



## Annual Review 2013-2014



## VISION

L&T shall be a professionally-managed Indian multinational, committed to total customer satisfaction and enhancing shareholder value.

L&T-ites shall be an innovative, entrepreneurial and empowered team constantly creating value and attaining global benchmarks.

L&T shall foster a culture of caring, trust and continuous learning while meeting expectations of employees, stakeholders and society.



Mr. A.M. Naik, Group Executive Chairman, with the prestigious The Economic Times, Good Corporate Citizen Award. The award recognises the success of L&T's broad spectrum CSR activities.

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## Corporate Social Responsibility Policy

We are committed to fulfilling our Social, Environmental and Economic responsibilities for Sustainable Development. Towards this, we shall:

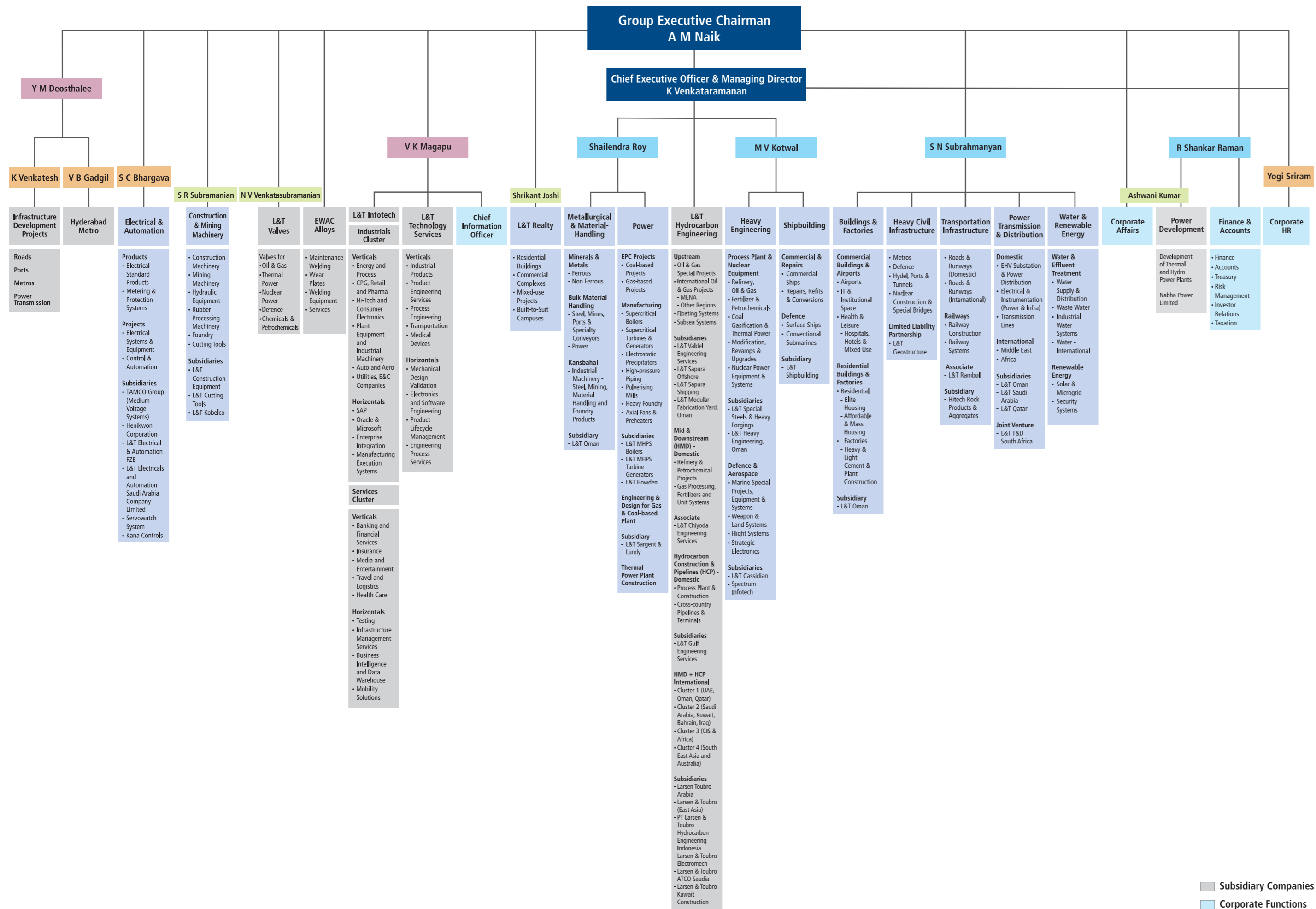
- Continue to ensure ethics and transparency in our engagements with stakeholders, and advocate responsible business practices
- Incorporate social and environmental considerations in our business operations
- Foster a culture of trust and caring to enhance the well-being of employees and communities
- Promote social equity and partner with communities in health care, education and skill building
- Conserve natural resources, reduce the adverse impact of climate change and enhance energy efficiency
- Adopt sustainable and resource-efficient processes and provide value-added products and services

11th June, 2013

*A M NAIK*  
A M NAIK  
Group Executive Chairman







Information given in this publication has been excerpted from an analysis of the performance of the Company as stated in L&T's Annual Report 2013-14. For more exhaustive information, please refer to the Annual Report.

# Leadership Team



**A. M. Naik**  
Group Executive Chairman



**K. Venkataramanan**  
CEO &  
Managing Director



**M. V. Kotwal**  
President  
(Heavy Engineering)



**S. N. Subrahmanyam**  
Sr. Executive  
Vice President  
(Infrastructure &  
Construction)



**R. Shankar Raman**  
Chief Financial  
Officer



**S. N. Roy**  
Sr. Executive  
Vice President  
(Power,  
Minerals & Metals)



**S. C. Bhargava**  
Sr. Vice President  
(Electrical &  
Automation)

Larsen & Toubro is a USD 14.3 billion technology, engineering, construction, projects, manufacturing and financial services conglomerate, with global operations.

The company is engaged in core, high-impact sectors of the economy – infrastructure, construction, hydrocarbon, heavy engineering, power, defence, aerospace, shipbuilding, electrical & automation, mining and metallurgy.... Its integrated capabilities span the entire spectrum of 'design-to-deliver', and it offers turnkey EPC solutions in its major business lines. Its track record covers products, projects and processes executed to international benchmarks.

Every aspect of L&T's businesses is characterized by professionalism and high standards of corporate governance. Sustainability is embedded into its long-term strategy for growth.

The Company's manufacturing footprint extends across eight countries in addition to India. L&T has several international offices and a supply chain that extends around the globe.

#### Highlights

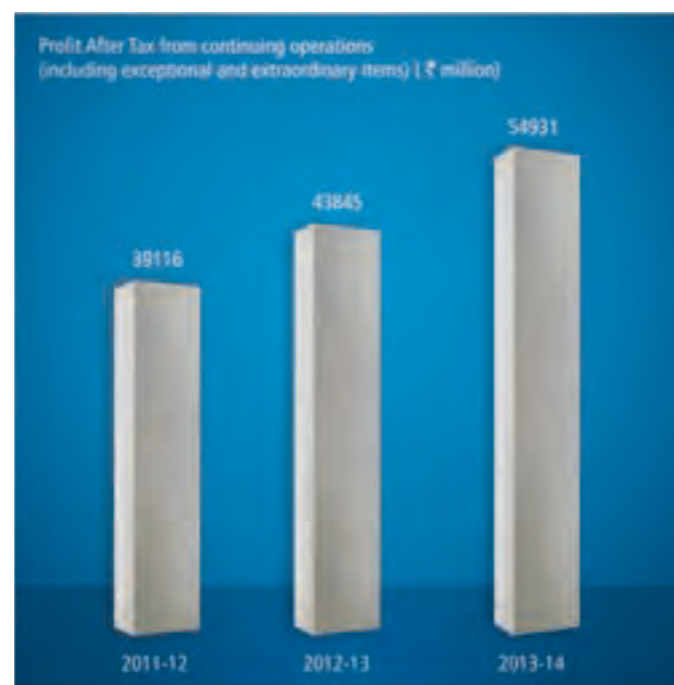
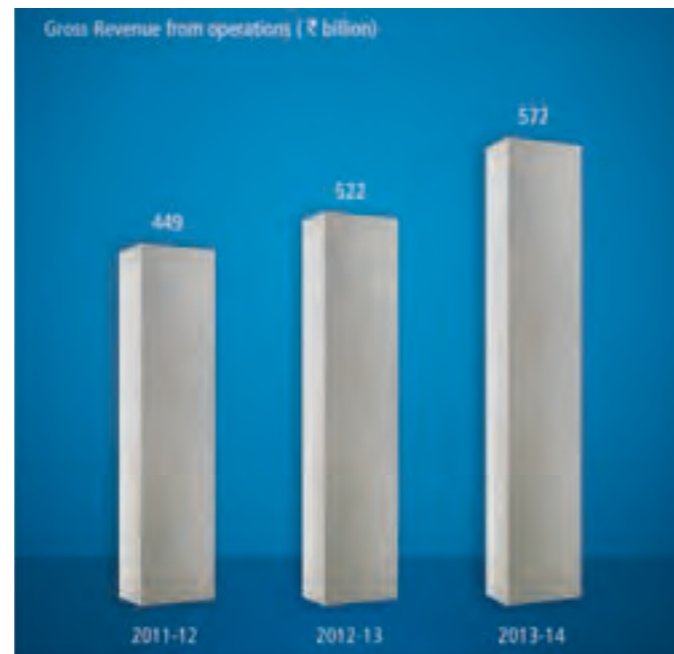
- Airports in India and the Middle East
- Metro rail systems for Riyadh, Qatar and major Indian cities
- Large infrastructure projects, including bridges and highways - from Jordan to Malaysia
- Technological contribution to key missions like the building of India's first nuclear-powered submarine, maiden missions to the moon and Mars
- Hydrocarbon projects in the Middle East, Africa, India and South East Asia
- The world's longest heated and insulated oil pipeline
- The world's largest coal gasifier made in India and exported to China
- The world's biggest EO reactor for a petrochemical complex in the Middle East
- Shipyards on the west and east coast of India
- A large facility for heavy forgings
- An expansive range of switchgear

The following pages highlight the capabilities and review the operations (2013-14) of the Company's multiple businesses. Sections of the text are an abstract of L&T's Annual Report. For complete information, please refer to the Annual Report.

