Refining & Petrochemicals
Enppi, established in 1978 and headquartered in Cairo, Egypt, is an Engineering and EPC Main Contractor providing fully integrated engineering, procurement, construction supervision and project management services for the petroleum, petrochemicals, power and other industries in Egypt, MENA region & Latin America.

**Shareholders**

- Egyptian General Petroleum Corporation (EGPC) 97%
- Petroleum Projects and Technical Consultations Co. (Petrojet) 2%
- Housing and Social Services Fund for the Petroleum Sector’s Employees (HSSFE) 1%

**Capital**

- Authorized: US $ 600 Million
- Paid: US $ 220 Million
Fields of Experience

- Gas Treatment and Processing
- Offshore / Onshore Oil & Gas Production
- Offshore / Onshore Pipelines
- Petrochemicals & Chemicals
- Oil Refining
- Engineering, Consultancy and Human Resources Development Services
- Utilities and Offsite Facilities
As an Engineering and EPC Main Contractor, Enppi areas of expertise lies in the value chain of its role as an Engineering, Procurement, Project Management and Construction Supervision Contractor.

**Engineering**

**Process Technology**

Enppi has considerable experience in the design of oil & gas, onshore/offshore, gas processing, oil refining, and petrochemicals facilities covering:

- Process optimization and selection
- Studies (techno-economic and technical)
- Flow assurance engineering (steady state & dynamic)
- Debottlenecking and revamps
- License evaluation and selection
- Review of basic engineering for others
- Oil & Gas separation
- FEED, conceptual, basic & detailed engineering
- HAZOP, HAZID, QRA, Sil and other safety studies
- Performance analysis and guarantees
- Operating manuals development
- Commissioning and start-up procedures
- Field assistance for construction and start-up
**Mechanical Engineering**

Enppi has qualified specialists in all aspects of mechanical engineering. The following services are offered to support FEED and detailed design activities or independently as specialized services.

- Static equipment design, covering:
  » Pressure vessels, heat exchangers, columns, reactors, heating and power boilers and tank design
- Rotating equipment design, covering:
  » Compressors, gas and steam turbines, pumps, turbo expanders, HVAC, etc.
- Material selection, covering:
  » Material selection guides
  » Cathodic protection
  » Painting
- Field assistance for construction and start-up

**Electrical Engineering**

Enppi has a fully experienced team in electrical system design, with wide experience in both onshore & offshore applications; covering:

- Power generation and distribution
- Electrical systems analytical studies
- Relay coordination studies
- Overhead transmission lines design
- UPS systems
- Solar power units
- Plant power distribution & cabling systems
- Lighting systems
- Lightning protection facilities
- Navigational aid systems
- Grounding systems
- Heat tracing systems
- Hazardous Area Classification, Plans & Elevations and Electrical enclosure selection criteria
- Field assistance for construction and start-up
**Instruments & Control and Telecommunications Engineering**

The company’s competencies in Instrument & Control and Telecommunication Engineering cover:

- Field instruments & Process Measurements
- Final Control Elements: Control Valve Sizing & Selection, On-Off Valves, Shut Down & Blow Down Valves
- Process Control Applications (Burner Management System, Boiler Control, Compressor Control, etc.)
- Process Control Systems (DCS, PLC)
- Pneumatic, Hydraulic Controls
- Safety Instrumentation System (SIS)
- High Integrity Pressure Protection System (HIPPS)
- SCADA & Communication Systems
- Pipeline Management System
- Fiscal Metering Systems
- Automatic Tank Gauging
- Oil & Gas Wellhead Control System
- Tele-communication Systems such as:
  - Private Automatic Branch Exchange (PABX), VoIP
  - Public Address & Alarm System (PA&A)
  - Fiber Optic Cables / System
  - Wireless Systems (Satellite, Microwave, VHF/UHF)
  - Security Systems (Closed Circuit Television (CCTV), Access Control System & Intrusion Detection System)
  - Video Conference.
- Field Assistance for Construction and Start-up
Civil / Structural / Architectural Engineering

Enppi possesses considerable design experience in different phases of Civil / Structural / Architectural Engineering design, covering the following activities for plant facilities and other onshore structures:

- General site preparation drawings
- Road and paving drawings
- Building design (architectural / structural detailed drawings)
- Detailed drawings (steel / concrete) and MTO preparation
- Tanks and basins drawings
- Foundation drawings
- General specifications, MRQs & MRPs preparation
- Field assistance for construction and start-up

Offshore Structures

Enppi offshore structural design capabilities cover the following areas:

- Offshore fixed platforms analysis and design
- Deep & shallow foundation engineering
- Dynamic & fatigue assessments
- Earthquake Analysis
- Nonlinear Analysis
- Finite element Analysis
- Construction support engineering
- Transportation & Installation engineering
- Weight & COG engineering
- Structural Integrity Management
- Ports & Terminals engineering
- Subsea structural engineering
- Specification & Fabrication drawings
- Field assistance for construction and start-up
**Piping Engineering**

Enppi piping engineering design covers:
- Plot plans and equipment location plans
- Piping general arrangement drawings for the above ground piping
- Orientation drawings of tower, vessel, tank, etc...
- Piping isometrics drawings
- Stress analysis reports for critical lines using Caesar II program
- Piping supports distribution and design
- Piping material specification and supply specification for packages
- MRQs and MRPs preparation for piping bulk and valves
- Underground Composite Drawing
- Detailed design of underground piping systems
- Update of drawings and 3D CADD model to “AS-BUILT” status
- Detailed and block plastic model building
- Field assistance for construction and start-up

