

POWER BUSINESS



400 MW Combined Cycle Power Plant, Bibiyana-III, Bangladesh

Overview:

L&T has established itself as one of the leading EPC players in the Power Plant business in India and is known to deliver complete turnkey business solutions from concept to commissioning for the thermal power industry.

The business has built on its core competencies and capabilities and has emerged as a major player in new technologies such as Flue Gas Desulphurization (FGD) in the thermal power plant industry. It now has a sizeable presence in the FGD business.

The business has developed its own capabilities for executing large and complex power projects, which include in-house engineering, state-of-the-art manufacturing facilities, competent manpower and decades of experience earned in executing large and complex projects within and outside India. The business has a proven track record of delivering complete power plant solutions with scale and sophistication to meet India's growing energy needs.

L&T's integrated power equipment manufacturing facility at Hazira, Gujarat, is one of the most advanced in the world. The facility manufactures ultra-supercritical / supercritical boilers, turbines and generators, pulverisers, axial fans and air preheaters, components of FGD and electrostatic precipitators.

The business has project management offices at Vadodara and Faridabad.

The business is now gearing up to make its mark to provide EPC solutions for Turbine Island of nuclear power plants and has taken the necessary steps to participate in tenders for upcoming nuclear power projects.

The business has the following JVs within its fold:

L&T-MHPS Boilers Private Limited, a joint venture with Mitsubishi Hitachi Power Systems Limited (MHPS) Japan, for the engineering, design, manufacture, erection and commissioning of ultra-supercritical / supercritical boilers in India up to a single unit of 1000 MW.

L&T-MHPS Turbine Generators Private Limited, a joint venture with Mitsubishi Hitachi Power Systems Limited (MHPS), Japan and Mitsubishi Electric Corp. (MELCO), for manufacture of Steam Turbine Generator (STG) equipment of capacity ranging from 500 MW to 1,000 MW. It is engaged in engineering, design, manufacture, erection and commissioning of ultra-supercritical / supercritical turbines and generators in India.

L&T Howden Private Limited, a joint venture with Howden Holdings B.V. L&T Howden, is in the business of regenerative air-preheaters and variable



2x660 MW Khargone Thermal Power Plant, Madhya Pradesh, India

pitch axial fans (equipment, after-market spares and services) for power plants.

L&T Sargent & Lundy, a joint venture with Sargent & Lundy LLC, USA, which is engaged in the business of providing design, engineering and project management services for the power sector.

Business Environment

In the wake of the Government's increasing emphasis on renewable energy, the thermal power sector is growing at a slow pace. However, compared to the previous year, this year witnessed improved ordering in coal-based power projects with the advent of major hydel players like SJVN Limited and THDC India Limited in the coal sector.

L&T's FGD segment continued its order-winning streak with a total of 13.4 GW out of 65 GW of orders from the Central, State and Private sector companies chasing the deadline of installing FGDs to meet revised emission norms by 2022.

Going forward, the power sector will continue to face challenges like availability of funds, lowering plant load factor, financial stress, load balancing, coal and water availability issues, payment assurances, etc. Further, muted demand from the private sector and excess manufacturing capacity of suppliers continues to put pressure on prices.

Major Achievements

Some of the major achievements by the business during the year include:

- Achieved Commercial Operation of India's First Ultra Supercritical power project for Central Utility in Madhya Pradesh. Also achieved completion of Performance Guarantee Test of 1st unit and completion of Trial Operation of 2nd unit of this project
- Forayed into Turbines for Nuclear sector in collaboration with MHPS, Japan and participated in NPCIL's ambitious tender for 6x700 MW Turbine Island package for Gorakhpur and Kaiga projects, which are expected to be ordered in financial year 2020-21
- Received Certification for completion of Phased Manufacturing Program (PMP) for Supercritical Steam Generators and Steam Turbine Generators as required under CEA's regulation for setting-up of Indigenous manufacturing facilities

Significant Initiatives

As a part of continuous improvement in operating efficiency, the workshop at Hazira (near Surat) for manufacturing of ESP Collecting Electrodes was upgraded to undertake manufacturing of casings made of exotic material (nickel-based high alloy) for absorbers required in FGDs.