#### Year 2013-14 at a Glance

##### L&T

- Order Book as at March 31, 2014: ₹ 1629515 million as against ₹ 1439661 million as at March 31, 2013: 13% growth y-on-y
- Gross Revenue from operations at ₹ 571639 million in CY as against ₹ 521957 million in PY: 10% growth over 12-13
- Segment-wise composition of gross revenue:-
  - Infrastructure Segment: 60.22% in CY against 53.49% in PY
  - Power Segment: 8.81% in CY as against 14.98% in PY
  - Metallurgical and Material Handling Segment: 9.51% in CY against 11.93% in PY
  - Heavy Engineering Segment: 7.41% in CY against 5.57% in PY



- Electrical & Automation Segment: 6.70% in CY as against 6.76% in PY
- Machinery & Industrial Products Segment: 3.33% in CY as against 4.44% in PY
- Others: 4.02% in CY as against 2.83% in PY
- PBDIT before exceptional and extraordinary items at ₹ 85479 million in CY as against ₹ 73604 million in PY - up by 16.13%
- PAT from continuing operations including exceptional and extraordinary items ₹ 54931 million in CY against ₹ 43845 million in PY - up by 11.86%
- Gross Debt: Equity ratio of 0.34:1 (previous year: 0.29:1)

##### L&T Group

- Gross Revenue from operations at ₹ 858890 million in CY as against ₹ 751953 million in PY, viz., 14% growth over 12-13
- PAT excluding extraordinary and exceptional items at ₹ 45680 million in CY as against ₹ 49108 million in PY

#### BALANCE SHEET AS AT MARCH 31, 2014

	₹ MILLION	
	As at 31-3-2014	As at 31-3-2013*
<b>EQUITY AND LIABILITIES:</b>		
Shareholders' funds	336618	291427
Non-current liabilities	62813	83012
Current liabilities	383615	349801
<b>TOTAL</b>	<b>783046</b>	<b>724240</b>
<b>ASSETS:</b>		
Non-current assets		
Fixed assets	82372	89020
Non-current investments	151684	105227
Other non-current assets	37844	37514
	271900	231761
Current assets	511146	492479
<b>TOTAL</b>	<b>783046</b>	<b>724240</b>

\*Includes Assets/Liabilities for Hydrocarbon business undertaking under the respective heads. Note: Figures in the previous year have been regrouped/reclassified wherever necessary.

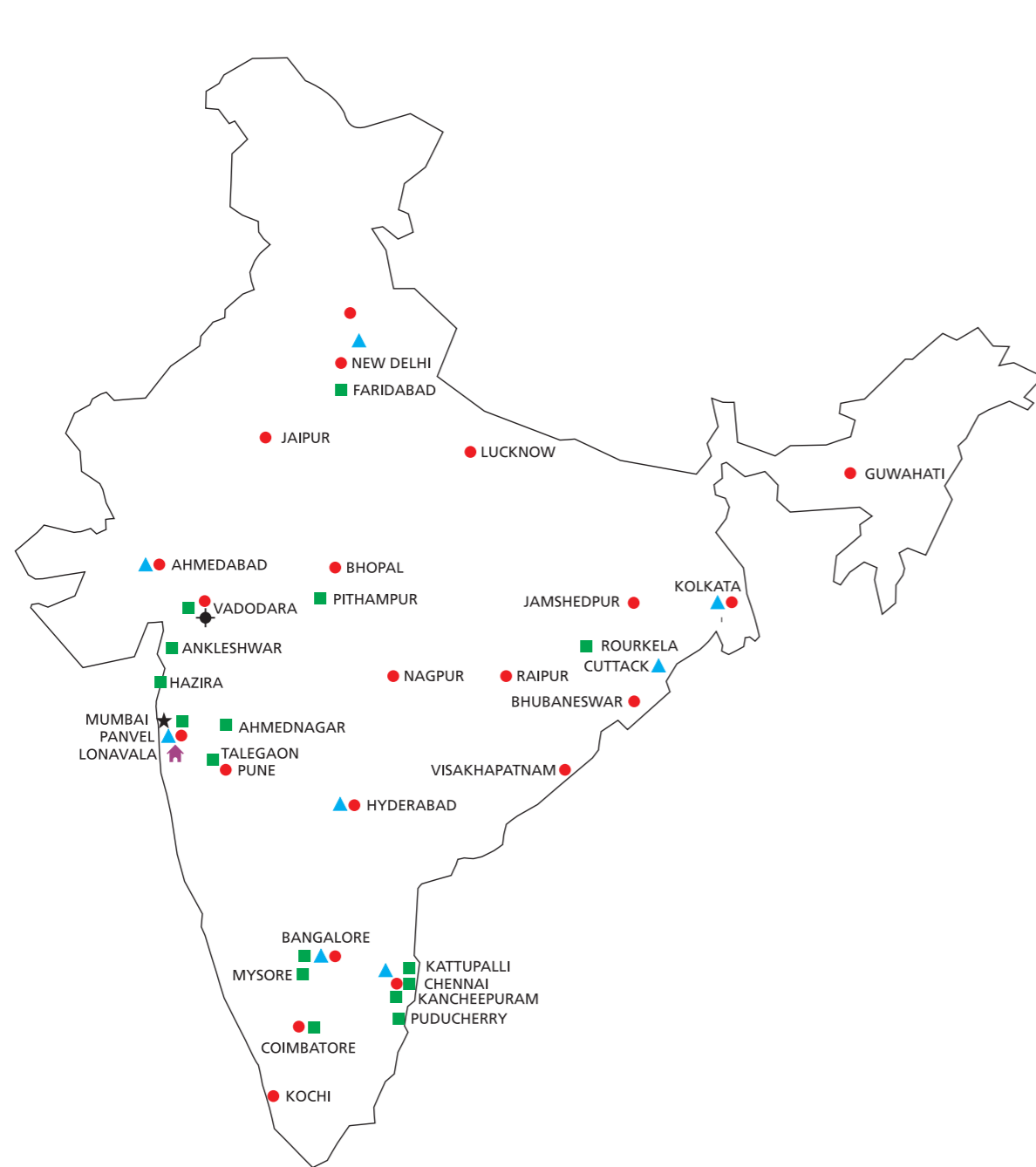
#### STATEMENT OF PROFIT AND LOSS FOR THE YEAR ENDED MARCH 31, 2014

	₹ MILLION	
	2013-14	2012-13
Revenue from operations (net)	565989	516110
Other income	18809	18873
<b>Total revenue</b>	<b>584798</b>	<b>534983</b>
Less: Expenses:		
Manufacturing, construction and operating expenses	433464	402048
Employee benefits expense	46624	38609
Sales, administration and other expenses	19231	20721
Finance costs	10761	9548
Depreciation, amortisation and obsolescence	7924	7277
	518004	478203
Profit before exceptional and extraordinary items and tax	66794	56780
Exceptional items	5885	1762
Profit before extraordinary items and tax	72679	58542
Extraordinary items	-	781
Profit before tax	72679	59323
Tax expenses	17748	15478
Profit after tax for the period from continuing operations	54931	43845
Profit from discontinued operations	-	7789
Tax expenses on discontinued operations	-	2527
Profit from discontinued operations (after tax)	-	5262
Profit for the period carried to Balance Sheet	54931	49107
Basic earnings per equity share before extraordinary items (₹)	59.36	52.55
Diluted earnings per equity share before extraordinary items (₹)	59.00	52.12
Basic earnings per equity share after extraordinary items (₹)	59.36	53.33
Diluted earnings per equity share after extraordinary items (₹)	59.00	52.89
Face value per equity share (₹)	2.00	2.00

#The net result of the erstwhile Hydrocarbon business undertaking has been disclosed separately under discontinued operations for the year ended March 31, 2013 as required by Accounting Standard (AS) 24 and Revised Schedule VI of the Companies Act 1956. Note: Figures in the previous year have been regrouped/reclassified wherever necessary.



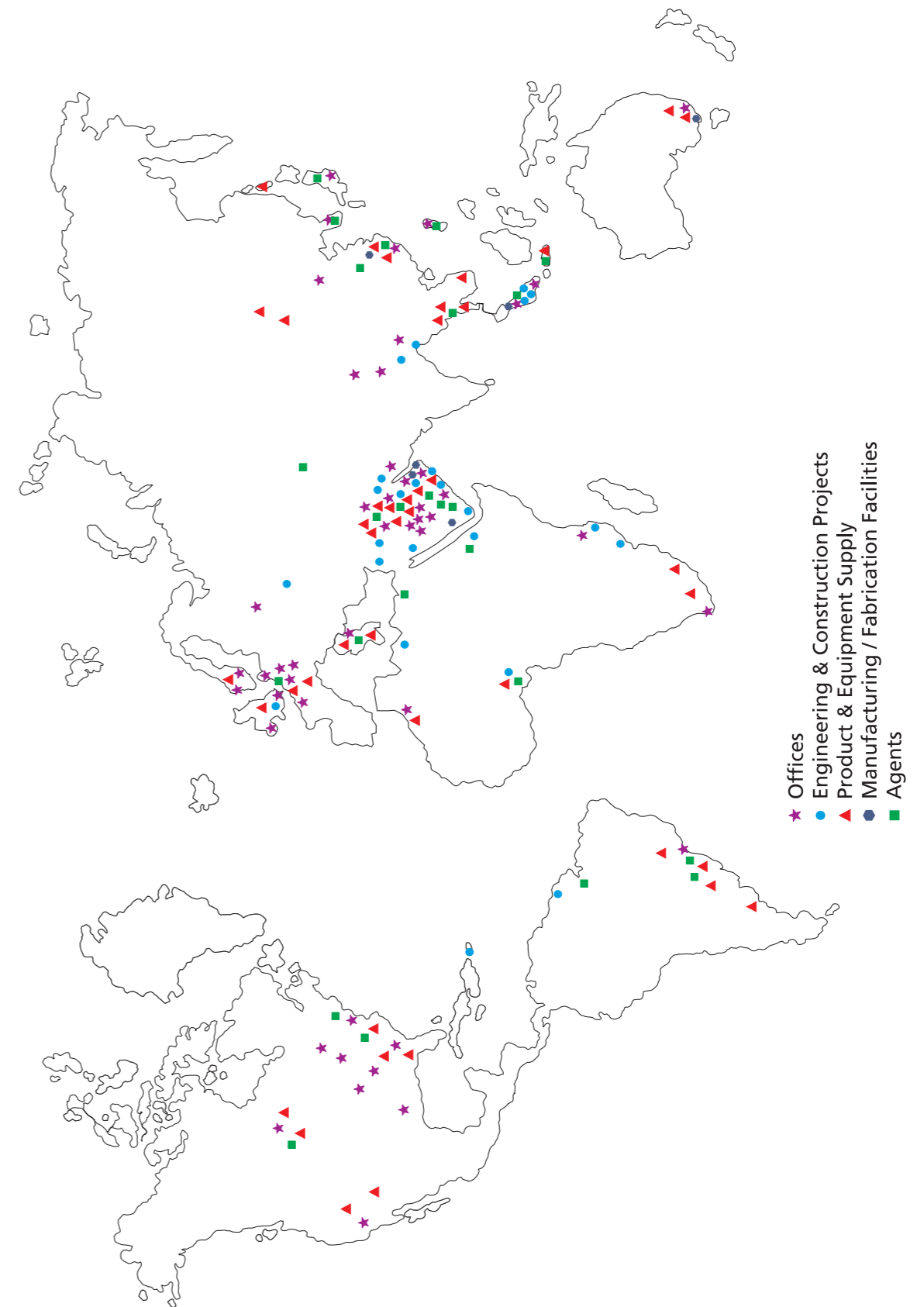
## Nationwide Network



- ★ Registered Office
- Campus
- Offices
- ◆ Knowledge City
- ▲ Leadership Development Academy
- ▲ Construction Skills Training Institutes\*

\*Part of L&T's Corporate Social Initiatives

## Global Presence



Note: Map is broadly representative of L&T's presence in markets worldwide. For details of establishments within India, please refer to 'Nationwide Network'.





