



Integrated EPCC Services

Onshore Projects – Track Record



L&T Hydrocarbon Engineering

L&T Hydrocarbon Engineering

L&T Hydrocarbon Engineering is an engineering, procurement, fabrication, construction and project management company providing integrated 'design-to-build' solutions for large and complex Offshore and Onshore hydrocarbon projects worldwide.

A wholly-owned subsidiary of Larsen & Toubro Limited (L&T), the Company continues to draw on the parent Company's organisational strengths and experience.

The Company caters to the needs of its client base in multiple geographies.

Integrated Capabilities

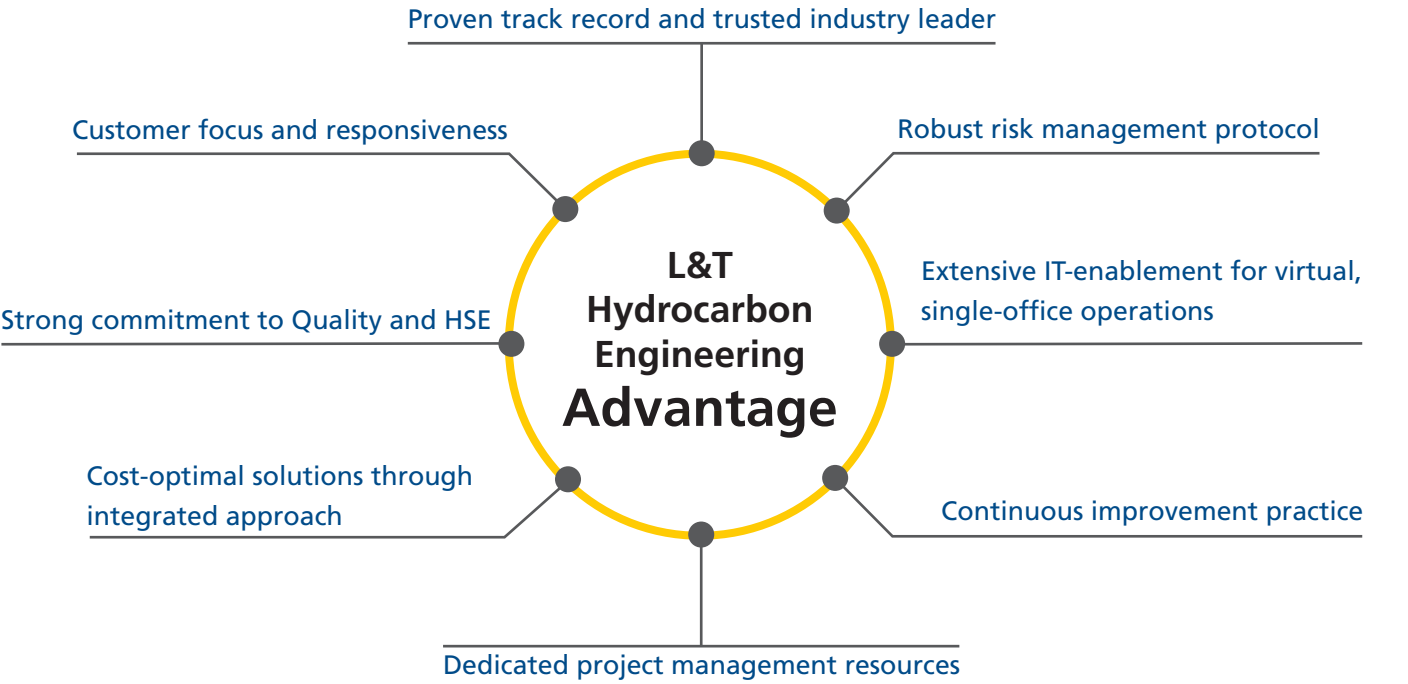
The Company has end-to-end capabilities across the hydrocarbon value chain covering upstream oil & gas processing, refining, petrochemicals, fertiliser, cryogenic storage including LNG and pipeline sectors. Our project management teams execute all projects efficiently, meeting the most stringent targets of safety, quality, cost and time.

Global projects benefit from the Company's in-house engineering, procurement, fabrication, construction and commissioning (EPCC) capabilities built over three decades.

The Company also executes projects on a License+EPCC package basis, depending on client requirements. These projects are executed through alliances with process licensors.

- **Engineering:** With over 4 million man-hours, in-house Engineering Centres provide services covering Concept Studies, Basic & Front End Engineering, Detailed Engineering, Advanced Analytical Engineering, Trouble Shooting Services, and Special Studies for Onshore as well as Offshore oil & gas projects, including hydrocarbon pipelines.
- **Procurement:** Dedicated teams undertake cost-efficient global sourcing including from LCC, through an end-to-end supply chain process to ensure cost-effectiveness while meeting stringent project schedules.
- **Fabrication:** L&T Hydrocarbon Engineering has three state-of the-art Modular Fabrication Facilities, with a total capacity of around 200,000 MTPA, at strategically significant locations – Hazira (near Surat on India's west coast), Kattupalli (near Chennai, on India's east coast), and Sohar in Oman. All of these have unimpeded access to shipping routes, and have load-out jetties for despatch of large and heavy modules vide ocean-going vessels and barges. These facilities have global certifications and pre-qualifications from all major oil & gas customers.
- **Construction:** The Company's comprehensive construction capabilities for onshore projects are unmatched in the industry, and cover civil, structural, mechanical, piping, electrical & instrumentation works, including cross-country pipelines. Digital technologies, high levels of automation, heavy lift capabilities and the management of manpower and materials in large volumes enable us to meet demanding schedules.
- **Commissioning:** The Company's in-house expertise in pre-commissioning, commissioning and trouble-shooting complement its offerings to the onshore project sector.



