

## 6. Performance on Strategy

### Quick Overview of Strategy

#### **SO1 Increase the share of green offerings**

##### **Definition**

To provide solutions that lead to clean air, clean energy and clean water

##### **Focus Areas**

- Build-own-operate (BOO) model for utility delivery services
- New renewable energy solutions
- Waste to energy solutions
- Water recycling and zero liquid discharge (ZLD)
- Solutions for particulate and gaseous emissions
- Gasification (coal/biomass to chemical)
- Green hydrogen

#### **SO2 Grow products and services portfolio**

##### **Definition**

To innovate and develop new products and services to reduce the cyclicity of large orders

##### **Focus Areas**

- Industrial products (heating, cooling, water and waste solutions and air pollution control)
- Chemical portfolio
- Services
- Digital solutions

#### **SO3 Focus on internationalisation**

##### **Definition**

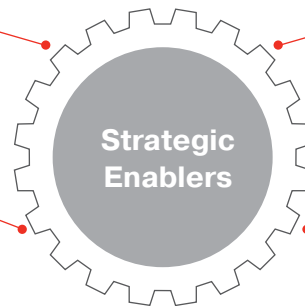
To increase the market share in select geographies outside India

##### **Focus Areas**

- International business
- Exports

Develop and retain talent

Build a smart and efficient Thermax through a structured digitalisation roadmap



Technology leadership through innovation

Operational excellence to deliver high-quality and competitively priced solutions to customers

### SO1: Increase the Share of Green Offerings

All non-fossil fuel-based operations or applications across the business segments are deemed 'green' by Thermax. Its commitment to sustainability and innovation positions it as a leader in the global shift towards a low-carbon and water positive future. The green offerings play a critical role in enabling a sustainable energy transition, while also addressing several environmental challenges. During the year, this portfolio accounted for 67% of total orders.

#### Engaging in Partnerships to Support our Strategy:

- In July 2022, Thermax executed a shareholders' agreement with EverEnviro Resource Management (EverEnviro) for incorporating Thermax Bioenergy Solutions Private Limited to execute technology, engineering, procurement & construction (TEPC) scope for a bio-CNG project. Energy generated through bio-waste will not only provide green energy, but also address challenges related to stubble burning. With this partnership, Thermax moved another step forward in providing sustainable energy solutions and fostering its vision to become a champion in energy transition.

- Thermax is exploring the green hydrogen market in partnership with the Australian company, Fortescue Future Industries (FFI), by signing a memorandum of understanding (MoU) for developing a green hydrogen ecosystem in India. As part of this collaboration, the two companies will jointly explore

opportunities to develop, build, and operate green hydrogen projects. The respective expertise and capabilities of the two companies will be leveraged to create an integrated value chain for the production, storage, and utilisation of green hydrogen.



Ashish Bhandari, MD and CEO, Thermax with Dr. Andrew Forest, Chairman, Fortescue Future Industries after signing the partnership

