



**ENPRO**

The logo for ENPRO features a stylized grey 'E' shape on the left, which is a semi-circle with a vertical line extending from its top edge. To the right of this symbol, the word 'ENPRO' is written in a bold, black, serif typeface.



## WELCOME TO ENPRO

Efficiency of power plants and saving energy all over the World gets more and more important everyday. Investments for Combined Cycle, Renewable and Hybrid Plants increase day by day in order to achieve faster start ups, higher efficiency and availabilities.

With ongoing or completed projects in over 12 countries in the World, ENPRO successfully implemented flexible design, manufacturing and site erection works to meet Customers' specific requirement with the most economical solution and in the shortest possible time. Such approach makes ENPRO a desirable choice for clients in "Power Generation" Industry.

Besides Engineering, Consulting, Manufacturing, Supply and contracting projects, ENPRO also acts as EPC contractor on Turnkey basis. From Conceptual Design to detail Engineering, Procurement, Manufacturing, Imports, Exports and Logistics, Site Erection works and Commissioning are also in the scope of EPC.

Deep experience and knowledge in Power Generation Industry was the base for ENPRO establishment in 2003. ENPRO successfully completed more than 80 different size and scope contracts for Power Plants in 12 countries in the World.

ENPRO Plaza Kader Sok. No: 34 06700 GOP Ankara TURKEY  
Phone: +90 312 428 66 99 Fax: +90 312 428 66 29 [enpro@enpro.com.tr](mailto:enpro@enpro.com.tr)

[www.enpro.com.tr](http://www.enpro.com.tr)

# ENGINEERING PROCUREMENT CONSTRUCTION

There is an increasing awareness all over the World to save energy. High efficiency Combined Cycle and Renewable Power Plant investments increases day by day in order to meet power demand all over the world.

ENPRO utilizes flexible design to meet Customers' specific requirement. Flexible design with reliable manufacturing and site implementation works when offered with competitive prices makes ENPRO a desirable choice for Clients in Power industry.



## OUR VISION

Contribute to find fast, economical and environmental solutions to the World's Power need.



## OUR VALUES

We never forget to preserve the balance of nature in the Projects for the World's growing Power needs.

We keep this principal in the foreground in the field of our activities like Cogeneration Power Plants and Renewable Energy.

We always support the team work and we know that nothing can be done alone. We solve all the details of the Projects with our experienced engineers and technical team.

We are trying to improve our Team Members with trainings to protect our place and to be always one step ahead in the changing World.

Health & Safety is our most important issue for the site works. Personal Protective Equipment and trainings are improving the Team Members' Health & Safety.

Our Engineering Department is working with ASME, EN, DIN, GOST standards, also offers optimal solutions based on the Customer's requirements and in compliance with the country's legal and regulatory conditions.

Our goal is customer satisfaction with work demands at the highest level, quality and at any time by responding, to ensure continuous development and renewal in our Company. ENPRO is at your side in your new Projects with the experience, confidence and ENPRO Team.

