ABOUT US

PROJECTS & DEVELOPMENT INDIA LIMITED, under Department of Fertilizers, is a Mini Ratna- I Government of India Undertaking having ISO 9001:2008 Certification and a Premier Engineering & Project Management Consultancy Organization in India with experience of 65 years in Planning, Design, Engineering, Procurement, Project Management, Construction and Commissioning of Fertilizer Projects and Allied Chemical Plants in India and abroad.

Utilizing its strong technical base, expertise, experience and achievements, PDIL has diversified in Oil & Gas, Refinery, City Gas Distribution and Infrastructure Projects.

Since inception, PDIL has been playing lead role in Design, Engineering and Construction of almost all major grass root Nitrogenous Fertilizer Projects in India. The fact that PDIL has engineered and executed 26 Ammonia Plants (600 MTPD to 2,200 MTPD) based on diverse feedstocks viz. Natural/Associated Gas, Coal bed Methane, Naphtha, Fuel Oil & Coal and 38 Urea Plants (500 MTPD to 1,750 MTPD) testifies PDIL’s technical expertise, excellence and accomplishments in the field of Fertilizer Projects.

PDIL provides complete range of services covering Pre-Project Activities and Project Engineering Activities for projects starting from concept to commissioning. Specialized services provided by PDIL include Feasibility Study, HAZOP study, Due Diligence Study, Energy Audit, Safety Audit, Electrical Audit, Environmental Study, etc.
Fertilizers

Capacity Enhancement/Energy Saving/Feedstock Conversion

<table>
<thead>
<tr>
<th></th>
<th>Ammonia</th>
<th>Urea</th>
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<tbody>
<tr>
<td>Feedstock Conversion</td>
<td>5</td>
<td></td>
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<tr>
<td>Capacity Enhancement</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Energy Saving</td>
<td>10</td>
<td>4</td>
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<tr>
<td>Other Revamps</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Greenfield/ Brownfield/ Expansion

- **Ammonia Plants** 26
  - Gas Based 16
  - Coal Bed Methane 1
  - Naphtha based 4
  - Fuel Oil based 3
  - Coal based 2
- **Urea Plants** 38
- **Offsites & Utilities**
  - DM Water Plants 44
  - Effluent Treatment 53
  - Material Handling 53
  - Ammonia Storage 15
• **Capacities Handled**: Ammonia (600-2200 MTPD), Urea (500-1500 MTPD)
• **Feedstocks**: Natural Gas, Coal bed Methane, Coal, Fuel Oil, Naphtha
• **Process Licensors**: Ammonia (HTAS, KBR, Ammonia Casale) and Urea (SAIPEM, Stamicarbon, Urea Casale, Toyo)
• **Type of Services rendered**:
  - EPCM (Detailed Engineering, Procurement Assistance, Inspection & Expediting, Construction Supervision, Assistance in Pre-Commissioning, Commissioning and Guarantee Test Run)
  - PMC (Engineering Management including Review of Basic & Detailed Engineering, Procurement Management, Construction Management, Assistance in Pre-Commissioning, Commissioning and Guarantee Test Run)

• Projects sponsored / financed by international financing organizations like World Bank, IBRD, UNIDO, UNDP, etc.

• Worked in Australia, Algeria, Nigeria, Canada, Gabon, Vietnam, Tatarstan Republic, Oman, Jordan, Egypt, Philippines, Tanzania, Burma, Brazil, Bangladesh, Indonesia, Malaysia, Venezuela, USSR, Syria, Azerbaijan, Zambia, Abu Dhabi, Bahrain, Afghanistan, etc.
Diversified sectors...

**REFINERY UNITS**
Sulphur Recovery — 60 TPD (IOCL- Mathura)
Hydrogen Generation (5 Nos.) — 20000 to 91,867 MTPA (IOCL-Barauni, CPCL-Manali, Essar-Vadinar)
Other units—FCCU, CDU, CTU, PTU, FGD, ADU, SWSU, PSA, FGRU, etc

**LPG / POL TERMINALS**
LPG - 6,00,000 MTPA Terminals at Kandla & Haldia (IOCL), Phase-I Terminal at Sikka (GSFC), LPG/Propylene/Propylene Terminal at Haldia (Aegis)
POL - 10,000 to 60,000 KL Storage MS/ SKO/ HSD/ Fuel Oil/ ATF (BPCL, IOCL)

**PIPELINE PROJECTS**
Petroleum Products (ATF/ HSD/ SKO/ MS/ Naphtha/ Lube Oil/ White & Black Oil/ LPG) - 4"-18" Dia for BPCL, IOCL, ONGC, MRL, GAIL, RCF.

