Heavy Engineering Business

The Heavy Engineering business is structured into two business groups:

- Process Plant Equipment and Nuclear
- Defence and Aerospace

Process Plant Equipment and Nuclear

Overview

L&T's Heavy Engineering (HE) business is amongst the top 5 global fabricators to supply engineered-to-order critical equipment, piping and systems for core sector industries - Fertilizer, Petrochemical, Refinery, Oil & Gas, Gasification, Thermal & Nuclear Power, including critical revamp and up-gradation projects. These equipment and systems are the most critical part of major investments. The business has achieved international recognition through an impeccable track record of executing large and complex projects. Capabilities include state-of-the-art technology, engineering analysis, globally benchmarked, fully-integrated manufacturing facilities, a Research and Development centre, and an experienced and highly skilled talent pool. The sustainability and safety standards at manufacturing facilities are on par with international standards.

The business is a leading supplier of hydro-processing reactors, ethylene oxide reactors, fluid catalytic cracking reactor regenerator systems, high-pressure breech lock heat exchangers, waste heat boiler packages, ammonia converters, urea reactors, urea strippers, methanol converters, coke drums, proprietary internals and other critical equipment for process plants. Nuclear power sector supplies include equipment such as steam generators, end shield assembly and pressurizers.The manufacturing facilities are located in Mumbai, Hazira (near Surat) and Vadodara. The business also provides modification, revamp and up-gradation services in niche areas. The Piping business unit fabricates critical piping spools for applications in the power, refinery, petrochemical, fertilizer and chemical sectors (for high-pressure, temperature and corrosive services) and has a track record of exporting piping spools globally.

The business has a JV with Nuclear Power Corporation of India (NPCIL), which holds a strategic facility to cater to the demand for critical forgings required for the Indian Nuclear Power programme and for other crucial sectors like Defence, Hydrocarbon and Oil & Gas.

Business Environment

A sluggish global economy impacted the business for the first 3 quarters of 2017-18. Key markets, viz. USA, Brazil and China, offered very few opportunities. Other major markets targeted i.e. Iran and Russia, were impacted due to geopolitical reasons. The Middle East economy slowed down due to lower oil prices. Worldwide, most countries

Two trains of FCC Packages (8,650 MT) for Petronas RAPID Project, Malaysia

responded to the slowdown with restrictive import policies and the demand for localization. On the domestic front, major economic reforms, viz. Demonetization and the introduction of the Goods & Services Tax (GST) led to a delay in the tendering process and investments.

The order inflow for the Nuclear business was impacted due to slow progress in order placements. Surplus capacities and limited demand led to aggressive competition and put extensive pressure on pricing and deliveries. The business focused on operational excellence to deal with the challenging market scenario and regained its competitiveness. Major orders executed in 2017-18 include equipment for RAPID, EXXON, KNPC AL ZOUR, CPCL, IOCL, KBR Lotte Chemicals etc. Major orders received include orders for reactors, columns and vessels from HPCL including heaviest hydro processing reactor by L&T – 1840 MT, coke drums from Marathon USA, a major nuclear order for steam generators and end shields for GHAVP, Haryana.

Significant Initiatives

In order to maintain its leadership position, the business has drawn up a five-year Strategic Plan focusing on profitable growth. Major initiatives include product portfolio restructuring, key account management, talent management and organization excellence. Digitalization has been identified as a key driver for improving quality and productivity. The culture of continual improvements in operations helps the business attain global benchmarks.

The Product & Technology Development Centre of the business is focusing on the development of new products and manufacturing technologies. The areas of focus include welding and metallurgy, heat transfer, hydrodynamics and computational fluid dynamics.

Outlook

With the uptick in crude oil prices, there is revival in the demand for oil in international markets. Global growth started picking up towards the end of FY 2017-18, and the business outlook for the Process Plant sector looks optimistic, with major investment proposals expected in South East Asia, MENA and the domestic market. Major investments are expected in five to six refineries around the world in view of the increase in global demand. Foremost opportunities include Takreer in Abu Dhabi, DUQM in Oman, KNPC in Kuwait and Thai Oil in Thailand.

The domestic market is also showing signs of revival of the Capex cycle by major players in the petrochemical sector. Investments are expected in the domestic sector by IOCL, HPCL, HMEL and BPCL for capacity enhancement and BS-VI upgradation to comply with the applicable fuel standards. This is going to benefit the business in the form of steady order inflow in the medium term. In the Fertilizer sector, major opportunities include revival of sick FCI and HFCL units, energy saving and capacity enhancement projects driven by the New Urea Policy 2015 (NUP 2015). The upcoming opportunities in Talcher Fertilizer will also open fresh avenues of business growth.

In the Nuclear sector, fleet procurement opportunities in 700 MWe PHWR projects will provide large growth opportunities in FY 2018-19.

Heavy Thick Vessels (3,312 MT) for KNPC Al-Zour Refinery, Kuwait

Methanol Converter

Defence and Aerospace

Overview
L&T's defence business provides indigenous solutions across the spectrum – from platforms to surveillance-to-strike capabilities. Having started as a diversification initiative primarily with the R&D model, the business has metamorphosed through growth phases, developing technologies, products, systems, and providing solutions across the communication, weapon & weapon delivery systems, and platforms for naval applications. Currently, the business has grown into an integrated portfolio and serves the Armed Forces and the Defence Research & Development Organisation (DRDO).

