



**L&T Energy**  
Hydrocarbon



# INTEGRATED SOLUTIONS





# INTEGRATED CAPABILITIES

As an Integrated solutions provider, we offer concept-to-commissioning solutions across the hydrocarbon value chain

Over three decades of proven track record in project delivery

Setting industry benchmarks in HSE – ‘Zero Incident Credo’

Robust financial standing with highly respected corporate brand image

‘Fit to Purpose’ engineering solutions with a technology focus and specialized design & engineering expertise

Project management resources with experience in executing large and complex projects

Supply Chain Management with global sourcing expertise

Fabrication capacity spread over four strategic locations

In-house Marine capabilities for Offshore installation and Pipelay

Innovative construction with cutting edge technology

Capability for mobilization of large resources and quick ramping-up

Asset Life Cycle services

Engineering Academy & Project Management Institute under dynamic Learning & Development capabilities

### In-house Capabilities:

Engineering • Procurement • Fabrication • Construction • Installation • Commissioning • Start-Up

# OPERATING CENTRES



Jubail, Saudi Arabia  
Heavy Wall Pressure Vessel Facility



Vadodara, India  
Onshore EPC Business



Chennai, India  
Onshore EPC Business



Powai Campus, Mumbai  
Corporate HQ, Offshore, Modular Fabrication, AdVENT, Asset Management and OWF Businesses



Jubail, Saudi Arabia  
Integrated Manufacturing Facility



Al-Khobar, Saudi Arabia  
IK EPC Centre



Sharjah, UAE  
International Business Development



Sohar, Oman  
Modular Fabrication Yard



Hazira, India  
Modular Fabrication Facility



Kattupalli, India  
Modular Fabrication Facility



# ABOUT US

**Larsen & Toubro Limited (L&T) is an Indian multinational engaged in EPC Projects, Hi-Tech Manufacturing and Services. A strong, customer-focused approach and the constant quest for top-class quality have enabled L&T to attain and sustain leadership in its major lines of business for eight decades.**

**L&T Energy Hydrocarbon (LTEH) - L&T's Hydrocarbon business, under its Energy portfolio, offers integrated 'design-to-build' solutions to the entire Hydrocarbon Industry. This encompasses engineering, procurement, fabrication, construction, project management services and asset life services across multiple geographies.**

L&T Energy Hydrocarbon brings with it more than 3 decades of proven experience and extensive capabilities backed by digitalization and cutting-edge innovation. Reliability and on-time delivery are ensured

by adhering to global quality norms and the most stringent HSE standards.

Delivering technologically superior solutions at every phase of project execution, our capability spectrum also includes a highly talented team, committed to a safe and sustainable work culture.

We have achieved international recognition through an impeccable track record of simultaneously executing large complex projects and constantly creating new international benchmarks. Our repeat orders from clients are a testimony of our "Execution par Excellence" philosophy.

Conscious of our larger responsibilities as a corporate citizen, we are committed to the development of the communities around our facilities and project sites.



# BUSINESSES

## Offshore

- Process Complex Riser and Wellhead Platforms
- Gas Compression Modules
- Living Quarters Platforms
- Subsea Pipelines & Systems
- Deepwater Subsea Manifolds & Structures
- Brownfield & Upgradation
- Transportation & Installation Services
- Decommissioning Solutions
- FPSO Modules & Jack-up Rigs



## Onshore EPC

- Upstream Oil & Gas Processing & Treatment Facilities
- Gas Field Development
- Petroleum Refining
- Petrochemicals
- Fertilizer
- Cross-country Pipelines
- Crude Oil & Product Storage Tanks and Terminals
- Cryogenic Storage/LNG Tanks and Terminals
- Coal / Pet-Coke Gasification
- Complex Composite Work (CMEI) on LSTK basis



## Modular Fabrication

- Process and Piperack Modules
- Onshore Structures & Modules
- LNG Modules
- Modular Speciality Furnaces
- Refinery & Petrochemical Plant Equipment
- E-Houses
- Offshore Structures and Modules for Oil & Gas and Offshore Wind Farm Projects
- MOPUs
- Jack-up Rigs
- Deepwater Subsea Structures



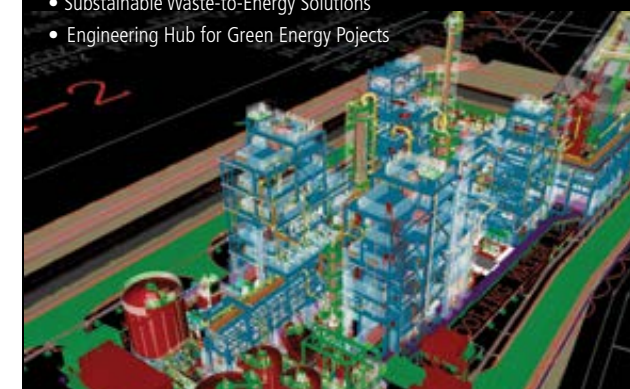
## Offshore Wind

- HVAC Platforms
- HVDC Platforms
- WTG Foundations



## AdVENT

- EPC Project Solutions
- Integrated Modular Solutions
- Refinery Technology Solutions
- Sustainable Waste-to-Energy Solutions
- Engineering Hub for Green Energy Projects



## Asset Management (AM)

- O&M Consulting
- O&M Outsourcing
- Asset Integrity Services
- Asset Performance Improvement
- Specialized Services





# OFFSHORE

We offer lump-sum turnkey EPCIC solutions encompassing the entire value chain – from oil and gas production to processing. Our offerings span well-head platforms, riser platforms, process platforms, subsea pipelines, brownfield developments, FPSO modules, decommissioning projects, offshore drilling rigs (both upgrades and new builds of jack-up rigs, and conversions to EPS and MOPU), deepwater structures, manifolds, and transportation and installation services.

*Fully Integrated Heaviest Gas platform in Saudi waters*

## ENGINEERING

Our expertise covers the entire engineering value chain from Concept, Pre-FEED/FEED, detailed engineering, Procurement Engineering, 3D Modelling, support to fabrication, installation, hook-up, and commissioning. Our dedicated team excels in engineering and design for diverse offshore facilities (Process complexes, wellhead platforms, FPSO topsides, riser and pipeline systems, jack-up rigs, and MODU to MOPU conversions) including special analysis such as Transient Flow Analysis, Dynamic Simulation, Non-linear Analysis (Wave Pushover Analysis, Time Domain Analysis

for Rare Intensity Earthquakes, Boat Impact Analysis) using USFOS and On bottom Roughness Analysis using SAGE.

Over the years, we have grown multi fold into a strong skilled and experienced engineering team, having established robust quality systems & processes and delivered 475+ projects in the past 30 years. Our office is equipped with state-of-the-art client facilities and a robust IT infrastructure and all engineering software that are necessary to engineer complex projects seamlessly across the globe.

## PROJECT MANAGEMENT

Our project management team, with extensive experience in large and complex offshore projects of over 1 billion USD, executes projects with HSE, quality and schedule requirement.

We have been honoured with various awards for project excellence, serving as a testament to our dedication and motivating us to continually strive for the best. Procurement teams ensure certainty and cost competitiveness of supplies through world-wide network of suppliers, efficient expediting and detailed planning.

We have executed mega projects like Hasbah Gas Increment – II for Saudi Aramco and are currently executing two more mega projects for them viz., Marjan Increment Program Offshore Oil Package 2 and Zuluf North & South Water Injection Facilities affirming continued customer confidence.

Recognizing the pivotal role of technology in projects, we have embraced digitalization to align with industry standards, ensuring optimal outcomes and staying at the forefront of innovation.



## TRANSPORTATION & INSTALLATION SERVICES

We have successfully executed numerous challenging offshore installations, meticulously ensuring safety protocols and navigating demanding conditions with expertise.

Our heavy-lift-cum-pipelay vessel - LTS 3000 - undertakes installation of offshore platforms and pipelines. LTS 3000 has successfully installed offshore structures at various oil fields in India, Malaysia, Indonesia, Myanmar, Vietnam and the Middle East. We also own and operate LTB 300, a state-of-the-art pipelay-cum-work barge built to suit Middle East, Indian and Southeast Asian conditions. The vessel has extensive experience of laying subsea pipelines in water depths ranging from 60 m to 90 m.

We have a remarkable track record of successfully laying over 1900 + kilometres of subsea pipelines globally.



*New Water Injection South (NWIS - R) Project for ONGC with first of its kind low saline water injection facility*



*One of the Heaviest & Largest Float-over platforms from Hazira Fabrication Yard*



*Serial Manufacturing of Production Deck Modules at Sohar Yard, Oman*

## FABRICATION FACILITIES

Our three state-of-the-art modular fabrication facilities boast a total annual capacity exceeding 250,000 metric tons. Two facilities in India (one on India's west coast at Hazira near Surat in Gujarat, and the other on the east coast at Kattupalli, near Chennai in Tamil Nadu) and our yard in Sohar, Oman, compliments our global operations. These facilities offer round-the-year delivery of process platforms, wellhead platforms, riser platforms, modular structures, heavy jackets, and oil rigs.

