



Offshore

Experience & Capabilities

Enppi





Contents

Enppi at a Glance	4
Offshore Engineering Profile	6
Offshore Experience	10
Areas of Expertise	44
Software Applications	52
QEHS Management Systems	56

Enppi at a Glance



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, energy, power and other industries in Egypt, MENA region & Latin America.

Enppi engineers are known for their invaluable expertise and knowhow, and their proficient work conduct is what makes the company's name a world renowned one. At Enppi, we are committed to retaining our engineering experts and talents by providing them with the work environment and support they require to thrive.

Enppi holds a long and pride-worthy track record of success stories in engineering projects that can be mapped across the globe. Our accumulated experience in engineering solutions is the cornerstone of our global reach, and the Enppi name is now internationally recognizable as a professional, efficient and trusted partner.



Shareholders

96.61%

Egyptian General Petroleum
Corporation
(EGPC)

2.12%

Petroleum Projects &
Technical Consultations
Co. (Petrojet)

0.99%

Housing and Social Services
Fund for the Petroleum
Sector's Employees
(HSSFE)

0.14%

Egyptian Natural Gas
Holding Co.
(EGAS)

0.07%

Egyptian Petrochemicals
Holding Co.
(ECHEM)

0.07%

Egyptian Natural Gas Co.
(GASCO)

Offshore Engineering Profile



In 1983, Enppi added Offshore Engineering to its wide range of activities after its initial establishment in 1978. Since then, its experience in this field has been expanding steadily, utilizing the most up-to-date technologies. Enppi offshore design experience covers offshore platforms, topside facilities, loading terminals, subsea pipelines and deepwater projects in the Mediterranean Sea, Red Sea, Gulf of Suez and the Arabian Gulf.

Enppi's spectrum of activities covers all offshore project stages covering feasibility studies, front-end engineering studies, detailed engineering, procurement, construction supervision up to commissioning & start-up, overall project management, and EPC lumpsum turn-key (LSTK) projects.

Enppi offers its services as a Main EPC Contractor, Engineering Contractor or Consultant.

Enppi Offshore Engineering Experience covers:

1. Fixed Platform Structure

- Structural modelling
- Inplace analysis
- Earthquake analysis
- Fatigue analysis
- Boat Impact analysis
- Ultimate Strength analysis
- Loadout analysis
- Transportation analysis
- Lifting analysis
- Launching, Flotation & Upending analyses
- Shallow & deep Foundation design
- Pile Installation analyses
- Weight Control Engineering
- Appurtenances design
- Structural drawings from Basic up to As-built
- Specifications for Material procurement, fabrication & installation
- MTO/MRQ for Structural Steel & platform accessories
- MRQ for Geophysical & Geotechnical surveys
- MRQ for Certifying Authority and Marine Warranty Surveyor
- Construction technical support

2. Topsides Facilities

- Process simulation
- Equipment sizing & specs
- Piping arrangements & isometric drawings
- Instrumentation & control system design
- Electrical engineering
- Equipment layouts
- Loss Prevention
- Mechanical engineering

3. Subsea Pipelines

- Pipeline design criteria
- Pipeline route selection assessment
- Subsea field layout
- Pipeline material specifications
- Pipeline functional specifications
- Functional specifications for deepwater field components (PLET's, PLEM's, etc)
- Pipeline alignment sheets
- Wall thickness assessment
- Stability assessment
- Seabed irregularities & on-bottom roughness assessment
- Free span assessment
- Global buckling assessment
- Pipeline protection assessment
- Risers / spools layouts & stress analysis
- Pipeline MTO's & MRQ's
- Pipeline installation tender package



4. Ports & Terminals

- Site Selection Studies
- Project Management
- Interface Management
- Procurement
- Marine Facilities Planning
- Marine oil terminal assessments/ upgrades
- Marine equipment specifications
- Electrical /Mechanical/Piping / Fire Protection
- Shoreline Impact Assessment
- Design Basis
- Layout Studies including Mooring, Breasting & Fendering Systems
- Dynamic Mooring Analysis (DMA) including Jetty downtime
- Structure and Foundation Engineering
- Waterfront structures design
- Dredging & Reclamation Engineering
- Soil Liquefaction and Slope Stability Studies

5. Naval Engineering

- Naval Lifting Analysis
- Naval Docking Analysis
- Naval Float Over Analysis
- Dynamic Mooring Analysis (DMA)
- Stability Analysis for Marine Units
- Naval Launching / Flotation Analysis
- Scantling Calculations



6. Offshore Platforms Assessment & Rehabilitation Requalification

- Data gathering & data bank generation
- Risk based assessment
- Full structural assessment according to ISO & API standards
- Repairs & mitigation design
- Cathodic protection retrofitting
- Topsides (Facilities / Structure) laser scan
- (AIM) Asset Integrity Management Programs
- Inspection, maintenance and repair (I.M.R.) for existing offshore platforms

7. Deepwater

- Field layout showing all subsea equipment and related appurtenance (flowlines, manifolds, e-trees, jumpers, connectors, umbilicals, SDA's, PLET's, UTA's & flying leads, etc...)
- Pipeline routing
- Umbilicals routing and approaches
- Pipelines & jumpers design
- Installation engineering
- Subsea structures & foundation design
- Loadout & Transportation design
- Construction support
- Instrumentation & control engineering
- Electrical engineering
- Technical evaluation for subsea equipment & related appurtenances
- Technical support for offshore installation engineering

Offshore Experience

Local projects

Nwo platform 2018 -2019

Client

Petrosalam Company



Project Description

Installation of well supporting structure (5 Slots) in water depth 64 m, unmanned deck with minimum topside facilities (Manifold, interconnecting piping, future separator, two pig launchers and, two pig receivers, chemical kid, open drain and future closed drain) which will work with the assistant of the facilities on a rental Jack-up rig. In addition to two new 5" coiled tube subsea pipelines to connect between Northwest October (NWO) Field in the middle of Gulf of Suez and the nearest onshore facilities at North Amer. The new two 5" subsea pipelines (each about 22 km long) shall transport the multiphase products from NWO wells supporting structure to landfall points near to North Amer onshore facilities

Contract type

EPC LSTK - Consortium with petrojet

Scope of Services

Engineering, Procurement, Fabrication, Installation, and Commissioning Supervision & Start-Up Assistance



Zohr field development project - offshore control platform - phase I 2016 -2019

Client

Belayim Petroleum Company (Petrobel) (Eni Egypt / EGPC)



Project Description

The project aims to construct an offshore control platform with a weight of 2000 tons serving Zohr Field development Project; which will be installed 65 km from the coast and 160 km of the production facilities at a water depth of 85 meters.

Contract Type

Lump-sum for Technical and Procurement Services and Site Technical Assistance

Scope of Services

Detailed Engineering and Procurement Services for equipment and materials on the top of the platform in addition to the technical assistance during the construction phase



Baltim south west development project
2017 -2019



Client
Belayim Petroleum Company (Petrobel) (Eni Egypt / EGPC)

Project Description
The project aims to install new production platform in addition to new 26” multiphase pipeline connecting between Baltim concession in the Mediterranean Sea and Abu-Madi plant.