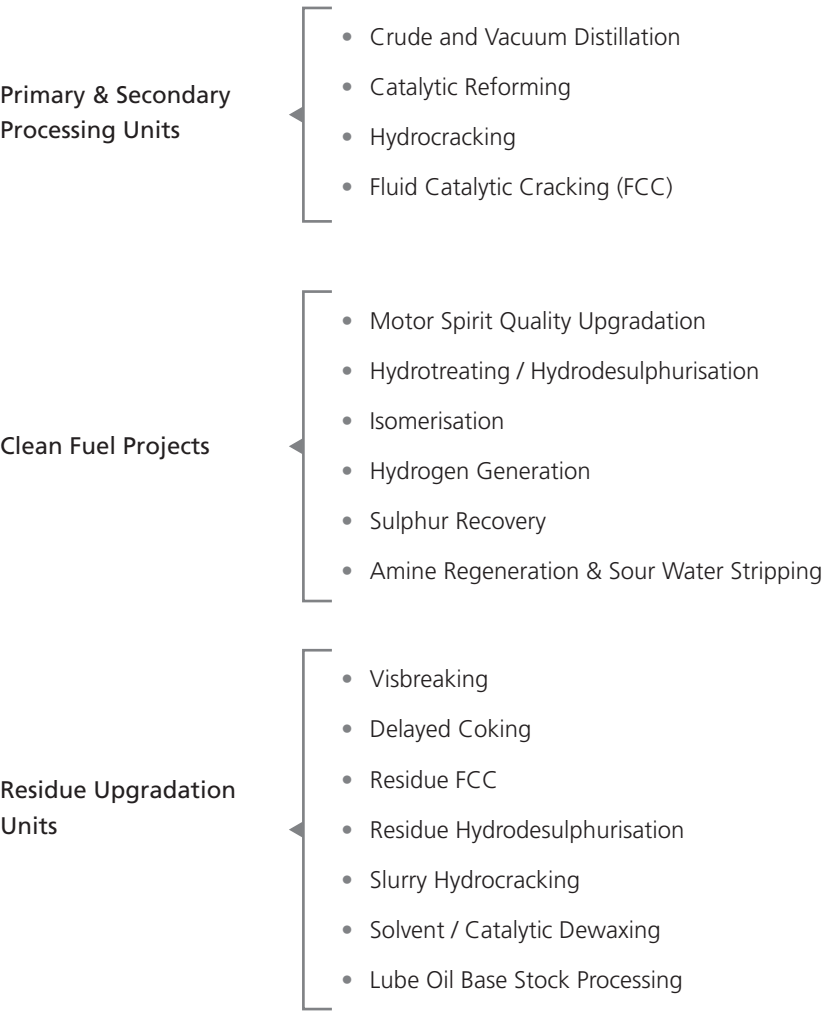


Lines of Business

Upstream Oil & Gas Processing

- Gas Sweetening
- Gas Dehydration
- Dew Point Depression
- Condensate Stabilisation
- Condensate Handling & Fractionation
- Gas Compression
- LPG
- Sulphur Recovery
- Amine Recovery & Sour Water Stripping
- Oil & Gas Gathering Stations

Petroleum Refining



Mangalore Aromatic Complex for ONGC-Mangalore Petrochemicals Limited, India



Ammonia Plant Modernisation project for NFL, Panipat, India

Petrochemical

- Ethylene and Propylene – Cracker including associated units / Propane Dehydrogenation (PDH) / Olefins Conversion Unit (OCU)
- Polyolefins – Polyethylene (HDPE / LDPE / LLDPE), Polypropylene (PP)
- Aromatics & Intermediates – Paraxylene, PTA, EO / EG, LAB
- Methanol
- Others – Melamine

Fertiliser

- Integrated Ammonia / Urea Complex
- Energy Efficiency Enhancement / Modernisation Projects
- Ammonia Synthesis Loop Projects

Cryogenic Storage and Regasification Terminals

- LNG
- Ethane / Ethylene / Propylene / Butane / LPG

Cross-country Pipelines & Terminals

- Cross-country Crude Oil & Gas and Product Pipelines
- Oil & Gas Terminals

Coal / Pet-coke Gasification

Upstream Oil & Gas Processing

Client	Project / Scope	Completion
Al Dhafra Petroleum Operations Company Limited, UAE	Haliba Field Development Project including producer wells, water injection wells, central gathering facilities, flow lines, export pipeline, OHL; Capacity: 40,000 BPD	2020
Petroleum Development Oman LLC (PDO), Saih Nihaydah, Oman	Saih Nihaydah Depletion Compression Phase 2 (SNDC-2) Capacity: 2 compression trains of 8 MMSCMD	2018
Petroleum Development Oman LLC (PDO), Kauther, Oman	Kauther Depletion Compression Phase 2 (KDC-2) Capacity: 2 compression trains of 9 MMSCMD	2018
Kuwait Oil Company (KOC), North Kuwait, Kuwait	New Gathering Center, GC-30 Capacity – Crude: 100 MBOPD, Water: 240 MBWPD and Gas: 62.5 MMSCFD	2018
Saudi Aramco, Midyan, Kingdom of Saudi Arabia	Midyan Gas Processing Facilities Capacity – Gas: 75 MMSCFD & Condensate: (4500 BPD), 90 km of gas and condensate product pipelines	2017
Petroleum Development Oman LLC (PDO), Yibal, Oman	Yibal Third Stage Depletion Compression Project Capacity: 3 x 6 MMSCMD	2016
Petroleum Development Oman LLC (PDO), Saih Rawl, Oman	Saih Rawl Depletion Compression Phase 2 Capacity: 30 MMSCMD	2016
Dolphin Energy Ltd. Qatar, Ras Laffan, Qatar	Export Gas Compression Facilities Upgrade Capacity: 39 MMSCMD	2015



Export Gas Compression Facilities Upgrade Project for Dolphin Energy Limited, Qatar



Midyan Gas Processing Facilities for Saudi Aramco



Saih Rawl Depletion Compression Phase 2 for PDO, Oman



Gathering Centre (GC 30) under execution for Kuwait Oil Company, Kuwait

Client	Project / Scope	Completion
Petroleum Development Oman LLC (PDO), Lekhwair, Oman	Lekhwair Gas Field Development Project Capacity: 3 MMSCMD	2015
Oil & Natural Gas Corporation Ltd. (ONGC), Uran, India	Additional Process Units Project Capacity:- LPG: 5.65 MMSCMD, GSU: 5.00 MMSCMD, CHU A&B: 100 TPH each, CFU-III: 100 TPH	2013
Oil & Natural Gas Corporation Ltd. (ONGC), Hazira, India	Additional Processing Facilities Project Capacity – GSU: 6.3 MMSCMD, GDU: 6.3 MMSCMD, DPDU: 5.6 MMSCMD	2013
Abu Dhabi Gas Industries Limited (GASCO), Bu Hasa, UAE	Gas Compression Project Capacity: 65 MMSCFD	2005
SONGAS Limited, Dar-e-Salaam, Tanzania	Songo Songo Gas Development and Power Generation Project Capacity: Gas-processing plant: 2 x 35 MMSCFD 3 Marine wellhead structures, 2 onshore wells and marine pipeline	2004
Oil & Natural Gas Corporation Ltd. (ONGC), Uran, India	Condensate Fractionation Units (Phase II) Capacity: 63 TPH	1995
Oil & Natural Gas Corporation Ltd. (ONGC), Hazira, India	Condensate Fractionation Units for Gas Processing Complex Capacity: 2 x 51 TPH	1990



