



Profile(2022)

HAMPA Energy
Engineering & Design Company

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HEDCO at a glance

HEDCO was founded as an Engineering company, in the year 2007 with collaboration of a group of highly experienced engineers working extensively in oil, gas and petrochemical projects as EPC project managers and senior engineers in different disciplines.

HEDCO aims to be a company which can explore new horizons and can achieve the increasing market demand of high technology, quality and timely completion of large scale projects.

With its available experience and qualifications, HEDCO is capable to handle largescale EPC projects.

The company's work oriented organization consists of different departments such as

- ✓ Projects Management
- ✓ ICT
- ✓ Process
- ✓ Piping
- ✓ Civil
- ✓ Mechanical
- ✓ Machinery
- ✓ Electrical
- ✓ Instrumentation
- ✓ PSM (Process Safety Management – including Safety and HSE)
- ✓ Quality Control
- ✓ Quality Assurance
- ✓ Planning
- ✓ Procurement.

The company's field of activities include:

- ✓ project management (General Contracting, MC),
- ✓ Project engineering (Feasibility Study, Conceptual , Basic and Detail Engineering),
- ✓ Project Procurement Services,
- ✓ Project Construction Management
- ✓ Site Supervision and Site Technical Assistances.

HEDCO qualifications and certificates

- ❖ HEDCO has been certified as **Level 1 Consulting company** in the Branch of “**Oil , Gas & Petrochemical**” by MPO of Iran.
- ❖ HEDCO has been certified as **Level 1 Construction Contracting company** in the Branch of “**Oil , Gas & Petrochemical**” by MPO of Iran.
- ❖ HEDCO has been registered in National Petrochemical Company (NPC) contractor list as **capable to design and construct the Under License Process Plants**.
- ❖ HEDCO has been certified as capable company to perform **Bankable Feasibility Study Reports** in the Branch of “**Oil, Gas & Petrochemical**” by the authorized society in Iran.
- ❖ HEDCO quality management system complies with the requirements of **ISO-9001, ISO-14001, OHSAS-45001 & ISO/TS- 29001 & ISO-27001** and this has been certified and audited by TÜV Nord CERT GmbH.
- ❖ HEDCO is the only Engineering company in Iran who is awarded the **Crystal Excellence Prize** of National Petrochemical Company Quality Management System.
- ❖ HEDCO has been Certified by the Iran’s Ministry of Industry, Mine and Commerce for **Industrial Research and Development Projects**.

Legal Information

- **LEGAL NAME:** HAMPA Energy Engineering & Design Company (HEDCO)
- **LEGAL STATUS:** Private, not on stock market, Limited
- **ESTABLISHMENT DATE:** 2007
- **REGISTRATION NO.:** 24312 , Shiraz registration office
- **SHARE CAPITAL:** 170,000,000,000 IRR
- **MAJOR ACTIVITIES:** Project Management (General Contracting , MC),
Engineering (feasibility study, basic, detail), Procurement
Services, Construction Management and Supervision, Site
Technical Assistances.
- **HEAD OFFICE:** HEDCO BUILDING , Jam – e - Jam Blvd., Shiraz , I.R.Iran
Postal Code : 71437-54999
P.O.Box: 714-55/684
Tel: (0098) -71-32136000
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E-Mail: info@hedcoint.com ,
Website : www.hedcoint.com
- **MANAGING DIRECTOR:** Mr. Mohsen. Zomorodian

Main Area of Activities

The company's Main Area of activities are:

- **EPC projects:**
 - Oil Refineries
 - Gas Refineries
 - Petrochemical Plants
 - Utility & offsite Units
 - Off plot

- **Technology Based Activities**

HEDCO is in the integrated vendor list of National Iranian Oil Company (NIOC) for the following items.