Contract type
Lump-sum

Scope of Services
Detailed engineering for the topside facilities of BSW Platform in addition to new 26” multiphase subsea pipeline (about 18 km) connecting between Baltim concession in the Mediterranean Sea and Nidoco-11 area, up to IFC revision, vendor print review and As-built drawings
Procurement services, expediting and inspection up to RFS issuance “PTB will carry out the scope of commercial evaluation and FOA issuance



Two new platforms at nao & hh fields
2016 -2018



Client
General Petroleum Company (GPC)

Project Description
The project aims to construct two new Offshore Platforms at NAO and HH fields with production capacity of 9,500 BPD at Gulf of Suez, The production from the new (NAO & HH) Platforms will be transferred directly to existing (AMER-8) Platform via new 6” Pipeline 8 km long.

Contract Type
EPC LSTK - Consortium (Enppi-Petrojet-PMS)

Scope of Services
Engineering, Procurement, Fabrication and Installation of Two new Offshore Platforms & offshore pipeline and Pre-Commissioning, Commissioning and Start Up works

Dnnw1 subsea hot tapping piping system & protection cover 2014 - 2015

Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract type

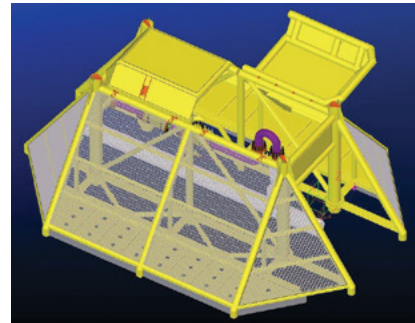
Lump Sum for professional services

Scope of Services

Detailed engineering and procurement services for the subsea hot tapping piping and protection cover.

Project Description

The project aims to the tie-back of the DNNW1 subsea well into the existing 24" TNW2 pipeline through a hot tapping clamp.



Global structural integrity assessment for Gupco platforms 2013 - 2014

Client

Gulf of Suez Petroleum Co. - GUPCO (Bp Egypt / EGPC)

Contract type

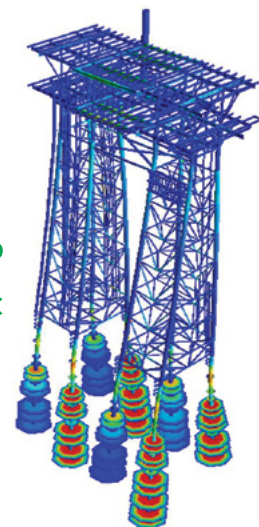
Lump-sum.

Scope of Services

Engineering.

Project Description

The project aims to perform full structural integrity assessment for GUPCO fleet (121 platforms) based on risk assessment categorization. Project execution will be based on two phases; Phase-1 will focus on risk identification for GUPCO fleet and selection of critical platforms intended for structural assessment, Phase-2 will focus on performing non-linear structural analysis for pre-selected platforms and evaluate selected structures robustness.



Deka (denis- karawan) subsea field development 2012 - 2014

Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract type

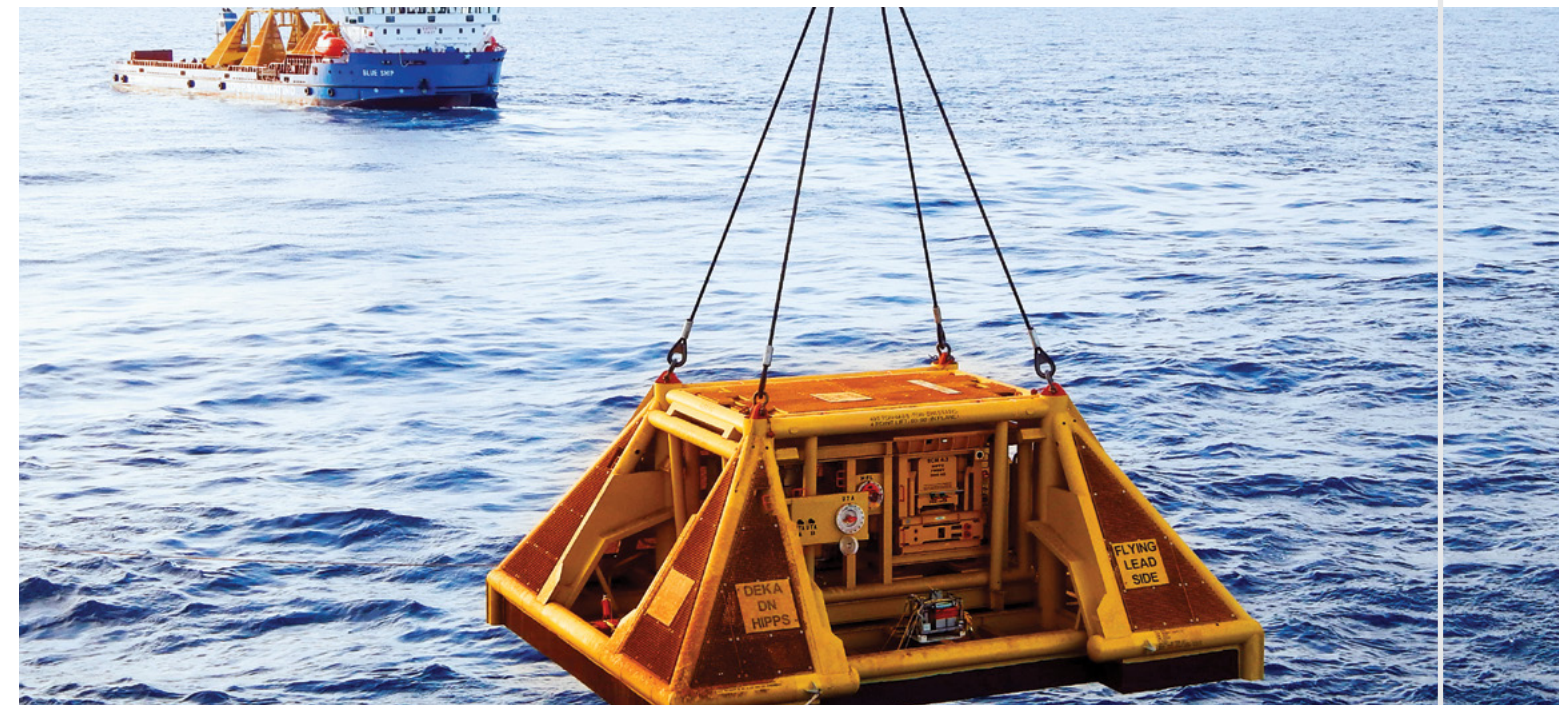
Lump-Sum for professional services

Scope of Services

Technical Support and issuance of technical evaluation report for project equipment suppliers

Project Description

To develop Denis and Karawan areas by drilling five new wells and collecting the produced gas by PLEMs, and protecting the pipelines using HIPPS, and controlling the wells throw umbilicals, utilizing Subsea X-mas tree technology.