**Pipeline Engineering**

Enppi Pipeline Engineering design is responsible for onshore/offshore pipelines covers:
- Pipeline design basis
- Pipeline mechanical design
- Route selection
- Planimetry and profile
- Riser/Spools Layout
- Crossing details
- Field assistance for construction and start-up
- Subsea Equipment
- Analysis reports
- Standard details
- Material requisitions and Specifications
- Bidders evaluations
The following section gives detailed description of the various deliverables:

For onshore & offshore pipelines:
- Pipeline specifications
- Material selection and wall thickness calculations
- Stress analysis studies
- P/L alignment sheets
- Pipeline approach drawings
- Thermal expansion calculations
- Buckling calculations
- Coating and wrapping
- Cathodic protection
- Material take-off
- Material requisitions and purchase orders

For Offshore Pipelines:
- Stability analysis
- P/L Alignment drawings
- Field Layouts
- Deepwater technology
- Free span analysis
- Seabed irregularities analysis
- Upheaval buckling analysis
- Latest buckling analysis
- Installation analysis
- Trenching study
- Pipeline survey, installation and trenching bid packages
- Riser and spool piece design
- Cathodic protection
Procurement

Enppi’s strategy in procurement is to provide quality goods and services, at the right time, at the lowest cost, produced and delivered safely. We have the experience, the tools, and the know-how for procurement services by providing integrated, reliable, and cost-efficient supply chain management services to ensure the success of projects.

We have capabilities in:

- Procurement Management
- Purchasing and contracting services
- Purchase orders expediting and subcontracts administrations
- Supplier quality surveillance
- Material Logistics
- Material control on site

Enppi’s supply management services leverage today’s technologies and logistics’ methods to make efficient decisions which streamline the supply management process. We have a global track record of ensuring timely and accurate material receipt through innovative expedition and quality assurance with vendors to minimize receiving delays and errors. We optimize transportation networks, operating hand-in-hand with global freight forwarders with dedicated assets. We offer the expertise, processes and tool utilization needed to facilitate frequent status updates on all material control information including material quantities required.
Project Management and Control

The design and execution of large scale onshore and offshore projects necessitates the strict adherence to sound management and control practices. In such projects, Enppi provides specialized management, control and quality assurance services covering:

- Contracts/subcontracts preparation and administration
- Overall project management and control
- Front-end planning and detailed project scheduling
- Engineering coordination and control
- Cost control and budget monitoring
- Change management
- Identifying and solving problems hindering project execution
- Technical and economic studies
- Risk management

Construction Management

Enppi provides construction management services as part of the overall project management function covering:

- Construction management and quality assurance/control
- Construction safety management
- Construction planning and control
- Onshore fabrication, installation and load-out supervision
- Offshore installation supervision
- Commissioning and start-up assistance
In line with our commitment to continuous growth and sustainable development for the future, Enppi works in the best possible manner to balance Quality, Environment, Energy and Health & Safety (QEHS) considerations into our daily business decisions and operations.

Quality Management System (QMS)

In compliance with the needs defined by the international codes and standards and in order to achieve a competitive edge in the global oil and gas sector, Enppi moves towards expanding alliances with its customers to continually boost productivity and keep our projects on-schedule and within budget aiming to achieve customer satisfaction.

Our applied Quality Management Systems provide strict controls, monitor work, track projects and streamline procurement and materials management activity.

The acquisition of globally acknowledged certification/accreditation is a crucial step toward continual improvement for achieving customer satisfaction through providing high quality services with time commitment and at competitive cost.

It is worth mentioning that Enppi has established a quality management system certified to ISO 9001 since 1995. In 2014, Enppi has acquired API spec Q1 certification from the American Petroleum Institute as sector specific certification for Quality Management System for oil and gas companies to become one of the leading companies in the world to be certified to these international standards.

For every project the company executes, QMS covers the following:

• Issuing Project Quality Plan
• Developing Project KPIs
• QMS auditing

Enppi takes an additional responsibility in encouraging customers, suppliers and contractors to consider the QMS requirements in their activities.

Also, Enppi offers a wide range of QMS consultation and training services related to:

• ISO 9001 requirements
• Quality management system auditing
• API spec. Q1 requirements
• Self-assessment
• Documentation management
Environmental Management System (EMS)

As a part of Enppi’s contribution towards sustainable development, Enppi has established, implemented and maintained an environmental management system as per ISO 14001: The system objectives are compliance with all applicable environmental legal and other requirements, minimizing pollution and reduction of resources. For every project the company executes, the EMS covers the following:

- Establishment and implementation of environmental policy and objectives
- Aspects/impacts analysis
- Identification of legal and other requirements
- Development and implementation of environmental management programs
- Emergency preparedness and response
- Environmental management system auditing

Enppi takes an additional responsibility in encouraging customers, suppliers and contractors to consider the environmental impacts of their activities, mainly through the following means:

- Organizing and conducting awareness sessions / courses
- Requesting suppliers and contractors to declare their environmental policies and commitment to environmental protection
- Following up supplier/contractor implementation of environmental management programs
- Taking a leading role with customers to design environmentally friendly projects

Enppi also has wide experience in EMS related services as awareness and training, environmental monitoring, environmental assessment, environmental management systems auditing and environmental performance evaluation.
Health & Safety Management System (HSMS)

Enppi recognizes the importance of protecting the health and safety of its employees, customers, suppliers and contractors personnel within work premises over which it has control. Enppi implements and continually improves a health and safety management system in accordance with OHSAS 18001 to achieve improvement in the overall company health and safety performance, including prevention of injury and ill health. For every project the company executes, HSMS covers the following:

- Establishment and implementation of Health & Safety policy and objectives
- Provision of safe working environment
- Hazards identification
- Risk assessment
- Implementation of necessary control measures to ensure that risks are reduced as low as reasonably practicable
- Identification and compliance with applicable Health & Safety legal and other requirements
- Development and implementation of Health & Safety management programs
- Emergency preparedness and response
- Encouragement of customers, suppliers and contractors to consider Health & Safety requirement in their activities
- HSMS auditing

Related services provided by Enppi can be summarized as follows:

- Design of fire protection systems
- Review plot plans (layout with respect to safety distance and prevailing wind)
- Quantitative risk analysis using “PHAST Software / Fault Tree Analysis and Event Tree Analysis”
- Qualitative risk analysis by HAZOP review, FMEA technique
- Perform safety audits
- Provide training courses related to health and safety:
  » OHSAS 18001 requirements
  » Loss prevention
  » HAZOP (basic and advanced)
  » Risk analysis techniques
  » Fire protection systems
  » Hazardous area classification
  » Detection and alarm systems
- Preparation of Safety case studies
Energy Management System (EnMS)

In terms of Enppi role as a leader in the field of projects in the region and in line with our responsibilities toward the community and in order to keep pace with global and national trends for energy conservation, Enppi has developed, implemented and maintained EnMS as per the international standard ISO 50001 and became the first company in Egypt acquiring an accredited ISO 50001 certificate.

For every project the company executes, the EnMS covers the following:

- Establishment and implementation of energy policy and objectives
- Consider energy performance improvement opportunities in the Design and Procurement activities
- Energy use/consumption analysis
- Identification of legal and other requirements
- Development and implementation of energy action plan
- Enppi takes an additional responsibility in encouraging customers, suppliers and contractors to consider the EnMS requirements in their activities
- Energy Auditing

Related Services provided by Enppi can be summarized as follows:

- Assist in establishing, implementing and maintaining Energy management systems
- Conduct energy reviews
- Assist in issuing energy baseline
- Assist in establishing energy objectives, targets and action plans
- Assist in issuance of EnPI’s for monitoring and Measuring performance
- Assist in prioritizing opportunities for improvement Through application of new technologies or process Modifications
- Designing and procurement for renewable energy Technologies
- Assist in establishing operational controls.
- Conducting training courses, workshops and awareness sessions
- Conducting energy management system audits
This is to certify that the management system of Engineering for the Petroleum & Process Industries (Enppi) has been found to conform to the Occupational Health and Safety Management System standard: OHSAS 18001:2007. This certificate is valid for the following scope: Project Management, Engineering, Procurement and Construction Management Services for the Petroleum, Process and General Industries.

Place and date: Vimercate, 29th July 2016

For the Issuing Office
DNV GL - Business Assurance
Vimercate (MB), Italy
Vittore Marangon
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.


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Experience
**Kalabsha Development Project**

**Owner**
Khalda Petroleum Company (KPC)

**Contract Type**

**Scope of Services**
Basic & Detailed Engineering and Procurement Services

**Project Description**
Developing the facilities at Kalabsha and overcome the downstream bottlenecking till the receiving point at El Hamra facilities.
- 1\textsuperscript{st} Phase: produce 20,000 BOPD
- 2\textsuperscript{nd} Phase: produce 40,000 BOPD
Kharir Development Project

Owner
Total E&P Yemen

Contract Type
Engineering, Procurement, Construction, Lump-sum Turnkey (EPC) LSTK Consortium with Petrojet (Enppi Consortium Leader)

Scope of Services
Engineering, Procurement, Construction Supervision, Project Management, Commissioning, Start-Up Assistance & Consortium Leader

Project Description
Installation of crude stabilization unit with capacity of 30,000 Barrel per day. The unit includes oil separator, water bath heater, crude storage and export pumps, as well as, supporting utilities. The Project is located in Kharir at Hadramout, 600 Kilometer from Sana’a in Yemen
Safaniya Water Disposal System Upgrade

Owner
Saudi Aramco

Contract Type
EPC LSTK (Main Contractor)

Scope of Services
Engineering, Procurement, Construction, Commissioning & Start-Up and Overall Management

Project Description
Expanding Safaniya Arabian heavy crude and utilities plants to maintain the plants crude oil demand until 2011. New facilities was added to overcome the expected increase of water content from 17% to 35% in Safaniya crude oil by 2011; allowing to increase the maximum sustain rates & water wash from 383 to 805 MBOD:
- 3 Low Pressure Production Trap (LPPT) phase separators – 1053 MBOD separation
- 3 Formation Water Draw-off pumps – 318 MBOD
- 6 Corrugated Plate Interceptors CPI’s – Total rating 364 MBOD
- Formation Water Treatment – Rated by 847 MBOD
- Additional 230 KV electric feeders, Others: Substation / Control System / Utilities

SABAN / JARNOF - AZRAK / MALEH

Owner
Al Furat Petroleum Company

Contract Type
EPC LSTK (Main Contractor)

Scope of Services
Basic & Detailed Engineering, Procurement, Construction, Commissioning & Start-Up

Project Description
Upgrading the maximum production capacity of Saban / Jarnof field to 45,000 b/d and upgrading the production capacity of Azraq / Maleh field from 35,000 to 55,000 b/d and installation of a new 8.4 km - 10” pipeline
**Meleiha Field Development**

**Owner**  
Agiba Petroleum Company (AGIBA)

**Contract Type**  
Lump-Sum for Professional Services, Disbursable for Material Supply and Construction

**Scope of Services**  
Basic & Detailed Engineering, Procurement, Construction, Commissioning & Start-Up

**Project Description**  
Upgrade the existing production facilities to accommodate the additional condensate received from El Obayied Field