- Cryogenic Storage Tanks
- Ammonia Reformers
- Process Heaters
- Oil Desalting Units
- Vapor Recovery Units
- Wet Type Scrubbers

- **Upstream Surface Facilities(Oil & Gas)**

Regarding the upstream Oil and Gas projects, HEDCO owns the technology and knowledge for performing the Feasibility Study, Conceptual Design, Basic and Detail Engineering of the following sections:

- Separation
- Dehydration
- Sweetening
- Desulphurization
- Desalting units
- Oil fields gas gathering

Main Field of Activities

The company's field of activities related to Oil, Gas and Petrochemical projects includes:

- Project Economical and Technical studies (Feasibility, Market,)
- Project General Contracting
- Project Management Contracting(PMC)
- Project Master Planning
- Project General Engineering
- Finance Arrangement
- Conceptual Design
- Process Selection
- Plant Optimization
- License & Know How Arrangement
- Technology Provision
- Project Engineering (Basic & Detail)
- Procurement Services
- Construction Management & Construction Supervision
- Site Technical Assistance

Contracting

Project structures diversifications call for customized contracts.

HEDCO possesses experience in different types of contract for implementing plant projects, such as:

- Lump Sum Contracts
- Reimbursable Contracts

in different scenarios:

- E (Conceptual , Basic , FEED , Detail)
- EP (Engineering & Procurement/supply)
- EPS (Engineering & Procurement Services)
- LB+EPCC (License & Basic + Engineering, Procurement, Construction , Commissioning)
- EPCC
- EPC
- EP+C
- E(+PS)+PC
- EPS+Supply+C

For

- Grass root Projects
- Plant revamping Projects
- Plant expansion Projects
- Plant Relocation Projects

Engineering as Core Activity

The following engineering services may be provided by HEDCO engineering team:

- Feasibility Studies
- Project General Engineering and Master Planning
- Conceptual Design
- Basic/FEED/Detail Engineering & Design
- Field Engineering & Site Supervision
- Engineering Services to Operating Plants.

The following engineering services may be provided in cooperation with owner and third party specialists:

- HAZOP/HAZID/SIL studies
- QRA study
- Value Engineering
- Passive Defense

The following engineering services may be provided, through outsourcing:

- Environmental Impact Assessment
- Site Topography
- Geotechnical Survey
- Site Preparation Studies

Feasibility Study

The objective to execute feasibility study is to ensure that the planned project will provide the optimum combination of an up-to-date technical solution with maximum economic return. In other words, the recommended alternative must simultaneously conform to the given financial restraints and economic criteria, and meet the technical requirements.

Keeping in mind the above goal, application of economic analysis modeling and forecasting methods should submit/determine the followings:

- Estimation of predictable demands
- Precise cost forecasting and integrated system of cost estimate (market study)
- Implementing the various project inflation rates
- Project financing and alternative domestic-international participation
- Financial and credit availability planning
- Investment return rate (IRR) calculation

Environmental Impact Assessment

EIA is a systematic process to identify, assess and manage the potential environmental effects of a proposed development or activity. The EIA process gathers data and evaluates effects on a range of technical topic areas that are specified in the legislation, including air, population, soil, fauna, flora, water, climatic factors and material assets.

EIA is essentially a planning tool for preventing environmental problems due to an action. It seeks to avoid costly mistakes in project implementation, either because of the environmental damages that are likely to arise during project implementation, or because of modifications that may be required subsequently in order to make the action environmentally acceptable. We provide our customers with an EIA report to the extent required depending on the project technical and physical characteristics.

Conceptual Design

Generally the original concept of a project is proposed by the customer. The concept is originated as a result of a couple of social, economic, and market considerations. Thereafter, prior to implementation of a project, especially those of large-scale size, complexity, and investment, it is obligatory to perform comprehensive preliminary studies, to conceptualize several configurations which could technically and economically meet the expected requirements.

Basic & Detail Engineering Design

We have brilliantly gained the experience and expertise to execute the basic and/or detail engineering required for all projects, from small expansion or simple revamp of small plants to the design of large scale and complicated complexes.

Depending on the nature and extent of the contract, the following individual or combination of engineering services for any particular project may be provided:

- Conceptual study
- Process Line up
- PDP (Process Design Package) Verification and Consistency Checking
- Process Simulation
- Process Flow Diagram, Heat and Material Balance Tables
- Land Selection
- Plant Location, Route Selection and Layout
- Site Survey
- Geotechnical Study
- Piping and Instrument Diagrams
- HAZOP Studies
- SIL Studies
- HSE Studies
- Plot Plan & Equipment Location Layout
- Calculations & Sizing
- Plant 3-D Modeling
- Corrosion and Cathodic Protection Studies
- Safety and Fire Protection
- Material and Equipment Data Sheets & Specifications
- Equipment Selection and Sizing
- Telecommunications and Paging Systems Design
- Control Philosophy Design (Control Loops, Logic Tables, Interlocks, ...)