Basic & detailed engineering of new 22km 16" sealine joining naq p-2 with main p-1 platform
2012 - 2013

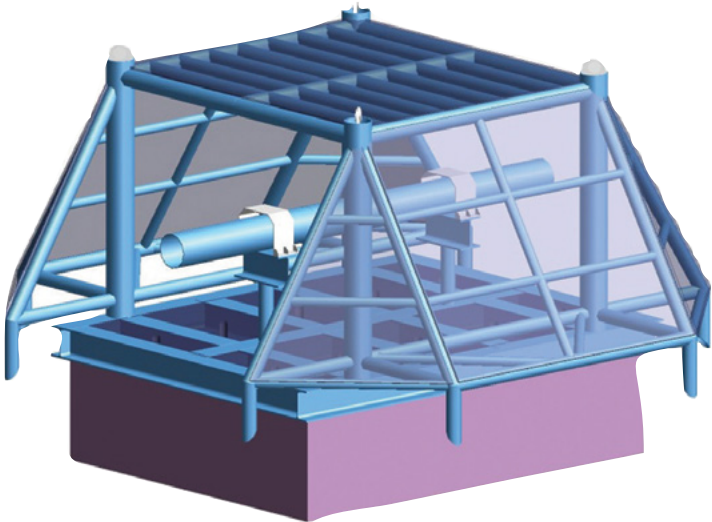


Client
Abu Qir Petroleum Company

Contract type
Lump-sum.

Scope of Services
Engineering Services.

Project Description
The project aims to provide detailed engineering for two 16" pipelines 22km & 2.7km to connect between NAQ-P2, NAQ-P3 & Main P-1 platforms, equipped with two subsea valves, supported with two subsea skids and provided with protective structures.



New nazzazat jetty at belayim area
2012

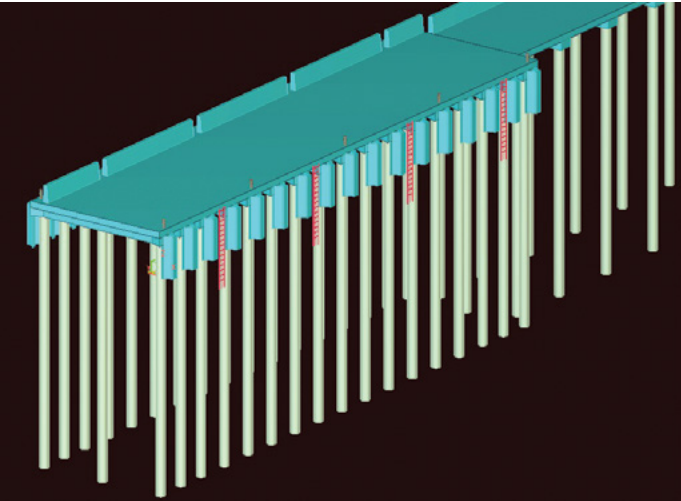


Client
Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract type
Lump sum for professional services

Scope of Services
Basic and detailed engineering for the new jetty and the new building, procurement services for geotechnical investigation Survey

Project Description
The project aims to replace the aged damaged jetty in Nazzazat Belayim area with a new 250m long jetty, in addition to construction of a new accommodation building at the jetty entrance.



M-7 & m-5 platforms structural Re-assessment
2012



Client
Gulf of Suez Petroleum Co. - GUPCO (Bp Egypt / EGPC)

Contract type
Lump-sum for professional services.

Scope of Services
Engineering Services.

Project Description
Structural integrity assessment for the AS-IS condition of Morgan-7 & M-5 platform including performing in-place and boat-impact analysis and accordingly coming up with some proposals for the mitigation actions required for the strengthening studies.



M-15 platform structural re-assessment 2012

Client

Gulf of Suez Petroleum Co. – GUPCO (Bp Egypt / EGPC)

Contract type

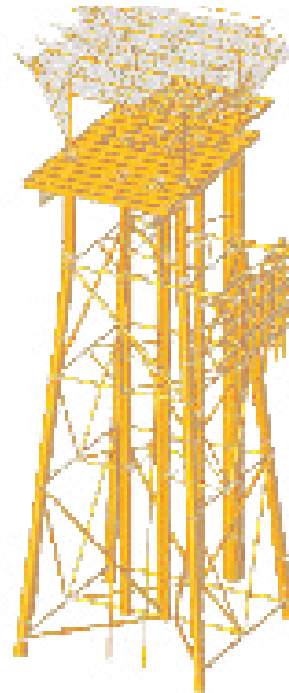
Lump-sum for professional services.

Scope Of Services

Engineering Services.

Project Description

Structural integrity assessment for the AS-IS condition of Morgan-15 platform including performing in-place and boat-impact analysis and accordingly coming up with some proposals for the mitigation actions required to the strengthening studies.



Morgan-6 2011-2012

Client

Gulf of Suez Petroleum Co. – GUPCO (Bp Egypt / EGPC)

Contract type

Lump-sum.

Scope Of Services

Detailed engineering.

Project Description

The project is splitted into two phases; the first phase is to assess the structural integrity of the platform and come with recommendations to strengthen the platform, the second phase aims to conduct a detailed engineering for the selected strengthening scenario.

Seth offshore development 2011-2012

Client

Belayim Petroleum Company - PETROBEL
(Eni / EGPC)

Contract Type

EPC LSTK – Consortium (Enppi, Petrojet and Tecnomare).

Project Description

SETH Offshore Development project is located at Ras El-Barr concession in the Mediterranean Sea at a water depth of 83 m, and contains well production facilities and necessary topside facilities of control, electrical, telecommunication, mechanical, piping, safety, living, etc.

Scope of Services

Detailed engineering for topside facilities, Procurement Services and material supply and assistance for commissioning & Start-up.



Hilal platform 2010 - 2011



Client

Gulf of Suez Petroleum Co. – GUPCO (Bp Egypt / EGPC)

Contract Type

Reimbursable cost & cost plus for Materials

Scope of Services

Detailed engineering and procurement services.

Project Description

The project comprises a new offshore platform (Hilal B) to replace the existing Hilal GH-404 platform. The new Hilal B platform is designed as an unmanned, nine-slots (4 legged) platform.



International projects

Global re-assessment of structures in mm & bh fields - phase II project 2009 - 2010

Client

Qatar Petroleum (QP)

Contract Type

Lump-sum for professional services.

Project Description

The re-assessment of the platforms structures consisting of the following:

- 15 Platforms
- 27 Connecting bridges
- 6 Support jackets
- 3 Satellite platforms
- 50 Wellhead platforms
- 4 Flare platforms

PACKAGE 1 PS-2 PRODUCTION STATION

- 8 Platforms
- 11 Connecting bridges
- 3 Bridge support jackets
- 2 Fare platforms

PACKAGE 2 PS-3 PRODUCTION STATION

- 7 Platforms
- 11 Connecting bridges
- 3 Bridge support jackets
- 2 Flare platforms
- 1 Wellhead Platform

PACKAGE 3 SATELLITE & WELLHEAD PLATFORMS

- 3 Satellite platforms
- 49 Wellhead platforms
- 5 Bridges

Scope of Services

Engineering services.