## OUR MISSION

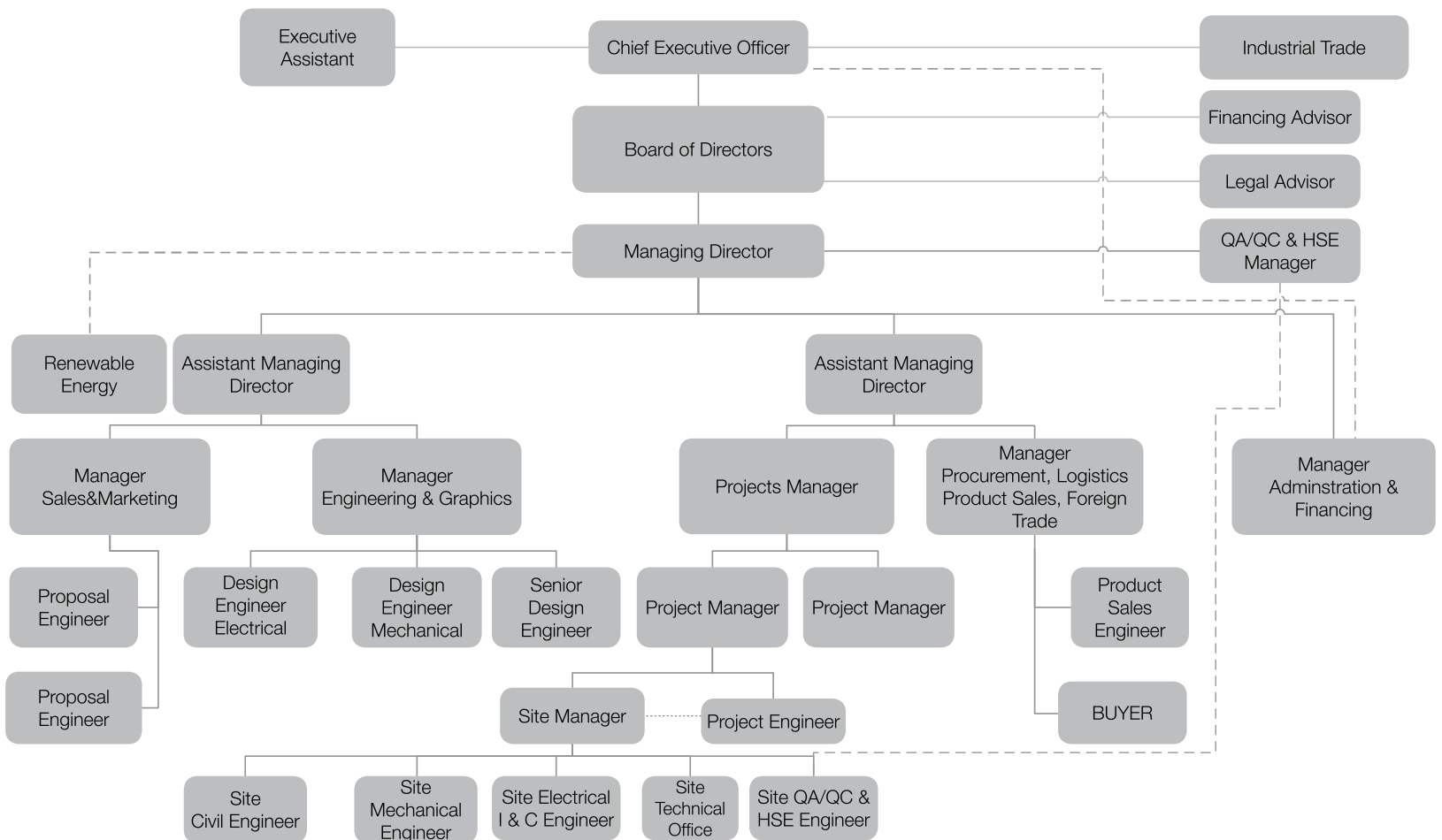
Offer solutions by applying the latest engineering and technological developments to the changing World's Power need.