## CLIENTS

Our business is pre-qualified with and has executed projects for oil & gas majors including ONGC, Saudi Aramco, ADNOC Offshore, North Oil Company, QatarEnergy LNG, British Gas, Bunduq, Dragon Oil, GSPC, KJO, Maersk Oil Qatar, PETRONAS Carigali, PTTEP, QP, Songas, BHGE, Shell, Chevron, ExxonMobil, Total and Eni.

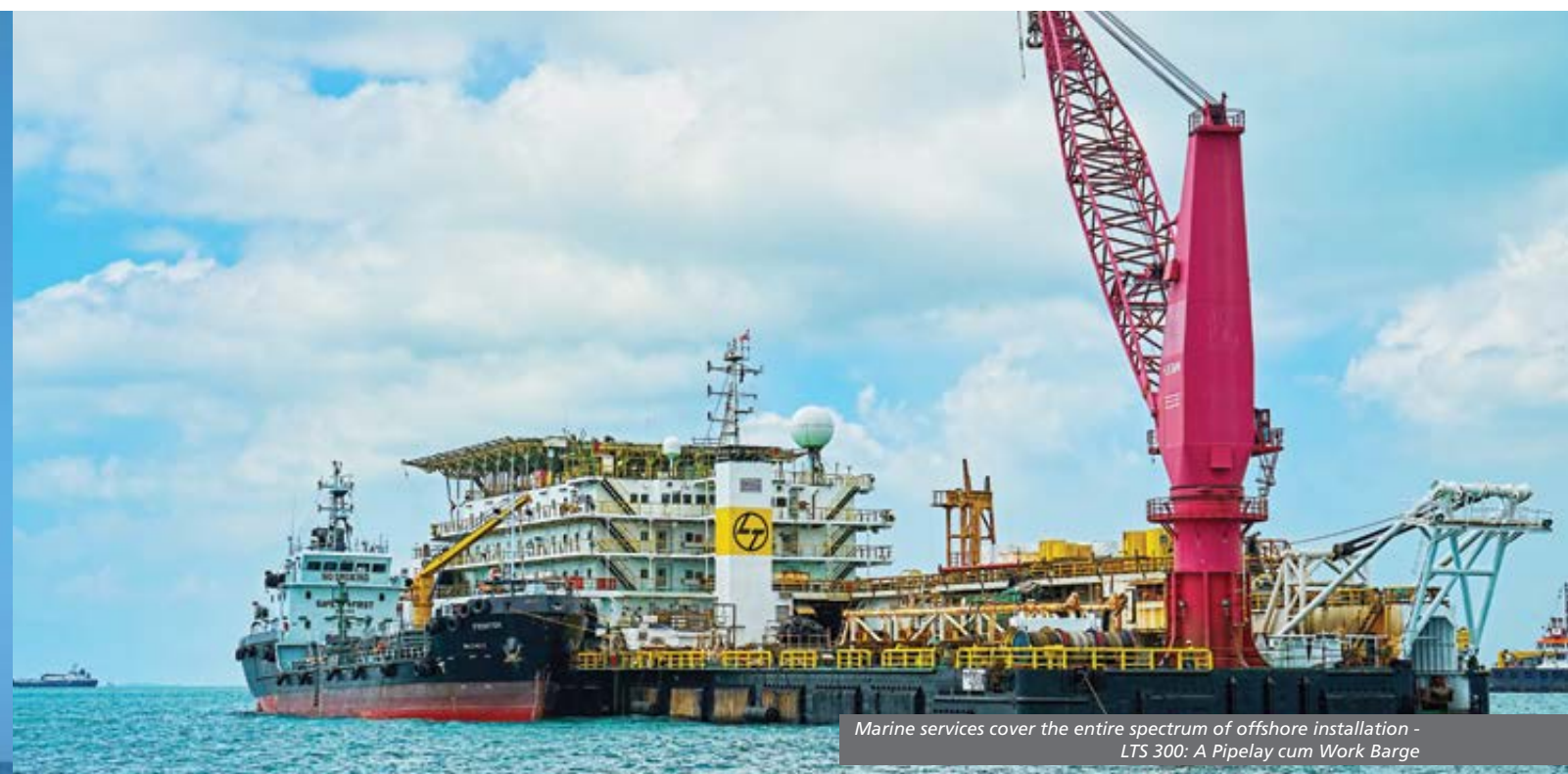




*NQ Complex with New LQ Platform for ONGC*



*Marine services cover the entire spectrum of offshore installation -  
LTS 3000: A Heavy Lift Pipelay Vessel in Saudi waters*



*Marine services cover the entire spectrum of offshore installation -  
LTS 300: A Pipelay cum Work Barge*





Deepwater Gas Manifold, East Coast India



Mumbai High North Complex of ONGC, executed by L&T on an EPCIC basis. The massive complex comprises a 26,500 MT process platform, a living quarters platform and control room, three process gas compression platforms, two flare platforms and two jackets – including one weighing 13,500 tonnes



Neelam Re-development and B-173 AC Project for ONGC, India



Umm Lulu & Nasr Field Development Phase 1 Project for ADMA-OPCO, UAE





Foray into Decommissioning projects



Yetagun 'D' Platform installed offshore for PETRONAS Carigali



HRP III - HM Platform with HG Platform in background for ONGC



Oil Production Deck Module for Saudi waters



One of the 3 wellhead platforms of Zawtika Phase-1A Project, installed in Gulf of Mottama in Myanmar for PTTEPI



ONGC's jack-up rig 'Sagar Uday' (BMC Class 300) involving major lay-up and repair

## TRACK RECORD OFFSHORE

**11** New Process +  
Riser Platforms



**81** Wellhead Platforms  
(Jacket + Topsides)



**70** Wellhead  
Jackets



**55** Wellhead  
Topsides



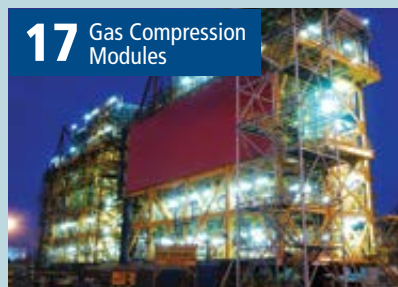
**10** Living Quarters  
Modules



**1900** +km Subsea  
Pipelines



**17** Gas Compression  
Modules



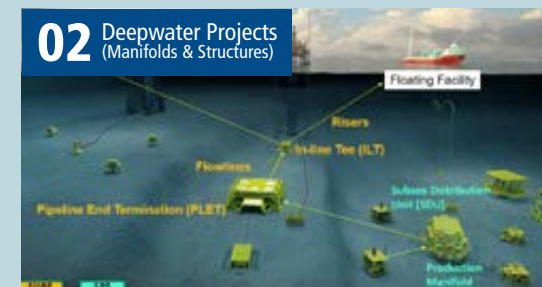
**12** Floaters



**314** Platform  
Modifications



**02** Deepwater Projects  
(Manifolds & Structures)



**08** Decommissioning /  
Platform Removal







9 MMTPA CDU/VDU Unit for Hindustan Petroleum Corporation Limited, Vizag, India

We have end-to-end capabilities in EPCC solutions for oil & gas and offer turnkey solutions across the hydrocarbon value chain covering refining, petrochemicals, fertilizer, oil & gas processing, cryogenic storage including LNG, pipeline sectors, terminals including storage tanks and underground cavern storage systems for LPG.

Our track record includes plants for upstream oil & gas processing, diesel hydrotreating, motor spirit quality upgradation, sulphur recovery, hydrogen generation, lube base oil, fluidized catalytic cracking, delayed coking, naphtha cracking and associated units, purified terephthalic acid, paraxylene, ethylene glycol, methanol, melamine, paraffin and linear alkyl benzene, synthesis gas generation, cryogenic storage terminals and cross-country pipelines.

The projects executed cover technologies from multiple process licensors, including UOP, Axens, Haldor Topsoe, Lummus, Black & Veatch, Ortloff, ExxonMobil, Merichem, Foster Wheeler, Casale, Scientific Design, BOC Parsons, Invista and Davy Process Technologies. Strategic alliances with internationally renowned companies complement capabilities in the fertilizer and cryogenic sector.

## ENGINEERING

Detailed engineering centers integrate in-house strengths in engineering, fabrication, modularization, and construction to provide efficient designs and engineered solutions for hydrocarbon process plants meeting the highest safety and quality requirements.