Lekhwair Gas Field Development Project for PDO, Oman



Additional Process Units for ONGC, Uran, India



Additional Processing Facilities Project for ONGC, Hazira, India



Gas Compression Project for GASCO, Bu Hasa, UAE

Petroleum Refining

Diesel Hydrotreating (DHDT) / Hydrodesulphurisation (DHDS) Projects

Client	Project / Scope	Completion
Mangalore Refinery & Petrochemicals Ltd. (MRPL), Mangalore, India	Diesel Hydrotreating Unit (EPCC- 4) for Phase-III Refinery Project Capacity: 3.7 MMTPA. Process know-how: Axens.	2012
Indian Oil Corporation Ltd. (IOCL), Panipat, India	Diesel Hydrotreating Unit Capacity: 3.5 MMTPA. Process know-how: Axens.	2005
Indian Oil Corporation Ltd. (IOCL), Digboi, India	Distillate Unionfining Process Unit Capacity – Distillate Unionfining: 0.33 MMTPA, Amine treating Unit: 7 TPH. Process know-how: UOP.	2004
Hindustan Petroleum Corporation Ltd. (HPCL), Vizag, India	Diesel Hydrodesulphurisation Block including Hydrogen Plant and Offsites & Utilities Capacity: 1.8 MMTPA. Process know-how: IFP (now Axens) / KTI.	2000
Kochi Refineries Ltd., Ambalamugal, India	Diesel Hydrodesulphurisation Block including Hydrogen Plant and Offsites & Utilities Capacity: 2.0 MMTPA. Process know-how: IFP (now Axens) / KTI.	2000
Indian Oil Corporation Ltd. (IOCL), Panipat, India	Diesel Hydrodesulphurisation Block Capacity: 0.7 MMTPA. Process know-how: IFP (now Axens).	1999
Indian Oil Corporation Ltd. (IOCL) Mathura, India	Diesel Hydrodesulphurisation Block including Offsites & Utilities Capacity: 1 MMTPA. Process know-how: IFP (now Axens).	1999



DHDT Project for MRPL, Mangalore, India



DHDT Project for IOCL, Panipat, India



DHDS Project for HPCL, Vizag, India



DHDS Project for Kochi Refineries, Ambalamugal, India

MSQ Upgradation / Isomerisation Projects

Client	Project / Scope	Completion
Indian Oil Corporation Ltd. (IOCL), Panipat, India	Motor Spirit Quality (MSQ) Upgradation Project Capacity – Naphtha Hydrotreater Unit: 0.41 MMTPA, Penex (Isomerisation) Unit: 0.4 MMTPA, Reformate Splitter Unit: 0.47 MMTPA. Process know-how: UOP / Axens.	2009
Mangalore Refinery & Petrochemicals Ltd. (MRPL), Mangalore, India	Isomerisation Unit Capacity – Naphtha Hydrotreater Unit: 0.69 MMTPA, Naphtha Splitter: 0.686 MMTPA, BENSAT: 0.5 MMTPA, Isomerisation (PENEX): 0.515 MMTPA. Process know-how: UOP.	2006
Indian Oil Corporation Ltd. (IOCL), Mathura, India	MSQ Upgradation Project Capacity – Isomerisation Unit: 0.44 MMTPA, Reformer Splitter Unit: 0.48 MMTPA, FCC Gasoline Splitter: 0.48 MMTPA, TGT Unit: 180 TPD and SWS: 25 TPH. Process know-how: UOP / Technip KTI.	2005



DHDS and MSQ Upgradation Projects for IOCL, Mathura, India



Isomerisation Unit for MRPL, Mangalore, India



MSQ Upgradation Project for IOCL, Panipat, India

Petroleum Refining

Primary / Secondary Processing Units

Client	Project / Scope	Completion
Hindustan Petroleum Corporation Ltd. (HPCL), Vizag, India	Crude Distillation and Vacuum Distillation Unit (CDU & VDU) Capacity: 9.0 MMTPA (CDU), Process know-how: EIL	2020
Hindustan Petroleum Corporation Ltd. (HPCL), Vizag, India	Full Conversion Hydrocracker Unit Capacity: 3.053 MMTPA, Process know-how: UOP	2020
Indian Oil Corporation Ltd. (IOCL), Bongaigaon, India	INDMAX FCC Unit including LPG Treatment Facility Capacity: 0.74 MMTPA. Process know-how: CB&I Lummus and IOCL R&D (INDMAX), Merichem (LPG Treatment Unit).	2019
Indian Oil Corporation Ltd. (IOCL), Paradip, India	Reactor & Regeneration Section (RR Section) of EPCM-4 INDMAX FCC PDRP Project Capacity: 4.17 MMTPA. Process know-how: CB&I Lummus and IOCL R&D.	2015
PETRONAS Penapisan, Malaysia	Melaka Lube Base Oil (MG3), Hydrotreater and Mobil Solvent Dewaxing Unit, in consortium with Lurgi and KQKS. Capacity – VDU: 16,500 BPSD, HDT: 13,000 BPSD. Process know-how: Exxon Mobil Research & Engineering	2010



FCC Reactor and Regeneration section for IOCL, Paradip, India

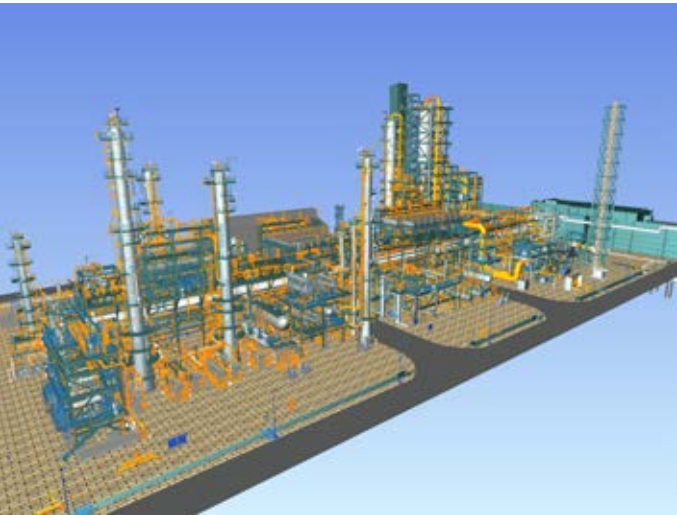


Naphtha Hydrotreater, Catalytic Reforming Unit & Hydrogen Generation Unit for Chennai Petroleum Corporation Limited, Manali, India



Vacuum Distillation Unit (16,500 BPSD) for Lube-base oil project of PETRONAS Penapisan's refinery at Melaka, Malaysia

Client	Project / Scope	Completion
Hindustan Petroleum Corporation Ltd. (HPCL), Mumbai, India	Modular Cyclemax Continuous Catalyst Regeneration (CCR) System for Green Fuel Project Capacity: 700 PPH of Catalyst Circulation. Process know-how: UOP.	2009
Chennai Petroleum Corporation Ltd. (CPCL), Manali, India	Modular Naphtha Hydrotreater Unit (NHTU) and Catalytic Reformer Unit (CRU) & Hydrogen Generation Unit (HGU) for Refinery-III Project Capacity – NHTU: 0.295 MMTPA. CRU: 0.225 MMTPA. Process know-how: IFP (now Axens).	2004
Reliance Petroleum Limited, Jamnagar, India	Cyclemax Continuous Catalyst Regeneration (CCR) Unit Capacity: 4500 PPH of Catalyst Circulation. Process know-how: UOP.	1998
Bharat Petroleum Corporation Limited (BPCL), Mumbai, India	Special Cut Naphtha Unit Capacity: 7500 TPD. Process know-how: EIL.	1991