- Plant Power Distribution Network
- Construction and Erection Drawings for Civil, Structure, Mechanical, Piping,
- Electrical, Instrument, and Control Work
- Shop Fabrication Drawings
- Construction Specifications
- Vendor Drawing Checks
- Laboratory, Operating, Safety, and Maintenance Manuals
- Equipment Manuals and Mechanical Catalogs

Engineering Services to Operating Plants

HEDCO is able to afford the following services to the oil & gas Refineries & Petrochemical Operating Plants:

- Plant Capacity Increase
- Energy Consumption Optimization
- Heat Recovery Projects
- Process Modifications
- Condensate return Projects
- Flare System Improvement & Flare Gas Recovery
- Automation Degree Increase
- Revamping projects
- Engineering Supervision Services as per Client Request

Pipelines Engineering Services

HEDCO is able to perform the following activities and services to the Engineering of the Oil , Gas & Petrochemical Pipelines:

- Pipeline Feasibility Study
- Hydraulic Calculation
- Mechanical Calculation
- Cathodic Protection Calculation

- Land Acquisition Drawings
- Topographic Maps Preparation
- Route & Profile Drawings
- Isometric Drawings
- Pig Launcher & Receiver Station Design
- Valve Stations Design
- Pump Stations Design
- SCADA System
- Fiber Optic Communication Line
- Construction Procedures
- Test Plans

Value Engineering

In the preliminary stage of the project, "conceptual design" phase, or simultaneously in the "Basic Engineering" phase of project, HEDCO reviews mutually all the basic engineering documents with owner, by holding "value engineering" meetings.

In these meetings, mentioned design will be reviewed and checked considering the economic aspects and all the available technical alternatives will be reviewed case by case, and the side effect of each alternative will review from the technical point, ease of operation, longevity of plant. In order to make decision for these alternatives, the "Cost & Benefits Tables" will be prepared and eventually according to the outcome of these tables, each alternative will be eliminated or accepted. For this issue, all the normal procedures and standard of "value engineering" will be considered.

Technology Division

In order to expand its services and offer its technical capabilities to the esteemed clients, HEDCO has targeted to go deeper than normal detail engineering practices, into the details of know-how and technology behind the complexities of fabrication and installation of “Fabrication on Site” packages and prepare fabrication drawings & installation instructions as detailed as possible and necessary.

For this purpose, HEDCO has established a separate company division called “Technology Division”.

The mission of “Technology Division” is to play the role of an interconnection stage between researches and executive projects, and via this responsibility, present result of researches to clients. In other words, this division commercializes the outputs of R&D activities and makes them operative and executive.

In this department, the expert specialists study in details and deep about the design, specifications and characteristics of complex Process-Mechanical equipment and packages. These kinds of researches will cause identification and development of the local internal resources for procurement and fabrication of equipment that have been procured and supplied from abroad (Europe , Japan , Korea , ...) previously.

Among such researches, and as result of continues efforts of the colleagues, fabrication and manufacturing of the following equipment have been localized and the relevant know-how and technologies have been reached by us:

- a) Cryogenic Storage Tanks for Ammonia, LPG , Ethylene (all kinds of single, Double and/or full containment - steel and/or concrete).
- b) Catalytic , H₂ Generation Reformers (Ammonia Primary Reformer , Methanol)
- c) Fired Heaters (for Refineries & Petrochemical Plants).
- d) Desalting Units and Packages
- e) Scrubbers
- f) Vapor Recovery units(VRU)

Current Projects (Grass Root)

1) Qeshm Gas Condensate Refinery

- * Capacity: 60.000 BPD
- * Client : Javid Energy Parto Company
- * Locations: Qeshm
- * Scope: Basic Engineering & General Engineering

2) Siraf Gas Condensate Refinery

- * Capacity: 60.000 BPD
- * Client : Siraf Refining Development Company
- * Locations: Boushehr-Kangan
- * Scope: Detail Engineering