**Crude Treatment Plant (Ras Bakr)**

**Owner**  
General Petroleum Company (GPC)

**Contract Type**  
Lump-sum for Professional Services, Disbursable for Material Supply and Construction

**Scope of Services**  
Basic & Detailed Engineering, Procurement, Construction, Commissioning & Start-Up and Overall Management

**Project Description**  
Treatment for oil with a capacity of 50,000 B/D, including water separation and desalination units
Ras Qattara (El Faras) South Field Development

**Owner**
Agiba Petroleum Company (AGIBA)

**Contract Type**
Lump-sum for Professional Services, Disbursable for Procurement and Construction

**Scope of Services**
Basic & Detailed Engineering, Procurement, Construction Supervision, Commissioning, Start-Up and Project Management Services

**Project Description**
Production capacity is 10,000 BBL/D. The project includes pipeline, gathering system, flow station, utilities and storage. Pipeline system includes transfer pumps, pipeline 55 Km, 6 inch to tie-in flow station with BAPETCO.

SUMED Pipeline Throughput Achievement

**Owner**
Arab Petroleum Pipelines Co. (SUMED)

**Contract Type**
EPCM Contractor: Lump-sum for Professional Services, Disbursable for Material Supply and Construction

**Scope of Services**
Basic & Detailed Engineering, Procurement Services, Construction Supervision, Commissioning & Start-Up

**Project Description**
Crude pipeline throughput achievement from 80 to 117 MM T/Y consisting of three areas as follows:
- Ain Sukhna: effluent treatment system (1000 M3/H) expansion
- Dahshour: two new pumping stations (three pumps 8000 M3/H each), site facilities
- Sidi Kreir: three pumps 4000 M3/H each
New Continuous Catalytic Reforming (CCR) Unit

Owner
Alexandria National Refining & Petrochemicals Co. (ANRPC)

Contract Type
Lump-sum: for Engineering and Construction
Cost Plus: for Procurement and Commissioning & Start-Up Services

Scope of Services
Engineering, Procurement, Construction, Commissioning & Start-Up Assistance

Project Description
Increasing the capacity of the existing refinery by building a new Continuous Catalytic Regeneration (CCR) unit with Feed Capacity 540 KTA from the heavy Naphtha & Plat-forming Unit with the relevant Regeneration Unit

Licensor
UOP
Installation of a New Naphtha Hydro Treating Unit

**Owner**
Alexandria National Refining and Petrochemicals Company (ANRPC)

**Contract Type**
EPC Consortium with Petrojet (Enppi Consortium leader)

**Scope of Services**
Enppi consortium leader to perform the required Detailed Engineering, Procurement Services, Construction Supervision and Management, Commissioning and Start-Up Supervision. Petrojet to Perform Construction Activities

**Project Description**
Installation of a new Naphtha Hydro Treating Unit with a capacity of 824,000 metric ton per year treated Naphtha

**Licensor**
UOP

New Vacuum Distillation Unit For Asphalt Production

**Owner**
Suez Oil Processing Company – SOPC

**Contract Type**
Lump-sum: for Professional Services, Construction Supervision and Project Management
Cost Plus: for Procurement Services
Reimbursable Man-Hours: for Commissioning & Start-Up Assistance and Performance Tests

**Scope of Services**
Basic & Detailed Engineering, Procurement, Construction Supervision, Commissioning and Start-Up Assistance and Performance Tests

**Project Description**
Installation of a new Vacuum Distillation Unit (VDU) to produce 1200 ton/day of asphalt by removal of lighter fractions (Vacuum Gas Oils) from atmospheric residue that is produced from the existing atmospheric distillation units which process land Belayim crude or equivalent crude oil
**Coker Plant New Vapor Recovery Unit**

**Owner**
Suez Oil Processing Company (SOPC)

**Contract Type**
Lump-sum: for Professional Services, Construction Supervision and Project Management
Cost Plus: For Procurement Services
Reimbursable Man-Hours: for Commissioning & Start-Up Assistance and Performance Tests

**Scope of Services**
Basic & Detailed Engineering, Procurement Services, Construction Supervision, Commissioning & Start-Up Assistance and Overall Management for the New Vapor Recovery Unit

**Project Description**
Installation of a new vapor recovery unit instead of the demolished existing unit to accommodate the off gases from various gas streams generated by processing units (mainly from coker complex) in addition to a new electrical substation and a new control room.
The new VRU unit design capacity is 200,000 T/Y and will produce:
- Treated LPG  50,000 T/Y
- Untreated fuel Gas (Refinery fuel)  4 MMSCFD
- Stabilized Naphtha  90,000 T/Y
Assiut Grass Root Refinery, 2.5 MM T/Y

**Owner**
Assiut Oil Refining Company (ASORC)

**Contract Type**
EPC LSTK

**Scope of Services**
Enppi performed Front-End Study, Basic & Detailed Engineering, Procurement, Pre-Commissioning & Commissioning and Start-up. Enppi also arranged the project finance from Lloyd's bank, ECGD & SAE

**Project Description**
A grass root refinery 2.5 MM Tons/Year crude distillation unit, vapor recovery unit and LPG, Naphtha caustic wash units and related utilities & offsites

Review The Licensor Documents For New Naphtha Complex Project

**Owner**
Assuit Oil Refining Company (ASORC)

**Contract Type**
Lump-sum for Professional Services

**Scope of Services**
Enppi scope of work is to verify the completion of Licensor deliverables and suitability to initiate the EPC phase. Enppi provided the support services required for (ASORC), during the review / comment / approval of the technical / engineering deliverables prepared by the Licensor (Axens)

