



L&T Construction

Power Transmission & Distribution



revolutionizing power **infrastructure**



The Indian CONSTRUCTION GIANT

L&T Construction, India's largest construction organization and ranked among the world's top contractors, has been transforming cityscapes and landscapes with structures of immense size and grandeur for several decades. The organization's capabilities span the entire gamut of construction – civil, mechanical, electrical, and instrumentation engineering – and its services extend to all core sector industries and infrastructure projects.

Several of the country's prized landmarks – edifices, structures, airports, industrial projects, flyovers, viaducts, water and power infrastructure projects – carry L&T's signature of excellence in construction. Today, more and more structures beyond India's boundaries are standing tall, thanks to L&T Construction.

L&T Construction straddles seven related businesses:

- Buildings & Factories
- Transportation Infrastructure
- Heavy Civil Infrastructure
- Power Transmission & Distribution
- Water & Effluent Treatment
- Minerals & Metals
- L&T GeoStructure

Over eight decades of **UNDISPUTED LEADERSHIP**

Larsen & Toubro is an Indian multinational engaged in EPC projects, hi-tech manufacturing, and services. It operates in over 50 countries worldwide. A strong, customer-focused approach and the constant quest for top-class quality have enabled L&T to attain and sustain leadership in its major lines of business for over eight decades.

EPC PROJECTS	
CONSTRUCTION	ENERGY
HI-TECH MANUFACTURING	
HEAVY ENGINEERING	DEFENCE
SERVICES	
IT SERVICES	TECHNOLOGY SERVICES
DIGITAL SERVICES & E-COMMERCE	
FINANCIAL SERVICES	
OTHERS	
REALTY	SMART WORLD & COMMUNICATION
CONSTRUCTION & MINING MACHINERY	
RUBBER PROCESSING MACHINERY	VALVES

Building landmarks, setting benchmarks*

- **12** International Airports
- **310,000+** IT Seats
- **81,500+** Dwelling Units
- **90+** Manufacturing Facilities
- **27,000+** Hospital Beds
- **5 lakh +** km of Water & Waste Water Networks
- **9,300** MLD of Water & Waste Water Treatment Plants
- **9.3 lakh** Hectares of Land Being Irrigated
- **905** EHV Substations
- **45,345 ckm** of Transmission Lines
- **100,000+** Habitations Electrified
- **3.6** GWp Portfolio of Solar Plants
- **420** km of Metro Rail Corridors
- **243** km of High-Speed Rail
- **23,134** Lane km of Roads, Interchanges, & City Infra
- **10.38 million** Sq. m. of Runways
- **9,163.7** MW of Hydro Power Projects
- **8,080** MW of Nuclear Power Projects
- **5,713** Tkm of Railway Track Laying
- **20,501** Tkm of Railway Electrification
- **40 million** tonnes of Hot Metal (Iron) Making
- India's Largest City Surveillance Project: **6,000** cameras at **1,500** locations at Mumbai

*The track record information published here is as of March 2023

A PLAYER OF SUBSTANCE

India's first 1200 kV substation at Bina

The impossible is often the untried. L&T Construction has never let lack of precedent stand in the way of accomplishment.

L&T's specialized Power Transmission & Distribution (PT&D) business has set benchmarks in capacity, complexity and speed of execution. Through its dedicated business segments, L&T offers integrated solutions for a broad spectrum of power transmission and distribution projects.

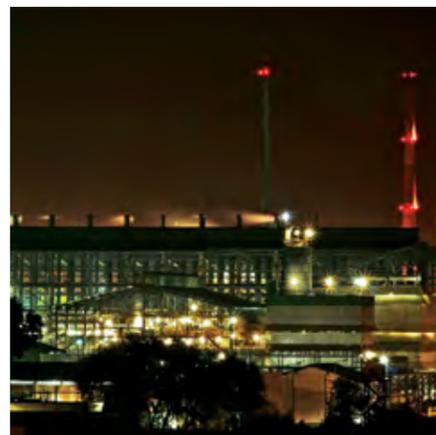
Substations: Design and construction of all types of power evacuation projects from concept to commissioning on EPC basis with key focus areas being Air Insulated Substations (AIS) of up to 1200 kV and Gas Insulated Substations (GIS) of up to 765 kV.