3-D Model for INDMAX FCC Unit including LPG Treatment Facility for IOCL, Bongaigaon, India



3-D model for CDU / VDU under execution for Hindustan Petroleum Corporation Ltd., Vizag, India



Cyclemax CCR unit supplied to Reliance Industries at Jamnagar, India

Petroleum Refining

Hydrogen Generation Units (HGU)

Client	Project / Scope	Completion
Mangalore Refinery and Petrochemicals Ltd. (MRPL) Mangalore, India	Hydrogen Generation Unit (License + EPC) Capacity: 70,000 MTPA. Process know-how: Haldor Topsøe.	2014
HPCL-Mittal Energy Ltd. (HMEI)-GGSR, Bhatinda, India	Hydrogen Generation Unit Capacity: 2 x 44,000 MTPA. Process know-how: Haldor Topsøe.	2012
Indian Oil Corporation Ltd. (IOCL), Panipat, India	Hydrogen Generation Unit Capacity: 2 x 70,000 MTPA. Process know-how: Haldor Topsøe.	2005
Bharat Petroleum Corporation Ltd. (BPCL), Mumbai, India	Hydrogen Generation Unit Capacity: 45,000 MTPA. Process know-how: Haldor Topsøe.	2005
Chennai Petroleum Corporation Ltd. (CPCL), Manali, India	Hydrogen Generation Unit Capacity: 45,000 MTPA. Process know-how: Technip.	2004



Hydrogen Generation Unit for BPCL, Mumbai, India



Hydrogen Generation Unit for Phase - III Refinery Project of MRPL at Mangalore, India, on Licence + EPC basis



2 x 44,000 MTPA Hydrogen Generation Units for Guru Gobind Singh Refinery of HPCL-Mittal Energy, Bhatinda, India

Client	Project / Scope	Completion
Indian Oil Corporation Ltd. (IOCL), Barauni, India	Hydrogen Generation Unit and Offsites & Utilities including Electrical Substation Capacity: 34,500 MTPA. Process know-how: Haldor Topsøe.	2002
Indian Oil Corporation Ltd. (IOCL), Haldia, India	Hydrogen Generation Unit Capacity: 10,000 MTPA. Process know-how: Haldor Topsøe.	2000
Hindustan Petroleum Corporation Ltd. (HPCL), Vizag, India	Hydrogen Generation Unit Capacity: 18,000 MTPA. Process know-how: Technip KTI.	2000
Kochi Refineries Ltd., Ambalamugal, India	Hydrogen Generation Unit Capacity: 18,000 MTPA. Process know-how: Technip KTI.	2000
Indian Oil Corporation Ltd. (IOCL), Vadodara, India	Hydrogen Generation Unit Capacity: 10,000 MTPA. Process know-how: Haldor Topsøe.	1999



Hydrogen Generation Unit for IOCL, Panipat, India



Hydrogen Generation Unit for IOCL, Vadodara, India



Hydrogen Generation Unit for IOCL, Barauni, India

Petroleum Refining

Residue Upgradation Projects

Client	Project / Scope	Completion
Indian Oil Corporation Ltd. (IOCL), Haldia, India	Coke Drum System Package for Aishwarya Project Capacity: 1.7 MMTPA. Process know-how: Foster Wheeler.	2018
Hindustan Petroleum Corporation Ltd. (HPCL), Mumbai, India	Lube Oil Base Stock Plant Quality Upgradation Project Capacity: 0.2 MMTPA. Process know-how: Exxon Mobil Research & Engineering.	2011
Indian Oil Corporation Ltd. (IOCL), Panipat, India	Coke Drum System Package for Delayed Coker Unit Capacity: 2.4 MMTPA. Process know-how: ABB Lummus.	2006
Indian Oil Corporation Ltd. (IOCL), Digboi, India	Solvent Dewaxing / Deoiling Unit Capacity: 0.21 MMTPA. Process know-how: UOP.	2003



Solvent De-waxing / De-oiling Unit for IOCL, Digboi, India



Coke Drum System Package for Delayed Coker Unit for IOCL, Panipat, India



Lube Oil Base Stock Plant Quality Upgradation project for HPCL, Mumbai, India



Coke Drum System Package for Aishwarya Project for IOCL, Haldia, India

Sulphur Recovery Units (SRU)

Client	Project / Scope	Completion
Indian Oil Corporation Ltd. (IOCL), Koyali, India	Sulphur Recovery Block and Associated Facilities Capacity – SRU: 2 x 300 TPD, ARU: 2 x 300 TPH, SWS I: 40 TPH, SWS II: 59 TPH, TGTU: 600 TPD. Process know-how: Black & Veatch (SRU, TGTU) / Toyo (ARU, SWS).	2010
TAKREER, Ruwais, Abu Dhabi (UAE)	Sulphur Recovery Unit-19 (License + EPC) Capacity: 1 x 50 TPD. Process know-how: Ortloff.	2005
Bharat Petroleum Corporation Ltd., (BPCL), Mumbai, India	Sulphur Recovery Block and Associated Facilities Capacity – SRU: 2 x 70 TPD, SWS: 69 & 25 TPH, ARU: 297 TPH. Process know-how: Delta Hudson.	2005
Kuwait National Petroleum Company, Shuaiba, Kuwait	Sulphur Recovery Revamp (Oxygen Enrichment Process) Capacity: 2 x 350 TPD revamped to 2 x 700 TPD. Process know-how: Parsons.	2004
Kuwait National Petroleum Company, Mina Abdullah	Sulphur Recovery Revamp (Oxygen Enrichment Process) Capacity: 3 x 250 TPD revamped to 3 x 400 TPD. Process know-how: Parsons.	2004
Hindustan Petroleum Corporation Ltd. (HPCL), Vizag, India	Sulphur Recovery Block Capacity – SRU: 2 x 65 TPD, SWS: 6 TPH, ARU: 178 TPH. Process know-how: KTI (SRU), EIL (SWS), IFP (now Axens) (ARU).	2000
Chennai Petroleum Corporation Ltd. (CPCL), Manali, India	Sulphur Recovery Block Capacity – SRU: 2 x 52 TPD, SWS: 18.38 TPH, ARU: 164 TPH. Process know-how: Delta Hudson (SRU), EIL (SWS), IFP (now Axens) (ARU).	1999
Bharat Petroleum Corporation Ltd. (BPCL), Mumbai, India	Sulphur Recovery Block Capacity – SRU: 2 x 45 TPD, SWS: 22.5 TPH, ARU: 125 TPH. Process know-how: Delta Hudson (SRU), EIL (SWS), IFP (now Axens) (ARU).	1999