Our world class in-house Engineering centers offer design and engineering services for onshore hydrocarbon plants, pipeline

projects and onshore oil & gas field development projects. Capabilities include feasibility studies, basic engineering, FEED, detailed engineering, project management services, procurement assistance and related services. Our experienced professional engineers work on state-of-the-art tools and software like HYSIS, PDS, PDMS, SPPID, STAADPRO and TEKLA structures to address the complete spectrum of process and detailed engineering.



Central Processing Facilities for South West Gas Field Development Project of Sonatrach, Algeria  
Capacity: Hassi Ba Hamou & Reg Mouaded Field (6 MMSCMD), Hassi Tidjerane Field (4 MMSCMD), Tinerkouk Field (4 MMSCMD)



## PROJECT MANAGEMENT

From initial design, procurement, construction to final commissioning, our highly experienced and responsive teams are geared to respond to the requirements of customers in focused geographies.

## TECHNOLOGY & CAPACITY BUILDING

We offer innovative construction solutions such as complete automated welding (Double sided tandem SAW for Horizontal joints and Semi-auto FCAW for vertical joints) & NDT (Automated UT) for LNG tank construction yielding high quality & productivity, enhancement of high deposition submerged arc welding process for duplex stainless-steel material in pipelines, new line of gas regulators for reduced gas wastage and automatic pipe fabrication shop with cutting edge technologies.



Integrated Ammonia-Urea Complex for Hindustan Urvarak Rasayan Limited, Sindri, India



Onshore Gas Terminal for Reliance Industries Limited at Kakinada, Andhra Pradesh, India



Mangalore Aromatic Complex for ONGC-Mangalore Petrochemicals Limited, India

## EXPERTISE IN HEAVY LIFTS

We have an in-house team to provide erection schemes for lifting all types of heavy and critical equipment, columns, reactors, regenerators, absorbers, converters, and heavy structures as preassembled modules, etc., with precision arrangements using heavy lift cranes, gantry arrangements and as well as tailor made lifting systems.

## EQUIPMENT FLEET

A large asset-base of construction equipment includes heavy cranes up to 750 T capacity, pipe layers up to 110 T capacity, pipe bending machines, major concreting equipment, and related machinery.





INDMAX FCC Unit including LPG Treatment Facility for IOCL at Bongaigaon, India

## DIGITAL TRANSFORMATION

We are geared up to invoke efficiency in terms of project time and resources through business process automation. In this mission, many critical processes like material status tracking, project planning (including special application for cross-country pipeline) progress monitoring, work face planning, work process improvements in field functions like scaffolding and Quality Management through multiple stage gates and Performance monitoring of Supervision for HSE assurance have been digitalized.

Employment of VR technology for HSE training, a number of alert mechanisms to ensure safety in operations, speed control and wastage reductions by IIOT technology in connected equipment, digital induction & skill inventory of workmen, FR technology and digital health monitoring for all project personnel, drone-based survey capability, AR for inspections are to mention a few of ever improving state-of-the-art technologies.

## HSE ENHANCEMENT

We strongly believe that every incident is preventable, and the organization is committed, through its 'Zero Incident Credo', to providing a safe and healthy workplace. To achieve this, we have developed effective digital solutions to monitor health condition of all workmen using Digital Health Monitoring System, Virtual Reality based HSE Training modules, and a unique Digital tool called Credibility System to track Unsafe Conditions and Acts along with the quantifying the Execution team's involvement in ensuring a safe working environment on site.

Our HSE Performance received many awards and accolades from esteemed customers like KOC, Saudi Aramco, Sonatrach, PDO, HPCL, IOCL, Reliance as well as independent agencies like Indian Chamber of Commerce, Confederation of Indian Industry, National Safety Council of India, and international organizations like ASSP and ROSPA for our best HSE practices and their implementation at our projects.



Panoramic view of Saih Nihaydah Gas Compression Project (SNDC2) for Petroleum Development Oman (PDO). We have also built PDO's gas processing facilities at Lekhwair, Saih Rawal, Yibal and Kauthar in Oman



48" x 118 km-long Crude Transit Line from North Kuwait to Central Mixing Manifold for KOC, on EPC basis



LNG Tanks for Adani's Dhamra LNG Terminal, India

# TRACK RECORD ONSHORE EPC

50+



### Petroleum Refining Units

CDU/VDU, Hydrocracker, Diesel HDT, Hydrogen, Sulphur Recovery, MSQ Upgradation, Catalytic Reforming, Lube Base Oil, Coke Drum System, FCC, Vacuum Distillation, Solvent Dewaxing, etc.

22



### Oil & Gas Processing Facilities

Gas Field Development / Processing / Compression, Condensate Fractionation & Cryogenic Air Separation



### 02 Petrochemical Complexes

### 10 Petrochemical Units



### Fertilizer

### 09 Ammonia and Syngas Projects



### Cryogenic Storage Systems & Thermal Systems

### 10 Cryogenic Storage Systems

### 83 Cracking Furnaces & Reformers



### Cross-country Pipelines & Terminals

### 7060+ km Cross-country Pipelines

### 10 Oil & Gas Terminals





The world's largest ethylene cracker (1.4 MMTPA) – one of multiple systems supplied, installed and pre-commissioned for Reliance's J3 Program, Jamnagar, India. This ethylene cracker is part of the ROGCC (Refinery Off Gas Cracker), the heart of C2 Complex



Methyl Ethylene Glycol (MEG) Unit for IOCL Paradip Refinery, India



Panoramic view of HREL Bhatinda Refinery, India. Scope included EPC of 2 x 44,000 MTPA Hydrogen Generation Units and mechanical construction of 7 processing units



Erection of world's heaviest LC MAX reactors at Residue Upgradation Facility for HPCL, Vizag, India





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



Gathering Centre (GC 30) for Kuwait Oil Company (KOC)

## LANDMARK CONSTRUCTION PROJECTS

Landmark project comprises of construction of the world's largest refinery for RIL at Jamnagar, India, including its Phase-III petrochemical complex expansion. We were the single largest contributor in building the world's largest ethylene cracker (ROGC- Refinery Off Gas Cracker) and other units such as pX-4 (para-Xylene), MEG (Mono Ethylene Glycol), LDPE (Low Density Polyethylene), ECS (Ethylene Cryogenic Storage) and PCG (Pet Coke Gasification) units. The ECS Project set a world record for the fastest completion (29 months).

The track record also includes mega onshore gas terminal at Kakinada for RIL and all major processing units of the Bathinda refinery for HMEL. For Cairn India, we built the world's longest heated and insulated waxy crude oil pipeline and India's largest onshore oil processing terminal at Barmer, Rajasthan. Another significant and critical achievement is the erection of the world's heaviest LC MAX Reactors (three in number weighing 2210 MT, 2115 MT and 2105 MT) at India's first Residue Upgradation Facility of HPCL Visakh Refinery Modernization Project (VRMP).



Normal Paraffin & Derivative Complex for Farabi Petrochemicals at Yanbu, Saudi Arabia

Our international track record includes cross-country pipelines for ADNOC Gas Processing, KOC & Saudi Aramco, Gas Compression projects at various locations for PDO (viz. Lekhwair, Saih Rawl, Yibal, Saih Nihaydah and Kauthar); Dolphin Energy Qatar; Gas Processing Facility for Saudi ARAMCO and polyethylene trains for SADARA Chemical Company, Gathering Centre for KOC and Haliba Onshore Field Development project for Al Dhafra Petroleum (an ADNOC Subsidiary) and n-Paraffin and Derivative complex for Farabi Petrochemicals at Yanbu.

Major projects under execution include construction of three central processing facilities for Sonatrach – Algeria, Petrochemical Fluidized Catalytic Cracking Unit (PFCCU) & Propylene Recovery Unit (PRU) for HRRL – Barmer, Dual Feed Cracker Block for HRRL –Barmer, Residue Upgradation facility for HPCL – Vizag, 24" x 224 KM of Mumbai Nagpur Pipeline for GAIL and Jafurah Gas Compression Facilities and Crosscountry Pipeline for Saudi Aramco.

## CLIENTS

We are pre-qualified with and have executed projects for major oil & gas companies including Petroleum Development Oman (PDO), Saudi Aramco, Kuwait Oil Company (KOC), ADNOC, SABIC, BAPCO, Banagas, CHEMANOL, Farabi Petrochemicals, KNPC, PETRONAS, Pertamina, Sonatrach, SOCAR, etc.