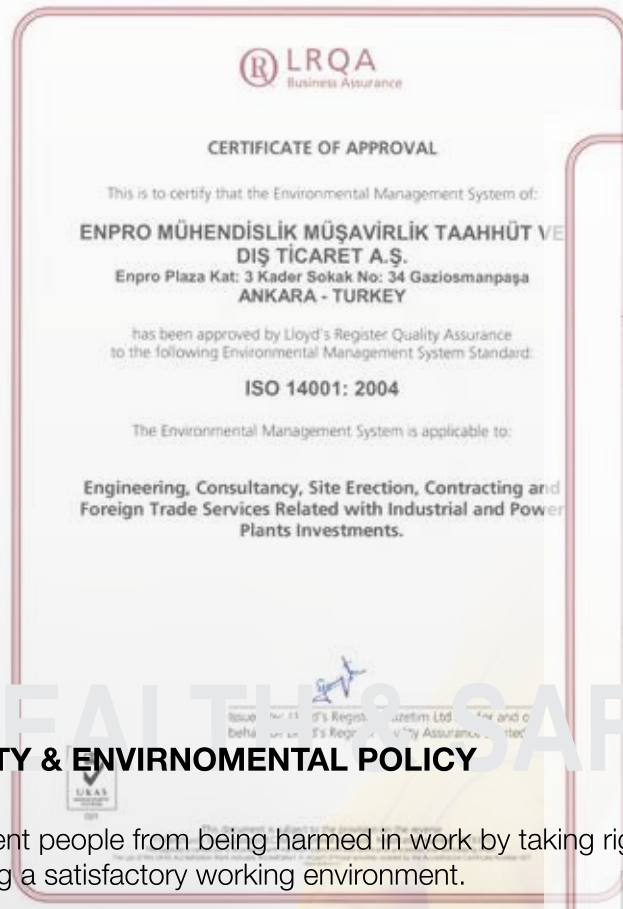
Always keep the Quality & Customer Satisfaction in the forefront.

Be in the forefronts of the Power, related to the company proficiencies



# ORGANIZATION CHART





## OUR HEALTH, SAFETY & ENVIRONMENTAL POLICY

Our first target is to prevent people from being harmed in work by taking right precautions and providing a satisfactory working environment.

PPE is important to get required precautions.

Right PPE will protect the people on time

We maintain our HSE system in line with ISO 14001 & OHSAS 18001

# SAFETY FIRST!

## OUR QUALITY POLICY

To maintain customer satisfaction and confidence with our high level service for their requirements and expectations in their projects all over the world,

To maintain our quality system in line with ISO 9001 :2008

Quality Management System and to improve continuously,

To carry out company training and support programmes in order to improve our staff knowledge level and team working capabilities, keeping in mind that our success is a result of our staff knowledge, experience, self - sacrifice, team work and continuous improvement,

To cooperate only with those ethical and quality vendors and to maintain the best relations



### CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

**ENPRO MUHENDİSLİK MÜŞAVİRLİK TAAH. VE DİŞ TİC. A.Ş.**  
Gaziosmanpaşa, Kader Sok. No:34/4 Çankaya 06700  
ANKARA-TURKEY

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standards:

**ISO 9001:2008**  
PRODUCT VERIFICATION

The Quality Management System is applicable to:

**Engineering, Consultancy, Contracting and Foreign Trade Services Related with Industrial and Investments**

PRODUCTION: Turn Key Gas Turbine(Engine) Exhaust By Pass System  
SERVICE PLACE: ANKARA -TURKEY

Approval Certificate No: IST6005089/C

Original Approval: 12 April 2007  
Current Certificate: 22 May 2011  
Certificate no.: TR / Q - T11-1022 005

ENPRO Engineering Consulting Contracting and Foreign Trade Co.Ltd. has been certified and approved by APAVE to the following International Standards for Exhaust By Pass System

Manufacturing Standards	ASME Sec.IX, EN287, EN 15607, EN 15614-1, ISO 10474, EN 10204
Material Standards	EN , ASME SECTION II, AS (Plate, Bar, Section, Pipe, Bolt, Nut, Washer)
Quality Assurance of Manufacturing	ISO 9001-2
Quality System	ISO 9001

This document is subject to the provision on the reverse side.

Atatürk Cad. Sıtkı Bey Plaza No: 82 Kat: 3 D: 12 Kızılay - İstanbul, Turkey. Reg No: 440348-300930  
This approval is carried out in accordance with the LRQA assessment and certification procedures as approved by Lloyd's Register Quality Assurance.

Approved date: 15.02.2011

Certificate Expiry: 15.02.2014

Compliance of this certificate is valid for the stipulated standards. This certificate will not be valid after any revision of operation in the standards with regard to this product.