**Project Description**
Building a new Naphtha Complex (capacity 660 KTA) high RON Gasoline. This Complex will be fed by Naphtha from the two existing atmospheric distillation units
The Complex will include Naphtha Hydrotreating Unit with Naphtha Splitting (capacity equal to 660 KTA), Light Naphtha Isomerization (capacity equal to 228 KTA), Heavy Naphtha Reforming with CCR units (capacity equal to 458 KTA)

**Licensor**
Axens
**New Vapor Recovery Unit**

**Owner**
Assiut Oil Refining Company (ASORC)

**Contract Type**
Lumpsum: for Engineering, Construction Supervision and Overall Project Management
Cost Plus: for Procurement Services

**Scope of Services**
Basic & Detailed Engineering Services, Procurement Services, Construction Supervision, Commissioning & Start-Up Assistance

**Project Description**
Building a New Vapor Recovery Unit with a feed capacity of 400,000 T/Y to be working in parallel with the existing Vapor Recovery Unit and to serve one of both existing crude distillation units, to finally produce 120,000 T/Y LPG + 260,000 T/Y stabilizing Naphtha

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**Assiut New Crude Distillation Unit, 2MMT/Y**

**Owner**
Assiut Oil Refining Company (ASORC)

**Contract Type**
Lump-Sum for Professional Services, Cost Plus for Procurement & Construction

**Scope of Services**
EPCM Contractor: Detailed Engineering, Procurement, Construction, Commissioning & Start-Up Assistance and Overall Project Management

**Project Description**
Installation of a new crude distillation unit to increase the refining capacity by 2 MMT/Y to produce:
- 516,000 T/Y Diesel
- 283,000 T/Y Naphtha
- 189,000 T/Y Kerosene
- 1,000,000 T/Y Fuel Oil
Light Naphtha Isomerization Plant

**Owner**
Cairo Oil Refining Company (CORC)

**Contract Type**
EPC Turnkey Main Contractor - Maximum Ceil

**Scope of Services**
Basic & Detailed Engineering, Procurement, Construction, Commissioning & Start-Up and Overall Project Management

**Project Description**
Installation of an Isomerization unit with a feed capacity of 1000 T/D to improve the Octane number of light Naphtha

**Licensor**
UOP

Naphtha Isomerization

**Owner**
Amerya Petroleum Refining Company (APRC)

**Contract Type**
EPCM: Lump-sum for Professional Services, Material Supply Disbursable and Construction

**Scope of Services**
EPCM Contractor: Detailed Engineering, Procurement, Construction, Supervision, Commissioning & Start-Up Assistance and Overall Project Management

**Project Description**
Installation of an Isomerization unit with a feed capacity of 500 T/D to improve the octane number of light Naphtha

**Licensor**
UOP
Furfural Extraction Unit Revamp Project

**Owner**
Alexandria Petroleum Company (APC)

**Contract Type**
Detailed Engineering Services

**Scope of Services**
Carrying out the detailed design of the MP Refining Unit Revamp, reviewing and finalizing the P&ID’s with full piping, designations (including pipe specifications, insulation thickness, valve, designations), vendor equipment data and drain points, and reviewing hydraulics system and plot layout to ensure unit performance matches equipment specifications

**Project Description**
Converting the extraction method using Furfural as an extraction solvent to using NMP (Normal Methyl 2-Pyroledone) because NMP is environmentally better than Furfural and NMP chemical characteristics that prefers it as a solvent

**Licensor**
Bechtel
Phenol Extraction Unit Upgrading to MP Refining Project

**Owner**
Amerya Petroleum Refining Company (APRC)

**Contract Type**
Lump-sum for Detailed Engineering Services

**Scope of Services**
Detailed Engineering, Procurement Services, Construction Supervision, Commissioning & Start-Up

**Project Description**
Converting the extraction method using Phenol as an extraction solvent to using NMP (Normal Methyl 2-Pyroledone) because NMP is environmentally better than Phenol, NMP chemical characteristics that prefers it as a solvent and shortage in Phenol production

**Licensor**
Bechtel

New Pre-flash Column System

**Owner**
Middle East Oil Refining (MIDOR)

**Contract Type**
Lump-sum for Engineering Services

**Scope of Services**
Basic & Detailed Engineering, Commissioning and Start-Up Assistance

**Project Description**
Installation of a New Pre-Flash Column to decrease the Load on the Crude fired Heater in order to achieve design Unit throughput during processing Crude Oils with Higher API gravity and/or increase the CDU/VDU Unit-01 capacity to 115% in case of processing Crude Oil with same design API
Provision of Engineering Support Services For ERC Refinery Project

Owner
Egyptian Refining Company (ERC)

Contract Type
Reimbursable Manhours

Scope of Services
Provision of personnel to perform review of technical documentation provided by the company or by other contractors for the project, attend technical review meetings and provide comments, recommendations / reports. in addition to availing site support team

Project Description
Egyptian Refining Company (ERC) is executing Refinery Project with capacity 4.2 million tons of refined products per annum for upgrading Atmospheric Residues of Cairo Oil Refining Company (CORC) on tolling basis by constructing major three new units, Vacuum distillation unit (VDU), Hydrocracker unit (HCU) and Delayed Coker unit (DCU). Middle distillate and Naphtha produced from each unit with the installement of New Naphtha hydro treating unit (NHT) and Distillate hydro treating unit (DHT)
Additionally Reformer including CCR unit to produce reformate will be installed and sulfur recovery unit and toil gas treatment will be installed to recover sulfur from various units and reduce impact on environment. This project includes Utility and Offsite facilities to fully support the new units to process targeted feed and products. Also, integration with existing facilities is considered

Gas Oil & Lube Oil Dewaxing

Owner
Amerya Petroleum Refining Company (APRC)