Amer-8 platform and related onshore & offshore facilities development project 2008 - 2013

Client

General Petroleum Company (GPC)

Contract Type

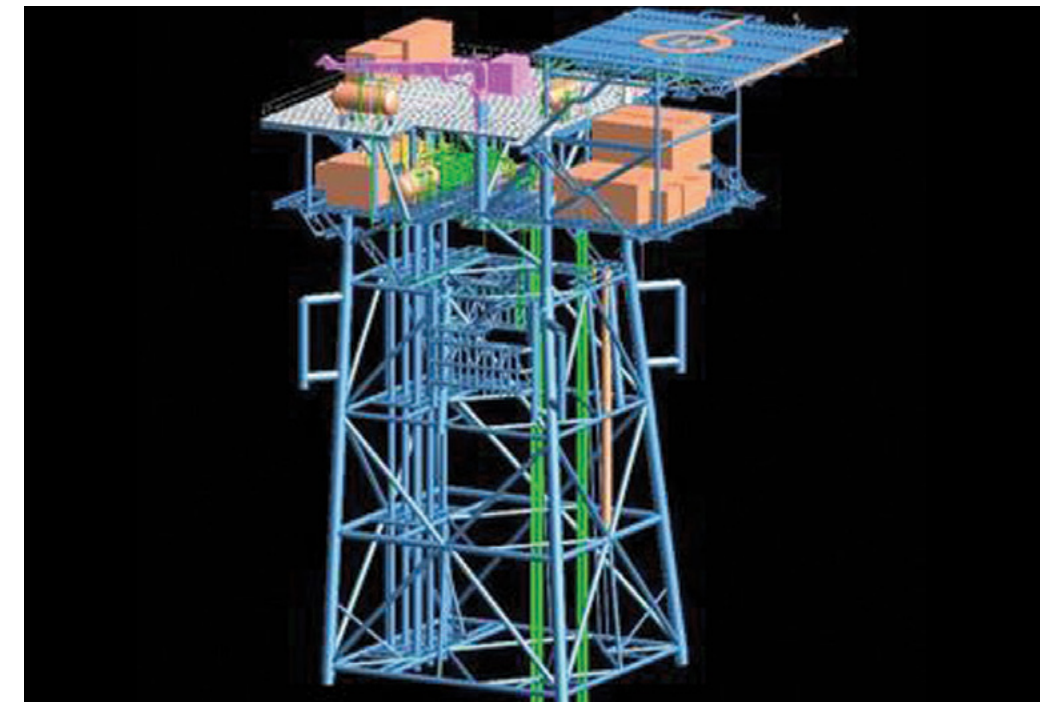
Lump-sum EPC – Consortium (Enppi/Petrojet/PMS) - Enppi Leader

Scope of Services

Engineering, procurement services and construction.

Project Description

The project aims to install a 4 legged, six-slot production platform with 1,100 tons lift weight at 24 m water depth. The production capacity is 10,000 BPD. The platform is designed to support two risers and two J-tubes. The platform is equipped with Bell 412 helideck.



Tuna field development 2008 - 2010



Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract Type

EPC LSTK - Consortium of Enppi, Technomare and Petrojet.

Project Description

The project aims to develop Tuna field at the Mediterranean Sea by installing a new platform (4-legged platform approx. 81m of water) and connecting pipelines (24" subsea pipeline approx. 15km from Tuna platform to existing Denise-A SSIV and 32" P/L to onshore plant) to support the production of 4.5 MMSCFD.

Scope of Services

Detailed engineering, procurement services for subsea pipeline and material supply of topside facilities.



North idku development project 2008 - 2010



Client

Suez Oil Company – SUCO (RWE / EGPC)

Contract Type

Lump-sum for professional services.

Scope of Services

Engineering services for the platform structure and topside facilities including issuance of MRQs and participation in technical evaluation.

Project Description

The project aims to provide Engineering & procurement services for platforms at NI-P1 & NI-P2 located at approximately 30km East of Alexandria-Egypt, and at water depths of 59m & 73m respectively.



Northwest october field development 2008 - 2009



Client

Arabian Oil Co. Ltd. (AOC)

Contract Type

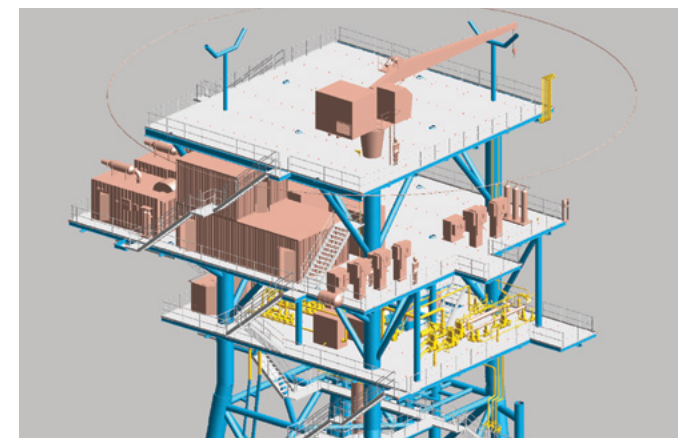
Lump-sum for professional services.

Scope of Services

Front End Engineering Design (FEED).

Project Description

The project aims to develop a single six-slot platform with ESP, 8" multiphase pipeline, 6" water injection pipeline and onshore receiving facilities at Gulf of Suez. Expected production rate is 6,000 BOPD. The onshore receiving facilities will have a three-phase production separator, metering equipment and onshore control room. The separated fluids will be further treated onshore.



North bardawil development 2007 - 2008



Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract Type

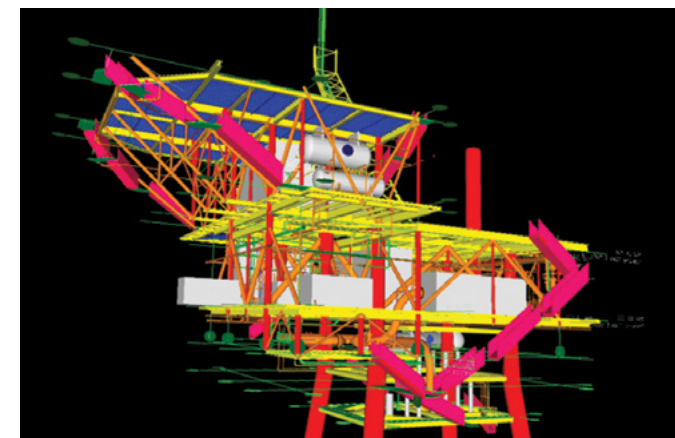
Lump-sum for professional services.

Scope of Services

Basic engineering review, detailed engineering and project management.