Sulphur Recovery Unit for IOCL, Koyali, India



Sulphur Recovery Unit for Takreer, Abu Dhabi



Sulphur Recovery Unit for KNPC's Mina Abdulla Refinery, Kuwait

Petrochemical

Client	Project / Scope	Completion
HPCL-Mittal Energy Ltd., Bathinda, India	Cracker Furnace Package Capacity: 1.2 MMTPA Process know-how: CB&I Lummus	2020
Farabi Petrochemical Co. Yanbu, Saudi Arabia	Normal Paraffin & Derivative Complex Capacity – Paraffin: 235,000 MTPA, LAB: 120,000 MTPA. Process know-how: UOP.	2020
Gujarat State Fertilizers and Chemicals Ltd. (GSFC), Vadodara, India	Melamine Plant with Additional Facilities Capacity: 40,000 MTPA. Process know-how: Casale SA.	2018
ONGC-Mangalore Petrochemicals Ltd. Mangalore, India	Mangalore Aromatic Complex Capacity – Paraxylene: 0.905 MMTPA, Benzene: 0.273 MMTPA. Process know-how: UOP.	2014
Indian Oil Corporation Ltd. (IOCL), Panipat, India	Naphtha Cracker Project Capacity – Ethylene: 0.8 MMTPA, Propylene: 0.5 MMTPA, Benzene: 0.125 MMTPA. Process know-how: CB&I Lummus (consortium with Toyo Engg. Corp.)	2010
Methanol Chemicals Co. Ltd. (CHEMANOL), Al Jubail, Saudi Arabia	Methyl Amines & Dimethyl Formamide Plant Capacity – Methyl Amines: 50,000 MTPA. Dimethyl Formamide Plant: 60,000 MTPA. Process know-how: Davy Process Technology.	2009



Naphtha Cracker & Associated Units for IOCL, Panipat, India



50,000 TPA Methyl Amine & 60,000 TPA Dimethyl Formamide plants for Chemanol at Al Jubail, Saudi Arabia



Melamine Plant with Additional Facilities under construction for GSFC, Vadodara, India

Client	Project / Scope	Completion
Methanol Chemicals Co. Ltd (CHEMANOL), Al Jubail, Saudi Arabia	Methanol & Carbon Monoxide Plant Capacity – Methanol: 700 TPD & Carbon Monoxide Plant: 100 TPD. Process know-how: Haldor Topsøe.	2008
Indian Oil Corporation Ltd. (IOCL), Panipat, India	PTA (Purified Terephthalic Acid) Unit for Integrated PX / PTA Project Capacity: 0.553 MMTPA. Process know-how: INVISTA.	2006
Saudi Formaldehyde Chemical Co. Ltd., Al Jubail, Saudi Arabia	Paraformaldehyde Expansion Project Capacity: 15 TPD. Process know-how: Libra Agencies.	1998
Saudi Formaldehyde Chemical Co. Ltd., Al Jubail, Saudi Arabia	Formaldehyde Expansion Project Capacity: 120 TPD. Process know-how: Haldor Topsøe.	1996
Indian Petrochemicals Corporation Ltd., Vadodara, India	Naphtha Pretreatment Unit Capacity: 16 TPH. Process know-how: IFP (now Axens).	1989



700 TPD Methanol + 100 TPD CO plant for Methanol Chemicals Company (Chemanol) at Al Jubail, Saudi Arabia.



Purified Terephthalic Acid Plant for IOCL, Panipat,executed by L&T on an EPC basis



3-D model of Normal Paraffin & Derivative Complex being executed on EPC basis for Farabi Petrochemical Co., Yanbu, Saudi Arabia

Fertiliser / Synthesis Gas Generation

Client	Project / Scope	Completion
Hindustan Urvarak and Rasayan Ltd. (HURL), Sindri, India	Ammonia Urea Fertilizer Plant (License + EPC) Capacity: Ammonia (2200 MTPD), Urea (3850 MTPD) Process know-how: Ammonia – Haldor Topsøe, Urea – Saipem (in consortium with TechnipFMC)	2021
Hindustan Urvarak and Rasayan Ltd. (HURL), Barauni, India	Ammonia Urea Fertilizer Plant (License + EPC) Capacity: Ammonia (2200 MTPD), Urea (3850 MTPD) Process know-how: Ammonia – Haldor Topsøe, Urea – Saipem (in consortium with TechnipFMC)	2021
Gujarat Narmada Valley Fertilizers & Chemicals Limited (GNFC) Bharuch, India	Ammonia Syn Gas Generation Plant (License + EPC) Capacity: Ammonia (1120 TPD) + CO2 (1200 TPD) Process know-how: Haldor Topsøe	2013
National Fertilizer Ltd., Panipat, India	Ammonia Plant Modernisation Project (License + EPC) Capacity – Ammonia: 900 TPD + CO ₂ : 1178 TPD. Process know-how: Haldor Topsøe.	2013



Ammonia SynGas Generation Plant for GNFC, Bharuch, India



Ammonia Plant Modernisation project for NFL, Bhatinda, India



Ammonia Plant Modernisation project for NFL, Panipat, India

Client	Project / Scope	Completion
National Fertilizer Ltd., Bhatinda, India	Ammonia Plant Modernisation Project (License + EPC) Capacity – Ammonia: 900 TPD + CO ₂ : 1178 TPD. Process know-how: Haldor Topsøe.	2013
Rashtriya Chemicals & Fertilizers Ltd., Mumbai, India	Modernisation of Synthesis Loop of Ammonia Plant (License + EPC) Capacity: 350 TPD. Process know-how: Haldor Topsøe.	2000
Rashtriya Chemicals & Fertilizers Ltd. (RCFL), Thal, India	Carbon Monoxide Plant (License + EPC) Capacity: 1200 Nm ³ /hr. Process know-how: Haldor Topsøe.	1998
Qatar Fertiliser Company, Umm Said, Qatar	Urea Hydrolyser Project Capacity: 40 TPH of Condensate. Process know-how: Stamicarbon BV.	1997
Tata Chemicals Ltd., Babrula	Naphtha Predesulphurisation Unit Capacity: 36.5 TPH. Process know-how: Haldor Topsøe.	1995



Fertiliser Complex constructed for Nagarjuna Fertilisers & Chemicals Limited at Kakinada, India



Carbon Monoxide Plant for Rashtriya Chemicals & Fertilizers Ltd., Thal, India



Ammonia Synthesis Loop section for Rashtriya Chemicals & Fertilizers Ltd., Mumbai, India