3) Rayan HDPE Plant

- * Capacity: 500.000 T/Y
- * Client : Rayan Polymer Pouya, Bakhtar Group
- * Locations: Assaluyeh
- * Scope: Engineering and Technical Procurement Services for HDPE Plant and Basic and Detail Engineering of Utility, Offsite and off plot

4) Farasakou Tank Farm Project

- * Tank Farm including 64 NO's of Petrochemical Storage Tanks
- * Client : Farasakou Assaluyeh Company
- * Location : Assaluyeh
- * Scope: Basic & Detail Engineering, Site and Supreme Supervision

5) Jask Oil Terminal Onshore Facilities

- * Project Scope: Pipe line, Metering Stations, Loading unloading facilities ,...
- * End user : POGC(Pars Oil & Gas Company)
- * Location : Jask ,Hormzgan
- * Scope: Basic Endorsement, Detail Engineering, Procurement (EP)

6) Ghand-e-Dezful , Beet Sugar Plant

- * Project: Beet Sugar Plant 10.000 t/d
- * Client: Shohadye Ghand-e-Dezful Co, Nasir Energy Gostar Co.
- * Location: Dezful City,Khuzestan Province
- * Scope: Detail Engineering and Technical Procurement services

Finished Projects

1) Lordegan Ammonia & Urea Plants

- * Capacity(each) : 2050 MT/D Ammonia - 3250MT/D Urea
- * Client: Lordegan Urea Fertilizer Company
- * Location : Lordegan, Chaharmahal Bakhtiari Province
- * Scope: Basic (Urea Unit & Utilities) & Detail Engineering, Procurement Services (EPS) for the whole plant
- * Finish Date: 2020

2) Abadan Crude Oil Desalting Unit

- * Capacity: 110,000 BPD
- * Client: Abadan Refinery
- * Locations: Abadan
- * Scope: Detail Engineering, Supply of Material, Construction , Commissioning , start-up , Performance Test (EPCC)
- * Finish Date : 2017

3) Hemmat Urea Project

- * Client : Hemmat Petrochemical Company
- * Location: Assaluyeh , South Iran
- * Scope: Conceptual Design, Feasibility Study , Environmental Impact Analysis
- * Finish Date: 2017

4) Pardis 3 Ammonia & Urea Plant

- * Capacity: 2050MT/D Ammonia – 2330MT/D Urea
- * Client : Pardis Petrochemical Company
- * Location: Assaluyeh
- * Scope: Basic & Detail Engineering & Technical Procurement Services (EPS)
- * Finish Date: 2016

5) Fasa LDPE (Low Density Poly Ethylene)

- * Capacity: 300,000 TPY LDPE
- * Client : Fasa Petrochemical Company
- * Location : Fasa - Fars Province
- * Scope: Basic Engineering
- * Detail Engineering & Supply of major Equipment (EP)
- * Finish Date: 2015

6) Qeshm Crude Oil Refinery for Production of Bitumen and Light Oil Cuts

- * Capacity: 35,000 BPD
- * Client: Pars Behin Palayesh Naft Qeshm Company
- * Location: Qeshm Island
- * Scope: Basic Review, Detail Engineering, Technical Procurement Services
- * Finish Date: 2020

7) Parsian Gas Refinery (C2 Recovery & Fractionation)

- * Capacity: 74,000,000 Sm³/day of Natural Gas
- * Client : Palayesh Parsian Sepehr Company
- * Locations: Mohr & Assaluyeh
- * Scope: Basic & EPC (Construction by HAMPAs Consortium Partner)

Technology Based Projects and References

1) Parsian Butane and Propane Storage Tanks (4 No.'s) - (finished)

- * Capacity: 26,000 m3 each
- * Client : Palayesh Parsian Sepehr Company
- * Location: Mohr & Assaluyeh
- * Scope: Basic & EPC

2) Lordegan Ammonia Storage Tank (finished)

- * Capacity: 20,000 Tons
- * Client : Lordegan Urea Fertilizer Company
- * Location : Lordegan
- * Scope: Basic & Detail Engineering and Procurement Services