Project Description

Upgrade Barboni Platform (topside & structure) to accommodate the new gas production of Assad and Zaraf fields, including a new sub-sea system, umbilical, control and subsea pipeline tied from Assad & Zaraf to Barboni Platform, 14" 25km.





Al-khafji field development phase 1, offshore facilities 2006 - 2010



Client

Al-Khafji Joint Operations (KJO)

Project Description

The Field Development Plan (FDP) for the Khafji field has been developed to maintain maximum sustainable capacity (MSC) of 300,000 BPD of crude oil per calendar day from the field by optimizing the production scheme based on artificial gas lift and ESps. The MSC will be achieved through implementation of FDP phase-1 Oil and Gas Project which involves the following scope for offshore structures:

Scope of Services

Enppi: Engineering, material supply, overall management, construction supervision, & commissioning & start-up. Installation of 6 new platforms, 7 flare tripods & 6 bridges (total weight of structural steel used is approximately 10500 MT), 110 km subsea pipelines of 42", 36", 28" and 24" diameter, 34 km submarine

cables. Flow station Y1b Platform (4 legged)

- Water depth 31.4 m
- Jackets lift weight 580 MT
- Topside lift weight 2600 MT
- Equipped with a bell 212, 214 & 412 ready helideck
- Designed to support 15 risers (12" & 24")

Flow station Y2B platform (6 legged)

- Water depth 25.1 M
- Jackets lift weight 635 MT
- Topside lift weight 3200 MT
- Equipped with a bell 212, 214 & 412 ready helideck
- Designed to support 27 risers (12" & 24")

Integrated well head platform IWJ-5 (4 legged)

- Water depth 27.5 M
- Jackets lift weight 460 MT
- Topside lift weight 630 MT

Power distribution platforms PDP-1, PDP-2 & PDP-3 (4 legged)

- Water depth varies between 29.6 m & 31.8 m
- Topside lift weight 345MT approximately
- Designed to support from 7 to 11 J-Tubes
- Jackets lift weight 420 MT approximately

Flare tripods (QTY7) supporting 4 flare bridges

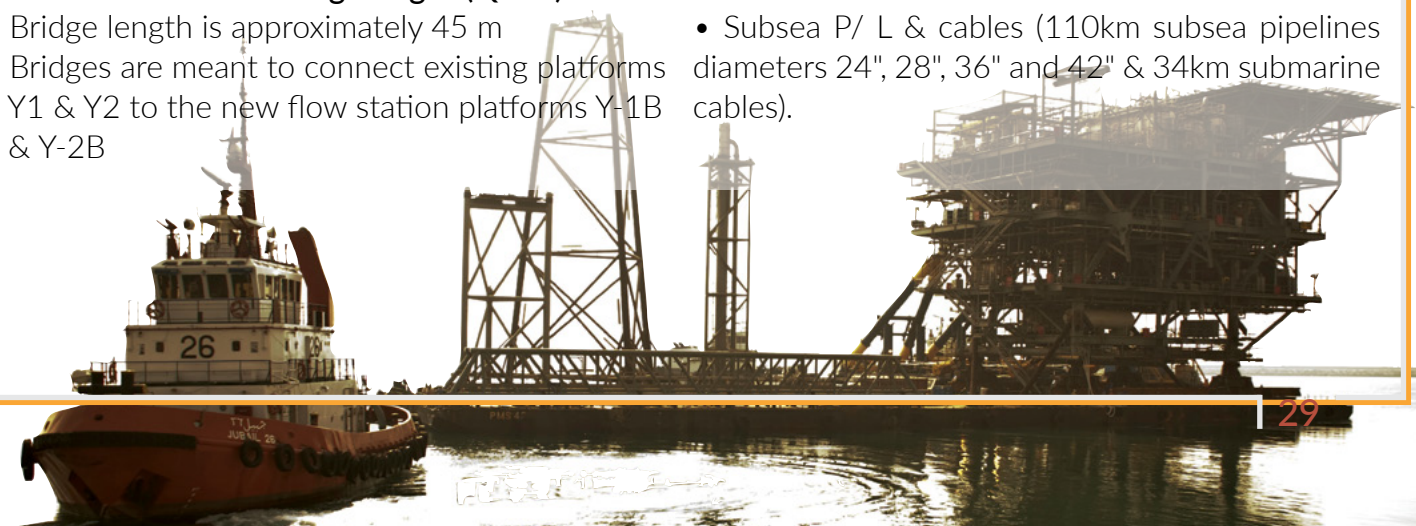
- Tripod water depth varies between 26.1 M & 31.2 m
- Bridges lengths vary from 50 m to 120 m

Platforms interconnecting bridges (QTY2)

- Bridge length is approximately 45 m
- Bridges are meant to connect existing platforms Y1 & Y2 to the new flow station platforms Y-1B & Y-2B

Modification of several existing platforms

- Modification on existing Y1 platform and Y2 platform to support the interconnecting bridges with the new platform.
- Modification on existing flow station Y3 Platform to support new risers and to provide deck extensions for new pumps, new launcher and extending supervisory room.
- Modification on existing flow station Y4 platform to support new risers and to provide deck extensions for new pumps, new launcher and extending supervisory room.
- Modification on the existing utility platform (UTP) platform to extend the deck to accommodate a new power module of (20x5x4.5)m.
- Modification on the gas lift station platform GLS platform to support 7 new J-tubes for new submarine cables and deck extensions for the new junction boxes.
- Modification for 19 wellhead platforms (TS and NR platforms) to support new J-tubes and junction boxes for new submarine cables.
- Subsea P/ L & cables (110km subsea pipelines diameters 24", 28", 36" and 42" & 34km submarine cables).



Denise platform 2006 - 2008

Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract Type

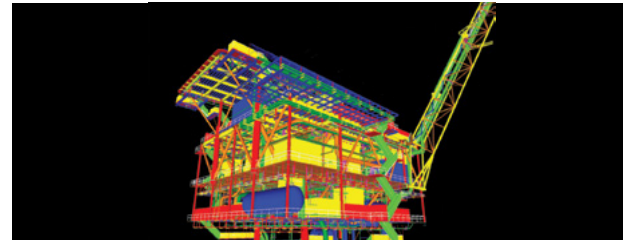
Lump-sum for professional services.

Scope Of Services

Basic & detailed engineering and procurement services.

Project Description

Upgrade TNW2 existing platform to suit Denis gas field production, transmit additional capacity to onshore via 61km 32" offshore pipeline and 1km 32" onshore, and upgrade El Gamil onshore facilities.



Semman development project 2006 - 2008

Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract Type

Professional services reimbursable.

Scope Of Services

Basic engineering review, detailed engineering and procurement services.

Project Description

Installation of new Semman platform (tripod plus deck) & laying of new 18" sea line from Semman to existing Darfeel platform with total length 20km.



Gupco rehabilitation project 2005 - 2017

Client

Gulf of Suez Petroleum Co. – GUPCO (Bp Egypt / EGPC)

Contract Type

Professional services and cost plus for material & subcontracts.