**CITY GAS DISTRIBUTION**
Green Gas Ltd.—Lucknow
IGL – NCT of Delhi
GAIL GAS – Panvel
GAIL — Vadodara
ONGC - Panvel, Uran, Nazira & Lakwa

**GAS GATHERING STATIONS**
Konaban, Agartala, Geleki, Lakwa, Rudrasagar, Gandhar, Demulgaon, Rokhia, etc.

**HAZOP STUDIES**
IOCL, OIL, BPCL, ONGC, IGL, CPCL, etc

**MOUNDED STORAGE FACILITIES**
About 3 Dozen [150 MT to 2,870 MT] for LPG/Propylene for IOCL, HPCL, BPCL & NRL.

**LPG BOTTLING PLANTS**
Over 3 Dozen of LPG Bottling Plants for IOCL of capacity ranging from 5,000 to 88,000 MTPA.
Services provided by PDIL for offsites & utilities:

- Raw Water supply system
- Captive power plants
- DM water/ Fire Water
- Water Softening plants
- Steam Generation Plant
- Nitrogen Plant
- Instrument Air system
- Effluent Treatment Plant
- Inert gas generation plant
- Yard piping
- Ammonia Storage & handling
- Urea bagging & handling etc.
- Coal / Ash Handling
- Fuel Handling
- Cooling tower
- Sewage Treatment Plant, etc.

Chemical Plants:

- Phosphoric Acid Plant: 2 Nos
- Nitric Acid Plant: 5 Nos
- Sodium Nitrite/ Nitrate plant : 2 Nos
- Sulphuric Acid Plant: 4 Nos
- Ammonium Sulphate Plant: 4 Nos
- Ammonium Bicarbonate Plant: 3 Nos
- Methyl Amine Plant: 1 no
- Methanol Plant: 4 Nos

Infrastructure:

Townships — 5 Nos. comprising of 60 to 700 flats

Accommodation project for Govt. of India — 16 locations comprising of 300-2000 flats per location

PDIL has secured an assignment for providing PMC Services for Cluster Development Programme for Pharma Sector for Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers.
PDIL, for the last several years, has been rendering NDT services satisfactorily to all customers in the field of Chemicals & Fertilizers, Petrochemicals and Oil & Gas etc.

We understand the processes involved throughout the entire product cycle – from design and manufacture to operation & maintenance and the frequent need for rapid turnaround times. Our services can support production processes, quality control, and regulatory compliance as well as new construction, Pipelines, Storage Vessels, Plant Maintenance and Scheduled Shutdown Inspection.
PDIL inspection engineers carry out inspection of equipment to meet the requirements of national / international codes and standards, e.g. ASTM, ASME, PTC, TEMA, NEMA, ANSI, API, VDE, BSS, DIN, ISO, GOST, IEC, BIS etc. and our Inspection offices are equipped with all modern communication facilities.

**Services Offered**

- **Statutory Certification**
- **Project / Third Party Inspection**
- **Progress Monitoring & Expediting**
- **Work Assessment / Evaluation of Vendors**
- **Residual Life Assessment**
- **Periodic Health Assessment of Plants & Equipments**

• PDIL is the first inspecting authority in India to undertake inspection of sophisticated Distribution Control Systems at Bells Control (Fox Borough system), Taylor (Siemens system), Blue Star Yokogawa, Bangalore.

• Carried out 3rd party inspection of 686KM line pipes for CTMPL (Chennai - Trichy – Madurai Pipeline) Project of M/s IOCL.

• PDIL have also carried out inspection of 19KM Pipeline

• PDIL has developed a system of computer based progress reporting to facilitate proper expediting.

• PDIL is also rendering TPI services to RINL, NLCL, Delhi Transco Ltd., HPCL, IOCL, BPCL, Andhra Pradesh / Telangana Foods, JIFCO, NDMC, PWD, State Water Bodies Like Delhi Jal Board, HMWSSB, CMWSSB, Public Health Engineering Departments Under Rajasthan, J&K, Chattisgarh, West Bengal and etc.

PDIL has maximum expertise and experience in India in the inspection of rotating machinery like Centrifugal Compressors, Gas Turbines used in the fertilizer and allied industries.

• PDIL has inspected over 80% of the **Centrifugal Compressors manufactured by BHEL, Hyderabad**.