3) Kermanshah Ammonia Storage Tank (finished)

- * Capacity: 10,000 Tons
- * Client : Kermanshah Petrochemical Company
- * Location : Kermanshah
- * Scope: Design Review, Construction

4) Razi Ammonia Storage Tank (finished)

- * Capacity : 30,000 Tons
- * Client : Razi Petrochemical Company (RPC)
- * Location : Bandar Emam
- * Scope: EPC (Engineering, Procurement & Construction)

5) Pardis Ammonia Reformer Package (finished)

- * Capacity: 228 MW
- * Client : Pardis Petrochemical Company
- * Location : Assaluyeh
- * Scope: Basic & Detail Engineering, Procurement Services, Material Inspection and Site Supervision

6) Razi Reformer Package (Ammonia Plant 2)- (finished)

- * Client : Razi Petrochemical Co.
- * Location : Bandar Imam
- * Scope: Detail Engineering and Procurement Services (Consultant in revamping)

7) Parsian Gas Refinery Process Heaters (2 no.'s)- (finished)

- * Capacity: 16MW each
- * Client : Palayesh Parsian Sepehr Company
- * Location: Assaluyeh
- * Scope: Basic Design, Supply of Equipment

8) Kermanshah Petrochemical Company Reformer

- * Reformer Duty : 175 MW
- * Client : Kermanshah Petrochemical Company
- * Location : Kermanshah
- * Scope: EPC

9) Dehloran Ethylene and C2+ Storage Tanks

- * Capacity: Ethylene 14.100 m3, C2+ 22.000 m3)
- * Client : OIEC(Oil Industries Engineering and Construction)
- * Location : Dehloran, Ilam Province
- * Scope: EPC

10) Danan Oil Filed Development - Crude Oil Desalting Unit

- capacity : 10.000 bpd
- Client : Mapna Group
- Location : Dehloran, Ilam Province
- Scope : Engineering , Procurement , Fabrication and Package Integration

11) Fanavaran Petrochemical – Methanol Reformer

- Scope : Design Review , Reformer Fuel System Redesign , Reformer Operation Optimization

12) Kharg LPG Tanks (Propane & Butane)

- Capacity: 2 no.'s , 45,000 m3 each
- Client : Saff Group (Reactorsaz)
- Location : Khark Island
- Scope: DTS , Basic & Detail Engineering