*Topsides sail away from L&T Modular Fabrication Yard in Sohar, Oman for Nasr & Umm Lulu Development project of ADMA-OPCO, Abu Dhabi.*

## L&T HYDROCARBON ENGINEERING

L&T Hydrocarbon Engineering is a wholly owned subsidiary of Larsen & Toubro that is dedicated to serving the oil and gas sector. It delivers 'design to build' world-class engineering and construction solutions on a turnkey basis across the hydrocarbon spectrum – Upstream, Midstream, Downstream and Pipelines.

Earlier a business vertical of the conglomerate, L&T Hydrocarbon Engineering was restructured as a subsidiary to enhance customer engagements across the hydrocarbon domain and sharpen focus especially in international markets.

In-house capabilities are complemented through strategic partnerships with global leaders, enabling the Company to deliver single-point solutions extending from front-end design through engineering, fabrication, project management, construction, installation and commissioning.

### **Serving Multiple Geographies**

L&T Hydrocarbon Engineering operates in international markets with a dedicated corporate structure to serve specific geographies. Nodal country offices draw on locally-based project execution capability and engineering strengths.

The Company's Country Offices are located at:

**Middle East:** UAE (Sharjah and Abu Dhabi); Saudi Arabia (Al-Khobar); Kuwait; Oman (Sohar and Muscat) and Qatar (Doha).

**South East Asia:** Singapore, Malaysia (Kuala Lumpur); Indonesia (Jakarta).

Regional clusters draw on three modular fabrication facilities - in Sohar, Oman, in Kattupalli on India's east coast and in Hazira on India's west coast. Expanding its reach into newer geographies, the Company also seeks opportunities in CIS and Africa.



*DDW1 Wellhead Platform & Process-cum-living quarters platform for GSPC installed off India's east coast.*





*A captive heavy-lift-cum-pipelay vessel, LTS 3000, enhances the Company's offshore installation capabilities.*

### **HSE & Sustainability**

Health, safety and environment are core to all operations. Safety Innovation Schools at Hazira and Kattupalli help institutionalise a safety culture.

Accolades won during the year include the Golden Peacock award for Occupational Health & Safety, platinum award and certificate from FICCI for manufacturing excellence, British Safety Council International Safety merit award, and the RoSPA Gold award.

The Company meets global standards, including ISO 9001 / ISO 29001, ISO 14001, OHSAS 18001, ISO 50001, ISO / IEC 27001 and SEI - CMMI Level 5.

### **Hydrocarbon Upstream**

The Company's turnkey solutions encompass production, processing platforms and transportation projects. The range includes well-head platforms, process platforms and modules, subsea pipelines, brownfield developments, floating systems, upgrade/new-build of jack-up rigs and conversion to EPS/MOPU.

#### ***Design Engineering***

Engineering capabilities cover concept studies, FEED, basic engineering, 3D model-based detailed engineering, special studies including safety, risk assessment, pre-service engineering and commissioning assistance.

### **Fabrication Facilities**

In-house fabrication – with the advantages of flexibility, control and cost competitiveness – gives L&T Hydrocarbon Engineering the edge in large and complex projects.

Three state-of-the-art fabrication facilities – with a total capacity of around 150,000 MTPA offer year-round delivery. They are located at Hazira (Surat, on India's west coast), Kattupalli (near Chennai, on India's east coast) and at Sohar (north Oman). Capabilities also extend to fabricating modular process plants for the midstream & downstream sectors.



*A jack-up rig along with a wellhead platform and a jacket at L&T's Modular Fabrication Yard in Sohar, Oman.*





*Aromatic Complex built on LSTK basis for ONGC Mangalore Petrochemicals Limited.*

**Installation**

Offshore installation capabilities are enhanced through a 3000-tonne heavy lift-cum-pipelay vessel.

**Client base\***

Clients include ADMA-OPCO, Qatar Petroleum, Maersk Oil Qatar, PTTEPI, PETRONAS, British Gas, Songas, Bundoq, ONGC and GSPC.

**Orders\*:** EPIC of a wellhead platform and 30 km subsea pipeline from BG Exploration and Production India. In consortium with a partner, the Company won an order from ONGC for a mobile offshore production unit.

**Hydrocarbon Mid & Downstream**

The Company provides EPC solutions for petroleum refining, gas processing, petrochemical and fertiliser (ammonia and urea) sectors.

It has executed multiple large-value projects on a turnkey basis covering the complete spectrum of FEED, process and detailed engineering, procurement, construction and commissioning.

Projects have been executed with technologies from process licensors like UOP, Axens, Haldor Topsøe, CB&I Lummus, Black & Veatch, Ortloff, ExxonMobil, BOC Parsons, Du-Pont (Invista) and

Davy Process Technologies.

The Company is prequalified by major international oil & gas producers including Saudi Aramco, KOC & KNPC, SOCAR & BOTAS (TANAP, Turkey), PETRONAS, CNPC and Dragon Oil in Turkmenistan, Lukoil in Uzbekistan and Sonatrach in Algeria. Pre-qualification with other oil and gas companies is in progress.

**Design Engineering**

The Company has Engineering Resource Centers at Faridabad, Mumbai and Vadodara.

L&T Chiyoda – a joint venture with Chiyoda of Japan –



*700 TPD Methanol + 100 TPD CO plant for Methanol Chemicals Company (CHEMANOL) at Al Jubail in Saudi Arabia.*





Motor Spirit Upgradation Project and Diesel HDS project with offsites & utilities executed for IOCL-Mathura refinery complex.

complements the Company's design & engineering centres. Detailed engineering centres offer solutions for hydrocarbon process plants, meeting the highest international safety and quality requirements. Resource groups in thermal engineering, cryogenic storage systems and modular process plants enable the Company to provide value-added solutions.

The Company's FEED Group develops innovative solutions and has proven capabilities in process simulation, process design, design optimisation, design analysis and fluid dynamics. The group has undertaken concept studies, advanced simulation (steady state, dynamic and transient) process design, FEED, performance improvement studies, debottlenecking and troubleshooting of

various units of oil & gas facilities.

**Project Management**

Dedicated project specialists are based at offices and design facilities in the UAE and Saudi Arabia.

**Client Base\***

The Company has executed on-shore gas processing, refinery & petrochemical projects for India's major public sector companies such as IOCL, MRPL, ONGC, HPCL and BPCL, as well as fertiliser majors like NFL and GNFC.

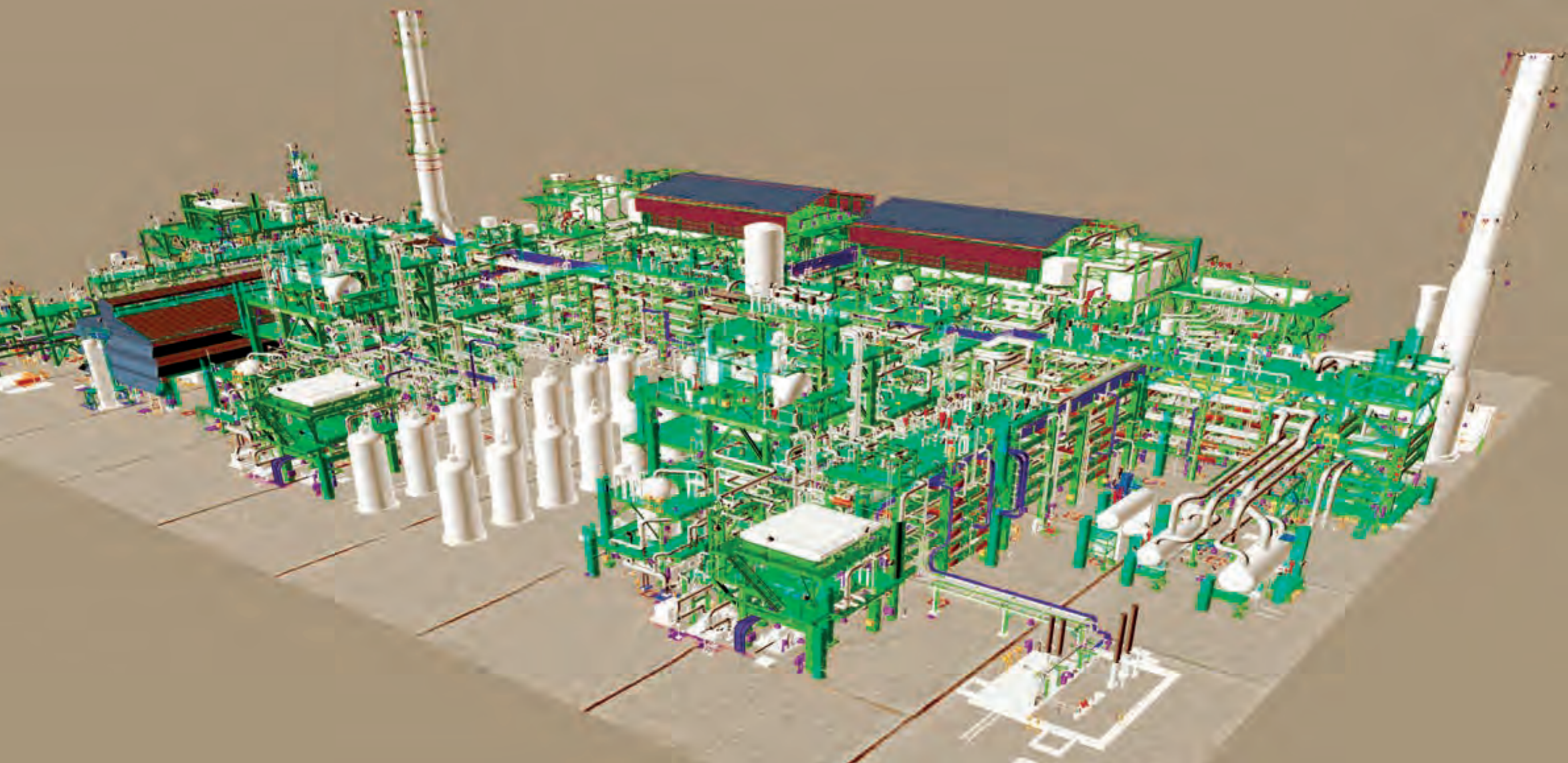
**Orders:\*** During the year, the Company received orders for EPC

of a third-stage depletion compression project at Yibal-Natih gas reservoir in Oman; EPC of a new aviation fuel terminal at Abu Dhabi international airport for storage and delivery of Jet A-1 fuel; EPC for third-party gas interconnecting facilities at Ras Laffan from Dolphin Energy in Qatar; Gas processing facilities for Midyan Gas Fields from Saudi Aramco; Supply of cracking furnace modules and EPC execution of cryogenic ethylene package for a large petrochemical complex in India.