The Defence business is structured into two business groups:

1. Defence & Aerospace
2. Defence Shipbuilding (reported under 'Others' segment in financial statements)

1. Defence & Aerospace
L&T's Defence and Aerospace (D&A) business is today engaged in design-to-delivery solutions and serially produces these across its chosen defence segments. For over three decades, L&T has focussed on design, engineering and building Indian products, systems and technologies with Defence Research and Development Organisation, India (DRDO), as well as with its in-house research and development. The business has developed and is into manufacturing artillery systems, air-defence systems, land & naval weapon systems with associate fire-control solutions, naval equipment & systems, engineering systems for land and naval forces, military bridging systems, communication systems, missile propulsion air frames and rocket motors for space-launch vehicles.

L&T has stayed committed to 'Make in India', and has invested in creating multiple work centres across the country dedicated to the defence business. These include the assembly & integration facility at Talegaon near Pune, missile sub-system manufacturing facility at Coimbatore and the defence electronics facility at Bengaluru. Besides these dedicated facilities, specific work-centres are set up at Hazira (near Surat) for the strategic programme, Ranoli (near Vadodara) for advanced composites, at Powai (Mumbai) for prototype development and testing, and a site at Vishakhapatnam operating under the GOCO model for a strategic programme. L&T continues to develop indigenous systems and solutions for the 'Indigenously Designed, Developed and Manufactured' (IDDM), 'Make' and 'Buy and Make Indian' category of programmes under the Defence Procurement Policy. It has planned investments in its Product & Technology Development Centre at Powai and at Bengaluru for technologies of the future.

The business has a Joint Venture (JV) with MBDA (world leader in missiles and missile systems), and is well-poised to develop and produce futuristic missiles and missile systems to meet the growing potential requirements of the Indian Armed Forces.

K9 Vajra-T 155mm/52 Cal Self-Propelled (SP) Tracked Gun

Pinaka Multi-barrel Rocket Launcher

2. Defence Shipbuilding

The shipbuilding business operates two defence shipyards – one at Hazira Manufacturing Complex (since 2007) and a greenfield mega shipyard at Kattupalli near Chennai (since 2012). Located across a sprawling 1225-acre complex, the Kattupalli Shipyard is India's largest shipyard, designed in-house, and built to globally benchmarked technological practices. Dedicated, independent Design Centres for warships and submarines are equipped with integrated 3D design, analysis, virtual reality and Product Lifecycle Management, interfaced with project management and ERP systems in line with global best practices.

The shipyards have successfully delivered interceptor boats, offshore patrol vessels and a floating dock for the Indian Navy, with the remarkable achievement of each vessel being either ahead of time or on schedule – a new benchmark in the Indian shipbuilding industry.

Business Environment

In line with the motto of 'Make in India' and 'Ease of doing business' agenda, the Government has brought about major improvements in policies in the Defence sector. The enabling policies include release of a Strategic Partnership Policy, Simplified Make II Procedure, announcement of Defence Industrial Corridors and a draft Defence Production Policy. With these policy initiatives moving towards creating a level playing field over the past three years, the import content has shown a downward trend.

The Capital Budget for Defence in FY 2018-19 has grown by around 7% as compared to that during FY'18. The major allocation of the capital budget is to meet existing commitments of MoD, and the allocation to undertake new acquisitions is likely to be under pressure. With the preferential categorization of acquisition programmes towards indigenous sourcing, India's imports are expected to continue to show downward trends, going forward. There is also active support and facilitation by the Government towards indigenous defence production and export.

In the Aerospace segment, L&T collaborates with ISRO as technology partners for the development of special-purpose test facilities for India's space programmes. In the wake of meeting increasing demands of the space sector in a timely manner, ISRO is exploring outsourcing of launch vehicles and sub-assemblies to the private sector.

Significant Initiatives

The business is focused on achieving a profitable growth as per its Strategic Plan. It has been built on the strengths of R&D and Design, matched by great production performance over the past three decades, with unstinted technology, product development and investments in innovation. The new Integrated Reporting Standards which the management has decided to embrace from FY 2018-19 stresses upon the need to look at sustainability even more comprehensively, and commitment to social programmes. The business continues to efficiently leverage human capital, invest across work centres towards digital transformation, focus on conserving and utilizing alternative sources of energy, and further enhancing efficient process and business sustainability, besides protecting the environment.

L&T is building 54 Interceptor Boats for the Indian Coast Guard

One of seven offshore patrol vessels designed and built by L&T

The Government has awarded L&T the largest-ever contract on a private player for Tracked SP Artillery Howitzers. Therefore, L&T is setting up an Armoured System Complex at Hazira to serially produce these K-9 Vajra Howitzers. This programme has served as the clear indicator of the MoD's commitment to push the 'Make in India' agenda.

Outlook

With the draft Defence Production Policy highlighting the vision 'to make India among the top five countries of the world in Aerospace and Defence industries, with active participation of public and private sector…' the preference for indigenously designed and developed systems will result in opportunities in adjacent domains. Over the medium-term, significant opportunities are envisaged in programmes for new-build naval (surface as well as underwater) platforms, refit of conventional submarines, artillery and air defence guns, close-in weapons systems, military bridging systems, missile programmes (repeat orders), and sub-systems for space launch vehicles. L&T is poised and positioned to play a proactive role in ensuring self-reliance of our nation through successful 'Make in India' initiatives.

With regard to implementation of the Strategic Partnership Policy, Request for Information (RFIs) for conventional submarines (P75I) and the Future Ready Combat Vehicle (FRCV) armoured platform were issued this year to foreign OEMs. EOIs to Indian as well as foreign OEMs are expected to be issued. L&T is likely to be positioned to be selected as a Strategic Partner in key segments. The JV with MBDA is well positioned to address IDDM opportunities, 'Buy Indian' programmes as well as 'Buy and Make Indian' programmes with access to latest state-of-the-art technologies like the Fifth Generation technology for Anti-Tank Guided Missile (ATGM).

With sharper focus on gaining growth momentum, the business reiterates its commitment to nation-building.

The Floating Dock designed and built for the Indian Navy.