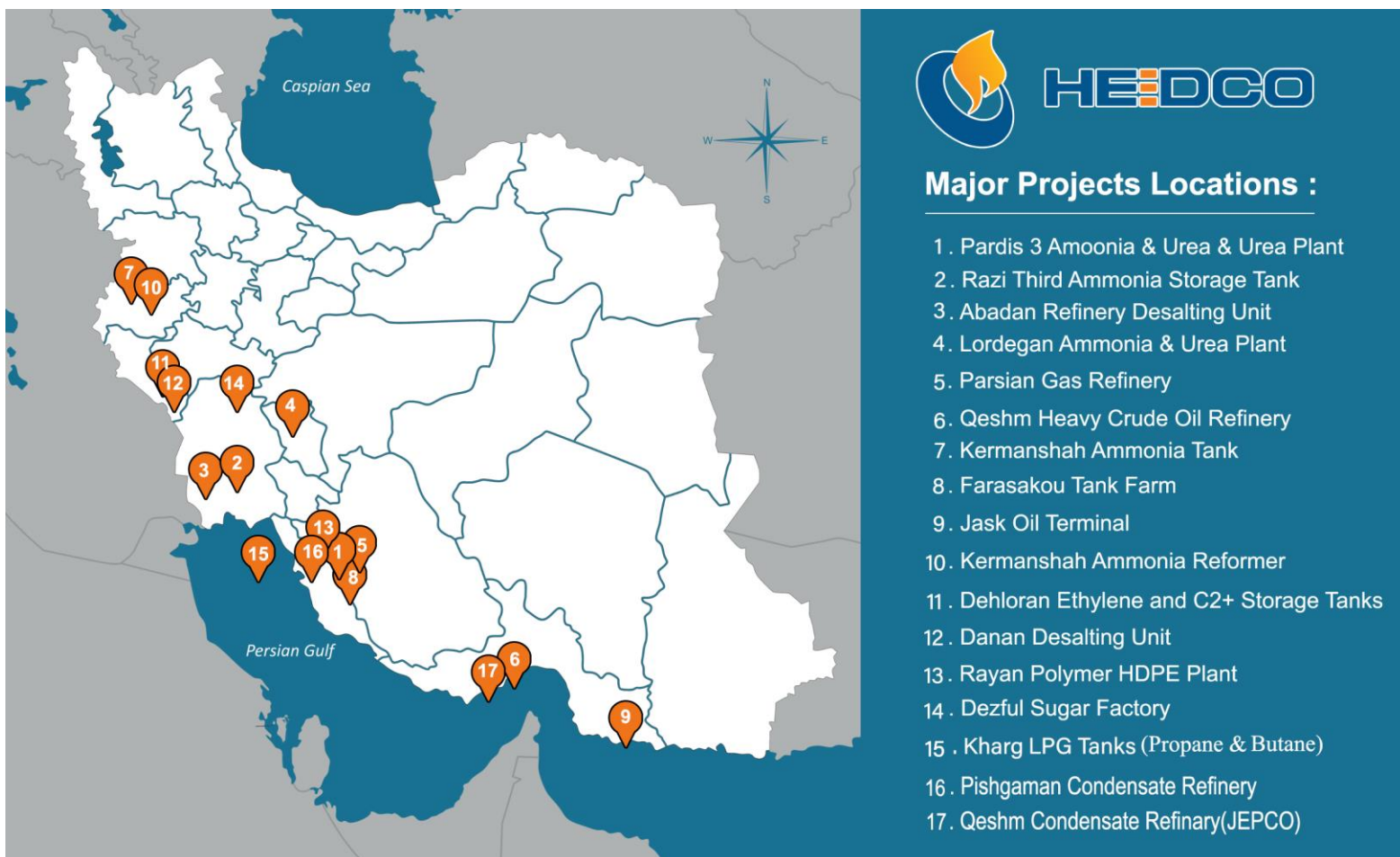
Outstanding Project(s)

1) Lavan Ammonia/Urea Plant

- Capacity(each) : 2050MT/D Ammonia - 3250MT/D Urea
- Client(s) : Lavan Chemical Company
- Location(s) : Assaluye
- Scope: Grant of License, Basic & Detail Engineering, Procurement & Supply of Equipment , Training

HEDCO Projects Locations

The locations of HEDCO major projects have been interpreted in the following map.