Hydrocarbon Cross-country Pipelines & Terminals

Client	Project / Scope	Completion
Kuwait Oil Company (K.O.C.), Kuwait	New 48" Crude Transit Line (TL-5) from North Kuwait to CMM	2022
Abu Dhabi Oil Refining Company (TAKREER), UAE	New Abu Dhabi International Airport (ADIA) Aviation Fuel Depot Project EPC of aviation fuel tank farm, truck loading facility, substation, operation building, security building and associated fire protection system.	2016
Cairn India Limited, India	MPT Modification project EPCC of MPT Modification for Mangala Polymer Project, Barmer, India	2016
Cairn India Limited, India	Overhead Transmission Line and Pipeline Laying Works for Mangala Polymer Project EPCC of Overhead Transmission Line and Pipeline laying works.	2015
Dolphin Energy Ltd., Qatar	Third-Party Gas Interconnecting Facilities Project EPC works for 36" dia x 5.5 km gas pipeline along with associated station works	2015
Cairn India Limited, India	Salaya-Bhogat Pipeline Project Mainline works, TCP & Electrical works, OFC laying works and Instrumentation	2015
GASCO, Abu Dhabi	Habshan - Ruwais - Shuweihat Gas Pipeline Project EPC work for 52" dia x 107 km pipeline from Habshan to Ruwais along with associated works and 48" dia x 15 km Pipeline from Ruwais to Shuweihat	2014
Oiltanking Odfjell Sohar Port, Oman	Oil Storage and Terminal Facility (in consortium with IOES) Phase-VI Civil, E&I – EPC & Mech-C (piping only)	2012
Oiltanking Odfjell Sohar Port, Oman	Oil Storage and Terminal Facility Phase-I to V EPC Work	2011
Qatar Petroleum, Qatar	EPIC of Gas Supply to Station V & Facility 'C'	2011
Cairn India Limited, India	Barmer-Salaya Pipeline Project EPC Services for 24" dia x 592 km Heated & Insulated Waxy Crude Oil Pipeline and 8" dia x 518 km Gas Pipeline from Barmer to Salaya	2010



EPIC of Gas Supply to Station V and Facility C for Qatar Petroleum



Aviation Fuel Depot for ADIA, Abu Dhabi

Client	Project / Scope	Completion
Cairn India Limited, India	Northern Area Development Project – Consolidated Civil & Construction works	2010
Kuwait Aviation Fuelling Company, Kuwait	EPC of New Aviation Fuelling Depot and Cross-country Pipeline MAA Refinery to Depot (12" dia x 35 km), 6 tanks (33 m height).	2010
South Asia LPG Company Pvt. Ltd., Vizag, India	LPG Cavern Project EPCC works for LPG Process Facilities	2008
Oil & Natural Gas Corp. Ltd., India	Upgradation of Agartala Dome EPS on LSTK basis	2008
Gujarat State Petronet Ltd., India	Mora-Vapi Pipeline Project EPC works, 30" dia x 124 km pipeline	2007
Gujarat State Petronet Ltd., India	Anand Rajkot Natural Gas Pipeline Project EPC works, 24" dia x 123 km pipeline, including HDD-cased crossing	2007
Gujarat State Petronet Ltd. India	Paguthan-Vadodara GPEC Gas Pipeline Project EPC works, 24" dia x 64 km pipeline	2003
Gujarat State Petronet Ltd., India	Bhadbhut-Paguthan GPEC Pipeline Project EPC works, 24" dia x 29.2km & 12" dia x 1.7 km	2002
Songas Limited, Dar-e-Salaam, Tanzania	Songo Songo Onshore Gas Pipeline Project EPC Contract (Metering & PRS at Ubango Power Plant and Wazo Cement Plant), Fuel Gas Distribution System, 223 km of Pipeline, OFC Installation, Cathodic Protection works, 10 Block Valve Stations.	2004



Northern Area Development Project for Cairn India



Gas Pipeline Project for GASCO, Abu Dhabi



The world's longest heated and insulated waxy crude oil pipeline in India from Barmer to Bhogat (24" x 619 km crude oil pipeline and 8" x 527 km natural gas pipeline)



New Aviation Fuelling Depot & Cross-country Pipeline for Kuwait Aviation Fuelling Company, Kuwait

Thermal Systems

Reformers & Waste Heat Recovery Systems

Client	Project / Scope	Completion
Hindustan Urvarak and Rasayan Ltd. (HURL), Sindri, India	2200 MTPD Ammonia Reformer (Licensor: Haldor Topsøe)	2021
Hindustan Urvarak and Rasayan Ltd. (HURL), Barauni, India	2200 MTPD Ammonia Reformer (Licensor: Haldor Topsøe)	2021
National Fertilizers Ltd., Panipat, India	900 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	2012
National Fertilizers Ltd., Bhatinda, India	900 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	2012
Gujarat Narmada Valley Fertilizers Company, Bharuch, India	1120 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	2012
Mangalore Refinery and Petrochemicals Ltd, Mangalore, India	70,000 TPA Hydrogen Reformer (Licensor: Haldor Topsøe).	2012
Toyo Engineering for Chennai Petroleum Corp. Ltd., Manali, India	21,000 TPA Hydrogen Reformer (Licensor: Haldor Topsøe).	2011
HPCL-Mittal Energy Ltd. Bathinda, India	2 x 44,000 TPA Hydrogen Reformer (Licensor:Haldor Topsøe).	2011
Rashtriya Chemicals & Fertilizers, Mumbai, India	220 TPD Methanol Reformer (Licensor: Haldor Topsøe).	2009
Methanol Chemicals Co. Ltd. (CHEMANOL), Al-Jubail, Saudi Arabia	700 TPD Methanol & 100 TPD Carbon Monoxide Reformer (Licensor: Haldor Topsøe).	2008
Rashtriya Chemicals & Fertilizers, Mumbai, India	900 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	2006
Dalian Petrochemicals, China	2 x 100,000 Nm³/h Hydrogen Reformer (Licensor: Haldor Topsøe).	2005
Indian Oil Corporation Ltd., Panipat, India	2 x 70,000 TPA Hydrogen Reformer (Licensor:Haldor Topsøe).	2005