Project Description

Rehabilitation of Gupco offshore facilities including steel structural platforms, topside facilities and subsea pipelines. The offshore facilities consist of 9 complexes & 69 satellites (with an overall count of 119 platforms and 400 wells) and 1600 km of subsea pipelines. The aim of the overall rehabilitation project is to ensure that the whole system could safely operate for an additional 25 years at least, maintaining the best possible operating conditions and capacities.

A qualitative risk-based approach had been followed for the 119 platforms in order to evaluate the hazard of structural failure.

Scope Of Services

EPCM: basic & detailed engineering, procurement services and construction management.



Temsah - 4 platform 2005 - 2007

Client

Belayim Petroleum Company - PETROBEL
w(Eni / EGPC)

Contract Type

Lump-sum for professional services.

Scope Of Services

Basic & detailed engineering and procurement services.

Project Description

The project aims to install 4 legs, 12-Slot unmanned fixed offshore production platform at 85m water depth with a capacity of 10 MMSCMD gas plus 3000 BBLD condensate, cable with fiber optical bundle.



North Sinai field development 2005 - 2007

Client

North Sinai Petroleum Company - NOSPCO
(BP/Gasco /Perenco)

Contract Type

Lump-sum for professional services and disbursable for material supply.

Scope Of Services

Detailed engineering for offshore topside facilities and onshore central processing facility, construction supervision, and procurement services except for pipelines and offshore structure steel.

Project Description

Development of Tao offshore gas field, 60km North of Rommana 130 MMSCFD including offshore production wells, production platform, submarine P/L, onshore gas treatment plant and sales gas P/L.



Baltim-nw2 platform 2003 - 2005

Client

Belayim Petroleum Company - PETROBEL
(Eni / EGPC)

Contract Type

Lump-sum for professional services.

Scope Of Services

Basic & detailed engineering and procurement services.

Project Description

12-slots RULE platform with a capacity of 10 MMSCMD Gas.

Gas, water & condensate are transmitted onshore through 24", 10" and 4" & sub-sea PLEM-2Km distance.

Alhamd platform 2005 - 2007

Client

General Petroleum Company (GPC)

Contract Type

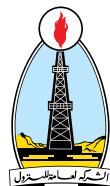
EPC Main Contractor, lump-sum for professional services, construction and offshore fabrication works and disbursable for material supply.

Scope Of Services

Basic & detailed engineering, procurement services, construction, offshore fabrication works, commissioning & start-up & overall management.

Project Description

The project aims to install 1000 tons well head platform at 37m water depth with a capacity of 12,000 BPD crude oil. Production is transmitted onshore through an 8" pipeline and submarine power cable at Ras Bakr.



Barboni platform 2003 - 2005

Client

Belayim Petroleum Company - PETROBEL
(Eni / EGPC)

Contract Type

Lump-sum for professional services.

Scope Of Services

Basic & detailed engineering and procurement services.

Project Description

The project aims to install a new platform at 91m water depth with a capacity of 4.4 MMSCMD. Gas is transmitted to Noras PLEM through a 26" subsea pipeline.



Baltim-n platform 2003 - 2005

Client

Belayim Petroleum Company - PETROBEL
(Eni / EGPC)

Contract Type

Lump-sum for professional services.

Scope Of Services

Basic & detailed engineering and procurement services.

Project Description

The project aims to install 4 legs 9-slots tubular steel frame jacket, and a fixed offshore production platform with a capacity of 4.7 MMSCMD Gas. Gas & Condensate are directed to Baltim east existing platform through an 18" Pipeline.



Rashid-2 platform project 2003 - 2004

Client

Rashid Gas Company - Rashpetco (BG / Edison / EGPC)

Contract Type

Lump-sum for professional services.

Scope Of Services

Basic & detailed engineering and procurement services.

Project Description

The project aims to install 4 legged unmanned steel jacket platform located at Rosetta 49m water depth with a capacity of 275 MMSCFD, weight 450 tons. Gas is transmitted through a 24" sub-sea pipeline to the onshore terminal for final processing, along with 3(1X70 mm²) XLPE 12/20 KV 61Km submarine cable with optical fiber bundle.



Simian/sienna control platform 2002 - 2004

Client

Burullus Gas Company (BG / Petronas / EGPC)

Contract Type

Lump-sum (Subcontract services to Technip).

Scope Of Services

Engineering for the platform structure & topside facilities, in addition to platform control system.

Project Description

Development of the Simian/ Sienna field through deep water subsea facilities, tied back to the existing Scarab / Saffron offshore pipeline system - control platform - upgrading / modification onshore gas plant facilities.



West akhen field development 2001 - 2003



Client

Gulf of Suez Petroleum Co. - GUPCO (Bp Egypt / EGPC)

Contract Type

Lump-sum for professional services.

Scope of Services

Detailed engineering, construction support engineering and installation analysis for the offshore platform structure (jacket - with launching configuration - deck, piles & appurtenances) plus three subsea pipelines.

Project Description

Installation of 6-slot 4-pile fixed offshore platform at 82m water depth in the Mediterranean Sea with one full deck producing 80 MMSCFD gas plus 4500 B/D condensate & installation of 3" glycol, 6" condensate and 14" gas subsea pipelines connecting West Akhen.



West delta deep marine concession scarab / saffron development project 2000 - 2003



Client

Burullus Gas Company (BG /Petronas/EGPC)

Contract Type

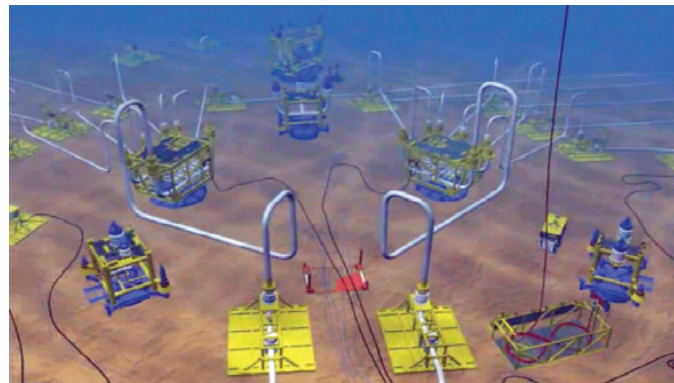
Reimbursable man-hours.

Scope of Services

FEED scope by INTEC supported by Enppi engineering specialists (pipeline, instrumentation and offshore structures).

Project Description

Development of the deep marine Scarab / Saffron field located 90km offshore the West Delta Coast to produce 600 MMSCFD of Gas. The Production is transmitted through two P/L systems to onshore long distance subsea tieback.



Rosetta field development 1998 - 2000



Client

Rashid Petroleum Company (Rashpetco)

Contract Type

Lump-sum for basic & detailed engineering & reimbursable for construction supervision & commissioning & start-up assistance.

Scope of Services

Basic & detailed engineering, procurement services, construction supervision & commissioning & start-up assistance.

