and mitigation strategies.

For more details, refer to the Risk Management section on page 22.

XII. Internal Controls

The Company examines the quality of its controls and the amount of compliance with the help of its Internal Audit function. Management and the internal audit team evaluates the Company's internal financial and operational controls. Operating managers are kept up-to-date on changes in the law that affect their areas of operation through a process. Managers check for compliance with certain provisions once a month.

To decrease the possibility of unethical behaviour, the organisation has a strong culture and comprehensive protocols in place, including a clear code of conduct and a whistleblower policy. In addition, it employs enterprise resource planning software in its operations. The programme features a number of built-in controls as well as a thorough examination of differences between performance and plan. The Company's internal culture also helps to lessen the chance of any unethical practices.

XIII. Health, Safety and Environment

Health, Safety and Environment (HSE) is an integral part of the Company, and all activities across Thermax's facilities and project sites, are mandated to be performed in a safe manner. Thermax's commitment to HSE ensures a safer work environment for the workers, contractors, and customers, as well as contributes to a cleaner environment. The HSE programme is implemented using robust systems and procedures and the key to the programme is consistent implementation and monitoring. This extends to the supply chain partners as well. The managing director reviews the Company's HSE performance every quarter. Divisional safety councils evaluate divisional performance and implement corrective and preventive measures to guarantee high levels of performance.

Safety week celebration

a) Update on Certifications and Audits

- TBWES project sites and manufacturing plants at Savli, Mundra, Chinchwad and Shirwal – 1st surveillance audits for ISO 14001:2015 and ISO 45001:2018 were conducted by Bureau Veritas
- Cooling plant at Sri City - 2nd surveillance audits for ISO 14001:2015 and ISO 45001:2018 were conducted by Lloyds
- Heating manufacturing units at Chinchwad and Savli – 1st surveillance audits for ISO 14001:2015 and ISO 45001:2018 were conducted by TUV:SUD
- TOESL - 2nd surveillance audits for ISO 14001:2015 and ISO 45001:2018 were conducted by DNV
- Chemical manufacturing facilities at Paudh, Jhagadia and Dahej – 2nd surveillance audits for 14001:2015 and ISO 45001:2018 were conducted by Bureau Veritas
- P&ES business and Process Heating project sites - 2nd surveillance audits for ISO 45001:2018 were conducted by TUV:SUD and DNV
- WWS division – recertification audit for ISO 45001:2018 was done by Bureau Veritas
- Enviro business - stage 1 audit of ISO 14001:2015 and 45001:2018 was conducted in April 2022 by TUV:SUD

b) Safety Audits and Training

Safety is paramount at Thermax. It forms an integral part of our culture. In addition to the regular HSE training, the Company has developed e-learning modules for hazard and operability analysis (HAZOP study).

Despite the existing safety processes and training, Thermax witnessed 75 recordable incidents, including seven fatalities - one permanent employee and six contractual employees.

Taking a note of these incidents, safety has become the top most priority in all Board meetings, permeating down to every employee. Some of the initiatives implemented are behaviour-based safety – wherein routine people practices are observed, and any inappropriate behaviour is flagged; digitising HSE management - to build accountability and better transparency in our operations; rewarding individuals demonstrating excellent safety standards and structuring the consequence management system.

Thermax has never differentiated between permanent and contract / temporary workforce. We will continue these initiatives and undertake many more to ensure the safety of our employees.

c) Results and Outcomes

An external organisation ran a behaviour-based safety training programme in order to foster a healthy and safe culture among employees:

- In FY 2021-22, 1,436 internal inspections and audits, as well as 22 external safety audits, were conducted
- The continuing usage of an HSE app for incident reporting has aided in the reduction of hazards and risks at plants and sites
- Manufacturing plants are subject to the environment management system, and a variety of waste/ resource reduction management programmes have been effectively executed throughout the year
- To reduce the transmission and containment of the Covid-19 virus, the Company initiated and completed a vaccination and awareness initiative for all the employees and workers

Safety Audits in FY2021

Internal Audits	External Audits
1,436	22

XIV. Human Resource

The Company is dedicated to providing a conducive and safe environment to its employees, enabling inclusive growth and career opportunities. In addition, the diverse talent pool is nurtured through competitive pay, merit-based career advancement, and best-in-class people policies.

Acknowledging the trends shaping the work culture today, the Group launched a number of initiatives to improve its existing systems and processes, and developed new tools to enhance employee engagement and experience.

The Company's human capital strategy focusses on ongoing education and training in order to help employees gain new skills and capabilities as well as ensure regular involvement.

For more details, refer to the chapter on Human Capital on page 40

XV. Cautionary Statement

The Management Discussion and Analysis contains statements about future events, financial and operating results of Thermax Group, which are forward-looking. By their nature, forward-looking statements require the Company to make assumptions and are subject to change based on risks and uncertainties. A number of factors could cause assumptions and actual future results and events to differ materially from those expressed in the forward-looking statements. Readers are cautioned not to place undue reliance on forward-looking statements.

New joinees partnering in the journey for a better tomorrow