Specifications:  
Audit report no.: T11-1022  
Valid until: 15.02.2014

Ankara, 07.05.2011  
Yapımcı: Çagrı Eng. Akasakal

APAVE GH  
TUV Rheinland Uslaklar için İstemler: Sertifikasyon ve Denetim A.Ş.  
Cürümlüsel Caddesi, Yeni Fenerler Sokakı  
34050 Kavaklı - İstanbul  
info@rh.turk.tuv.com  
www.tuv.com

IC.rev.0 APAVE is a member of CEOC



001



Approval of company

Design, Production, Erection and After Sales Service of Exhaust By Pass Systems for the Electrical Power Industry



It is hereby certified that the company has furnished proof of the quality requirements. The above-mentioned company

mandates manufacturing and inspection in conformity with the applicable standards.

implements a quality system which guarantees that manufacturing and inspection of the products stated in the scope are in conformity with the technical codes and regulations.

employs qualified supervisory and inspection personnel.

See audit report

T11-1022



### ONAY SERTİFİKASI

Bu Kalite Yönetim Sistem Sertifikası,

**ENPRO MUHENDİSLİK MÜŞAVİRLİK TAAH. VE DİŞ TİC. A.Ş.**  
Gaziosmanpaşa, Kader Sok. No:34/4 Çankaya 06700  
ANKARA-TÜRKİYE



Şirketin Kalite Yönetim Sistemi'nin Lloyd's Register Quality Assurance Limited tarafından onaylandığının belgesidir. Bu sertifikta aşağıda belirtilen kalite yönetim standartları için geçerlidir.



# Design to Implementation



## EPC SOLUTIONS FOR **ENERGY PRO**JECTS

- Due Diligence,
- Feasibility Study,
- EPC Tender Preparations,
- Owner's Engineering,
- Lender's Engineering,
- EPCM Services,
- Conceptual Design,
- Basic Design,
- Detail Engineering,
- Procurement & Logistics, Foreign Trade,
- Project Management,
- Site Construction Works,
- Commissioning Services,
- Power Plant Relocations,



## ENPRO PROVIDES FOLLOWING SERVICES FOR POWER PROJECTS

### Engineering:

- Feasibility Studies,
- Owner's Engineering,
- Lender's Engineering,
- Conceptual Design,
- Basic Design,
- Plant Basic Engineering, Layouts, General Arrangement Drawings,
- Process Engineering,
- Pressure and Non-Pressure part Detailed Engineering and Manufacturing drawings,
- Building Steel Structure Design and detailed Manufacturing Drawings,
- Piping and Pipe Stress Analysis, Supporting and pipe rack design,
- Purchase Specifications, Technical Evaluations and reports
- Preparation of Bill Of Quantities

### Project Management / Consulting:

- Project Planning
- Procurement, Vender assignments,
- Vender Acceptance Tests,
- Shop & Site QA / QC,
- Transportation
- Site Erection Works, Subcontractor Assignments,
- Reliability Run & Performance Tests,
- Take Over
- Customer (End User) Training Organizations



## ENPRO PROVIDES FOLLOWING EQUIPMENT FOR POWER PROJECTS :

- Gas Turbines,
- Gas Engines,
- GT Exhaust Systems,
- By Pass Stack Systems,
- Heat Recovery Steam Generators,
- HRSG Main Stacks and Supporting Steel Structure,
- Steam Turbines,
- Condensers (Air Cooled/Water Cooled),
- Cooling Towers,
- HP/IP/LP Feed Water Pumps,
- Condensate Pumps,
- Fuel Oil Forwarding/Unloading Pumps,
- Diesel/Electrical/Jockey Fire Pumps,
- Field Storage Tanks(Fuel, Demi Water, Raw Water, Fire Water),
- Pipes & Fittings,
- HVAC Systems,
- Compressed Air Systems,
- Fire Detection and Fire Fighting Systems,
- Air Compressors,
- Auxiliary Boilers,
- Deaerator,