Ammonia Reformer for GNFC, Bharuch, India



Ammonia Reformer for National Fertilizers Ltd., Panipat, India



Ammonia Reformer for GSFC, Vadodara, India



Methanol Reformer for RCF, Mumbai, India

Client	Project / Scope	Completion
Burrup Fertilizers, Australia	2200 TPD Ammonia Reformer (Licensor: KBR).	2004
Snamprogetti-Technip JV, Oman	2 x 1750 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	2004
Bharat Petroleum Corp., Mumbai, India	45,000 TPA Hydrogen Reformer (Licensor: Haldor Topsøe).	2003
Hindustan Fertilizer Corp. Ltd., Assam, India	200 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	2003
Hindustan Fertilizer Corp. Ltd., Assam, India	600 TPD Ammonia Reformer (Namrup - I, II & III) (Licensor: Haldor Topsøe)	2003
Indian Oil Corp. Ltd., Haldia, India	10,000 TPA Hydrogen Reformer (Licensor: Haldor Topsøe)	1999
Indian Oil Corp. Ltd., Vadodara, India	10,000 TPA Hydrogen Reformer (Licensor: Haldor Topsøe)	1999
Bharat Petroleum Corp. Ltd., Mumbai, India	14,500 TPA Hydrogen Reformer (Licensor: Haldor Topsøe)	1999
PETRONAS, Kerteh, Malaysia	248,000 TPA Carbon Monoxide Reformer (Licensor: Haldor Topsøe)	1999
Numaligarh Refineries Ltd., Assam, India	38,000 TPA Hydrogen Reformer Licensor: Haldor Topsøe / EIL India.	1998
Madras Fertilizer Ltd., Chennai, India	1050 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1997
Indian Farmers Fertilizer Cooperative, Phulpur, India	1350 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1997
Gujarat State Fertilizer Corp. Ltd., Vadodara, India	1350 TPD Ammonia Reformer (Licensor: Linde).	1997
FACT, Udyogmandal, India	900 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1997
Indian Farmers Fertilizer Cooperative, Aonla, India	1350 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1996



Ammonia Reformer IFFCO, Phulpur, India



Hydrogen Reformer for Dalian Petrochemicals, China



Synthesis Gas Reformer for PETRONAS, Kerteh, Malaysia



Hydrogen Reformer for IOCL, Panipat, India

Client	Project / Scope	Completion
National Fertilizer Limited, Vijaipur, India	1350 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1996
Tata Chemicals Ltd., Babrala, India	1350 TPD Ammonia Reformer (Licensor: Snamprogetti).	1994
Born, UK for Singapore Refinery, Singapore	18 / 26 MMSCFD Hydrogen Reformer (Licensor: Born / Haldor Topsøe).	1994
Chambal Fertilizers & Chemicals Ltd., Gadepan, India	1350 TPD Ammonia Reformer (Licensor: Snamprogetti).	1993
Indu-Nissan Chemical Industries Ltd., Vadodara, India	Oxo Alcohol Syn Gas Project (Licensor: PDIL).	1989
National Fertilizer Limited, Nangal, India	18,000 TPA Hydrogen Reformer (Licensor: PDIL).	1988
Rashtriya Chemical & Fertilizer Ltd., Mumbai, India	350 TPD Ammonia Reformer (Trombay-I) (Licensor: PDIL).	1988
Indo-Gulf Fertilizer Ltd., Jagadishpur, India	1350 TPD Ammonia Reformer (Licensor: Snamprogetti).	1987
Indian Farmers Fertilizer Cooperative, Aonla, India	1350 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1987
Rashtriya Chemical & Fertilizer Ltd., Thal, India	2 x 1350 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1984
Hindustan Fertilizer Corp. Ltd., Assam, India	600 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1982
Rashtriya Chemical & Fertilizer Ltd., Mumbai, India	900 TPD Ammonia Reformer (Trombay V) (Licensor: Haldor Topsøe).	1981
Steel Authority of India Ltd., Rourkela, India	180 TPD Ammonia Reformer (Licensor: Haldor Topsøe).	1979
Indian Farmers Fertilizer Cooperative, Phulpur, India	900 TPD Hydrogen Reformer (Licensor: Kellog).	1979
Gujarat State Fertilizer Corp. Ltd., Vadodara, India	600 TPD Ammonia Reformer (Licensor: Hitachi Zosen).	1969



Ammonia Reformer for Tata Chemicals Ltd., Babrala, India



Methanol & Carbon Monoxide Reformer for Methanol Chemicals Co. Ltd. (CHEMANOL), Al-Jubail, Saudi Arabia

Thermal Systems

Critical Process Furnaces / Fired Heaters

Client	Project / Scope	Completion
HPCL-Mittal Energy Ltd., Bathinda, India	Cracking Furnaces for Dual Feed Cracker Unit (DFCU) (6 x 152.994 MM Kcal/hr + 1 x 95.495 MM Kcal/hr) Process know-how: CB&I Lummus	2020
Reliance Industries Ltd., Jamnagar, India	Supply of Furnace Parts and Convection Modules (220 KTA x 6 Nos. Ethylene Cracking Furnaces)	2014
Indian Oil Corporation Ltd., Panipat, India	Ethylene Cracking Furnaces (6 x 116.6 MM Kcal/hr + 2 x 55.2 MM Kcal/hr) Process Know-how: CBI Lummus	2010
Indian Oil Corporation Ltd., Vadodara, India	Fired Heaters for Delayed Coker Unit (2 x 53.81 MM Kcal/hr)	2009
Indian Oil Corporation Ltd., Vadodara, India	Charge Heater + 3 Inter Heaters for MSQ Upgradation Project (46.4 MM Kcal/hr)	2006
Indian Oil Corporation Ltd., Panipat, India	Xylene Reboiler Heater (85 MM Kcal/hr), Fired Combustor Heater (15.5 MM Kcal/hr) and Hot Oil Heater (23 MM Kcal/hr)	2005
Indian Oil Corporation Ltd., Barauni, India	Feed Heater for Main Fractionation Column of CDU (32.1 MM Kcal/hr)	1999
Reliance Industries Ltd., Jamnagar, India	Xylene Column Reboiler (3 x 78.2 MM Kcal/hr) Ortho-Xylene Column Re-boiler (59.99 MM Kcal/hr) Heavy Aromatics Column Re-boiler Heater (25.79 MM Kcal/hr) Charge Heater – Isomer Unit (3 x 15.47 MM Kcal/hr) Charge Heater – Isomer unit (20.64 MM Kcal/hr) Charge Heater (Platforming Heater) (24.61 MM Kcal/hr) Inter Heater 1 (Platforming Heater) (42.6 MM Kcal/hr) Inter Heater 2 (Platforming Heater) (25.49 MM Kcal/hr)	1999
Reliance Industries Ltd., Hazira, India	Ethylene Cracking Furnaces Capacity: 0.75 MMTPA Ethylene (16 Cracking Furnaces) Process know-how: Stone & Webster	1996