Project Description

The project aims to install an offshore production platform with a capacity of 275 MMSCFD. Gas is transmitted through a 24" gas subsea P/L 67 km to onshore terminal.



**A/q offshore gas compression
(utility modules)
1993 - 1995**



Client
Western Desert Operating Petroleum Co. - Wepco (IPR - EGPC)

Contract Type
Lump-sum.

Scope of Services
Detailed engineering of topsides, structural modifications and procurement services for the utility/process modules.

Project Description
Installation of two new gas compression platforms, A/Q P1-C and A/Q P2-C. The platforms are connected through a bridge to the existing P1 & P2 platforms at water depth 20m. The platforms support two turbo compressor trains & associated process and utility topside facilities.



**Sidky b platform topside facilities
1992 - 1993**



Client
Gulf of Suez Petroleum Co. - GUPCO (Bp Egypt / EGPC)

Contract Type
Lump-sum.

Scope of Services
Detailed engineering for topsides including:

- Supply of material & equipment
- Commissioning & start-up assistance

Project Description
Topside facilities to produce 10,000 B/D of crude oil & 24 MMSCFD of associated gases.



**A/q phase ii topside facilities
1990 - 1992**



Client
Western Desert Operating Petroleum Co. - Wepco (IPR - EGPC)

Contract Type
Lump-sum turnkey.

Scope of Services
EPC turnkey, detailed engineering of topsides, structural modifications of existing platform, weight control, procurement services, load out of fully equipped deck and commissioning & start-up.

Project Description
Installation of a new production platform (six legged) at water depth of 35m. The platform is equipped with process and utility facilities for 150 MMSCFD and connected to the existing platform through a 45m bridge.



**Ras ghara production facilities
(phase I-II)
1990 - 1992**



Client
Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract Type
Reimbursable.

Scope of Services

- Techno Economic Study (Phase I)
- Project Management (Phase II)
- Inspection Services (Phase II)

Project Description
Ras Ghara oil field development to produce 10,000 BSD, comprising:

- Offshore platform & topside facilities
- On/offshore launching / receiving traps
- Onshore production facilities, utilities & power generation
- 104km onshore transfer pipeline toPetreco area
- 6"/10" 3km sub-sea pipeline
- Tie-Ins to the existing storage facilities



Repair of belayim offshore installations 3-phase project

1989 - 1992

Client

Belayim Petroleum Company - PETROBEL (Eni / EGPC)

Contract Type

Reimbursable for Phase 1 & lump-sum for Phase 2 & 3.

Scope of Services

Detailed engineering including structural analysis assessment, repair work, long term inspection plan, maintenance & repair program, tender package preparation, technical bid evaluation, construction supervision, repair work interventions and budgetary cost estimate.

Project Description

1st Phase: Data bank generation & cathodic protection retrofitting for 40 of Belayim offshore installations and repair intervention of 13 installations, including 3 platforms and 10 templates.

2nd Phase: Structural re-qualification and repair intervention for 7 installations including 3 platforms, 1 cluster and 3 templates.

3rd Phase: Structural re-qualification & repair intervention for 23 installations including 5 platforms, 4 clusters and 13 templates.



Gemsa crude field development

1990 - 1991

Client

Badr Eldin Petroleum Company – Bapetco (SHELL / EGPC)

Contract Type

Reimbursable.

Scope of Services

Basic & detailed engineering of jacket, decks, topsides & subsea pipelines.

Project Description

Installation of prefabricated deck on the existing piles

- 8", 12km subsea pipelines



North amer offshore platform

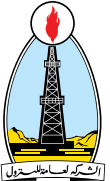
1986 - 1987

Client

General Petroleum Co. (GPC)

Contract Type

Lump-sum for professional services.



Scope of Services

Basic & detailed engineering of jacket, deck & topsides, in addition to sea bed survey and soil investigation.

Project Description

Two offshore wellhead platforms at water depths 62m and 64m, topside includes work over rig, suction pump, pig launcher manifold, X-MAS trees and power generation package.



A/Q phase II offshore gas production

1983 - 1985

Client

Western Desert Operating Petroleum Co. – Wepco (IPR – EGPC)

Contract Type

Reimbursable.

Scope of Services

Project management including construction management, supervision and start-up services.

Project Description

Installation of a six legged production platform (P2) at 20m water depth; Platform production capacity is 125 MMSCFD, to be transmitted onshore through 20 km subsea pipelines.



Areas of Expertise

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 & 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 Solid handling designs, covering:

- Solids Conveying, Transport, Storage and Processing Systems in the fields of Chemical, Petrochemical, Mining and Mineral Processing Industries
- Cranes

HVAC systems design and engineering works, covering:

- Industrial Applications such as control, switch-gear, battery, laboratory, warehouses and workshop buildings.
- Administration buildings.

Electrical Engineering

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

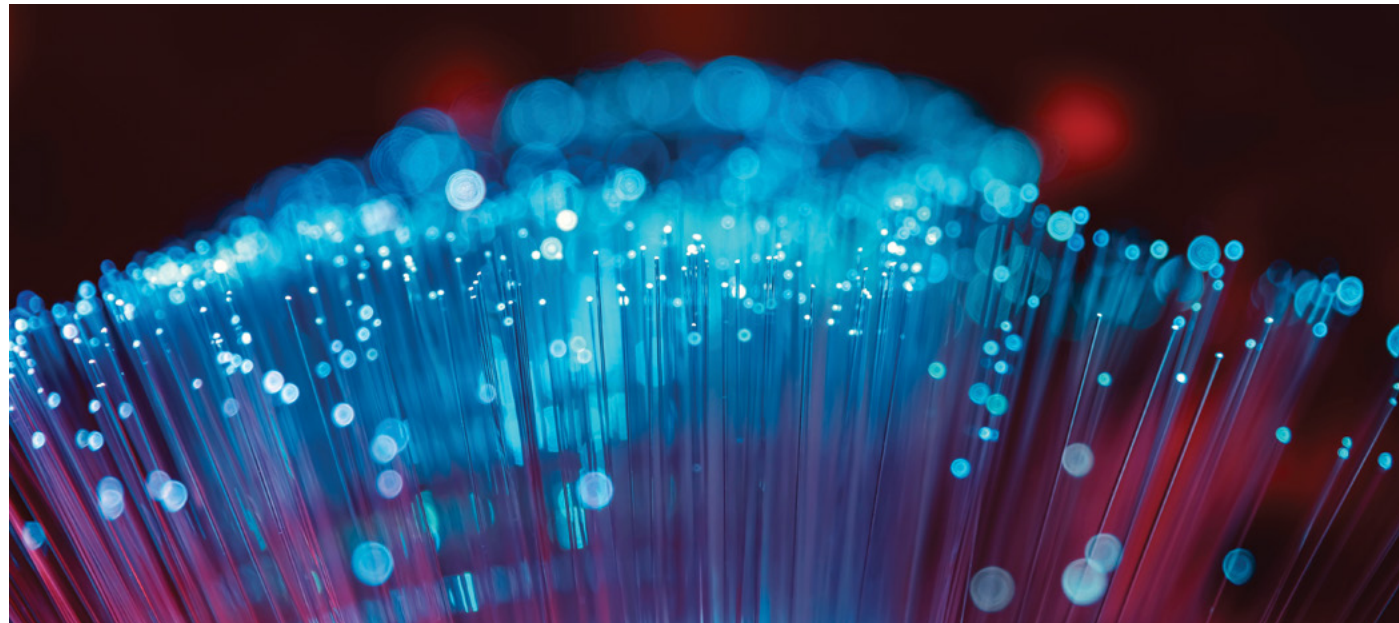
- Power generation and distribution
- Electrical systems analytical studies
- Relay coordination studies
- Overhead transmission lines design
- UPS systems
- Solar power units
- Plant power distribution & cabling systems
- Lighting systems
- Lightning protection facilities
- Navigational aid systems
- 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 Instrumented 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 Engineering