Infrastructure and Industrial Electrification: Turnkey electrification, instrumentation and communication solutions for the whole gamut of core industries covering power, infrastructure, metallurgical and process plants, IT parks, airports, sea ports, metros and intra-city power transmission networks. Balance of Plant (E-BoP and I-BoP) works for power and infrastructure projects and optic fibre cabling solutions for backbone access networks.

Utility Power Distribution: Comprehensive solutions for power quality improvement, smart grids, SCADA systems and distribution reform projects across the country.

Transmission Lines: Turnkey design and construction of transmission lines with capabilities that include design, manufacture, supply, construction, testing and commissioning of EHV power transmission lines and turnkey solutions for the construction of microwave towers.

International Operations: Single-window solutions in executing power evacuation, transmission and distribution projects on EPC basis through its dedicated international business operations set up in GCC, Africa and ASEAN Regions.



Electrification for Hindustan Zinc at Chanderiya



Switchgear panels for a steel plant



765 kV Sipat - Seoni transmission line



220 kV grid substation at Airport Heights, Oman



132 kV GIS for Salah power plant, Oman

765 kV ultra high voltage AIS at Unnao



400 kV switchyard for Jindal Power Plant



400 kV GIS switchyard at Chennai



India's first STATCOM at NP, Kunta, Andhra Pradesh



765 kV GIS, Hyderabad



765 kV GIS at Pune



STEPPING UP EVACUATION TECHNOLOGY

Substations

With India's power sector poised for accelerated growth, ultra-high voltage substations are the next level of transmission in the country. As one of the prime players in the power sector, L&T is at the forefront of constructing high quality transmission and utility networks for Air Insulated Substations (AIS) of up to 1200 kV and Gas Insulated Substations (GIS) of up to 765 kV. The comprehensive services cover complete design and layout of substations / switchyards, selection, procurement and timely delivery of equipment at site, civil works and installation, testing and commissioning.

725 AIS/GIS substations including India's first 1200 kV AIS and 765 kV GIS

ELECTRIFYING THE CORE SECTOR

Infrastructure and Industrial Electrification

Meeting the power needs of core industries is a challenge but L&T's expertise in this sector makes it possible, swiftly and efficiently. Some of the largest electrical and instrumentation contracts in India and abroad are handled by L&T. Apart from executing individual package-based contracts, the company also provides turnkey solutions for major project electrification works, instrumentation and high voltage substations to meet the growing demands of infrastructure works for a broad spectrum of power, metallurgical and process plants, IT parks, airports, sea ports, metros and intra-city power transmission networks. L&T also offers optic fibre cabling solutions for backbone access networks.

With a track record of 32150 MW of Balance of Plant (E-BoP / I-BoP) services, L&T provides cost-effective one-stop solutions comprising supply, installation, testing and commissioning.