Within India, our client base includes major national as well as private oil & gas, fertilizer, cryogenic storage including LNG and petrochemical producers, including IOCL, MRPL, OMPL, HPCL, HRRL, BPCL, RIL, HMEL, CPCL, NFL, GSFC, GNFC, HURL, RCF, Adani and Petronet LNG. The business has consolidated its international presence with a mega order in Saudi Arabia from Saudi Aramco for setting up three Gas Compression plants of a capacity of 200 MMSCFD each as well as laying of 343 km gas transport pipeline between Jafurah Gas Plant and Juaymah Tank Farm.



Solution Polyethylene and Specialty Elastomers package for Sadara Chemical Company (JV of Saudi Aramco and Dow Chemicals) at Al Jubail, Saudi Arabia

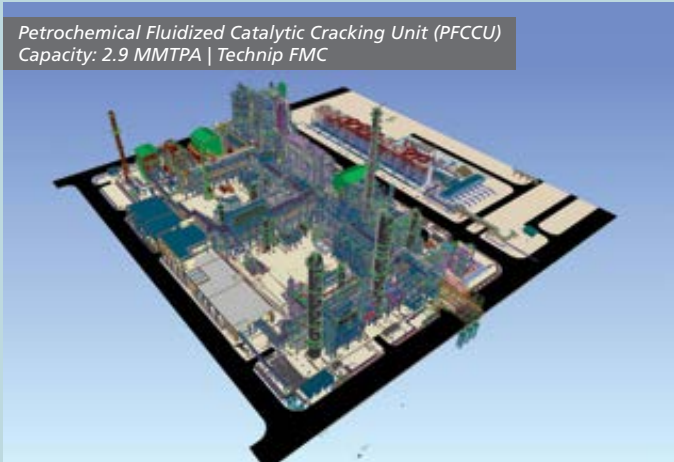
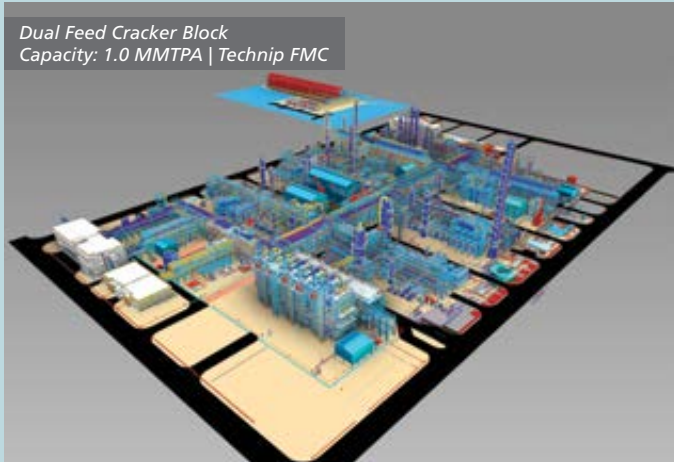


Haliba Field Development Project for Al-Dhafra Petroleum Operations, Abu Dhabi, UAE

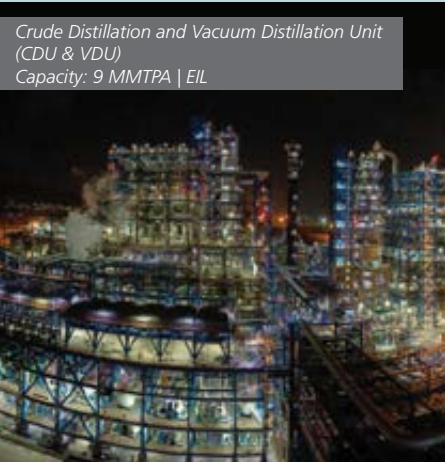


# Energizing Hydrocarbon industry through reliable EPC solutions

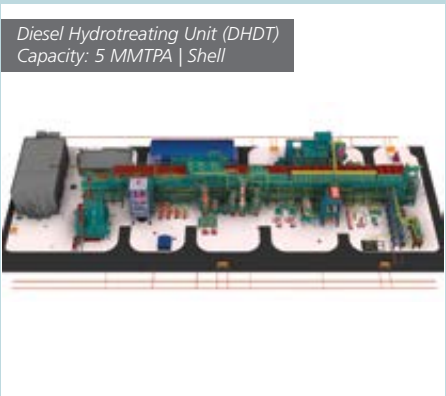
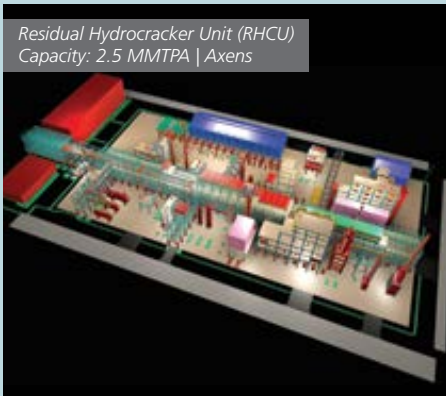
## Rajasthan Refinery Project, HRRL - Barmer



## Vizag Refinery Modernization Project, HPCL - Vizag



## Panipat Refinery Expansion Project (P-25) Project, IOCL - Panipat



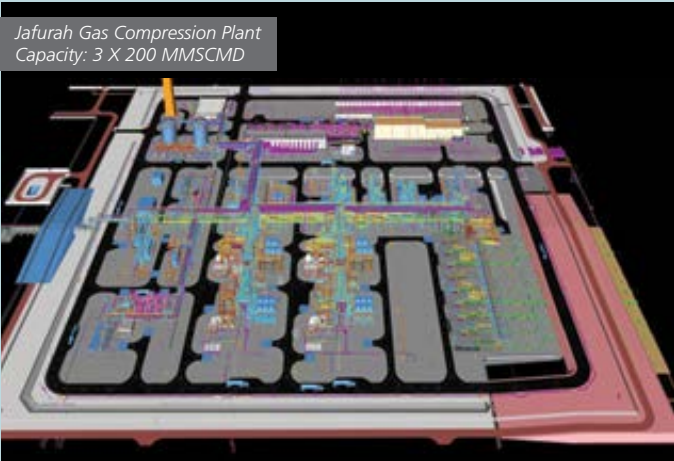
## South West Gas Field Development, Sonatrach - Algeria



## Ethylene Glycol Project, IOCL - Paradip



## Jafurah Gas Compression Plant and Pipelines, Saudi Aramco - KSA





# MODULAR FABRICATION



Modular Fabrication Facility at Kattupalli, East coast of India

Total Area*	900,000 m <sup>2</sup>
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\*Additional 700,000 m<sup>2</sup> land bank available

Leveraging its extensive engineering and project management expertise from the EPC businesses combined with world-class modular fabrication capabilities, we are a leading provider of Modular Solutions for the Offshore and Onshore Oil & Gas and Offshore Wind Farm industries. We operate three strategically located modular fabrication facilities in Hazira and Kattupalli in India and Sohar in Oman.

Our Modular Fabrication facilities are equipped with state-of-the-art infrastructure, machinery, fine-tuned execution procedures, digitalized processes, and robust QHSE performance, boasting a combined annual capacity of around 200,000 MT. Globally accredited, these facilities offer year-round delivery of large, complex modules, structures, and equipment on ocean-going vessels and barges, ensuring logistical flexibility, on-time delivery, and cost-competitive solutions.

These facilities, operating at the highest QHSE standards, provide key offerings for both Offshore and Onshore projects. Offshore solutions encompass structures and modules for Oil & Gas and Wind Farm projects, including Deepwater subsea structures, Oil and Gas Manifolds, Jack-up rigs, and Mobile Offshore Production Units (MOPU). Onshore offerings cover Process & Piperack modules, skids, structures, Static Equipment/Pressure Vessels and Columns, Modular Specialty Furnaces, and Prefabricated Control Rooms/Substation Buildings (E-houses).



Large Process Modules for a Gasification Plant in Jurong Island, Singapore





Integrated Manufacturing Facility at Jubail, Kingdom of Saudi Arabia

Total Area*	100,000 m <sup>2</sup>
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We engage with customers from the project's early stages, offering construction inputs and detailed execution planning for successful project completion thereby maximizing the benefits of modularization. Our Modular Engineering capability enables us to provide bespoke "Print to Build" solutions to Technology Companies, particularly in renewables and decarbonization.

The commissioning of our Heavy Wall Pressure Vessel manufacturing facility, along with an operational Piping shop, strengthens our offerings for customers in the Kingdom of Saudi Arabia.

We take pride in delivering modules globally, covering significant regions such as North America, Europe, Africa, the Middle East, Asia, and Australia.

Besides our EPC Project Execution heritage and the ability to rapidly scale resources, our key differentiators include Integrated Project Management Systems and the effective use of automation and digitalization in the fabrication processes, ensuring module deliveries with no unplanned carry-over work.