Lube base oil project on EPC basis for PETRONAS Penapisan's refinery at Melaka, Malaysia.





3-D CAD model for 2 x 44,000 MTPA Hydrogen Generation Units for Guru Gobind Singh Refinery of HPCL-Mittal Energy at Bathinda (Punjab).

## Hydrocarbon Construction & Pipelines

The Company undertakes cross-country pipeline projects on EPC basis and renders turnkey construction services for refineries, petrochemicals, chemical plants, fertilisers, gas-gathering stations, crude oil & gas terminals and underground cavern storage systems for LPG.

Highlights of capabilities include heavy-lift competencies, advanced welding technologies and world-class quality systems.

### Design Engineering

L&T-GULF – a joint venture with GULF Interstate Engineering,

Houston – offers engineering & consultancy services for onshore hydrocarbon pipeline projects and onshore oil & gas field development projects, including design and engineering services.

### Client Base\*

An increasing focus on the GCC markets has led to several partnership ventures in Saudi Arabia, Kuwait and Oman. Major customers include GASCO, ADCO, TAKREER, ADGAS, Borouge, Al Hosn, ENOC (UAE), Saudi Aramco, SADARA & SATORP (KSA), KNPC, KOC, KAFCO (Kuwait), QP, Dolphin Energy (Qatar), PDO, OGC and Oiltanking Odfjell Terminals & Co. LLC (Oman).

Within India, projects have been executed for Cairn, HPCL-Mittal

Energy Limited, RIL and leading public sector players in the oil & gas and fertiliser sectors.

**Orders:\*** During the year, a major order was received for composite construction works for India's largest refinery & petrochemical complex.

\*All lists featured here are indicative, not exhaustive. For details, please refer to our Annual Report.



Habshan-Ruwais-Shuweihat Pipeline being executed on an EPC basis in Abu Dhabi. The track record includes over 4,000 km of pipeline across the toughest terrain.





2x700 MW supercritical thermal power plant built by L&T on EPC basis for Nabha Power at Rajpura in Punjab. L&T's joint venture with Mitsubishi Hitachi Power Systems enables the power sector to access the advantages of world-class technology.

## L&T POWER

L&T Power provides integrated concept-to-commissioning solutions for thermal power plants. It sets up coal and gas-based power plants on a lumpsum turnkey basis.

A major competitive advantage that the Company offers is in-house manufacturing capability. Supercritical boilers, turbines & generators, pulverisers, pressure piping, axial fans, air-preheaters and electrostatic precipitators are manufactured in its world-class manufacturing facilities at Hazira near Surat, Gujarat.

It has extensive experience in project management, engineering

and construction management. Facilities from L&T's own stable cater to over 90% of the power-generation value chain.

The business has a pan-India presence, with multiple project sites and project management centres at Vadodara, Faridabad and Chennai.

**Major Orders:** While the business was primarily focused on domestic operations, it marked its international foray with an EPC order for the 360 MW Bheramara combined cycle gas-based power plant in Bangladesh.

In the domestic sector, L&T has been declared the lowest bidder for the 2x660 MW Shree Singaji TPP (Malwa Stage II) coal-based EPC project in Madhya Pradesh.

**Projects Executed:** The first unit of 2x700 MW of Nabha Power at Rajpura in Punjab, having India's first indigenously manufactured supercritical boiler, turbine and generator, commenced commercial operations. The plant was set up in a record 46 months. With this, the business has synchronised a total of 3,675 MW capacity during the year across various plant configurations, viz., coal-based EPC, Balance of Plant, steam



Supercritical boiler manufactured at state-of-the-art manufacturing facilities at Hazira.





Natural gas-fired combined-cycle power plant built by L&T at Vemagiri in Andhra Pradesh.

turbine generator island as well as gas-based CCPP.

**Major Subsidiaries**

**L&T-MHPS Boilers Private Limited (LMB)** is a joint venture of L&T and Mitsubishi Hitachi Power Systems, Japan. Incorporated in India, LMB engineers, designs, manufactures, erects and commissions supercritical boilers up to a single unit of 1000 MW. Its manufacturing facilities are at Hazira (Gujarat), with design and engineering centres located at Faridabad and Chennai. LMB has a total installed capacity of 5000 MW for boiler manufacture.

**L&T-MHPS Turbine Generators Pvt. Ltd. (LMTG)** is a joint venture of L&T, Mitsubishi Hitachi Power Systems and Mitsubishi

Electric Corp. LMTG engineers, designs, manufactures, erects and commissions supercritical turbines and generators. Its facility at Hazira manufactures STG equipment ranging from 500 MW to 1000 MW, and has an installed capacity of 5000 MW. LMTG is India's first manufacturing company to receive all four ISO Integrated Management Systems Certification from DNV (ISO 9000, ISO 14000, ISO 18000 and ISO 50000).

**L&T Howden Pvt. Ltd.** – a joint venture of L&T and the Howden Group, UK – manufactures high-end fans and air pre-heaters for supercritical power plants at its state-of-the-art manufacturing facility at Hazira, Gujarat. It has a design and engineering centre at Faridabad.

**L&T-Sargent & Lundy Limited (L&T-S&L)** - a joint venture of L&T and Sargent & Lundy<sup>LLC</sup>, USA – is a premier power-sector engineering and consultancy firm. L&T-S&L offers complete range of power plant engineering & consultancy services from concept to commissioning including Basic and Detail engineering, Owner's engineering, Lender's engineering, RLA and Special Consulting assignments. Its reference list includes overseas projects in USA, Saudi Arabia, Oman, UAE, Jordan, China, Thailand, Malaysia, Sri Lanka, Bangladesh, Kenya, etc. It has extensive expertise in simple, combined cycle and cogeneration gas-based power projects, subcritical and supercritical coal-based power projects.



Supercritical turbine being assembled at Hazira Campus.





A Continuous Annealing Process Line built by L&T at Tata Steel's plant at Jamshedpur. L&T undertakes detailed engineering, procurement, manufacture, supply, construction, erection and commissioning of projects in the areas of ferrous and non-ferrous metals, and mineral beneficiation.

## METALLURGICAL & MATERIAL HANDLING

L&T's Metallurgical and Material Handling business undertakes EPC projects for ferrous (iron & steel making) and non-ferrous (aluminium, copper, lead and zinc) metal industries, as well as bulk material & ash handling systems in the power, port, steel and mining sectors.

Its industrial machinery & foundry workshop at Kansbahal (Odisha) handles the high-end customised manufacturing needs of the steel, power and other metallurgical sectors, producing surface miner, crushing systems, paper machinery, apron feeders and key equipment for the coke oven, pellet and steel making segments.

It has the capability to manufacture high-end equipment for the metallurgical sector involving heavy fabrication, intricate castings, precision machining and critical assemblies.

A high-end fabrication shop at Kancheepuram (Tamil Nadu) handles customised manufacture of equipment such as stackers, reclaimers and mid-precision-level equipment for steel and other process plants.

A new office in the Middle East enhances the Company's ability to serve markets in the Gulf.

### Projects executed\*

- Seven coal-handling plants commissioned for various power projects across the country
- A continuous annealing and processing line and coke oven battery for Tata Steel, Jamshedpur
- Blast furnace for Bhushan Steel Limited at Angul
- Sinter plant for SAIL at Rourkela and Bhilai
- Can body plant (1.35 LTPA) at Hirakud
- Aluminium smelter (0.36 MTPA) for Mahan at Singrauli
- Alumina refinery (1.5 MTPA) for Utkal
- Electric arc furnace for JSIS, Oman



Coke oven battery executed by L&T for one of India's major steel plants.





Coal-handling plant executed by L&T at Koderma in Jharkhand. L&T is a single-point solutions provider for a comprehensive range of material-handling systems.

The manufacturing shop supplied six 150T ladles to Emirates Steel in UAE, nine torpedo ladle cars to RINL at Vizag, and a skid-mounted crusher to GMR in Chhattisgarh.

**Orders Received\***

- Sinter plant for Bhushan Steel
- Pet coke handling system for Reliance Industries at Jamnagar
- Coal-handling plant for Northern Coal Fields
- 700L bucket wheel excavator for Neyveli Lignite Corporation
- Material handling systems for Adani Mining at Dahej and Mundra.

**Projects under execution\***

Metallurgical projects at Kalinganagar and Jamshedpur for Tata Steel; at Bhilai and Durgapur for SAIL; at Bellary for Jindal Steel; at Jamnagar for Reliance and at Angul for Bhushan Steel and Jindal Steel & Power.

Material-handling packages are being executed at Chhabra for RRVUNL, at Mahan for Hindalco; at Amravati for Elena Power; at Barh for NTPC, at Koderma for DVC.

\*The lists are indicative. For more information, please refer to our Annual Report.



Limestone crusher manufactured by L&T.





*A low-alloy steel HP stripper being shipped from L&T's Hazira Campus to a refinery in Texas. L&T has designed, manufactured and supplied critical process plant equipment to over 40 countries.*

## HEAVY ENGINEERING

L&T Heavy Engineering operates at the upper end of the technological spectrum. It manufactures and supplies custom-designed and engineered equipment and systems to critical process industries, viz., fertiliser, refinery, petrochemical, chemical and oil & gas as well as to sectors such as thermal and nuclear power, aerospace and defence.

The track record covers large size and complex projects, incorporating a high technology base. Its capability spectrum includes in-house engineering, R&D centers, world class fabrication facilities and an experienced and competent project

team committed to a safe work culture.

Many of the equipment manufactured by L&T Heavy Engineering have set global benchmarks. These include the world's largest vacuum column, the biggest coke drum, the biggest ethylene oxide reactor, the largest FCC regenerator... The equipment was manufactured under stringent schedules while conforming to high safety standards.

The Heavy Engineering business is structured into two major Strategic Business Groups (SBGs):

- Process Plant Equipment and Nuclear
  - Defence and Aerospace.
- Various Business Units function within each SBG.

### Manufacturing & Fabrication Facilities

**Hazira, Surat:** A heavy manufacturing complex with mega-sized capabilities. It has a captive 'Load-on' and 'RO-RO' jetties. Its track record includes manufacture and shipment of the world's largest ethylene oxide reactors to Kuwait, the execution of the single largest order for reactors ever placed on a single company, the world's largest coal gasifier – exported to China.



*Methanol converter for China.*





*Bi-metallic urea stripper for Saudi Arabian Fertilizer Company. In addition to plant and equipment, L&T has the capability to manufacture and supply complex internals to the specifications of globally renowned process licensors.*

**Powai, Mumbai:** L&T's nodal complex has a track record of manufacturing equipment that have set industry benchmarks. L&T's Strategic Submarine Design Centre is also located here.