Receiving substation powering Lucknow Metro



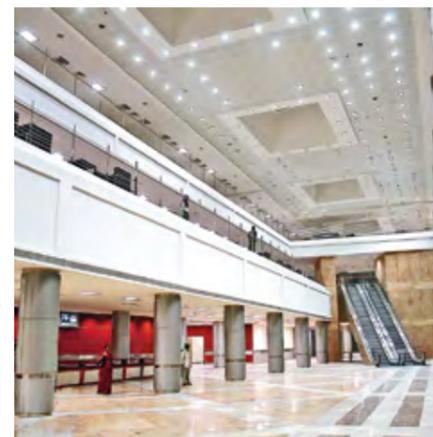
Electrification for a zinc plant



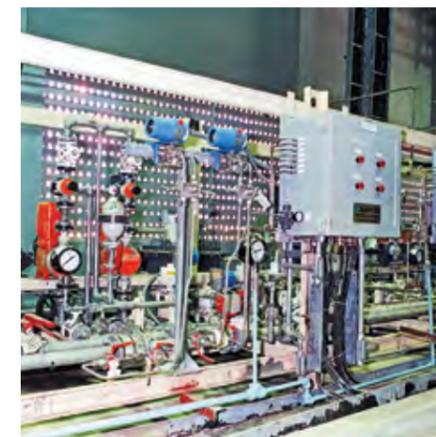
Electrification for a metro station



Installation and synchronization of transformer for a power plant



Lighting at International Convention Center, Hyderabad



Field instrumentation works



Power control panels

Accelerated Power Development and Reform Project in Aurangabad



NETWORKING THE SMART WAY

Utility Power Distribution

L&T undertakes power quality improvement projects in India under various schemes launched by the Ministry of Power / Rural Electricity Corporation. Continuous improvements in quality of work and safety are highlights of L&T's success in such projects. With a strong project management team spread across various States, L&T is poised to play an active role in distribution reform projects. In the smart grid sector, L&T offers comprehensive solutions for turnkey electrification.



Auto recloser and sectionaliser works



Power quality improvement works



Rural Load Management System (RLMS)



Demand side management through RLMS unit



Restructured Accelerated Power Development & Reform Programme, Varanasi, India



800 kV HVDC Nidhura - Agra transmission line

1 lakh+ km of transmission lines of various voltages

400 kV double circuit Karcham Wangtoo - Abdullapur transmission line



SCALING NEW HEIGHTS

Transmission Lines

From the snow-clad heights of the Himalayas (3200 m above sea level) to the vibrant plains and the deserts of the Middle East, L&T has demonstrated its expertise in executing complex transmission line projects. L&T's unique canvas of strengths cover design, manufacture and supply, to construction, testing and commissioning of EHV power transmission lines. L&T offers turnkey solutions for the construction of unique narrow base towers that occupy less space that are ideal for cities and microwave communication towers. A remarkable achievement in this sector is the commissioning of a 471 m high guyed mast communication tower, the tallest in India.



Multi-circuit narrow base transmission line tower for Mumbai



765 kV D/C transmission line at Kudgi



220kV transmission line for Blue City project at Muscat, Oman



220 kV river crossing transmission line on pile foundations



471 m high guyed mast communication tower - the tallest in India

Transmission line tower factory at Pithampur



INTEGRATED MANUFACTURING CAPABILITIES

State-of-the-art tower factories: L&T has 1,00,000 mtpa tower manufacturing facilities strategically located at Puducherry and Pithampur that are ISO 9001 and OHSAS 18001 certified and the first in India to be accredited with the energy management certification - ISO 50001. These facilities are equipped with the latest CNC lines for fabrication of towers and microprocessor based temperature controlled eco-friendly systems for galvanization of tower members.

Rolling Mill: To ensure timely availability of quality raw material, a rolling mill of 40,000 mtpa capacity has been set up at the Puducherry factory to produce angles, channels and re-bars.



CNC machine in operation



Rolling mill



Galvanizing in progress



Temperature controlled systems



Heavy duty machine



Testing of towers with different capacities in progress



Control tower with a 360° view of the tower testing facility



Inside view of the control room

SUPERIOR TESTING PROWESS

L&T's Transmission Line Testing & Research Station (TLTRS) is one of the largest in the world and India's first private testing station to be accredited by National Accreditation Board for Testing & Calibration Laboratories (NABL). Since inception in November 2009, TLTRS has completed testing of towers for many international clients from Mexico, Malaysia, Spain, Oman, Abu Dhabi, Saudi Arabia and Egypt. Located in Kancheepuram near Chennai, this testing station is equipped with a proto fabrication unit to make modifications on tested towers. It is equipped with facilities to carry out tests on square or rectangular base lattice towers, triangle (telecommunication towers), monopoles, tubular structures and guyed towers for capacities of up to 1200 kV.