Heavy Wall Pressure Vessel Facility at Jubail, Kingdom of Saudi Arabia

Total Area*	120,000 m <sup>2</sup>
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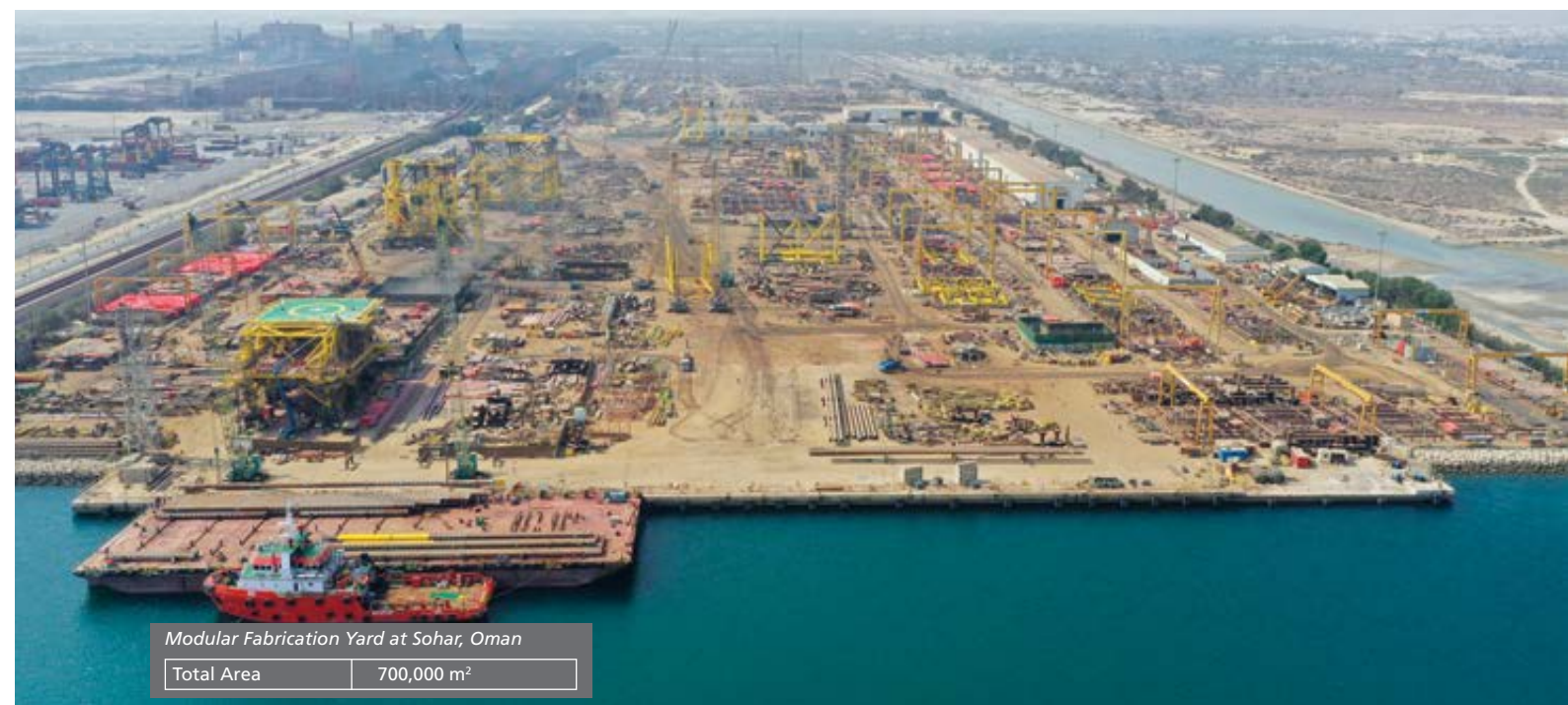


Modular Fabrication Facility at Hazira, West Coast of India

Total Area	600,000 m <sup>2</sup>
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Sailaway of Tie In Platform Topside for a Gas Field in Saudi waters



Modular Fabrication Yard at Sohar, Oman

Total Area	700,000 m <sup>2</sup>
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Train of 300m large Piperack Modules for a Gasification Plant in Jurong Island, Singapore



Modularized Reformer for a Blue H2 project in Rotterdam, Netherlands



Piperack Modules for a Refinery in Chonburi, Thailand

## Capability Spectrum – Modular Fabrication Solutions

### ONSHORE



Pre-assembled Process Modules – PAUs (181 Nos.)



Pre-assembled Piperack Modules – PARs & PAS (392 Nos.)



Pre-assembled Manifolds – PAMs (15 Nos.)



Modular Heaters & Furnaces (48 Nos.)



Reformers / Convection Modules / WHRUs / HRSG Modules (210 Nos.)



Skids (170 Nos.)



Static Equipment (1018 Nos.)



CCR Modules - CCR (2 Nos.)



E-House Modules (34 Nos.)

### OFFSHORE



Wellhead Topsides (100 Nos.)



Compressor Modules (16 Nos.)



Process Modules (15 Nos.)



Turbine Generator Modules (9 Nos.)



Living Quarters / Building Modules (8 Nos.)



Jackets (149 Nos.)



Jack-up Rigs (2 Nos.)



Bridges (19 Nos.)



Subsea Modules (276 Nos.)



# AdVENT

(Advanced Value Engineering  
& Technology)

Advanced Value Engineering & Technology Services, or AdVENT, is where innovation meets excellence. At AdVENT, we don't just deliver solutions; we shape the future of engineering and technology. With a legacy of success in high-end engineering and the execution of large-scale technologically complex EPC projects spanning decades, AdVENT stands at the forefront of delivering cutting-edge comprehensive customer-centric solutions for the hydrocarbon industry.

AdVENT's technical capabilities and agility enable it to offer associated tailored value engineering solutions. Its offerings to clients encompass - Full-spectrum Engineering from concept to commissioning. We provide EPC Project Solutions, Integrated Modular Solutions, Refinery Technology Solutions, Sustainable Waste-to-Energy Solutions as well as act as an Engineering Hub for Green Energy Projects.



India's 1st & World's 2nd Largest Off – Gas to Ethanol (3G Ethanol) Plant, IOCL Panipat, India

## EPC Project Solutions

With a wealth of experience spanning decades, AdVENT takes pride in its distinguished track record in executing EPC projects. Our commitment to delivering comprehensive solutions encompasses Full-spectrum Engineering, from conceptualization to commissioning. This commitment is exemplified by AdVENT's unique standing in the meticulous selection of licensors, tailored specifically for mid-scale

projects. This approach ensures that our clients receive end-to-end solutions that are not only efficient but also optimized for their specific needs. Utilizing our EPC expertise, we cater to fertilizer, chemicals & hydrogen Projects on a turnkey basis with single-point responsibility.





Integrated Module for FPSO Topside - H<sub>2</sub>S Management System

### Integrated Modular Solutions

AdVENT provides Modularization Solutions from conceptualization & engineering to fabrication, transportation, and installation on a single-point responsibility basis to truly deliver benefits of modularization integrated through its in-house fabrication facilities. This proficiency translates into projects that are not just cost-efficient but also time-efficient, propelling us to the forefront of innovation in our industry. Our solutions offer flexibility in schedule to align with construction and concurrent fabrication, while providing customized solutions especially for revamp projects.

### Refinery Technologies Solutions

AdVENT's contributions in cutting-edge refinery technologies redefine the benchmarks, setting new standards for efficiency, sustainability, and performance.

AdVENT collaborates closely & seamlessly with prime technology suppliers & licensors and well-organized R&D centers of Indian National Oil companies fostering an environment where ideas converge, and breakthroughs happen.

### Sustainable Waste to Energy Solutions

In a world where the energy landscape is evolving at an unprecedented pace, AdVENT emerges as a pioneering force, navigating the currents of change. With a steadfast commitment to innovation and sustainability, AdVENT stands at the forefront of a transformative journey.

Our focus is on alternative sources / methods for generation and consumption of energy, environmental concerns, utilization, and recycling of natural resources to shape the future is driven by our passion for environmental responsibility and the efficient use of natural resources.

Through strategic partnerships and a commitment to excellence, we're breaking new ground in technology areas that matter. From renewable energy solutions to advanced recycling techniques, we're engineering a sustainable tomorrow.

### Engineering Hub for Green Energy

AdVENT is at the forefront of the energy transition, supporting our clients toward a green sustainable future. We act as the engineering hub for Green Energy Projects and our technical capabilities enable the seamless adoption of cleaner and more efficient practices, ensuring a harmonious balance between progress and environmental responsibility.

This competitive strength positions AdVENT strategically, empowering us to seize incremental opportunities in Blue / Green hydrogen projects, Green Ammonia / Methanol initiatives, and other groundbreaking projects at the forefront of the energy transition landscape.