**Vadodara:** Ranoli Works is a specialised facility manufacturing equipment and internal assemblies for the core sector as well as products from advanced composites for defence and aerospace.

**Coimbatore:** A precision manufacturing facility meets the needs of precision machined and manufactured components and assemblies for the aerospace industry.

**Talegaon, Pune:** A Strategic Systems Complex for integration and testing of weapon systems, sensors and engineering systems. It undertakes design and engineering of Defence Electronic Systems for military communications and avionics, and is supported by a dedicated Strategic Electronics Centre.

**Visakhapatnam:** A bay, leased from DRDO, facilitates building of strategic submarines.

**Bengaluru:** A new product development Centre in Karnataka supports the Talegaon facility.

**Sohar, Oman:** A heavy fabrication facility, set up as a joint venture in Oman, manufactures a range of equipment for the hydrocarbon and power sector.

Manufacturing teams are backed by production engineering and manufacturing process development centres at each location. Technology and Product Development Centres in Mumbai and Bengaluru carry out new product development and research & development for process plant and nuclear equipment and for equipment & systems (including electronic systems/subsystems) for strategic sectors.



*Steam superheater for an ammonia project in the USA.*





Pinaka multi-barrel rocket-launcher. L&T works closely with defence research organisations to develop and manufacture weapon and missile systems.

### Significant Initiatives

The business is committed to work towards continuously enhancing and expanding the services it offers its customer. The company also believes that improving internal processes are indispensable to offering a superior quality product and service, and therefore invests in multiple intra-organisational initiatives. These include:

- Enterprise-wide Collaboration for Alignment with Strategy (ECAS)
- LAKSHYA (Strategy perspective planning exercise)
- Implementation of Theory of Constraints
- Employee Engagement

- Innovation
- Sustainability and Corporate Social Responsibility Initiatives

The 'Theory of Constraints'-based 'Critical Chain Project Management' targets improving execution and delivery performance. It uses a focusing process to identify the constraint and restructure the rest of the organization around it in order to increase the throughput.

Operational excellence measures such as productivity monitoring, knowledge management across products, optimum inventory management are undertaken for the products under execution.

ECAS seeks to enhance Organizational Excellence through a strategy of promoting Customer Intimacy and a culture of cross-functional collaboration.

Employee engagement, feedback and ideation workshops are conducted with the objective of creating an innovative, involved and committed work force. Belbin Team building workshops across various businesses were organized to build a culture of camaraderie and strengthen employee bonding. The business continued to engage key business development personnel and international business heads in select geographies. The business strives for continuous improvement for the protection



Akash missile-launcher.





The photograph is for representation purposes only, and does not purport to be a photograph of the actual nuclear-powered submarine built by L&T.

*L&T made a vital contribution to India's first nuclear-powered submarine – Arihant – viz. design engineering, pressure hull, outer hull and structures, special equipment, outfitting - equipment, piping, cabling systems, integration and trials.*

and development of health, safety and environmental assets of its employees and stakeholders. During the year, the thrust continued on the transformation of the safety culture through various initiatives.

Technology & Product Development Centers continuously focus on new product development and development of improved manufacturing technology. These Centers are engaged in enhancing technologies related to process industries, manufacturing, mechanical systems, defence electronics & embedded software solutions and submarine designs.

These Centers lay specific emphasis on welding & metallurgy, composite materials, heat transfer, hydrodynamics, computational fluid dynamics, stress analysis, drives, microwave & RF, embedded systems, high availability systems and military communication.

Significant initiatives have been taken to focus on new product development either through internal development projects or through participation in opportunities presented by "Make" and Buy & Make (Indian)" programs or through collaborative programs with national laboratories such as DRDO and ISRO.

## L&T SPECIAL STEELS AND HEAVY FORGINGS

This is a joint venture of L&T and Nuclear Power Corporation of India Limited. The JV has set up a fully integrated manufacturing facility at Hazira, Gujarat to produce ingots and finished forgings required for critical equipment in nuclear power and hydrocarbon industry, rotors in power industry, rolls in steel plants and other heavy forgings for general engineering applications. The JV is a major strategic step towards offering a more economical and sustainable alternative to import of heavy forgings.



*The inclined Brahmos launcher adds to the country's fire power.*





*L&T's forge shop at Hazira is among the largest in the world, offering a wide range of finished forgings for the nuclear, hydrocarbon and power sectors. It has the capability to manufacture single-piece forgings of up to 120 MT, and up to 40,000 MT a year.*

The Company has made special steels in various grades, ingots of the largest size in the country and the heavy forgings required for critical equipment in refineries, fertilisers, nuclear, power and other segments. A vertical shaft furnace facility enables manufacture of rotors. The facility has been qualified with various customers and is obtaining development orders.

**SPECTRUM INFOTECH PRIVATE LIMITED**

This is a wholly owned subsidiary of L&T. It undertakes technology development and manufacture of avionics LRUs for military applications. The focus is on product development

in embedded solutions, control and signal processing for the defence sector. Technology development and manufacture is undertaken of avionics LRUs for military applications. Spectrum Infotech is certified by the Centre for Military Airworthiness and Certification (CEMILAC) of the Ministry of Defence, India. It has obtained AS9100 Rev C, ISO 9001 and ISO 27001 certifications. The avionics LRUs that the Company has designed, developed and manufactured are on-board the Light Combat Aircraft. Spectrum Infotech is a key player in the design, development and engineering of integrated life support systems for LCA.

**LARSEN & TOUBRO HEAVY ENGINEERING LLC.**

This is a Joint Venture of The Zubair Corporation and L&T, established in Sohar in the Sultanate of Oman. It focuses on business in the Middle East, mainly GCC countries and supplements the parent company's India-based manufacturing and fabrication facilities. Leveraging its geographical proximity to the Middle East and Africa, the company is building a track record for critical equipment in these markets. It also assists L&T in revamping and upgradation of refinery projects.



*Steam generators for pressurized heavy-water reactors.*





L&T built a 155m-long vessel equipped with two cranes of 900 MT capacity. In addition to commercial ships, the Company focuses on vessels for defence, and undertakes repair and refit.

## SHIPBUILDING

L&T's shipbuilding arm offers total solutions – from concept and design for new-builds as well as repair and retrofit – for defence and commercial vessels.

L&T has two shipyards – one on India's west coast (Hazira in Gujarat) and the other on India's east coast (Kattupalli near Chennai in Tamil Nadu). A heavy-duty ship-lift at Kattupalli ensures quicker turnaround of vessels. The systems at the yards conform to several standards: ISO 9001 QMS, EMS 14001 and OHSAS 18001.

### DEFENCE

In-house design capabilities, production of critical equipment and systems, sustained customer relationships, ship and submarine construction experience and proven project management skills enable the business to leverage emerging opportunities.

L&T's Warship Design Centre has designed fast-speed boats, attack craft, offshore patrol vessels, frigates and corvettes.

**Business Performance:** An order was received from the Indian Navy for dry docking its vessel INS Jyoti. The in-house design and

construction of Interceptor class of ships for the Indian Coast Guard has been well received for its performance characteristics.

### COMMERCIAL

L&T builds specialized multi-purpose heavy-lift roll-on-roll-off, semi-submersibles, container ships, LPG/LNG vessels, chemical tankers, dredgers, reefers, cable-layers, etc. In addition, it executes repairs, including rig repair and ship conversions.

**Business Performance:** Halul Offshore Services, Qatar placed orders for six specialized commercial vessels.



L&T's shipyard at Kattupalli on India's east coast, equipped with a shiplift designed and built in-house.





The new Gateway of India - Terminal 2 at Mumbai Airport. L&T has constructed several modern airports that include New Delhi, Bengaluru and Hyderabad in India. The Salalah International Airport in Oman is at an advanced stage of construction.

## L&T CONSTRUCTION

L&T Construction ranks among the world's top 30 contractors. It contributes significantly to building the image and stature of L&T as 'the builder of the India of the 21<sup>st</sup> Century'.

L&T Construction encompasses multiple businesses each of which has distinct but complementary capabilities, and addresses different segments of infrastructure and industry.

Many landmark projects of national importance in India – and increasingly overseas – bear the stamp of the excellence of L&T's construction.

For over 70 years, L&T Construction has proven its capability for executing projects on a turnkey basis with single source responsibility involving innovative designs, comprehensive construction services that include procurement, supply, installation, testing and commissioning.

## BUILDINGS AND FACTORIES

This business undertakes engineering, design and construction of:

- Airports
- IT parks
- High-rise structures
- Office spaces
- Educational institutions
- Hospitals & hotels
- Sports & other urban infrastructure
- Residential buildings & townships
- Manufacturing and cement plants



Air-traffic Control Tower, Mumbai Airport.





High-rise towers for a residential project in Delhi. The Buildings & Factories business provides world-class 'Concept to Commissioning' solutions across various business segments.

The thrust is on providing world-class 'Design and Build – Concept to Commissioning' solutions to our customers across various business segments.

Construction excellence - coupled with frontier technology, experience and expertise gained over several decades – has helped the business establish itself as one of the premier EPC contractors in Indian industry and in targeted overseas markets.

**New Orders\***

The Residential Business Unit continued its dominance in Tier I and Tier II Indian cities. Large orders were secured from reputed real

estate developers for building high-rise residential towers.

Major orders were bagged across all other business units including some of the largest residential orders in the country for constructing high-rise towers in Gurgaon, Bengaluru, Mumbai and Chennai from reputed real estate developers.

L&T is regarded a pioneer in the construction of world-class hospitals in India and has leveraged its EPC capabilities to bag major orders for the construction of hospitals for the Central and State governments.

In the IT and Institutional space, major orders were secured to build convention centers, office buildings and a museum.

Major orders were also secured for:

- Building a state-of-the-art global technology center for Shell in Bengaluru
- An IT Park for Tech Mahindra in Bengaluru
- A passenger terminal building at Cochin International Airport, Kerala
- An international convention center in Mumbai
- A manufacturing facility for JCB at Jaipur
- Cement plants for Orient and Emami



IT office complex of Tata Consultancy Services, at Rajarhat, Kolkata.





*Hotel 'ITC Grand Chola' at Chennai - one of many large luxury hotels built by L&T utilising its end-to-end construction capabilities.*

Repeat orders reflect the strong and long-lasting relationship that L&T has established with its client base, and affirm customer confidence in the Company's capabilities.