2x660 MW Chhabra Thermal Power Plant, Rajasthan, India

The business has embarked upon several initiatives to reduce cost in areas like procurement, manufacturing, logistics, value engineering, overheads, etc., and has utilized the services of leading consultants/subject matter experts. The business has been able to improve its competitiveness due to these initiatives and intends to continue its cost-saving journey in the coming years. The business also enhanced its focus on initiatives to achieve quality and EHS excellence and expand its global footprint.

Digitalisation

The business is working on various digital technologies at its project sites and offices. Its key initiatives include deployment of the Internet of Things (IoT) in various plants and on machinery at sites to benchmark and improve its machine utilization, health of machines and their duty cycles; use of Artificial Intelligence (AI) & Machine Learning (ML) for video analytics like weighbridge and store surveillance; Robotic Process Automation (RPA) to automate repetitive processes to improve people productivity; Virtual Reality (VR) using immersive videos for imparting safety training more effectively and Augmented Reality (AR) for initiatives like smart-glass for remote project monitoring to reduce travel time and cost. Efforts are also being made to leverage the available data to get insights such as price

discovery for SCM and sentiment analysis for HR using various analytics methodologies.

Environment, Health and Safety

Safety is one of the core elements of the business. Besides ensuring implementation of robust engineering solutions to enhance safety, various initiatives are being undertaken to sensitize the workforce. The theme-based safety skit is one such innovative platform. Online hazard and near-miss reporting and compliance is an example of embracing digitalisation in safety processes. The business' commitment towards safety is reaffirmed by various means, including monthly theme-based safety campaigns, audits and inspections.

Risks and Concerns

With the increased emphasis on renewable energy, the business may face some headwinds on the opportunities available. However, the business anticipates that coal will continue to be a dominant source of power generation in India and that may continue to offer market opportunities. Excess manufacturing capacity, however, will continue to drive the prices downwards and would reflect in the financials of EPC players. The onslaught of the pandemic has set in some uncertainty on project execution timelines, for which the business has initiated the required steps considering force majeure conditions.



Supercritical boiler internals being manufactured at Hazira, Gujarat



Supercritical turbine being manufactured at Hazira, Gujarat

Outlook

The projection of 292 GW thermal power capacity by FY25 in the National Infrastructure Pipeline (NIP) report published by the Department of Economic Affairs (Ministry of Finance) and retirements of old, inefficient and polluting power plants indicate that thermal power is still going to be the mainstay in the country's power generation mix. Considering the huge number of old and inefficient power plants which are nearing retirement, the business is confident of growth in capacity addition in the thermal power sector to match projected rise in demand for power. Coal-fired stations will continue to be in demand as it would ensure stable power and provide peaking power requirements and ensure a balanced grid.

It is estimated that the total installed capacity of power plants in which FGDs are to be installed is around 167 GW, involving 440 FGD units. Of this, 65 GW of orders have already been placed, while additional 100 GW of orders are expected to gain momentum in time to come.

The Government has an ambitious plan to increase the nuclear power production to 23 GW by 2031 from the current level of 7GW. The business sees large value opportunities in this segment and has tied up with world-class OEMs.

Gas-based plants are expected to be slowly revived in India. Since the revival of the domestic gas sector is going to take some time, the business continues to focus on markets outside India for gas-based power plants. The target countries are Bangladesh, Sri Lanka, Myanmar and GCC countries. The business has taken steps to strengthen its presence in the Middle East to capitalise on the available opportunities in this sector.

The L&T-MHPS Boiler JV and L&T-MHPS Turbine Generator JV are looking forward to leveraging upcoming spares and service opportunities in the domestic market and will continue to explore business opportunities in the international market for export orders.