India's First 10,000 TPA (80%) Hydrazine Hydrate plant at Dahej, India



# Asset Management

Outsourcing	Consulting	Asset Integrity Services	Asset Performance Improvement	Specialized Services
Maintenance Outsourcing	Operations & / Or Maintenance Strategy Devp. / Optimization	Health Monitoring & Diagnostics	Reliability Improvement	Shutdowns & Turnaround Management
Operations Outsourcing	Materials Management	Refractory Engineering	Energy & Life Cycle Cost Optimisation	Equipment Overhauls
Operations & Maintenance Outsourcing	People Management	Corrosion Risk Assessment & Control	Productivity & Quality Improvement	Plant Modification/Revamp & Upgrade Services
O&M Management	HSE Management	RBI, FFS & RLA	Digitalization	Pre-commissioning, Commissioning, Startup & Decommissioning Services (External)
Materials Management (Procurement / Inventory / Stores)	RAM Analysis	Energy & Environment Audits	Asset Life Extension	Disaster Recovery & Plant Re-startup
	Asset Strategy Development/ Optimization			
	Asset Information Management			
	Energy Management	RBI - Risk Based Inspection		
	Benchmarking	FFS - Fitness for Service		
		RLA - Remaining Life Assessment		
RAM - Reliability, Availability & Maintainability				

Green - Services are offered
Orange - Services are being rolled out
Red - Services planned to be rolled out in future

Comprehensive Asset Management Solutions for Hydrocarbon and Process Industries



Our Asset Management (AM) business delivers differentiated and value-adding services across a wide spectrum of solutions to Hydrocarbon and allied Process Industries. These comprehensive Asset Management solutions extend the organization's design, engineering, construction and commissioning capabilities to cover operation, maintenance, performance enhancement and health assessment of critical assets. Thus, the business complements the organization's EPC Project offerings for mutually beneficial engagement with clients over the entire lifecycle of assets.

Aimed at meeting the needs and aspirations of Asset Owners, the Asset Management portfolio covers the following key points:

- Asset Management Consulting
- Asset Management (Operation & Maintenance) Outsourcing
- Asset Integrity Services
- Asset Performance Improvement
- Specialised Services



The Asset Management portfolio provides a holistic approach to the solution delivery model and is built based on the following three key differentiators:

- Comprehensive and Cohesive Processes
- Robust Competence Assurance Plan
- Appropriate Digital Enablement

All key functions of the business, from customer engagement to solution development to delivery, are based on the theme of continual improvement through the Plan-Do-Check-Act (PDCA) philosophy. The Asset Management team presents a unique blend of rich domain expertise and relevant industry experience across diverse sectors to meet and surpass customer expectations.

# Offshore Wind

The global offshore wind market is poised to play a central role in transitioning to a net zero and in decarbonizing the energy sector. We are committed to play a significant role as an EPCI player by joining hands with Offshore Wind stakeholders across the globe.



A rich experience of over 3 decades in offshore EPC Oil & Gas sector, enables us to draw expertise for giving comprehensive solutions backed by strong project management and engineering teams, fabrication facilities and state-of-art offshore construction vessels.

- Our Offshore Wind Farm offerings include:
- HVAC Offshore Substation Platforms
  - HVDC Offshore Substation Platforms
  - Wind Turbine Generator Fixed and Floating Foundations

Engineering capabilities cover the project life cycle from Feasibility Studies, Concept, FEED, Detailed Engineering, 3D Modelling and Special Analysis including Non-linear Analysis (Wave Pushover Analysis, Time Domain Analysis for Rare Intensity Earthquakes, Boat Impact Analysis) using USFOS.

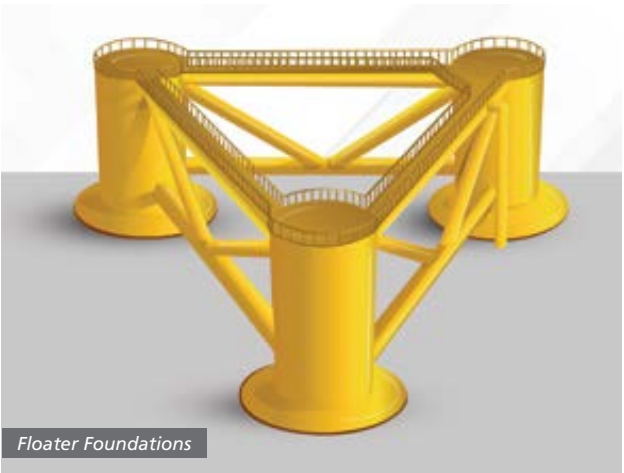


Our fabrication facilities have an annual capacity in excess of 200,000 MT. Two facilities in India (one on India's west coast at Hazira in Gujarat and one on India's east coast at Kattupalli in Tamil Nadu) and one facility at Sohar in Oman, provide a strategic advantage to support projects in both Europe Middle East and Americas as well as APAC regions. Our yards are certified with ISO 9001:2015, ISO 140001:2015, ISO 45001:2018, ISO 3834-2:2021, ISO 29001:2020, ISO 50001:2018 and SA 8000:2014 including EN1090-1/2 EXC4 S690. High capacity load-out jetties enable an advantage for large structures for Offshore Substations.



Our bolt-on approach adds flexibility towards project delivery by remote component manufacturing and assembling at partnering yards near site.

Our captive heavy lift vessels LTS3000 and LTB300, supported by LCVs, DPDSVs, AWBs, etc., have been consistently performing installations, subsea works in India and Southeast Asia and Middle East.



We take pride in ensuring high quality standards with focus on environment, best in class HSE and social accountability practices, on-time delivery with zero punch points, cost competitiveness, implementation of digital systems and IT security practices.

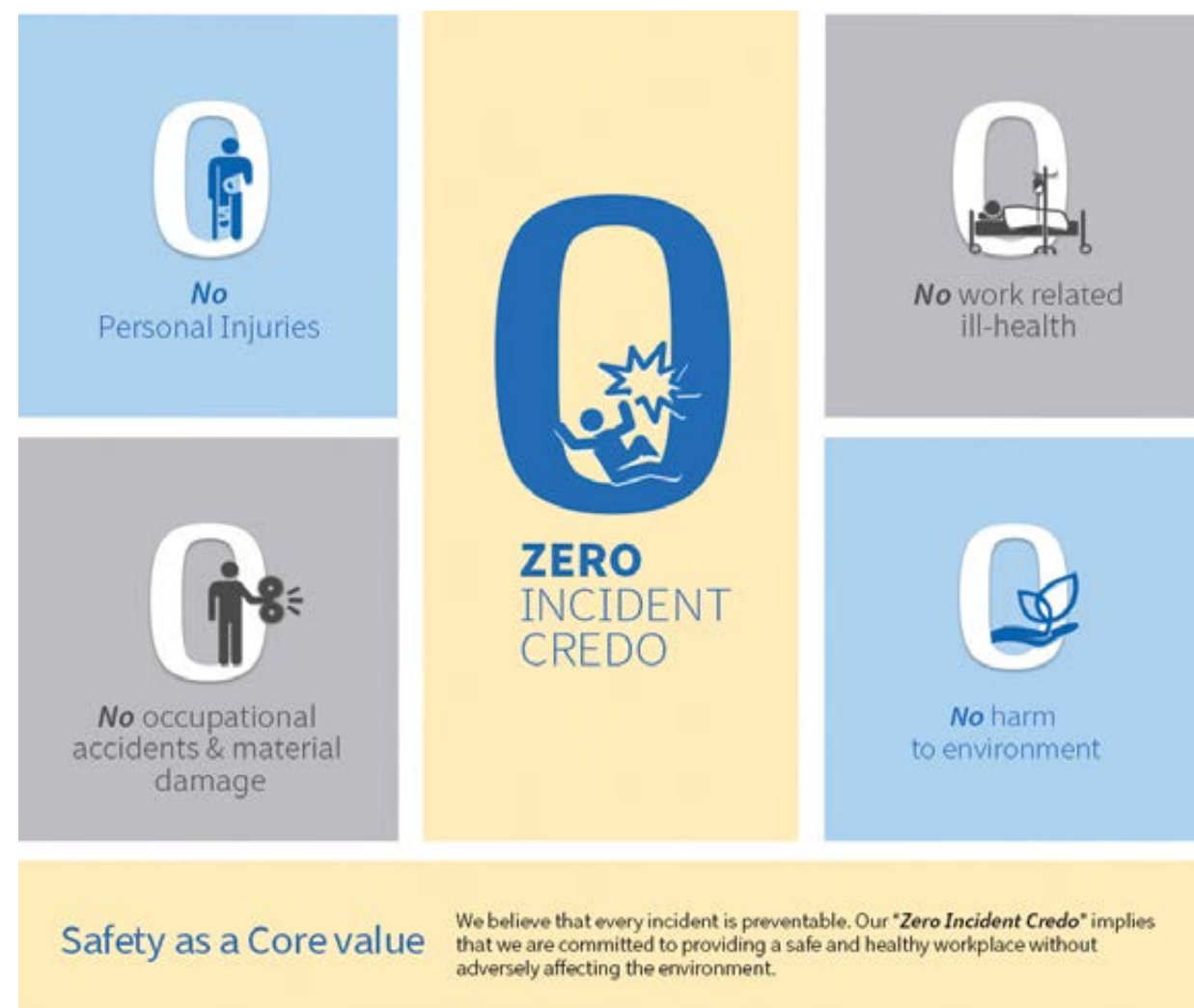
We have strategic tie-ups with world's leading OEM for Offshore HVDC Substations that enables us to provide complete EPCI i.e. concept to commissioning solutions.