## Key Business Updates Supporting the Strategy

Business Segments	Major Orders Received in FY 2022-23
<b>Industrial Products</b>	<p><b>Process Heating</b></p> <ul style="list-style-type: none"> <li>● First-of-its-kind biomass fired energy plant with 36 MW capacity, with 100% flue gas recirculation for a new particle board plant, and flexibility to operate in nine load combinations</li> <li>● Large capacity biomass-fired reciprocating grate thermal oil heater (8 Mn kCal/hr) for a major polyester film manufacturer</li> <li>● Rice straw briquette-fired boiler (25 TPH) for an FMCG major</li> <li>● Coffee waste-fired boiler (45 TPH) for a coffee manufacturer</li> </ul> <p><b>Absorption Cooling and Heating</b></p> <ul style="list-style-type: none"> <li>● 4 x 1000 TR hot water absorption chillers commissioned for a synthetic textile manufacturer in western India, to be utilised for process air cooling. The hot water extracted from the continuous polymerisation process resulted in ~2 MW power saving for the customer</li> </ul> <p><b>Air Pollution Control</b></p> <ul style="list-style-type: none"> <li>● Received highest-ever order for ESP upgradation</li> <li>● Received largest cement APC package (integrated plant - 4 nos., grinding units - 7 nos., total 31 equipment)</li> <li>● Increased order booking from agro-based industries and non-ferrous applications</li> </ul> <p><b>Water and Waste Solutions</b></p> <ul style="list-style-type: none"> <li>● Offered complete water reuse and zero liquid discharge (ZLD) project to an F&amp;B company with 50 KLD MEE, and a textile major with 113 KLD MEE, to help them meet their ESG goals</li> <li>● Commissioned the first pre-fabricated MEE as part of the ETP-ZLD solutions for the F&amp;B industry</li> <li>● Initiated first ETP augmentation in leading petrochemicals, followed by recycling for an oil &amp; gas major</li> <li>● Revamped and enhanced the capacity of seawater reverse osmosis plant (SWRO) at a chemical giant, and installation of energy recovery device (ERD) achieving 60% power savings</li> </ul>
<b>Industrial Infra</b>	<p><b>Projects and Energy Solutions</b></p> <ul style="list-style-type: none"> <li>● Received multiple orders for cogeneration plants from the distillery segment</li> <li>● Received a major order for the mechanical balance of plant works for a gas-based power plant from an Indian conglomerate</li> </ul> <p><b>Boiler &amp; Heater (TBWES)</b></p> <p>☞ For more details, refer to Subsidiaries of the Company on page 32</p> <p><b>Thermax Bio Energy Solutions (TBSPL)</b></p> <p>☞ For more details, refer to Subsidiaries of the Company on page 34</p>

## Business Segments Major Orders Received in FY 2022-23

### Green Solutions

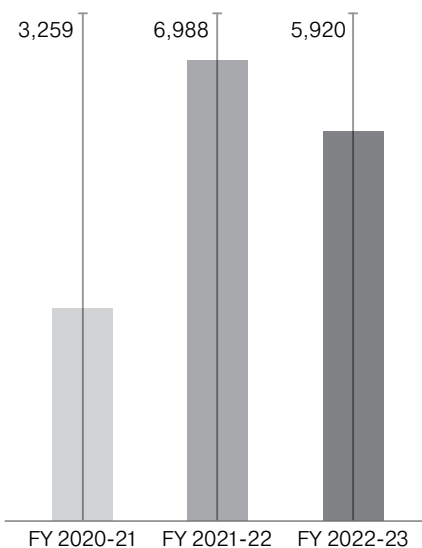
#### Renewable Energy Solutions (First Energy Private Limited)

➔ For more details, refer to Subsidiaries of the Company on page 37

#### Build-Own-Operate Solutions (TOESL)

- Successfully executed a large 33 TPH biomass cogeneration plant for an aluminium major in Karnataka
- Commissioned biomass boiler plants for steam supply to a pharmaceutical major, a zero liquid discharge plant for a steel major, and two solar PV plants for power supply to two chemical companies
- Developed a biomass fuel supply chain with a total capacity of 1,870 tonnes per day (TPD), of which 870 TPD was supplied to plant sites. The total fuel supplied was over 2.9 lakh tonnes.

### Order Booking from Green Offerings (Rs. crore)



TOESL commissions first biomass-based cogeneration plant for an aluminium major on BOO basis

### S02: Grow Products and Services Portfolio

In FY 2022-23, the Company's order bookings for products & services portfolio stood increased to Rs. 4,279 crore, up from Rs. 3,596 crore in the previous financial year of FY 2021-22. The growth in order value can be attributed to a consistent inflow of orders for our products, and also our stringent focus on offering comprehensive solutions for revamping and retrofitting, besides operations & maintenance services.

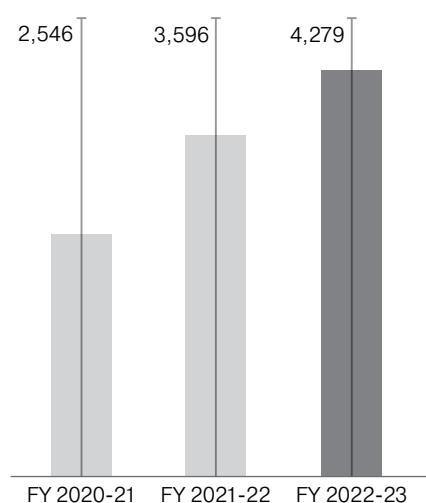
The recent roll-out of Edge Live, a digital solution powered by advanced capabilities of artificial intelligence, machine learning and Thermax-engineered algorithms also contributed to the success of this strategy.