Repeat orders were secured from a number of key clients including:

- Tata Consultancy Services
- Cognizant
- Boeing
- Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER)
- Ford

- Honda
- Maruti

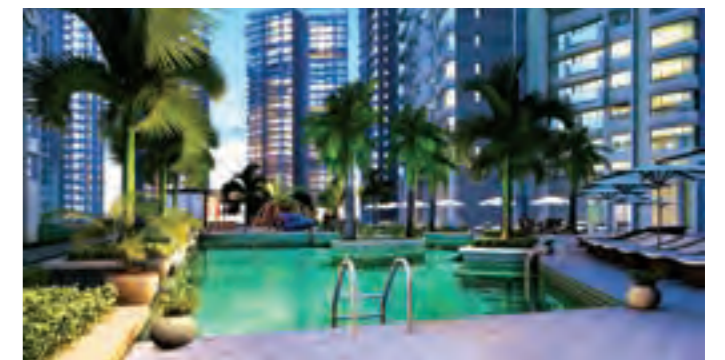
**Marquee Projects Commissioned\***

- Terminal T2 and Air Traffic Control Tower for Mumbai International Airport - widely regarded as the 'pride of Mumbai city' and among the most spectacular airports in the world.
- Expansion of the terminal building in Bengaluru International Airport
- IT office facility for Cognizant in Pune
- First-of-its-kind 23-floor precast residential project in Mumbai

- 10000 tpd cement plant project in Malkhed, Karnataka
- Automobile manufacturing facility for Ford in Sanand, Gujarat

**Significant Initiatives**

The Buildings & Factories business has been innovating and implementing a number of new construction techniques. These include 'Lean Construction' and methods to improve cycle time. A 3D studio, 'Srishti', set up at the Engineering Design and Research Centre (EDRC), Chennai, is the first of its kind in the Indian construction industry where ideas are created, synergized and designs culminate in virtual reality.



*Luxurious amenities at a premium residential property in Mumbai.*





*Seawoods Grand Central, Navi Mumbai - one of India's largest Transit-Oriented Development projects that will house a railway station, and is poised to be a nerve centre of commerce and leisure.*

**Subsidiary**

Larsen & Toubro Oman LLC (LTO) – a JV with Muscat Trading Company LLC (Zubair Corporation Group) – has an extensive track record of construction in the Sultanate of Oman, successfully handling a variety of complex structures across the country on EPC basis for more than a decade.

Last year, LTO successfully secured a major order for the construction of Sultan Qaboos Youth Complex for Culture and Recreation in Salalah.

\*Lists featured here are indicative. For more information, refer to our Annual Report.



*A speciality hospital being built by L&T in Abu Dhabi.*





India's first monorail, at Mumbai, built and commissioned by L&T.

## TRANSPORTATION INFRASTRUCTURE

### Roads, Runways and Elevated Corridors

Creating high quality national infrastructure for transportation is one of the prime areas of operations for L&T. L&T Construction builds a wide range of critical projects that enable and accelerate transport by road, rail and air.

In addition to offering EPC services for Highways, Expressways and Runways, the Company provides services for strengthening and widening of roads, construction of race tracks/test tracks for high-speed motor sports calling for high precision, specialised-

surface treatment. World-class runways are built to international specifications including those with CAT IIIB Instrument Landing Systems.

### New Orders \*

International orders include four prestigious mega road projects: the Batinah Expressway & Bidbid-Sur Highway (both Oman), the Maffraq-Al Ghwaifat road project (UAE) & the Al Wakrah (Qatar).

### Marquee Projects Commissioned \*

- Widening and strengthening of the 148 km Krishnagiri-Walajahpet Road Project in Tamil Nadu

- Major portions of Sheikh Khalifa Interchange that connects Dubai and Abu Dhabi, which involves the construction of four bridges and a 63m-long tunnel

### Railways

L&T has been at the forefront in building railway infrastructure for mainline transportation and dedicated freight corridors to meet the country's demands. It offers total infrastructure solutions for urban mass transport systems including electrification, system integration and dedicated rail connectivity projects for core sector development.



L&T is executing multiple integrated rail infrastructure projects, including the Dedicated Freight Corridor in India.





L&T is undertaking complex roads and interchange projects in several geographies. The track record includes the prestigious Sheikh Khalifa Interchange linking the emirates of Abu Dhabi and Dubai.

L&T has the expertise to take up the construction of rail bed and permanent way works involving construction of embankments, bridges, tunnels and associated civil works comprising aboveground and underground station buildings, passenger amenities and staff quarters; electrical works like overhead electrification, traction substations and signaling and telecommunication works.

**New Orders\***

- India's prestigious Western Dedicated Freight Corridor (WDFC) project order, as well as civil and track packages, was won from WDFC

- Mughalsarai-Sonnagar electrical and mechanical package from Eastern Dedicated Freight Corridor

**Marquee Project Commissioned\***

- During the year, the Company executed Phase 1 of India's first monorail project in Mumbai

**Awards**

L&T's Transportation Infrastructure business won 11 international safety awards - 3 RoSPA (Royal Society for the Prevention of Accidents) Gold, 1 RoSPA Silver and 7 British Safety Council awards. Others include 5 National Safety Council awards and

Dossier Construction Award for the Best Contractor of the year 2013 in Oman.

**Subsidiary**

Through Larsen & Toubro Oman LLC (LTO), the Company targets large-value road and expressway contracts from upcoming projects in Oman. It has expanded its plant and machinery base to meet and overcome challenges.

\*Lists featured here are indicative. For more information, refer to our Annual Report.



Airfield ground lighting at Mumbai International Airport. Runways built by L&T include those incorporating CAT IIIB Instrument Landing Systems.





*Kakrapar Atomic Power Project, Gujarat, under construction. L&T has contributed to India's nuclear power programme both through comprehensive construction of critical structures and supply of vital equipment.*

## HEAVY CIVIL INFRASTRUCTURE

Heavy civil projects call for a massive combination of strength, skill and sophisticated technology. L&T Construction has undertaken a number of heavy civil projects that answer challenging requirements and meet international standards. In-house design strengths and a unique Construction Methodology Cell facilitate concept-to-commissioning solutions.

### Nuclear Power

From the inception of India's nuclear power programme, L&T has played a critical role by constructing a majority of the country's nuclear power plants and heavy water projects.

Our expertise covers:

- Design, consultancy including seismic qualification, procurement and construction services for pump houses, cooling towers, head end facilities
- Civil construction and erection services for nuclear containment structures (reactor buildings), control buildings, auxiliary buildings and other associated structures

- Mechanical works as well as piping systems, associated detailed engineering, procurement and a slew of other specialized and related functions
- Engineering, Procurement and Construction works for electrical and instrumentation projects.

### Hydro-electric Power Plants

The hydro-electric business offers a comprehensive 'Water to Wire' range of services. This facilitates implementation of hydro-electric power projects on an Engineer-Procure-Construct basis on tough mountainous terrain.



*330 MW hydro-electric project in Uttarakhand - one of the many at the foothills of the Himalayas.*





Perspective view of India's longest (1.344 km) extra-dosed, cable-stay bridge across river Narmada in Gujarat. L&T's capabilities include design and construction of many types of bridges of different spans using innovative techniques and construction methods.

**Areas of expertise cover:**

- Diversion weirs, barrages, concrete / earthen / rockfill dams including roller compacted concrete dams
- Underground tunnels of various geometry (both concrete lined and steel lined), pressure shafts, surge and de-silting chambers
- Large underground power houses and surface power houses
- Hydro-mechanical components such as gates, penstocks, etc., including erection of electro-mechanical equipment

**Ports**

L&T has designed and executed docks, container terminals, ports, harbours, jetties, berths, breakwaters and shipyards.

**Special Bridges**

L&T has pioneered the construction of major bridges using ingenious cutting-edge construction techniques like incremental launching, segmental construction, cable stay, precast, pre-stressed concrete, steel and concrete composite construction.

**Metros**

The business designs and constructs above-ground corridors, piers and complex superstructures, including underground corridors using sophisticated tunnelling techniques.

**Defence**

A range of Engineer-Procure-Construct services is offered for defence installations. The Company has developed specialised hybrid technology to meet the specific needs of the defence sector.



Tunnel for a major metro. L&T has also built underground and elevated corridors for the metro in major cities.





*L&T has executed elevated and underground corridors and many station buildings with electrical & automation systems for Delhi Metro. L&T's metro profile extends across Riyadh, Qatar, Hyderabad, Kochi, Chennai and Bangalore.*

### **New Orders\***

Orders have been secured for some of the most prestigious metro projects in the industry. These include the 41-km Riyadh Metro in Saudi Arabia and design and construction of 11 km twin tunnels and nine underground metro stations for the Qatar Metro. Apart from these projects, the Company has received orders for two packages of the Kochi Metro, the 3<sup>rd</sup> Narmada cable-stay bridge – the longest of its kind in India, and a civil package from Indira Gandhi Centre of Atomic Research at Kalpakkam.

### **Marquee Projects Commissioned\***

- Units 1 and 2 of the Kudankulam Nuclear Project
- Elevated corridor at Mumbai airport
- A full ring liner was pre-fabricated and erected at Kakrapar Atomic Power project (Units 3 and 4) in Gujarat

\*Lists featured here are indicative. For more information, refer to our Annual Report.

Multiple businesses within L&T address varied aspects of metro systems. For information about tracks, signaling, etc., please refer to 'Transportation Infrastructure'. For information about equity participation projects, please refer to 'Infrastructure - Concessions'.



*Complex section of the elevated corridor for Chennai Metro*





110 MGD Water Treatment Plant, Bhagirathi, Delhi. L&T has extensive experience in design and construction of water treatment plants, transmission mains and distribution networks.

## WATER & RENEWABLE ENERGY

The future of communities, societies and nations hinges on sustainability. With increasing and alarming clarity, it is being widely recognized that man needs to conserve precious resources and find new ways of generating energy.

L&T's Water & Renewable Energy business enables the transformation of the concept of sustainability into reality with the capability and the commitment to efficiently utilize water resources and increase the mix of renewable energy in our daily lives.

### Water & Effluent Treatment

L&T's Engineering-Procurement-Construction offerings in creating world-class water infrastructure cover virtually every area:

- Urban & Rural Water Supply
- Water Treatment Plants
- Waste Water Treatment & Network
- Industrial Water & Effluent Treatment
- Desalination Plants
- Lift Irrigation Projects
- Canal Relining
- Unaccounted For Water.

### New Orders:\*

- Water supply schemes in over 1300 villages from the Public Health Engineering Department, Rajasthan; similar schemes for over 2700 habitations from the Tamil Nadu Water Supply And Drainage Board
- 'Reduction in Unaccounted-for Water' project from the Bangalore Water Supply and Sewerage Board
- Waste-water projects at Porbandar, Junagadh and Jamnagar districts from Gujarat Water Supply And Sewerage Board
- Lift-irrigation schemes from the Department of Water Resources, Odisha
- Order from the Narmada Water Resources, Water Supply &



16 MGD water treatment plant for Delhi Jal Board. Since 2001, L&T has executed 13 water projects in India's capital.





*Desalination is helping the world supplement a vital resource. L&T's capabilities in the water sector include setting up of thermal desalination plants.*

Kalpsar Department, Gujarat under the Saurashtra Narmada Avtaran Irrigation Scheme

**Marquee Projects Commissioned\***

- Hogenakkal Water Supply & Fluorosis Mitigation project in the Krishnagiri & Dharmapuri districts of Tamil Nadu
- Botad Branch Canal Lift Irrigation project for Narnada Water Resources, Water Supply & Kalpsar Department, Gujarat
- NC-34 Water Supply Scheme - the first package to be completed among the eight packages awarded under the Swarnim Gujarat Saurashtra Kutch Bulk Water Pipeline Grid.