State-of-the-art tower testing station at Kancheepuram, near Chennai



400 kV AIS at Chlef in Algeria

500 kV HVDC Ethiopia - Kenya interconnect – Largest in Africa



EXPANDING BEYOND FRONTIERS

L&T Construction was one of the earliest Indian companies to commence operations in the Gulf and has, over the years, gained significant market presence in UAE, Oman, Qatar, Saudi Arabia, Kuwait and Bahrain for executing power evacuation, transmission and distribution projects on EPC basis. Today, L&T is all set to provide single-window solutions to meet the complex power infrastructure requirements in the Middle East, Africa and ASEAN Region.



380 kV transmission line at Riyadh in Saudi Arabia



132/22 kV primary substation at Saadiyat Island in Abu Dhabi



400/220/132 kV substation at Izki in Oman



275/132/33 kV GIS at Samalaju in Malaysia



500 kV Tha Li-Khon Kaen 4 transmission line, Thailand



SPECIALIZED ENGINEERING SERVICES

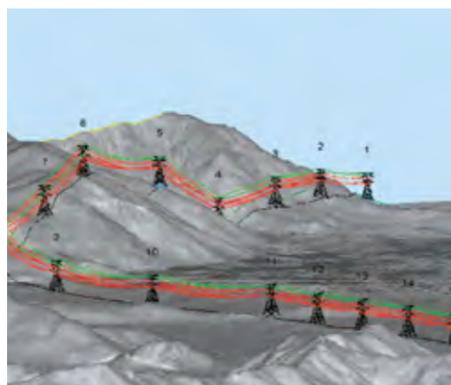
L&T's strength is in its in-house design capability that is backed by a multi-disciplinary team of specialized engineers, sophisticated software and hardware facilities that provide value-added integrated engineering services for clients with detailed design and engineering support as part of comprehensive EPC services.

Design offices located in Chennai, Delhi, Kolkata and Sharjah provide services covering the entire gamut of design from concept to commissioning including system engineering (load flow / short circuit / transient stability / harmonics / insulation coordination studies), detailed engineering, vendor engineering, civil, structural and mechanical systems engineering.

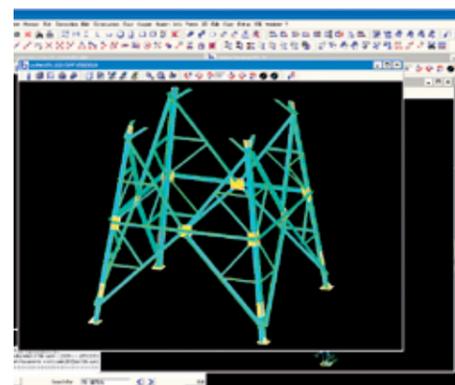
Expertise in transmission line design includes route alignment through Geographic Information System (GIS) using an indigenously developed and patented software. Adding to the decisive advantages is an exclusive substation automation system simulation lab where engineers receive hands-on training in the areas of control and protection.



Substation Automation System display panel at L&T's training lab in Chennai



Route alignment



3D image of a tower



Cable tray installations at Jindal power plant



220 kV switchyard at Ranchi for PGCIL



Design engineers at work

CAPITALIZING ON INHERENT CAPABILITIES

Project Management: From the innumerable projects handled, L&T has developed a core team of project managers and dedicated sub-contractors who thoroughly understand every facet of the activity from design, construction to commissioning and have established a fool-proof methodology for speedy construction.

Supply Chain Management: Fortified by longstanding strategic relationships with power equipment manufacturers of international repute, L&T leverages its global sourcing capabilities and offers clients a value-added service in flexibility of choice and guidance on equipment selection.

Safety & Quality: At L&T, Environment, Health & Safety (EHS) is considered a core value. Systems and procedures have been established for implementing the requisites at all stages of construction and are accredited to the International Standards of ISO 9001, ISO 14001 and OHSAS 18001. L&T continues to maintain its tradition of meeting stringent quality standards and adherence to time schedules across all projects.

Construction Skills Training Institute: Through its Construction Skills Training Institutes, L&T has been providing skill development training to empower and convert rural youth into trained workmen in significant numbers.



Control system for a sinter plant



Transmission line tower factory at Puducherry



Control panels at a substation



CSTI trainees



Safety orientation at site



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