**CUSTOM DESIGNED  
SOLUTIONS THAT MEET  
CLIENT'S NEED IN POWER  
INVESTMENTS**

**EXPORT AND  
TRANSPORTATION  
TO ALL OVER THE  
WORLD**

**TURNKEY OR SITE  
DELIVERY OF POWER  
PLANT EQUIPMENT**

- Emergency Diesel Generators,
- Black Start Diesel Generators,
- GT Inlet Air Cooling Systems,
- Heat Exchangers (Shell&Tube or Plate Type),
- Overhead Cranes,
- Water Treatment Plants,
- Step up Transformers,
- MV/LV Step Down Transformers,
- Bus Ducts,
- Circuit Breakers,
- Switch Gears,
- Motor Control Centers(MCC),
- UPS, Power and Control Cables,
- Cable Trays,
- Instruments,
- GT Air Intake Chilling Systems,
- GT Air Intake Fogging Sitems,
- NOX and CO<sub>2</sub> removal systems,
- SO<sub>2</sub> removal systems,

**ENPRO Construction** is focused on turn key erection of Power Plants and other Industrial Projects including Civil, Mechanical, Electrical, I&C and Commissioning works.

- Site Civil Works,
- Equipment Erection(Gas Turbine, Heat Recovery Steam Generator, Steam Turbine and condenser)
- Structural Steel Manufacturing and Erection Works,
- Balance of Plant Equipment,
- Water, Steam and Process piping,
- Electrical and I&C Works,
- Commissioning and start-up Works,







CONSTRUCTION





CONSTRUCTION

3X GE LM 6000 GTG  
150 MW SCPP LEBAP / TURKMENISTAN



704MW SCPP BOUFARIK / ALGERIA  
3X GE-FRAME 9FA Exhaust Gas Stacks  
8X Field Storage Tanks  
Engineering, Supply and Construction









# ENGINEERING TO PRODUCTION

## PRODUCTS FOR **ENERGY PROJECTS**

- Gas Turbine Exhaust Gas System including Diffusers,
- Ductworks, Stacks, Silencers, Diverters, Expansion Joints,
- Supporting Steel Structure,
- Gas Turbine Air Intake Systems including Filtration and Inlet Air Cooling Systems,
- Feed Water Tanks with Supporting Steel Structure,
- HRSG Main Stacks and supporting Steel Structure,
- Platforms, walkways,
- Deaerator
- HP and LP Steam / Water Piping
- Spool Fabrication with Pipe Support, Hangers, Racks,
- Process and Utility Piping
- Blow Down Tanks, Flash Tanks
- Steam Turbine Building Steel Structure
- Field Water and Fuel Storage Tanks

## GAS TURBINE EXHAUST BY PASS STACK SYSTEMS

- ENPRO is a world wide supplier of Gas Turbine Exhaust By Pass Stack Systems.
- Exhaust By Pass Stack Systems can be designed both externally and internally insulated.
- These systems can be designed for up to 650 Degrees Celsius exhaust gas temperature.



### ENPRO PROVIDES

- Design, Engineering,
- Detail Design,
- Manufacturing,
- Transportation to Site,
- Site Supervision,
- Erection and Commissioning.

Each Gas Turbine Exhaust By Pass Stack System consists of;

- Diffuser,
- Diverter,
- Silencer,
- Stack Body,
- Non-metallic Expansion Joints,
- Supporting Structure with access platforms.



## STACK DAMPERS FOR CYCLING OPERATIONS

ENPRO is supplying Stack Dampers to keep the HRSG hot during short shut down operations. Stack dampers are best used to decrease the total Hot and Warm Start up time when the shut down is not more than 12 hours. Use of a stack damper is the most effective and inexpensive way to prevent cool air from flowing through an HRSG.