**New Orders:\***

- 7.5 MW Solar PV plant on a single roof - one of the world's largest projects of its kind
- 5 MW solar photo-voltaic project in Maharashtra was won and commissioned
- L&T won the City Surveillance and Intelligent Traffic Management System (CSITMS) Project from the Government of Gujarat. The project will be executed in three key cities of Gujarat - Gandhinagar, Ahmedabad and Vadodara

**Renewable Energy**

With a track record that includes the largest solar plants in the country, L&T has proven EPC capabilities in offering economically viable and technically superior solutions for:

- Utility-scale photovoltaic/concentrated solar power plants
- Rooftop, micro-grids and smart grids
- Integrated security solutions
- Wind power solutions



*Reverse osmosis technology in operation at desalination projects.*





172 MLD water treatment plant for Barmer Lift Water Supply Project at Jaisalmer, Rajasthan. L&T has designed and constructed water reservoirs, pumping stations, pipeline networks and distribution systems.

**Marquee Projects Commissioned\***

- 125 MW Concentrated Solar Power Plant - Asia's largest
- 20 MW solar photo-voltaic plant in Rajasthan
- Solar photo-voltaic plant at Kanchipuram (winner of Intersolar Award)

\*Lists featured here are indicative. For more information, refer to our Annual Report.



7.5 MW Solar PV plant on a single roof - one of the world's largest projects of its kind.





Substation incorporating 765 kV Air-Insulated Switchgear at Unnao in Uttar Pradesh. L&T offers complete solutions in high-voltage substations and power transmission lines.

## POWER TRANSMISSION & DISTRIBUTION

L&T is a leading EPC player in power transmission and distribution in many countries including UAE, Qatar, Kuwait, Oman, Saudi Arabia, Algeria, Kenya and India. Recently it was rated 'Outstanding Company in Power T&D' in EPC category by EPC World. A remarkable achievement was the commissioning of the 471 m guyed mast communication tower - the tallest in India.

### Infrastructure and Industrial Electrification

Turnkey electrification and communication solutions for the whole gamut of core industries including IT parks, airports, sea ports,

metros and intra-city power transmission networks.

### Substations

Design and construction of all types of power evacuation projects from concept to commissioning on EPC basis, the key focus areas for L&T are Air Insulated Substations (AIS) up to 1200kV and Gas Insulated Substations (GIS) up to 765kV.

### Transmission Lines

Turnkey design and construction of transmission lines. Capabilities include design, manufacture, supply, construction, testing and commissioning of EHV power transmission lines.

### Utility Power Distribution

Comprehensive solutions are offered for power quality improvement projects across the country.

### International Operations

L&T provides single-window EPC solutions for power evacuation, transmission and distribution through dedicated Business Units in the Middle East and Africa.

### Facilities

1,00,000 mtpa tower manufacturing facilities have been set up at Puducherry and Pithampur. A 40,000 tpa rolling mill has been set



800 kV transmission lines between Nidhura and Agra.





One of many 400 kV Gas-Insulated Substations (GIS) installed by L&T. The Company is one of the major players in the power transmission and distribution sector in the Middle East, with a track record extending across the UAE, Qatar, Kuwait, Oman and Saudi Arabia.

up at the Puducherry factory.

L&T's Transmission Line Testing & Research Station is one of the largest tower testing stations in India. Since inception in November 2009, it has completed testing of towers for clients from Spain, Oman, Abu Dhabi and Egypt.

**New Orders\***

- Turnkey construction of 18 EHV GIS Substations and 151 km of EHV cabling works for Qatar General Electricity & Water Corporation(KAHRAMAA).
- 230kV Transmission Line at Abu Ali plant for Saudi Aramco and

- 110 kV Transmission Line Project for Saudi Electricity Company.
- Power Distribution & Power Quality Improvement projects in Uttar Pradesh, West Bengal, Odisha and Kerala under RAPDRP, RGGVY and other schemes
- Electrification & Instrumentation works for Delhi Metro Phase-III
- Transmission Lines Projects for TANTRANSCO and PGCIL
- 132kV GIS Substations in Kuwait
- 400 kV Substation for Société Nationale de l'Electricité et duGaz, in Algeria

**Marquee Projects Commissioned\***

- Six EHV GIS Substations of 132kV at Sudah Port,

- Kalba, Taweelah and Sir Baniyas in UAE for TRANSCO
- 132 kV GIS Substation for Jaipur Metro
- Electrical Works for Kudankulam Nuclear Plant
- 765 kV Transmission Line from Anta to Phagi at Rajasthan and 400 kV Transmission Line from Jabalpur to Bina at Madhya Pradesh
- Project at Logistic Village in Qatar for KAHRAMAA
- 400 kV Fujairah-Ras al-Khaimah line project in one of the toughest terrains under severe climatic conditions

\*Lists featured here are indicative. For more information, refer to our Annual Report.



India's first 1200 kV substation at Bina in Madhya Pradesh built by L&T.





*Crescent Bay - an elite residential project coming up in the heart of Mumbai, India's commercial capital.*

## L&T REALTY

L&T Realty – the real estate arm of Larsen & Toubro – extends the positive attributes of Brand L&T into the domains of residential and commercial properties. All stakeholders in the real estate space acknowledge the Company's entrenched values of trust, professionalism and commitment.

The residential and commercial properties of L&T Realty embody a sustainable design philosophy focusing on easily-accessible developments and the fostering of integrated communities.

### Residential

- Crescent Bay, Parel, Mumbai
- Emerald Isle, Powai, Mumbai
- Eden Park, OMR, Chennai
- Serene County, Hyderabad

### Commercial

- L&T Business Park, Powai, Mumbai
- HITEC City, Hyderabad

### Mixed Use

- L&T Seawoods, Navi Mumbai: India's largest Transit Oriented Development being built around the railway station of Seawoods - Darave.
- Elante, Chandigarh: The mall has become part of Chandigarh's tourist itinerary.



*L&T Business Park at Powai, Mumbai.*

The project list is indicative. For complete information, please visit our website.





An expansive range of switchgear, offered by L&T – an industry leader in power distribution systems. Switchgear is part of L&T's broad range of electrical and electronic systems, widely used in industrial, agricultural, building and commercial sectors.

## ELECTRICAL & AUTOMATION

L&T's Electrical & Automation business offers a wide range of products and solutions for electricity distribution and control to several sectors: industrial, utilities, infrastructure, buildings and agriculture. Its range includes LV and MV switchgear components, electrical systems, marine switchgear, industrial & building automation solutions, surveillance systems, energy meters and protection relays.

The business comprises two Strategic Business Groups (SBGs):

### Products SBG

- Electrical Standard Products business unit
- Metering & Protection System business unit.

### Projects SBG

- Electrical Systems & Equipment business unit
- Control & Automation business unit

### Facilities

The Company's manufacturing facilities incorporate a technology base on par with the best in the industry worldwide.

Within India, the facilities are located in and around Mumbai, Ahmednagar, Vadodara, Coimbatore and Mysore.

Internationally, the business has factories in Saudi Arabia, Jebel Ali (Dubai), Kuwait, Malaysia, Indonesia, Australia and the UK.

High-precision tool manufacturing facility ensures high-quality manufacture. Switchgear Training Centres impart training in good electrical practices.



A section of L&T's range of electronic meters and relays.





Switchboard installation at a power plant. L&T provides power distribution and control solutions – including LV and MV switchboards – across the value chain, from point of generation to end-user.

The business' in-house design & development capabilities are rated among the industry's best. The facilities at Powai (Mumbai), Ahmednagar, Mysore and Coimbatore are approved by the Department of Scientific & Industrial Research, Ministry of Science & Technology. In 2013-2014, two new R&D Centers were introduced in Mumbai – the Embedded Design and Development Center and the Power Electronics & Automation Technology Center.

#### Patents

Applications were filed in India for 153 patents, 6 trademarks, 47 designs and one copyright. It also made nine foreign applications.

#### Subsidiary Companies

**TAMCO** – a leading manufacturer of LV and MV switchgear – has manufacturing facilities in Malaysia, Indonesia and Australia.

**L&T Electrical & Automation FZE**, based in Jebel Ali, Dubai, operates in the automation, instrumentation and telecommunication space in the Middle East, Africa and CIS.

**L&T Electrical & Automation Saudi Arabia Company Limited** has a state-of-the-art integrated manufacturing facility in Dammam to offer customers the complete range of electrical systems and switchgear components.

**Henikwon Corporation Sdn.Bhd., Malaysia** is leading manufacturer of LV and MV Bus Bar Trunking (BBT) systems.

**Servowatch System Ltd., U.K.** – part of L&T since April 2012 – provides marine- specific alarms, control & monitoring software solution and system integration.

**Kana Controls General Trading and Contracting. Co., Kuwait** offers systems for automation.



L&T offers a wide range of control and automation systems.





L&T 9020 wheel loader – part of the wide range of machines for the construction and mining sectors.

## CONSTRUCTION & MINING MACHINERY

**L&T's Construction Equipment Business** distributes and provides after-sales support for construction equipment from Komatsu, including hydraulic excavators, motor graders, dozers and other road-building and recycling equipment. The Komatsu product range comprises models in the 7te to 45te class powered by diesel engines ranging from 60 HP to 330 HP. L&T also markets L&T 300-2 hydraulic excavator, manufactured at LTCEL and the indigenously designed L&T 9020 wheel loader manufactured at Kansbahal.

L&T's Mining Equipment Business distributes and provides after-sales support for mining equipment, imported from Komatsu's plants. L&T also distributes Tipper Trucks from Scania, Sweden.

**L&T CONSTRUCTION EQUIPMENT LIMITED**, formerly L&T-Komatsu Limited, is now a wholly-owned subsidiary of L&T. It manufactures hydraulic excavators for Komatsu India besides its own hydraulic excavator, L&T 300-2 and hydraulic systems & components.

## RUBBER PROCESSING MACHINERY BUSINESS UNIT

It manufactures and markets rubber processing machinery for the global tyre and rubber industry with supplies to all the global tyre majors. The machines are produced at its manufacturing facility at Kancheepuram, Tamilnadu.

## L&T KOBELCO MACHINERY PRIVATE LIMITED

This JV of L&T and Kobe Steel, Japan manufactures internal mixers and twin screw roller-head extruders.



L&T markets the Komatsu range of hydraulic excavators in India.





L&T's valves find application in refineries and petrochemical complexes, LNG and GTL plants, process platforms and cross-country pipelines, and supercritical and nuclear power plants across the globe.