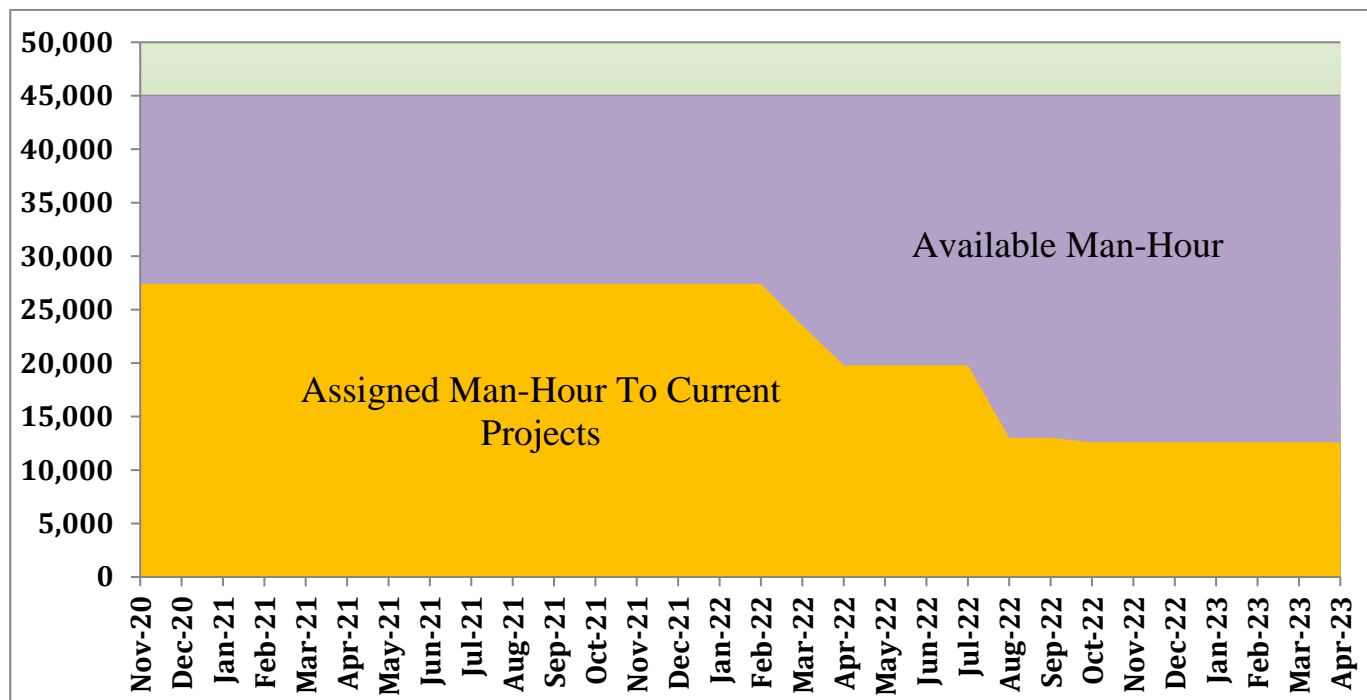


Project Execution Capacity

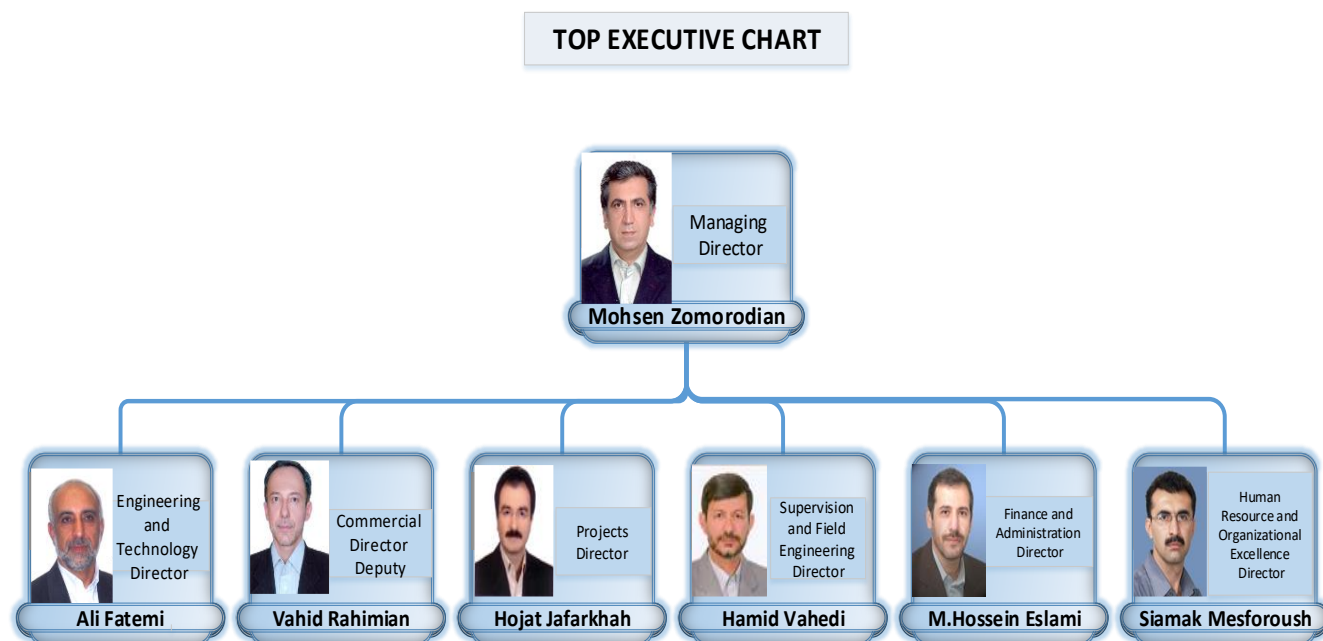
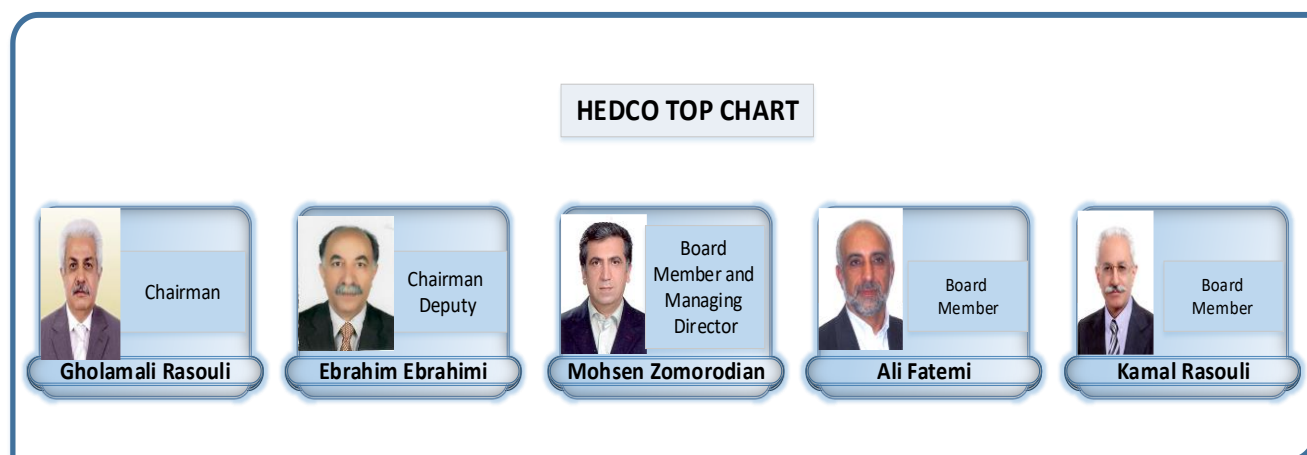
HEDCO has currently reached the capacity of 600,000 man hours per year and is capable to execute large scale projects, however, knowing the professional skills of outsource satellite companies, HEDCO man-power capacity can be extended as per projects requirement.