Contract Type
Reimbursable Man-hours with Maximum Ceiling

Scope of Services
Completion of MOBIL process package up to Basic & Detailed Engineering and Assistance in Commissioning & Start-Up

Project Description
Installation of gas oil dewaxing unit by MDDW / MLDW to process 250,000 T/Y

Licensor
MOBIL research & development
**Spent Lube Oil Re-Refining Project**

**Owner**
Alexandria Petroleum Company, APC

**Contract Type**
EPCM: Lump-sum for Professional Services, Material Supply Disbursable and Construction

**Scope of Services**
EPCM Contractor: Detailed Engineering, Procurement, Construction Supervision, Commissioning & Start-Up Assistance and Overall Project Management

**Project Description**
Spent lube oil re-refining plant 30,000 tons/year feed of spent oil based on KTI Licensor technology, by installation of the following units: gas oil remover, high vacuum distillation, lube hydro-finishing & fractionation

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**Lube Oil Blending Plant**

**Owner**
Misr Petroleum Company (MISR)

**Contract Type**
EPC Turnkey, Lump-sum for Professional Services, Disbursable for Material Supply and Construction

**Scope of Services**
EPC Turnkey

**Project Description**
Installation of a Lube oil blending plant with capacity of 150,000 tons-year (one shift)

**Licensor**
CELLIER know-how
Ethylene Cracker Project

Owner
The Egyptian Ethylene and Derivatives Company (ETHYDCO)

Contract Type
EPC LSTK - JV with TOYO Engineering Corporation

Scope of Services
Detailed Engineering, Procurement, Construction, Pre-Commissioning, Commissioning, Start-up and Performance Testing and Overall Management

Project Description
Installation of 460 KTA Ethylene and 20 KTA Butadiene project at Ameriya in Alexandria, Egypt. The new Ethylene plant is based on LUMMUS project technology

Licensor
LUMMUS Technology
New Polyethylene Plant

Owner
Egyptian Ethylene and Derivatives Company (ETHYDCO)

Contract Type
EPC LSTK - JV with TOYO Engineering Corporation

Scope of Services
Detailed Engineering, Procurement, Construction, Pre-Commissioning, Commissioning, Start-Up and Performance Testing and Overall Management

Project Description
Constructing a new Polyethylene Plant with a production capacity of 400 KTA at ETHYDCO’s Petrochemical Complex in Alexandria. The new Polyethylene Plant utilizes gas phase polymerization technology based on Univation’s license UNIPOL™ PE process technology and comprises two trains of equal capacity designed to produce both Linear Low Density polyethylene (LLDPE) and High Density Polyethylene (HDPE) as well as Bimodal HDPE

Licensor
UNIPOL™ PE
**Polystyrene Plant (EPC Phase)**

**Owner**
Egyptian Styrene & Polystyrene Production Company (E-Styrenics)

**Contract Type**
EPC LSTK Consortium with Petrojet (Enppi Consortium Leader)

**Scope of Services**
Licensor Selection, Review of Basic Engineering, Detailed Engineering, Material Supply, Commissioning, Construction Supervision, Start-Up & Overall Management as Consortium Leader

**Project Description**
Installation of a new polystyrene plant with a capacity of 200,000 tons/year based on INEOS License in addition to supporting utilities, feed & product storage and handling facilities. The plant produces GPPS (general purpose polystyrene) and HIPS (high impact polystyrene)

**Licensor**
INEOS
**UHDE Granulation Plant**

**Owner**
UHDE

**Contract Type**
Lump-sum for Professional Services

**Scope of Services**
Detailed Engineering & Procurement Services

**Project Description**
Fulfilling the granulation process requirements of both Suez Fertilizer Company & Alexandria Fertilizer Company. The granulation process aims to produce 1,200 T/D Ammonia and 1,925 T/D Urea including utilities and off-site facilities.
Early Works For 300,000 MTA Ethyl-Benzene / Styrene Monomer (EBSM) Plant

Owner
Egyptian Styrene & Polystyrene Production Company (E-STYRENICS)

Contract Type
Lump-sum covering all Professional Services provided by Enppi and its subcontractor (Technip Italy)

Scope of Services
This project is considered the early works for the EPC project, where Enppi scope of works is as follows:
- The preparation and the issuance of the basic engineering for the ISBL & OSBL Utilities and off-site facilities
- All Off fence activities including Ethylene pipeline, Benzene unloading pipeline and Benzene unloading facilities
- Technical requisitioning for the critical long lead items (LLI)
- Class 2 Cost Estimate
- Assisting E-STYRENICS to facilitate its contacts with international banks and Export Credit Agencies for the structuring activities related to the financing of the EPC Project

Project Description
Building a 300,000 MTA of Styrene Monomer (SM) plant within the El-Dekhella port site in Alexandria, Egypt. This project shall produce Styrene Monomer based on a technology provided by BADGER

Licensor
BADGER
E-Methanex Damietta Methanol Project

**Owner**
Methanex

**Contract Type**
Lump-sum for professional services

**Scope of Services**
Detailed Engineering Services as Subcontractor – Techint

**Project Description**
Execution of Methanol plant with production capacity of 1.3 Million tonnes per year at Damietta - free zone - Egypt
Project Management Services For Egyptian Propylene Dehydrogenation and Polypropylene Project

Owner
Egyptian Propylene & Polypropylene Company (EPPC)

Contract Type
Lump-sum for professional services - Reimbursable Man-hours

Scope of Services
Project management services on behalf of EPPC, UHDE is the EPC Main Contractor, Enppi scope covers all phases of Engineering, Procurement and Construction