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 & subcontracts administrations
- Supplier quality surveillance
- Material Logistics
- Material control on site



Enppi's supply management services leverage today's technologies & 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



Software Applications

The latest software programs have been widely used in Enppi to optimize the efficiency of the different disciplines' processes.

Offshore Software Programs

SACS	USFOS
SMART 3D	PLAXIS
SESAM MARINE	TEKLA
E3D	GRLWEAP
ANSYS	

Mechanical Engineering Program

Cadna	Pv Elite
Compress	Signal Ffs
E-Tank / ITS	Solid Works Simulation

Process Technology Programs

DNV Phast	Pipeline Studio
Smart plant P & ID "Intergraph"	OLGA
Flare Net	Pipenet
Flare Sim	Pipephase
Fri	Pipesim
Hextran	Process Eng. Suite (Pes)
HTRI	Sil Core
Hysys	Smart Plant P & Id
Network Inplant	Primatech

Civil / Structural / Architectural Engineering Programs

Afes	Pds 3d (Frameworks Plus)
Arch	Safe
Autodesk Revit	sap 2000 V15.0.1
Etabs	Staad Pro

Electrical Engineering Programs

ETAP 12.0.0 Electrical Transient Analyzer Program	Smartplant® 3D Cable Management Interface
PLS-CADD and PLS-Pole	Micro-Station
DIALUX	Oracle and Electrical Cable Sizing
PDS	Electrical Load Analysis (ELA)
PDMS	

Subsea Software Programs

FLEXCOM	USFOS
AUTOPIPE PLUS	SACS
SAGE PROFILE	TEKLA
AGA-PRCI	E3D
OFFPIPE	GRLWEAP
CS8	OLGA
PLAXIS	PIPEPHASE
SMART 3D	PIPESIM
SESAM MARINE	

Projects Control Programs

Planning Division	Cost Division
Primavera P6 Team member / Collaborator	The Decision Tools Suite Professional @ Risk
Primavera Project Management	Comfar Iii Expert
Primavera Risk Analysis	
Risky Project Professional	

Procurement Programs

Site Material Management System	Vendor E-registration
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Pipeline Programs

OFFPIPE	AUTOPIPE PLUS
SAGE PROFILE	AGA-PRCI

Instrumentation, Control and Telecommunication Engineering Programs

Aveva Instrumentation	Smart Plant 3D
Aveva (PDMS)	PDS 3D Model
Aveva Cable Design	CONVAL
Smart Plant Instrumentation (Intools)	INSTRUCALC

Plant Design & Piping Programs

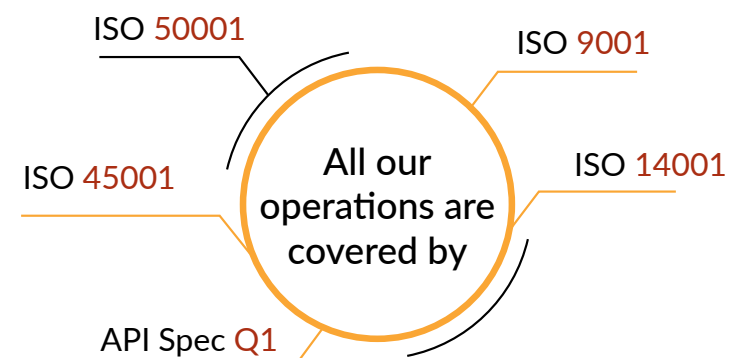
Autodesk Navisworks Simulats	Orthogen
Vpe Workbench	PDMS
Aveva Area Based Automatic Drawing Production	PDS 3D
Aveva Final Designer	Microstation / J
Aveva Laser Model Interface	Sewer Cad
Aveva Multi Discipline Supports	Smart Plant 3D
Aveva PDMS	Smart Plant Review –Api
Aveva Review	Smart Plant Review-Photo Realism
Caesar II	Smart Plant Review- Simulation &Visual Effects
Isogen	Smart Plant Sketch
Lmi	Smart, Plant Review

QEHHS Management System

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.

Enppi achieved certification to the revised standard ISO 9001:2015, ISO 14001:2015, ISO 45001: 2018, ISO 50001:2018 for QEHS management systems and also implements API Spec Q1 for quality management system in petroleum, petrochemicals and natural gas industries.

All our operations are covered by ISO 9001:2015, ISO 14001:2015, ISO 45001: 2018, ISO 50001:2018, API **Spec Q1**.



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 implemented API spec Q1 of 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 implement 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 conservation 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 plans
- Emergency preparedness and response
- Environmental management system auditing

Enppi encourages customers, suppliers and contractors to consider the environmental impacts of their activities, mainly through one or more of the following actions:

- Organizing and conducting awareness sessions / courses
- Requesting suppliers and contractors to declare their environmental policies & commitment to environmental protection
- Following up supplier/contractor implementation of environmental management systems
- Working with customers to design environmentally friendly projects

Enppi also has wide experience in EMS related services as awareness and training, 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 ISO 45001 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 plans
 - Emergency preparedness and response
 - Encouragement of customers, suppliers and contractors to consider Health & Safety requirement in their activities
 - HSMS auditing
- FMEA technique
- Perform safety audits
 - Provide training courses related to health and safety:
 - ISO 45001 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

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,





Energy Management System (EnMS)

In terms of Enppi role as a leader in the field of projects in the region and in order to keep pace with global and national trends for energy efficiency improvement, Enppi has developed, implemented and maintained EnMS as per the international standard ISO 50001 since 2012 and became the first company in the sector acquiring an accredited ISO 50001 certificate.

Enppi EnMS services includes

- 1- Establishing energy management systems.
- 2- Conducting Energy Reviews.
- 3- Determining:
 - Energy baseline, Energy targets and action plans.
 - Energy performance indicator.
- 4- Energy studies including definition/prioritization of opportunities for energy efficiency improvement.
- 5- Designing and procurement of energy efficient products and energy management system solutions.
- 6- Conducting training energy courses and workshops.
- 7- Conducting Energy Audits.

CERTIFICATES

Enppi Headquarters



www.enppi.com



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