Since its launch in June 2022, Edge Live has been adopted by over 70 customers across 10+ countries, monitoring 4,000+ assets at 140+ sites. The service is used by companies from over 15 different sectors, including small-scale

businesses and multinational corporations. The monitoring of assets is carried out by four dedicated operations centres located in India and staffed by a team of asset-class subject matter experts. These centres not only ensure high uptime, efficiency, and reliability of assets, but also collaborate extensively with customer stakeholders and facilitate knowledge management and expert guidance to enhance community learning.

Business Segments	Launch of Products Supporting the Strategy	Key Highlights
<b>Industrial Products</b>	<p><b>Process Heating</b></p> <ul style="list-style-type: none"> <li>● Thermotron™, an innovative electric boiler that helps meet sustainability goals by accelerating industrial decarbonisation. Steam can be generated from electricity in this compact unit for industrial processes, resulting in 99% efficiency.</li> <li>● Aquanexa E Series, an advanced heat pump that caters to the hot water needs of various commercial segments</li> </ul> <p><b>Absorption Cooling and Heating</b></p> <ul style="list-style-type: none"> <li>● Xtra Performance Series of VAM</li> <li>● Developed a multi-effect low steam pressure chiller to cater to low-pressure steam, which can be extracted across a range of processes and used for chilling needs</li> </ul> <p><b>Water and Waste Solutions</b></p> <ul style="list-style-type: none"> <li>● A new modularised UF system E-Flow (Application: pre-treatment to RO or post-treatment to STP)</li> </ul>	<p><b>Process Heating</b></p> <ul style="list-style-type: none"> <li>● Thermotron™ is generating a buzz across a wide range of industries, including breweries, food processing, pharmaceuticals, FMCG conglomerates, petrochemicals, dairy, edible oil, and hotels &amp; hospitality. These industries are intrigued by the electric process heating technology, which simplifies operations and promotes sustainability in industry.</li> <li>● Aquanexa is rapidly gaining popularity among hotels, hospitals, hostels, and commercial spaces. This is primarily attributed to its seamless installation process and the fact that its hot water generator produces zero local emissions, makes it an environmentally-friendly choice.</li> </ul> <p><b>Absorption Cooling and Heating</b></p> <ul style="list-style-type: none"> <li>● Xtra Performance Series of VAM is relatively more productive by 15% to 18% and reduces LiBr consumption by 14%</li> <li>● Recorded 17% growth in value-added spares business</li> </ul> <p><b>Water and Waste Solutions</b></p> <ul style="list-style-type: none"> <li>● Received an order for four units, which are currently under assembly</li> </ul>
<b>Industrial Infra</b>	<p><b>Projects and Energy Solutions</b></p> <ul style="list-style-type: none"> <li>● Entered into a technology partnership with Covacsis</li> </ul> <p><b>Boiler &amp; Heater (TBWES)</b></p> <ul style="list-style-type: none"> <li>● Flexisource™, a solution that can combust several types of waste fuels, providing higher fuel flexibility to customers</li> </ul>	<p><b>Projects and Energy Solutions</b></p> <ul style="list-style-type: none"> <li>● Partnered with Covacsis, engaged in providing products and solutions to Industrial IoT, Industry 4.0, smart manufacturing and digital manufacturing space</li> </ul> <p><b>Boiler &amp; Heater (TBWES)</b></p> <ul style="list-style-type: none"> <li>● Booked several orders in FY 2022-23 ranging from steam generation of 20 TPH to 70 TPH at high-pressure temperature cycles</li> </ul>
<b>Green Solutions</b>	<p><b>Build-Own-Operate Solutions (TOESL)</b></p> <ul style="list-style-type: none"> <li>● Portfolio diversification and backward integration</li> </ul>	<p><b>Build-Own-Operate Solutions (TOESL)</b></p> <ul style="list-style-type: none"> <li>● Focussed on bio-CNG and water &amp; wastewater treatment solutions under the build-own-operate model</li> </ul>