Project Description
Installation of a Petrochemical complex: 350,000 MTA of polymer grade propylene and 350,000 MTA polypropylene (PP) as well as all associated utilities and off-sites
**Egyptian Linear Alkyl Benzene Project (ELAB)**

**Owner**
Egyptian Linear Alkyl Benzene Company (ELAB)

**Contract Type**
EPC LSTK Consortium with GS E&C and Petrojet (GS E&C Consortium Leader)

**Scope of Services**
(PHASE I) Professional Services - License Selection, Basic Engineering based on UOP license
(PHASE II) Professional Services - Detailed Engineering Through Consortium GS E&C Leader / Enppi / Petrojet

**Project Description**
Installation of Linear Alkyl Benzene (LAB) plant with capacity of 100,000 ton per year of linear Alkyl Benzene. The main feeds for the complex are Kerosene / Jet A-1 fuel from Alexandria Petroleum Company (APC) & Ameriya Petroleum Refining Company (APRC), as well as, reformat and Hydrogen from Alexandria National & Petrochemicals Company (ANRPC)

**Licensor**
UOP
Ethylene Plant

Owner
Egyptian Petrochemicals Company (EPC)

Contract Type
Professional Services Reimbursable MHR's

Scope of Services
Preparation of Invitation to Bid and Licensor Selection and Basic Engineering Review

Project Description
An ethylene production plant of capacity 150,000 Mt/Y of polymer grade ethylene at the initial stage, expandable to a production capacity of 300,000 Mt/Y at the final stage. Feed stock is $C_2 / C_3$ gas mix

Polyethylene Plant

Owner
Egyptian Petrochemicals Company (EPC)

Contract Type
Professional Services Reimbursable MHR's

Scope of Services
Tender Package Preparation and Licensor Selection

Project Description
Polyethylene plant with a production capacity of 100,000 Mt/Y polyethylene, of which 80,000 Mt/Y linear low density polyethylene. Another alternative will be to produce 50,000 Mt/Y HDPE and 50,000 Mt/Y LLDPE. The plant is expandable to a production capacity of 200,000 Mt/Y at the final stage. The plant design is based on polymer grade ethylene as a feed stock
Ehtydco's Utilities & Offsites Project For New Ethylene & Derivatives Complex in Alexandria

Owner
The Egyptian Ethylene and Derivatives Company (ETHYDCO)

Contract Type
EPC Main Contractor, Lump-Sum for Professional Services, Disbursable for Procurement & Construction

Scope of Services
Basic & Detailed Engineering, Procurement Services, Construction Supervision, Pre-Commissioning and Commissioning Supervision & Overall Management

Project Description
The Egyptian Ethylene and Derivatives Company (ETHYDCO) executed a Utility Plant to provide the New Ethylene and Derivatives Complex with its requirements of different utilities. The complex and its utility plant are located in Alexandria, Egypt
The Complex comprises the following plants:

- Ethylene Plant 460,000 T/Y
- Polyethylene Plant 400,000 T/Y
- Butadiene Plant 20,000 T/Y
- Polybutadiene plant 36,000 T/Y

ETHYDCO's Utilities and Offsite's plant includes the following:

- Water treatment train (consisting the following units)
  - Micro Filtration
  - Water Desalination
  - Water Demineralization
  - Water Evaporation & Crystallization
  - Sludge Treatment

The Train is fed with 1100 m³/hr consists of filtered water in addition to recycled waste water. The treatment system applies ZLD (Zero Liquid Discharge) concept to maximize reuse of recycled water and minimize the use of fresh water.

- Cooling water system with a capacity of 32,500 m³/hr
- Potable / Utility water systems
- Instrument / Utility / Breathing air systems (compressed air capacity is 13,500 Nm³/hr)
- Emergency Diesel Generator
- Sanitary sewage collection and treatment system
- Drain systems for rain water and chemicals
- Firefighting water system and fire & gas detection and alarm system
Engineering and Procurement Service For GTG and Complex Substation

Owner
The Egyptian Ethylene and Derivatives Company (ETHYDCO)

Contract Type
Lump-Sum for Professional Services and Reimbursable for Commissioning Assistance

Scope of Services
Engineering, Procurement and Commissioning Assistance

Project Description
Installation of a new permanent power plant (PPP) for its complex in Ameriya with a capacity of 70 MW, generated through a simple gas turbine cycle, designed as per manufacturer standard and convertible to a combined cycle scheme

Phase I:
Covering the installation of 70 MW power plant based on simple cycle gas turbines and convertible to combined Cycle Gas Turbines, together with associated ancillaries / utilities

Phase II:
Covering the installation of a new 220KV transformer substation and its connection with the national 220 KV grid

Phase III:
Covering the upgrade of the purchased simple cycle turbines, to work under the combined cycle scheme and all its associated ancillaries / utilities
Yanbu Export Refinery Project Tank Farm Package – SP1

**Owner**
Yanbu Aramco Sinopec Refining (YASREF)

**Contract Type**
EPC LSTK (Enppi Main Contractor)

**Scope of Services**
Enppi: Engineering, Material Supply, Construction (Subcontracted to Several Saudi and Egyptian Companies), Commissioning & Start-Up and Overall Project Management

**Project Description**
Installation of a new refinery with capacity of 400,000 barrel / day. The tank farm package of Yanbu export refinery includes 33 storage tanks with different diameters (12.5 to 120mt), sizing up to 1.2 million barrels and 13 spherical tanks 60,000 barrels each
Yanbu Export Refinery Project Yanbu Site Completion Package - MC4

Owner
Yanbu Aramco Sinopec Refining (YASREF)

Contract Type
Engineering Services L/S, Procurement Cost Plus and Construction Works Unit Rate

Scope Of Services
EPC Main Contractor for Basic & Detailed Engineering, Procurement, Construction and Pre-Commissioning

Project Description
The execution of the site completion, package MC-4 for Yanbu Export Refinery Project (YERP). The project includes the plant roads construction work up to the road marking and traffic signage with a total surface area of roads equal 190,000 sq. meters, construction and concrete lining for storm water ditches and trenches.