• PDIL have the credit of inspecting the first gas turbine manufactured in India by BHEL (in Technical Collaboration with General Electric, (USA)).
Catalysts

Catalysts are the life line of modern chemical plant, be it fertilizer, petrochemical or petroleum refining processes. The performance of the plants is greatly dependent on the life and stability of the catalyst. The commercial catalyst formulations are zealously guarded trade secrets of the manufacturer which lifts a catalyst out of the ordinary.

PDIL is one of the very few catalyst manufacturing companies in the world possessing both scientific expertise as well as decades of industrial experience which has shaped it into a successful catalyst manufacturer.

List of catalysts manufactured by PDIL is given below:

- Secondary Reforming
- Copper Promoted HT Shift CO Conversion
- High Copper LT CO Conversion
- Methanation
- Vanadium Pentoxide

PDIL’s Catalyst Division at Sindri manufactures and supplies a wide range of commercially proven catalysts used in Ammonia Plants and for Hydrogen Plants & Sulphuric Acid Plants. The very fact that PDIL has been serving the industry for over 6 decades, since 1954, is in itself a proof of their dependability.

PDIL in a position to supply tailor made catalyst to meet specific duty of a plant with different specification as per Customer’s demand.
PDIL’s Catalysts find applications in:
- Ammonia Plants (Reforming, CO Conversion, Methanation / Super Methanation)
- Sulphuric Acid Plants (Vanadium Pentoxide Catalyst)
- Hydrogen Generation Units of Refineries (HT Catalyst)

Our Catalyst manufacturing is backed by long industrial experience and extensive In-house R&D Facilities & expertise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Catalyst Type</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Secondary Reformer Catalyst</td>
<td>Steam reformation of gaseous carbonaceous feed stocks like natural gas, associated gas etc.</td>
</tr>
<tr>
<td>2</td>
<td>High Temperature CO Shift Conversion Catalyst</td>
<td>High temperature shift water-gas shift reaction for conversion of carbon monoxide into hydrogen and carbon dioxide with steam.</td>
</tr>
<tr>
<td>3</td>
<td>Low Temperature CO Shift conversion Catalyst</td>
<td>Low temperature Shift water-gas shift reaction for conversion of carbon monoxide into hydrogen and carbon dioxide with steam.</td>
</tr>
<tr>
<td>4</td>
<td>Methanation Catalyst</td>
<td>Hydrogenation of Carbon oxides to methane as a means to rid off the synthesis gas (H2 + N2) mixture of any oxygen compounds which are noxious to synthesis catalyst</td>
</tr>
<tr>
<td>5</td>
<td>Vanadium Pentoxide Catalyst</td>
<td>SO2 Oxidation in the manufacture of sulphuric acid.</td>
</tr>
</tbody>
</table>

MAJOR CLIENTS

Rashtriya Chemicals & Fertilizers Ltd
National Fertilizers Ltd.
Brahmaputra Valley Fertilizer Corporation Ltd.
Gujarat State Fertilizers & Chemicals
Krishak Bharati Cooperative Ltd.

Indian Farmer Fertiliser Cooperative Ltd.
Hindustan Petroleum Corporation Ltd
Mangalore Refineries & Petrochemicals Ltd
Chennai Petroleum Corporation Ltd
Steel Authority of India Ltd
Other Fertilizer and Sulphuric acid producers
OUR ESTEEMED CLIENTELE
# Services Offered

## PRE-PROJECT SERVICES
- Market Demand Study
- Techno Economic Feasibility Report (TEFR)
- Detailed Project Report (DPR)
- Site Related Services
- Environment Impact Assessment and Risk Analysis

## ENGINEERING & PROJECT MGT.
- Project Engineering Services
- Detailed Engineering
- Procurement Services
- Project Management
- Scheduling & Monitoring
- Construction Management
- Commissioning
- Project Management Consultancy

## OTHER SPECIALISED SERVICES
- HAZOP Study
- Due Diligence Study
- Energy Audit/ Electrical Audit/ Safety Audit
- Revamp/ Retrofit/ De-bottlenecking Studies
- OISD Norms Study
- Environmental Engineering
- SSP (Single Super Phosphate) Audit

## THIRD PARTY INSPECTION & NDT SERVICES
- Project & Third Party Inspection (Shop & Field Inspection)
- Work Assessment & Evaluation of Vendors
- Expediting of Supplies
OUR VISION:
To be leading Engineering and Project Management Consultancy Organization

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