### Order Booking from Products & Services (Rs. crore)



Synchronisation of 2 x 40 MW captive power plant for a Navratna public sector enterprise

### S03: Focus on Internationalisation

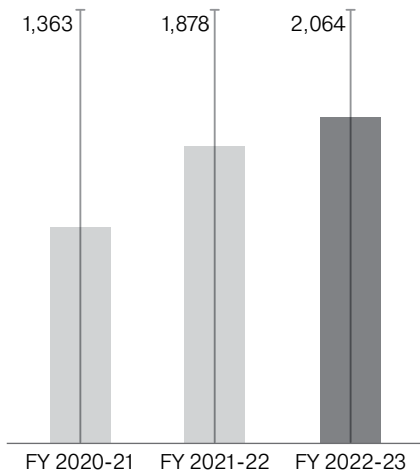
In FY 2022-23, Thermax's order booking in the international business segment was Rs. 2,064 crore, compared to Rs. 1,878 crore in FY 2021-22. The overseas segment accounted for 23.5% of the year's overall order booking. International business revenue for the Group stood at Rs. 2,041 crore, up from Rs. 1,621 crore in FY 2021-22.

Business Segments	Key Highlights
Industrial Products	<b>Process Heating</b> <ul style="list-style-type: none"> <li>● A 12 TPH oil &amp; gas fired boiler was supplied for an FMCG giant in Bangladesh</li> <li>● Order for 4 nos. oil &amp; gas fired 25 TPH steam boilers from an oil &amp; gas major in the Middle East</li> <li>● Order for biomass-fired 34 TPH &amp; 10 TPH steam boilers, and 8 Mn kCal/hr for edible oil major in Indonesia</li> <li>● Order for a 22 TPH biomass-fired steam boiler for a food major for their plant in Sri Lanka</li> <li>● Order for 25 TPH biomass-fired steam boiler for edible oil major in Nigeria</li> </ul>
	<b>Absorption Cooling and Heating</b> <ul style="list-style-type: none"> <li>● Received major orders from the hospitality sectors in Puerto Rico and Caribbean nations; these are expected to grow the absorption chiller business</li> <li>● Received an order for eight multi-energy chillers, which is expected to be commissioned in Q3 of FY 2023-24</li> <li>● Increased focus on new markets such as Korea, Taiwan and select African nations</li> </ul>
	<b>Air Pollution Control</b> <ul style="list-style-type: none"> <li>● Facilitated strategic penetration in the cement market in Thailand</li> <li>● Received a maiden order for a submerged arc furnace in Oman</li> <li>● Received an FGD order from a French process engineering company for a leading oil refinery in Kuwait</li> <li>● Established a strong presence in APC business, with several references in South East Asia, given its expertise in project execution and increased enforcement of air pollution norms</li> <li>● Received orders from new markets in Turkey, Germany, Greece, Brazil and the United States</li> </ul>



Business Segments	Key Highlights
	<p><b>Water and Waste Solutions</b></p> <ul style="list-style-type: none"> <li>Received a maiden EPC order in East Africa for the largest edible oil refinery</li> <li>Received an order for the first pharma-grade plant in South East Asia for a Philippines-based pharmaceutical company, with pre-treatment and three units of RO-CDI</li> </ul>
<b>Industrial Infra</b>	<p><b>Projects and Energy Solutions</b></p> <ul style="list-style-type: none"> <li>The contracted base of the EPC power plant reached 3,560 MW, of which 443 MW are overseas</li> <li>Received an order for plant performance evaluation from a Thailand-based customer</li> </ul> <p><b>Boiler &amp; Heater (TBWES)</b></p> <p>➤ For more details, refer to Subsidiaries of the Company on page 32</p>
<b>Green Solutions</b>	<p><b>Build-Own-Operate Solutions (TOESL)</b></p> <ul style="list-style-type: none"> <li>Ensured targeted efforts in select SEA and African countries to offer utilities under the build-own-operate model</li> </ul>
<b>Chemicals</b>	Partnered with ChemPoint to expand Thermax's ion exchange resin business in North America

**International Order Booking (Rs. crore)**



A state-of-the-art flue gas desulphurisation (FGD) system delivered to a prominent sugar refinery in Saudi Arabia