### STACK DAMPERS;

- Used for Cycling Operations,
- Prevents cool air from flowing through the HRSG,
- Decreases total Hot and Warm Start up time,
- Can be both manually operated and automatically operated from DCS with electrical actuator,
- Tailor made design and manufacturing for each Plant,
- Installed at the HRSG outlet Stack,
- Designed for minimum pressure drop,
- Modular design for ease of shipment and installation,

## STACK SILENCERS

ENPRO realizes the design, engineering and manufacturing of Stack Silencers.

Stack Silencers can reduce the Gas Turbine noise level down to 80dBA based on the Project requirements.

ENPRO experience covers Aeroderivative and Heavy Duty Gas Turbines up to "F" Class Machines.



## FABRIC EXPANSION JOINTS

ENPRO Fabric Expansion Joints are being used in more than 10 Countries.

ENPRO is doing the engineering, design and manufacturing of Fabric Expansion Joints.

ENPRO is supplying Fabric Expansion Joints which is suitable up to 650 Degrees Celsius with internal insulation. The expansion joint fabric material must withstand the potential for stress caused by rapid temperature rise of Gas Turbine start ups. The expansion joints shall avoid wrapping, binding, cracking and gas leakage.

The expansion joints should handle both lateral and axial expansion and contractions. They are constructed with different designs according to the adjacent duct, whether it is internally or externally insulated. The flexible element is made up of different layers each with different characteristics to withstand various flow parameters.

These Expansion Joints can be used at the outlet Flange of the Gas Turbine, at the diverter and on the Exhaust Stack.

These expansion joints can be both square and round based on the requirement.



## DIVERTERS

- Toggle or Pivot armed,
- Electrical or Hydraulic Actuated System,
- %100 Tightness with sealing air System,
- On/Off or Modulating Mode,
- Internally or externally insulated,

## Field Storage Tank

Field Erected;

- Fuel Oil,
- Fire Water,
- Demineralised Water,
- Service Water,

design, supply, manufacturing and field erection.



# PROFESSIONAL APPROACH





# IN POWER PROJECTS



REFERENCE COUNTRIES



180 MW CCPP - BURSA / TURKEY



150 MW SCPP - LEBAP / TURKMENISTAN



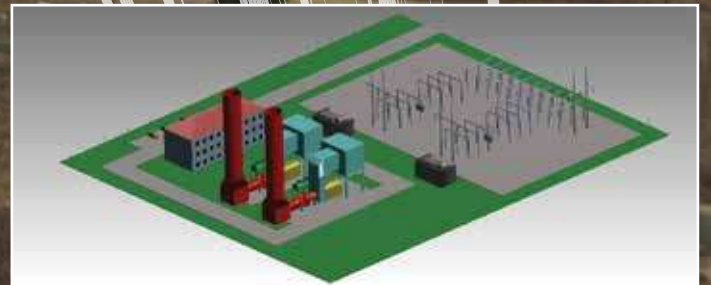
70 MW CCPP  
BRAUNSCHWEIG / GERMANY



704 MW SCPP - BOUFARIK / ALGERIA



44 MW SCPP - SLOVAKIA



320 MW SCPP - DIBIS / IRAQ

*Site Construction is not yet realized so similar plant photo is used*



2x285 MW SCPP - LIBYA



2x70 MW SCPP - MARDIN / TURKEY



90 MW SCPP - ORAPA / BOTSWANA



750 MW CCPP - ANKARA / TURKIYE



37 MW CCPP - IZMIT / TURKEY



38 MW CCPP - BURSA / TURKEY



2x42 MW SCPP - ATYRAU / KAZAKHSTAN



150 MW CCPP - KAYSERI / TURKEY

# ENPRO



ENPRO Plaza Kader Sok. No: 34 06700 GOP Ankara TURKEY  
Phone: +90 312 428 66 99 Fax: +90 312 428 66 29 enpro@enpro.com.tr

[www.enpro.com.tr](http://www.enpro.com.tr)