Cracking Furnaces for Indian Oil Corporation, Panipat, India



Fired Heaters for Reliance Industries, Jamnagar, India

Cryogenic Storage Facilities

Client	Project / Scope	Completion
Dhamra LNG Terminal Pvt. Ltd, Dhamra, India	LNG Storage Tanks Capacity: 2 x 180,000 m ³ , Tank design: Whessoe	2020
Reliance Industries Ltd., Dahej, India	Balance of Plant for Ethane Receipt & Storage	2017
Reliance Industries Ltd., Dahej, India	Ethane / LNG Dual Service Storage Tank Capacity: 1 x 165,000 m ³ . Tank design: Saipem.	2017
Reliance Industries Ltd., Jamnagar, India	Storage & Handling Facility for Ethylene Capacity: 1 x 45,000 m ³ . Tank design: Saipem.	2016
Finolex Industries Ltd., Ratnagiri, India	Mixed LPG Storage Tanks, Unloading, Send out and Truck Loading Facility Capacity: 2 x 17,500 m ³ . Tank design: L&T / Noell LGA.	1997
Gas Authority of India Ltd., Pata, India	Ethylene Storage Tanks Capacity: 2 x 8,000 m ³ . Tank design: Noell LGA.	1997
Reliance Industries Ltd., Hazira, India	Propylene Storage Tanks Capacity: 1 x 17,500 m ³ . Tank design: Noell LGA.	1996
Reliance Industries Ltd., Hazira, India	Ethylene Receiving Terminal, Storage Tanks & Jetty Capacity: 2 x 16,250 m ³ . Tank design: Noell LGA.	1994
Finolex Industries Ltd., Ratnagiri, India	Ethylene Storage Tanks, Jetty & Unloading Facility Capacity: 2 x 10,000 m ³ . Tank design: Noell LGA.	1993



Ethane / LNG Dual Service Storage Tank for Reliance Industries, Dahej, India. Inset: Balance of Plant for Ethane Receipt & Storage



LPG and Ethylene Storage Facility for Finolex Industries, Ratnagiri, India



Ethylene Storage Tanks for GAIL, Pata, India



Propylene & Ethylene Storage Facility for Reliance Industries, Hazira, India

Cryogenic Air Separation

Client	Project / Scope	Completion
Jindal Praxair Oxygen Company Pvt. Ltd., Toranagallu, India	Air Separation Plant – Cold box Capacity: 2700 TPD. Process know-how: Praxair.	1999
Jindal Praxair Oxygen Company Pvt. Ltd., Toranagallu, India	Air Separation Plant – Cold Box & Cryogenic Storage Facilities Capacity: 2700 TPD. Process know-how: Praxair.	1998
Birla Copper, Dahej, India	Air Separation Plant Capacity: 300 TPD. Process know-how: Praxair.	1997
Reliance Industries Ltd., Hazira, India	Air Separation Plant-III Capacity: 300 TPD. Process know-how: Hitachi.	1997
Reliance Industries Ltd., Hazira, India	Air Separation Plant-II Capacity: 300 TPD. Process know-how: Hitachi.	1996



Air Separation Plant III for Reliance Industries, Hazira, India

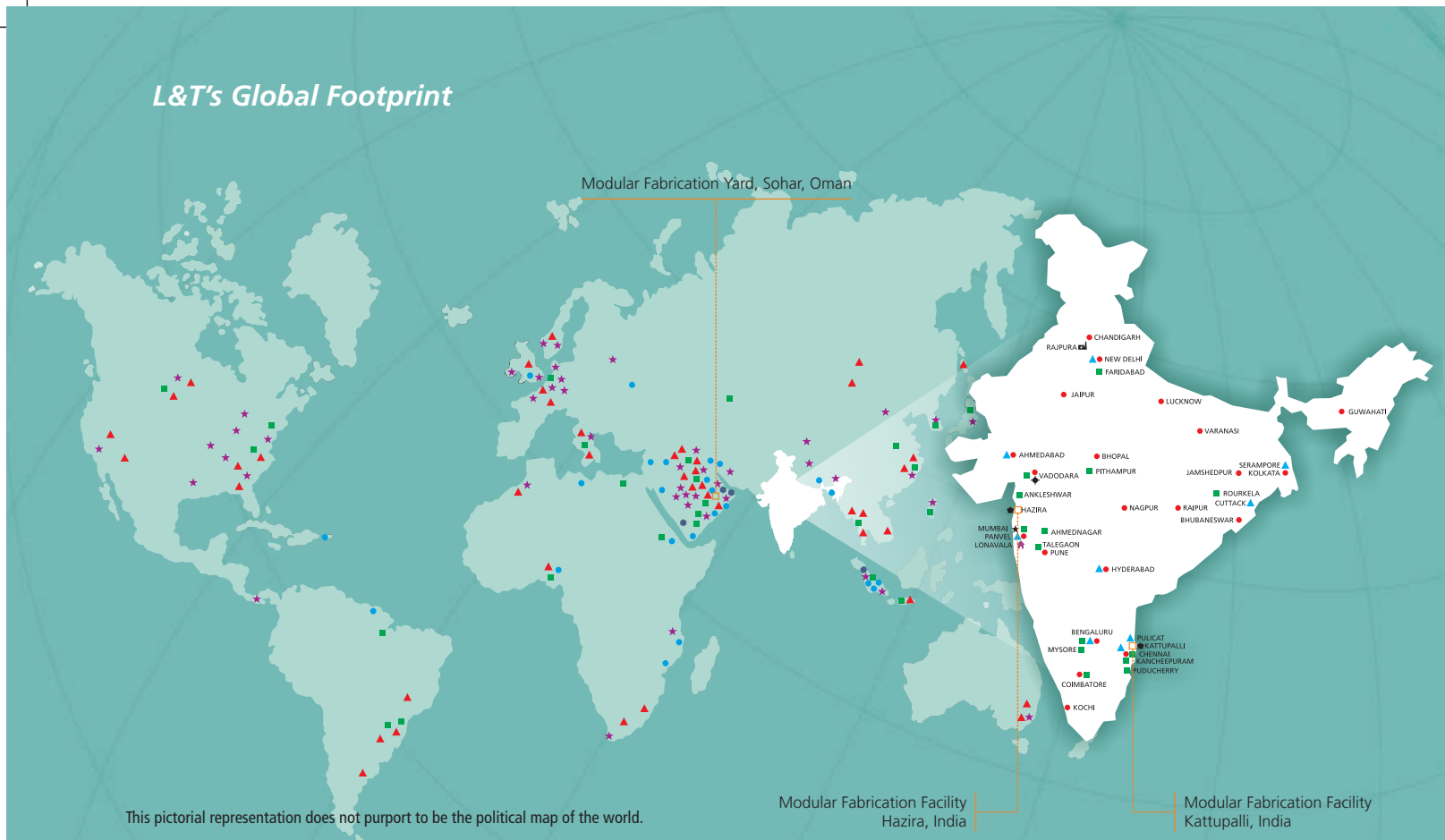


Air Separation Plant - Cold Box for Jindal Praxair Oxygen Company, Toranagallu, India



Air Separation Plant for Birla Copper, Dahej, India

L&T's Global Footprint



Global Presence

- ★ Offices
- Engineering & Construction Projects
- ▲ Product & Equipment Supply
- Manufacturing / Fabrication Facilities
- Agents
- Modular Fabrication Facilities

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

National Network

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

* 'Campus' denotes facilities for design and manufacture

* Part of L&T's Corporate Social Initiatives

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Project Management Offices at L&T Knowledge City, Vadodara



L&T Hydrocarbon Engineering

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