transmitting power.
transforming lives.
INHERENT CAPABILITIES

Largest and most respected company

Larsen & Toubro Limited (L&T) is India’s largest technology, engineering, manufacturing and construction organisation with a track record of over 75 years. L&T is also adjudged India’s Best Managed and Most Respected Company on various attributes of customer delight and shareholder values.

L&T Construction, the construction arm of Larsen & Toubro is the largest construction organisation in India and is ranked 27th among the world’s top contractors (as per ENR, USA - August 2012). L&T Construction’s leading edge capabilities cover every discipline of construction: civil, mechanical, electrical and instrumentation engineering and services extend to all core sector industries and infrastructure projects with single source responsibility.

Powerful Player

The Power Transmission & Distribution Independent Company (PT&D), one of the restructured companies of L&T Construction is a powerful player in the field of power transmission and distribution. PT&D offers integrated solutions and end-to-end services ranging from design, manufacture, supply and construction to commissioning in the field of overhead high voltage transmission lines, substations, distribution projects and industrial electrification in the domestic and international markets.

The track record covers execution of over 14,000 km of EHV power transmission lines in India and over 4,000 km in the international markets extending across 10 countries. With a strong committed talent pool of 4,500 employees, PT&D is a powerful player in the field of Transmission & Distribution in India and a force to reckon with in the Middle East and emerging markets in the Africa and Asian countries.

Top: 400 kV D/C Moga (Punjab) - Bhiwadi (Rajasthan) transmission line
From extreme left:
- 765 kV Sipat (Chhattisgarh) - Seoni (Madhya Pradesh) transmission line
- 800 kV HVDC Nidhura - Agra transmission line
- 380 kV D/C transmission line at Riyadh
Powering the Nation

L&T has wide ranging capabilities and expertise to meet every requirement of the power sector.

Generation: L&T executes all types of power projects from concept to commissioning on EPC basis. It has the proven ability for undertaking construction of mega power plants.

Transmission: L&T undertakes turnkey construction of EHV transmission lines. Backed by its ISO and OHSAS certified tower manufacturing facilities in Puducherry and Pithampur, L&T offers complete transmission line solutions.

L&T has executed the 765 kV transmission line projects - the highest AC voltage transmission system in the country to evacuate power from remote stations to load centres. L&T has established its own ultra modern tower testing facility - the biggest in the country and on par with the best in the world - at Kancheepuram near Chennai.

Distribution: L&T offers turnkey solutions for plant electrification, instrumentation, extra high voltage substations (gas-insulated & air-insulated) and APDRP / rural electrification networks to take power to the grass roots of villages.
Total solutions from concept to commissioning

L&T has been transmitting power for more than two decades. The hallmark of its success lies in its ability to deliver high quality products and services with stringent time schedules and safety conforming to international standards. It offers end-to-end services from design, manufacture, supply to construction, testing and commissioning of EHV power transmission lines. Today, L&T is established as one of the most reliable companies both in the domestic and international market when it comes to construction of power transmission line towers on EPC basis.

Spectrum of services offered

- Survey, route selection and tower spotting
- Design and testing of EHV transmission line towers
- Manufacture and supply of transmission line towers
- Sourcing, selection, inspection and supply of line materials including conductors, insulators, hardware, OPGW / EW
- Construction of transmission lines including foundation, tower erection, stringing, testing and commissioning
**Specialised design and consultancy services**

L&T has a well-equipped design facility — Engineering Design and Research Centre (EDRC) — at Chennai and Delhi that offers comprehensive engineering and consultancy services for overhead transmission line projects. EDRC provides conceptual and detailed engineering including innovative and economical solutions for all types of transmission lines ranging from 33 kV to 765 kV AC / 800 kV HVDC.

Expertise includes system power flow studies, load flow analysis; system analysis, design and detailing of overhead transmission line structure; foundation design, tower testing, tower spotting, route alignment using Geographic Information System (GIS).

EDRC has indigenously developed and patented several software critical to the transmission line tower business. This includes DIGISHOP (Shop floor drawing generation), DETAIL AUTOMATE (GA drawing generation) and OPTACABLE (Conductor optimization). In addition, it has expertise over other engineering software like PLS-CADD, PLS TOWER, PLS POLE, STAAD.PRO, AutoCAD, Microstation, BOCAD and software for automatic generation of CNC code.
India’s First NABL accredited Test lab with Insulator testing facility upto 1200 KV

L&T has installed a state-of-the-art tower testing station at Kancheepuram, near Chennai. Acclaimed as one of the best in the world, this is the country’s largest tower testing station. This is equipped with facilities to carry out tests on square or rectangular base lattice tower, monopole, tubular structure and guyed tower for capacities up to 1200 kV. This testing bed apart from analyzing the accuracy of the assumptions made in the design calculation, ensures that the tower members meet the optimum levels and desired performance criteria.