The package includes the plant security related items including the inner and outer patrol roads with a total length of 18km, perimeter fences and a K-12 grad Anti-Ram crash barrier and a coastal road of an approximate length of 4km.
Yanbu Export Refinery Project Methyl Tertiary Butyl Ether System (MTBE) Storage Tanks

**Owner**
Yanbu Aramco Sinopec Refining (YASREF)

**Contract Type**
EPC LSTK

**Scope Of Services**
EPC Main Contractor for Basic & Detailed Engineering, Construction and Pre-Commissioning

**Project Description**
Building two new tanks for the storage of MTBE "Methyl Tertiary Butyl Ether" product complete with all the relevant utilities and tie-in with existing facilities
Expansion of Sumed Storage Capacity (6 Tanks)

**Owner**
SUMED

**Contract Type**
EPC LSTK (Enppi Main Contractor)

**Scope of Services**
Detailed Engineering, Procurement, Construction, Commissioning & Start-Up

**Project Description**
Increasing the storage capacity at Ain Sukhna Terminal, SUMED decided to build six new floating roof tanks, each of approximately 1.1 million barrel (175,000 m³) of net working capacity, 110 m diameter which is located adjacent to the existing tank farm and connected to it.
Expansion of Hout Crude Onshore Production Facility

**Owner**
Al-Khafji Joint Operations (KJO)

**Contract Type**
EPC LSTK Consortium with Petroject (Enppi Consortium Leader)

**Scope of Services**
Engineering, Procurement, Construction Supervision, Project Management, Commissioning, Start-Up Assistance & Consortium Leader

**Project Description**
Expanding storage capacity at Hout onshore production facility by installation of additional 4 storage tanks (500 to 80,000 m³ capacity floating and fixed roof), in addition to booster pumps, instrumentation, piping, fire fighting and a new electrical substation
Ethylene and Polyethylene Plants Utilities and Offsite Complex Project

**Owner**
Sidi Kerir Petrochemicals Company (SIDPEC)

**Contract Type**
EPC LSTK

**Scope of Services**
Engineering, Procurement, Construction, Commissioning & Start-Up, Overall Project Management

**Project Description**
The utilities and offsite plant provides SIDPEC’s two new plants (Ethylene and Polyethylene) with fire fighting & cooling water, compressed air and de-mineralized water. Moreover, the complex provides process water treatment.
**Damietta Export Facilities**

**Owner**  
United Gas Derivatives Company (UGDC) (Bp / Eni / Gasco)

**Contract Type**  
EPC Turnkey – consortium (Enppi / Tractebel) – Lump-Sum For Professional Services, Cost Plus Fees for Material Supply and Construction Work

**Scope of Services**  
FEED & Detailed Engineering, Procurement, Construction, Commissioning & Start-Up Assistance

**Project Description**  
Installation of Marine export facilities – cryogenic tank capacity (30,000 m³) for propane storage produced from Port Said NGL process facilities
**Yasref Warehouse Facilities Construction Phase 1**

**Owner**
Yanbu Aramco Sinopec Refining (YASREF)

**Contract Type**
EPC LSTK

**Scope of Services**
Engineering, Procurement, Construction and Overall Management

**Project Description**
The warehouse facility is designed to construct 8000 m² storage area in two different buildings for YASREF material storage purpose. The overall facility plot size is 20,000 m². The facility consists of the following buildings and its required utilities:
- Warehouse-I (3250 m²)
- Warehouse-II (4595 m²)
- Security Guard House and Security Fencing
- Access Roads to warehouse
- Main and Emergency Gates
- Utilities (Power, Potable Water System, Fire Water System, Sewage and Septic Tank)
- Open Yards
Yanbu South Terminal Onshore Facility

Owner
Saudi Aramco

Contract Type
EPC LSTK Main Contractor

Scope of Services
Detailed Engineering, Procurement, Construction, Commissioning & Start-Up

Project Description
Saudi Aramco started to rehabilitate, restore and integrate Al Mu’ajjiz Terminal (AMT) with Yanbu Terminals in order to accommodate the E-W pipeline expansion (7,000 MBD capacity), facilitate Arabian heavy crude oil supply to local refineries (Yasref, Jazan and Jeddah refineries)

Enppi performs following activities related to Terminal, Causeway and Berth areas:

• 10 new buildings (gate house and security buildings).
• Refurbishment of 25 buildings (dining, main control, 6 substations, warehouse, admin. Buildings).
• Telecommunication systems, new security fences, piping bulk material, valves, firefighting and detection work.
• E&I bulk material, cable trays, fiber optic cables, power distribution panels, outdoor lighting system and CP system
Sky Medical Center

Owner
Housing & Social Services Fund for the Petroleum Sector Employees (HSSFE)

Contract Type
Cost Plus

Scope of Services
Design Review, Procurement Services, Construction Supervision, Commissioning and Overall Management

Project Description
Constructing a hospital with 200 beds according to the highest international standards to serve the petroleum sector employees
Petrosport – Katameya Sporting Club

Owner
Petrosport

Scope of Services
Design Development & Construction Supervision

Project Description
The project is comprised of 42 acres of soccer fields, social building, a mosque, a stadium, a squash field, a swimming pool, communal gardens and parking areas
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