## L&T VALVES

L&T Valves Limited (formerly Audco India Limited) is a leader in flow-control solutions for critical services. A wholly owned subsidiary of L&T, the Company leverages its fifty-year heritage of excellence to manufacture valves for key sectors of the economy such as oil & gas and power.

L&T Valves has a marketing network that spans the globe reinforced by strategic alliance with key international distributors. In India, it has a presence in every industrial centre through a network of offices, field engineers, distributors, automation centres and service franchisees.

Manufacturing facilities are located at Chennai (Manapakkam), Coimbatore and Kancheepuram. Quality Management System is certified to comply with ISO 9001 and API Spec Q1.

The Company is licensed to offer products monogrammed API 600 and API 6D as well as valves with CE Marking (Pressure Equipment Directive 97/23/EC) and ATEX certification (Council Directive 94/9/EC). Ball and Butterfly Valves with SIL-3 certification (IEC 61508) also are offered.

## FOUNDRY BUSINESS UNIT

It makes SG iron and special iron castings for wind-power and other engineering services at its 30,000 MT capacity unit in Coimbatore. It can produce castings in the weight range of 3T to 28T each.

## L&T CUTTING TOOLS LIMITED

It provides metal cutting solutions to the manufacturing industry.

## EWAC ALLOYS LIMITED

A market leader in maintenance & repair welding, it has a factory in Ankleshwar. Products and services include consumables, specification-grade electronics and flux-cored welding wires.



Five-axis machining centres ensure dimensional accuracy and consistency.





*The Bangalore facility of L&T Infotech. This L&T subsidiary offers domain-led solutions to global clients in BFSI, manufacturing, energy and the petrochemical industry.*

## L&T INFOTECH

L&T Infotech is a wholly-owned subsidiary of L&T – and one of the fastest-growing IT services companies. It is structured around two clusters, with horizontals that serve clients across both.

The 'Industrials' cluster leverages L&T's strengths to cater to manufacturing plants, establishments handling wholesale and retail sale of products, and establishments dealing with energy and utilities. It houses horizontals of SAP, Enterprise Integration, Oracle & Microsoft and Manufacturing Execution Systems.

The 'Services' cluster focuses on banking, financial services,

insurance, travel & logistics, media & entertainment and health-care. It houses horizontals of Testing, Mobility, Infrastructure Management System and Business Intelligence/Data Warehouse.

Nine delivery centers in India and nine centers in proximity to clients, with a diversified workforce worldwide enable L&T Infotech to offer 24x7 commitment. To provide complete outsourcing services, the business has also increased its focus on investing on key forces such as Social, Mobile, Big data, Cloud and Analytics.

The business is expanding into new geographies such as Australia, Canada, Singapore, South Africa and the Middle East, while consolidating its client-facing organisation in North America and Europe.

A three-pronged strategy sets L&T Infotech apart:

- Business-to-IT Connect
- Engage the Future
- Execution Excellence



*L&T Infotech's global headquarters in Mumbai.*





*Knowledge City at Vadodara houses one of the delivery centres of L&T Technology Services. Other centres are located in Chennai, Bangalore, Mysore, Hyderabad, Mumbai, New Jersey and California.*

## L&T TECHNOLOGY SERVICES

L&T Technology Services – an ISO 9001:2008 and a CMMI level 5 certified organisation – is a wholly owned subsidiary of L&T.

It offers design and development solutions throughout the entire development chain across industries such as Industrial Products, Medical Devices, Transportation, Telecom and Hi-tech and to the Process Industry. The Company also offers solutions in the areas of Mechanical Engineering Services, Embedded Systems Services, Product Lifecycle Management (PLM), Engineering Analytics and Power Electronics and M2M and the Internet of Things (IoT).

The Company has its design and delivery locations in Vadodara, Chennai, Bangalore, Mysore, Hyderabad and Mumbai in India. It has two delivery centres in the US: in Edison, New Jersey and in San Jose, California.

L&T Technology Services, with its multi-disciplinary and multi-domain presence, has the advantage to leverage its best practices across different industry verticals.

To capitalise on the changes in technology and market trends, enable rapid growth and boost momentum, three new solution

offerings were introduced in early 2014:

- Internet of Things (IoT)/M2M
- Engineering Analytics and
- Power Electronics for Electric Vehicles

L&T Technology Services has several alliances and partnerships, including AUTOSAR (Automotive Open System Architecture), National Instruments, GENIVI, Siemens, Dassault Systemes, PTC, CABA, CiA, Texas instruments and Institute of Asset Management (IAM).



*Engineering talent is drawn from India's premier academic institutes.*





*The Hyderabad Metro Rail Project is the world's largest public-private project in the urban transportation sector. It is poised to reduce commuting time and enhance the quality of life in the metropolis of Hyderabad.*

## INFRASTRUCTURE – CONCESSIONS

L&T leverages its established domain expertise in infrastructure project execution and financial services to execute concession projects in sectors crucial to the economy.

### **L&T Infrastructure Development Projects Limited (L&T IDPL)**

This L&T subsidiary is India's premier infrastructure builder. India's leading player in 'Public-Private-Partnership' projects it has expanding interests in key sectors: Roads & Bridges, Ports, Metro Rail and Wind Energy and Power Transmission Lines. Emerging fields of interest are Water Supply and Railways.

L&T IDPL's large portfolio of infrastructure assets includes 22 projects across sectors with an estimated project cost of USD 7 billion.

### **Roads & Bridges**

L&T IDPL has one of the largest project portfolios in the road sector in India. Its portfolio of road projects includes some of the most economically significant and high-traffic corridors connecting key industrial cities and ports in India.

### **Metro Rail**

The Hyderabad Metro Rail - in India's newest state, Telangana - is one of the world's largest projects of its kind involving public-private partnership in the mass transport sector. It will cover over 72 km across three corridors, and transform Hyderabad, triggering robust economic activity around the city.

### **Ports**

The track record includes an all-weather port at Dhamra in Odisha, Kattupalli Port near Chennai, Berth No.4A at Haldia Port in West Bengal and a terminal at Kakinada in Andhra Pradesh.



*L&T's modern port at Kattupalli, north of Chennai.*



# Case Studies in Good Citizenship

Case studies are L&T's CSR\* in action. They demonstrate how pronouncements and policies are actually making a difference on the ground.

The following case studies\* trace the complete sequence - from problems addressed to solutions implemented.

\*CSR - defined in its widest sense and inclusive of both community service and environment protection  
 \*For more case studies and details, please refer to annual L&T's Sustainability Reports.

CASE STUDY

## Putting Waste to Work

Tunnels are all about finding a way through obstacles and speeding progress. But what about a way of dealing with the material thrown up when tunnels are excavated? It's called 'muck' by tunnelling engineers and is produced in large volumes.

Conventionally, one simply disposes of the muck as waste. Our engineers sought and found a way of dealing with muck that is greener and saves money.

Aggregates are the largest component of concrete and are in high demand during tunnel construction. At our Singoli Bhatwari HEP project, we developed a method to crush muck and use it as an effective substitute for the aggregates and sand that go into the making of concrete. We also used the muck as a filler in gabions.



The benefits are many:

**By reducing the demand for aggregates, we cut down on the need for land and mining**

**Less tunnel muck means lower environmental impact. No need for large-scale transportation to dispose of muck**

Quantity of Muck Excavated (in Tons)	
Total Excavation from Tunnel (Riverbed Material) (A)	11,050
Qty. of Muck per Ton of Riverbed Material (B)	49.5
<b>Total Muck Excavated (AxB)</b>	<b>546,975</b>

Tunnel Muck Utilisation (in Tons)	
Sent to Crusher	191,441
Used in Gabions	82,046
Used in Land Fills	273,488
<b>Total Muck Utilised</b>	<b>546,975</b>

### Outcome

Over 546,975 tons of muck was put to productive use.

CASE STUDY



## True Progress is Progress for All

No man is an island and neither are organisations. We understand that if our progress is to be sustainable over a period of time, it has to be collective.

To ensure collective development, Project Sarvodaya was initiated in the year 2012-13 at Filterpada, a community of 12,500 people in the vicinity of L&T's Powai Campus.

After a need-assessment survey, it was decided to focus on the health and livelihood needs of Filterpada, with a special focus on the needs of the women. The Sarvodaya Community Centre was established by Larsen & Toubro Public Charitable Trust in partnership with Community Aid & Sponsorship Programme, an NGO.

**Project Sarvodaya is an easily replicable model to bring about social harmony and enhance the well-being of families.**

### Impact

In the reporting year, over 450 women benefited through the training courses.

#### VOCATIONAL TRAINING

It was found that the women in this community rarely got an opportunity to financially support their families. Vocational training courses like beautician skills and tailoring were offered to the interested trainees.

#### HEALTH INITIATIVES

Health awareness programmes on waterborne and contagious diseases were interwoven with initiatives like the clean house, clean society and healthy baby competitions.

A weekly gynaecology clinic is run and any cases observed are referred to L&T's Andheri Health Centre for further treatment.

Health check-ups are also conducted on a regular basis by L&T's Mobile Health Van.

A special campaign to create awareness on curative and preventive health measures was organised for a community comprising predominantly tribals.





## Sunlight at Night

The Company that is India's largest EPC solution provider of large scale solar power plants also leads the way in putting solar energy to work through solar lanterns. D.VA, the solar lantern by L&T's Electrical & Automation business, is virtually unbreakable, energy-efficient and easy-to-handle.

### D.VA offers several advantages over conventional solar lamps:

1

Three brightness modes - full, economy and night. Equipped with an in-built dimming feature, it provides a range of light outputs to suit various ambient conditions at different times of the day

2

The life span of the solar panels range between 20 and 25 years. Its bright LEDs have a rated life of up to 50,000 hours

3

D.VA can be charged through solar panels of 5W rating, or regular mains (AC supply) charging adaptor in low or no sunlight conditions

4

When fully charged, D.VA works for up to 10 hours at maximum brightness and 40 hours in 'night' mode



### Outcome

D.VA virtually extends sunlight into the night. It allows children to study longer, extends shop hours, and provides ease of doing household chores after sundown. Other benefits include a lower electricity bill and reduced use of kerosene.

**D.VA won the India Design Council's India Design Mark Award (IMark) for good design. Over 3,000 D.VA solar lanterns are in service.**



## Teaching Safety - The Experiential Way

### Safety Innovation School

L&T Hydrocarbon Engineering set-up a unique Safety Innovation School at Hazira, near Surat. Spread over 10,000 sq. mt., it is a one-of-a-kind facility in the country that imparts safety training through experiential learning.

Along with a host of the latest safety-related equipment, the School has 3D simulation and training for medical emergencies through an automated CPR process.





## Awards & Recognition

Every year, L&T and its people receive a number of national and international awards that acknowledge its varied accomplishments. Presented by the media, industry associations, independent bodies and academia, they honour the Company's contribution in various spheres of business, technology, financial performance, growth and environmental protection. For details of recent awards, please visit [www.larsentoubro.com](http://www.larsentoubro.com)