We have been engaging with Clients and other Stakeholders during concept stage to co-create innovative & holistic solutions to support their specific needs in the changing energy sector.

We are pre-qualified by major European Windfarm Developers/ TSOs for EPCIC of Offshore Substations and WTG projects and are actively engaging with prospective clients in other regions.



# Health, Safety & Environment (HSE)



HSE is our core value which is reflected in our commitment to consistently improve HSE performance by conducting our activities in a manner that ensures the health and safety of our people and those involved directly or indirectly in our operations. Our HSE Management System (HSEMS) outlines the structured approach necessary for all our operations to manage HSE risks and drive HSE improvement in a consistent and systematic manner. Our HSE Management system is certified for ISO14001:2015.

Numerous awards and accolades from national and international agencies affirm our excellence in HSE.

Few among them are:

- Confederation of Indian Industry (CII) Awards 2023 for Best OHS Practices on "Contractor Safety Management"
- Indian Chamber of Commerce (ICC) awards 2023 for recognizing Best Practices in Occupational Health and Safety in Oil and Gas Sector.
- RoSPA Awards 2023.
- World Safety Organization (India) OHSE Excellence Awards 2023.
- British Safety Council (BSC) Awards 2023 for Strong commitment towards Good Health and Safety Management.
- Kuwait Oil Company (KOC) CEO HSSE Awards 2022-23.

- Oil & Gas Middle East Awards 2023 for HSE initiatives of the Year.
- Greentech Safety Awards 2023 for "Safety Excellence".
- ASSP GCC HSE Excellence Awards 2023.
- Golden Peacock Occupational Health & Safety Award 2022.
- Saudi Aramco HSE Technology Award 2022 for Digital Initiatives.
- CII-SR EHS Excellence Awards 2022.
- NSCI Safety Awards 2022-Suraksha Puraskar & Prashansa Patra.



## HSE Awards

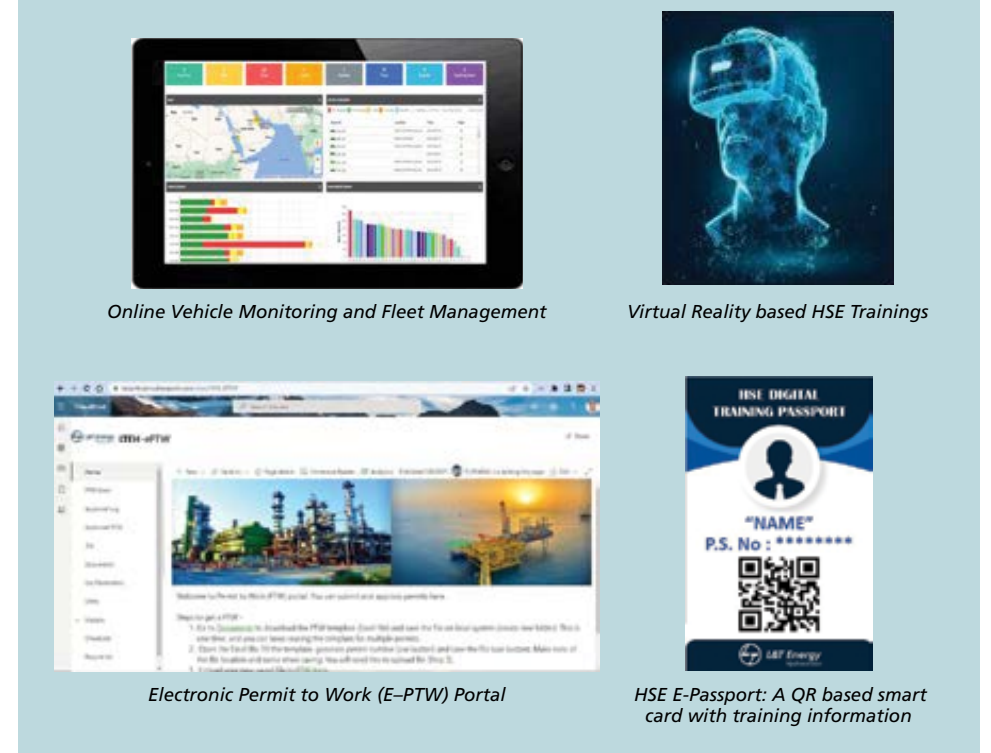


ROSPA Awards 2023



WSO Awards 2023

## Digitalizing HSE Processes





# Digitalization Revolutionizes Project Performance and Delivery

We have implemented an Integrated, IT-enabled Project Management suite of applications in sync with several other digitalization initiatives. With the end-objective to achieve 'Execution Par Excellence', the aim of Digital transformation is to focus on 'Productivity Improvement' and 'On Time Completion', while conforming to safety and quality norms.

The Integrated Project Management System, 'EPSILON', is a comprehensive data management system that sources information from various transaction applications and provides a collaborative space for all project stakeholders to interact in a 3D-model based integrated workspace wherein project teams can plan together, share and view project progress, updates, manage changes and minimize risks. This well-connected information network is the foundation for business intelligence, analytics, and knowledge management. Epsilon also provides a platform for multi-D progress visualization and workfront forecasts superimposed on 3D model, thus facilitating informed decision making through "Digital Twin". It also supports Immersive 3D walkthrough using VR technology, and constructability and maintainability simulation in the immersive environment.

## Engineering

Engineering teams use the latest Design and 3D CAD software suites to generate an integrated plant model which collaborates with smart P&IDs, layouts and is used for extracting MTOs. A highly evolved enterprise-wide unified material codification system 'mCode' bridges the 3D virtual plant with SAP-based ERP system.

ProeTrackNxt, built on Microsoft Azure Technology Stack, serves as an 'Engineering and Supplier Document Management & Correspondence System' for project document management and real-time tracking. Various RPA and automation tools are developed which has improved the productivity and collaboration among engineering teams working across geographies.



Team LTEH has been awarded with Gold Prize under "Smart Business Functions" Category (Large) at the 2nd FICCI Industry 4.0 Awards 2023.

This Award is an appreciation for the Successful implementation of "Integrated Project Management System – EPSILON" to enhance operational excellence and to deliver value to the end customers.

## Procurement

Project material take-offs from the 3D system are thus converted into error-free purchase orders and integrated into material tracking systems.

e-Procurement automates purchasing systems and effectively controls delivery schedules, cost, and quality of procurement. SAP ARIBA allows shortlisted vendors to participate in virtual negotiation over the internet, which facilitates securing the best terms and deliveries. SAP Business Warehouse (BW), a business-intelligence online analytical processing software, increases flexibility in response to client requirements.



Homegrown application 'EN-QUEUE' manages enquiry to vendor selection process whereas, 'POMS' (Post Order Management System) enables end to end tracking of the physical progress starting from ordering till receipt at site. Complex logistics challenges are managed using effective monitoring through 'Logistics Control Tower', integrated with real time GPS locations of convoys.

Adding Artificial Intelligence to supply chain, we have built Generative AI based tools that enables project teams to extract key insights from the data-lake developed from executed projects.

## Fabrication, Construction and Completion

Home grown system IMpACTNxt helps in managing the log of materials and forecasts the workable fronts. A digitalized material tracking application allows for QR/ RFID based physical tracking of piping spools and structural assemblies, reducing loss of time and material.

Construction management is enhanced with eALPSNxt, a proprietary Web-enabled software, which micro-plans, tracks, controls and integrates activities across project sites, providing 'real time' status. 'Centenary', a completion management application, manages project activity turnover and certifications. It also monitors punch points and system-wise completion status.

The latest technologies such as Virtual Reality (VR) Simulation, help in understanding HSE best practices and demonstrating safety critical incidents in safer environment. 3D Experience Platform helps in performing Mechanical handling studies and construction simulation in immersive environment (VR). In addition, RPA (Robotic Process Automation) is used across functions to automate mundane rules-based business processes, enabling business users to devote more time on value added work.