This facility is incorporated with the specially designed data acquisition and control system and latest equipment to support the operation. The laboratory is equipped with digital UTM and a crane. Due to its dimensions (85 m height; 70 m boom length), the crane spans across the entire area of testing and erection operations. The station also has a proto fabrication unit to carry out modifications in any part of the tower during the course of testing. Operations of winches (65 Nos. each 5 t) are controlled by a state-of-the-art SCADA program coupled with auto, semi-auto and manual options.
State-of-the-art tower factories

L&T has 1,00,000 mtpa tower manufacturing facilities strategically located at Puducherry and Pithampur. Both plants are equipped with the latest CNC line for fabrication of towers and microprocessor based temperature controlled eco-friendly systems for galvanization of tower members.

Fabrication Process: Multipurpose CNC machines directly read the drawings, punch, stamp and cut steel. Heavy duty machines perform even the heaviest of bends without distortion. Strategically positioned EOT cranes efficiently perform material handling.

Galvanizing Process: The furnace is controlled by microprocessors to give control on the bath temperature. The drying oven uniformly dries and pre-heats the steel, which removes spurting and gives an excellent surface finish to the product. L&T’s factory has got one of the biggest (size 10 x 1.2 x 2 m) galvanising bath available with tower manufacturing companies and uses the environment friendly methods.

Rolling Mill: To ensure timely availability of quality raw material, a rolling mill of 40,000 mtpa capacity was set up at Puducherry factory to produce angles, channels and re-bars.
Defying nature with proven project management

L&T's engineers and technicians fear no terrain or weather. They have repeatedly demonstrated their ability to execute transmission lines in arduous weather conditions and terrains. The risks experienced by the engineers in some of the difficult locations with logistic problems including complex structures have paved the way for several innovative techniques.

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

Successful commissioning of several challenging projects in India and abroad, well ahead of schedule is another facet of L&T's solutions. From the snow clad heights of the Himalayas (3200 m above sea level) to the vibrant plains and Middle East deserts, L&T has demonstrated its proven expertise in executing complex transmission line projects.

Apart from India, L&T source line materials from China, Japan, USA, Canada and European countries.
400 kV Kutta (Karnataka) - Kozhikode (Kerala) transmission line

220 kV Varahi - Kavoor transmission line in Karnataka

220 kV ‘Krishna’ river crossing tower on pile foundations for Vijayawada - Ongole transmission line

400 kV S/C Rajupally - Ditchipally transmission line in Andhra Pradesh

400 kV Lonikhand - Kalwa transmission line

220 kV transmission line on pile foundations for Karnataka Power Transmission Corporation Limited

69 kV transmission line on Monopoles for King Fahd International Airport Power System improvement

220/33 kV Dhabiya transmission line in UAE

400 kV transmission line Fujairah – Dhaid

132 kV OHL at Manah Power, Oman

161 kV D/C transmission line in Suriname, South America

Multi-circuit narrow base transmission line at Mumbai

69 kV transmission line on Monopoles for King Fahd International Airport Power System improvement
Towards sustainability

At L&T, sustainability is embedded in its vision and growth plan. Similarly, this is very much entrenched in the phenomenal growth and market leadership of transmission line business. Well-structured organization and established systems and practices ensure quality, reliability, safety and delivery at every stage of engineering, procurement, fabrication, assembly, erection and commissioning of large and complex projects.

Being an environmentally responsible organization, the transmission line tower manufacturing facility at Puducherry and Pithampur have established and secured ISO 14001 for Environment Management System (EMS) besides ISO 9001: 2000. In addition, the OHSAS:18001 certification speaks of the organization’s concern for safety and health for employees, suppliers, customers and all other stakeholders.

L&T believes that a safe and healthy workplace is as important as production, quality, cost effectiveness. A team of safety professionals located at various offices and major sites ensure safety norms are practiced at every stage of construction through inspections, safety audits and training programmes.

Top: 400 kV Tamnar (Chhattisgarh) - Raipur (Andhra Pradesh) transmission line

From extreme left:
- CNC machine in operation
- 400 kV DC Gorakhpur - Muzaffarpur transmission line
- 400 kV Jeerat-Subhasgram transmission line near Kolkata