Latest 'Edge' applications are implemented across fabrication yards and construction sites to improve collaboration and productivity. Various technologies such as Augmented and Merged Reality offered by Smart AR Glasses and Help-Lightning are adopted for remote inspection & supervision. Other Video Analytics based applications help supervisors to track the safety and productivity of workers, plant and machinery using the latest tech solutions including computer vision and machine learning.

An enterprise-wide knowledge management system 'DRISHTI' captures lessons learned and best practices across our projects and offers on demand situational guidance to project teams.





# Corporate Sustainability

At L&T, Sustainability is embedded in the vision, culture, strategy and business processes. Our vision is to pursue eco-friendly growth, promoting a culture of sustainability and innovation, and thereby contribute towards a better world. L&T is also committed to seek sustainable growth by integrating Environment, Social and Governance (ESG) principles with its businesses. We strive to conserve natural resources, enhance social equity for sustainable growth, and foster a culture of trust, caring and continuous learning while meeting the expectations of all stakeholders. We believe in inclusive growth by protecting our environment, empowering our communities and accelerating development.

Over the years L&T has been focusing on ESG parameters such as climate stewardship, circular economy, green portfolio, green supply chain, employee and social welfare, workforce health & safety. In addition, L&T leverages its inherent strength and capabilities to implement sustainable CSR programmes towards 'Building India's Social Infrastructure'.

**Commitments on Carbon and Water neutrality**  
Raising the bar to the next level, L&T is undertaking big goals related to Climate Change and Water Security and is aiming to achieve Carbon Neutrality by 2040, ahead of the Paris Agreement deadline of 2050, and Water Neutrality by 2035.



# Commitment To Continuous Learning

L&T has set up a number of institutes around the country to impart technical and managerial training.



L&T's Leadership Development Academy has world-class facilities to deliver learning and development programmes



L&T Institute of Project Management (IPM) at Vadodara - a registered educational provider of PMI, USA - develops project managers across EPC domains



Safety Innovation School at Hazira, Gujarat – part of multiple initiatives for the propagation of a safety culture company-wide



# Corporate Social Responsibility



Education Development Program - Picnic with children

Corporate Social Responsibility (CSR) at L&T Energy – Hydrocarbon (LTEH) is a true reflection of our purpose and mission to building a strong and vibrant India where everyone can enjoy the fruits of growth and prosperity, and no one is left on the margins of the society. In collaboration with NGO Partners and our own army of volunteers, the carefully designed interventions support communities near our campuses, office locations and project sites. For LTEH, CSR is an essential tool and not an afterthought plus driven by five key thrust areas that have made a discernible change in the lives of thousands across the country.

**Education** interventions focus on factors such as lack of quality teachers, poor school infrastructure, absence of modern educational methodologies (such as science-based learning and STEM) and compensate for the gaps in our present educational setup. Also focus at providing children from low-income backgrounds little opportunity to develop essential life skills like problem solving, collaboration and communication, values, and principles to succeed personally, professionally, and socially in a fast-changing world.

**Water** initiatives are designed to ease the challenges about access to clean drinking water for thousands residing in water stressed parts of the country. We are also bringing in technology and green energy, Solar based water pipelines installed to bring water closer to homes where the community has to walk a distance to get water. Tied to our water availability initiatives are our Sanitation initiatives under which we have built many of toilets for the rural masses.



Education Development Program - Picnic with children



Health Camp

As part of our CSR efforts, extra emphasis is given on Environment and related issues through several strategic interventions. Not only does this greenify our approach and lends us credibility but also helps push the case for restoring and preserving natural resources and maintaining a healthy environment for all.

Interventions on **Health** maintain close co-ordination with civic facilities such as PHCs and local medical professionals in slums and villages across the country to Educate, Empower, enable access, and provide support on sustainable menstruation. Another major issue i.e., Mental health, including depression and anxiety, first emerge in late childhood and early adolescence and often continue into adulthood. We provide sessions in schools in an effort to improve mental wellbeing of children with the cooperation of parents and teachers.



Inauguration of Bird Attracting Native Forest



Skill Development - Livelihood

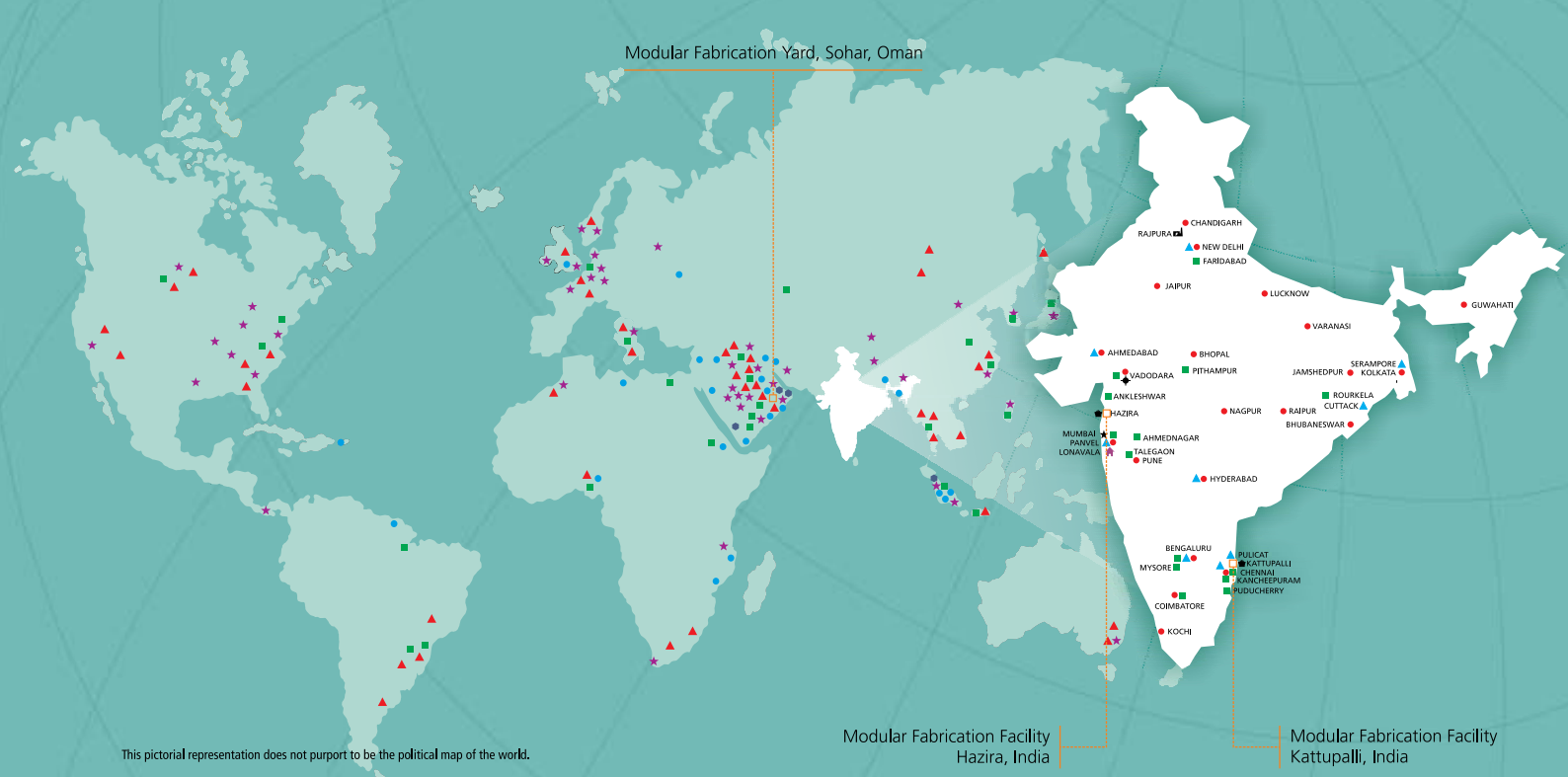
At the heart of our **Skill Building** interventions sits the idea of harnessing the unutilized energies of the youths from rural and smalltown India. To these youngsters, we offer formal training in a variety of useful trades through NGO partners, government run facilities like ITIs and Community Skill Training centres which make them employable and contributing members of the society. Young girls and women form a key group of these interventions which are neatly designed to help them gain financial independence.

**Employee Volunteers** called 'L&T-eers' play a crucial role in the success of each of our interventions. By Volunteering these passionate members of the L&T family devote their time and energy in helping our CSR initiatives through their unique 'human-connect'. L&T aspires to have 100% of its employees make a commitment to volunteer and to maintain or increase their current level of involvement.



L&T-eers - Mentoring Youth





This pictorial representation does not purport to be the political map of the world.

## 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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