Assigned & Available Man-Hours

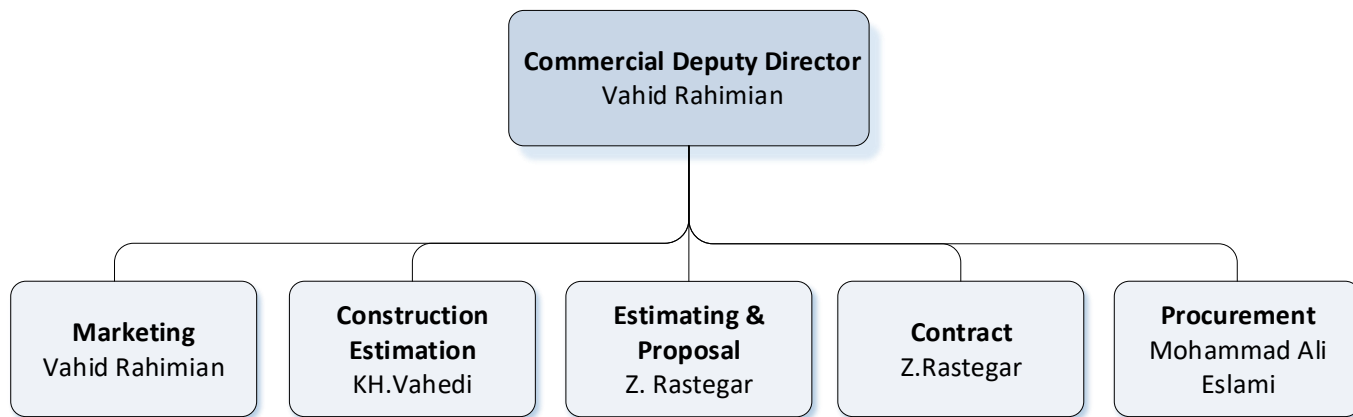
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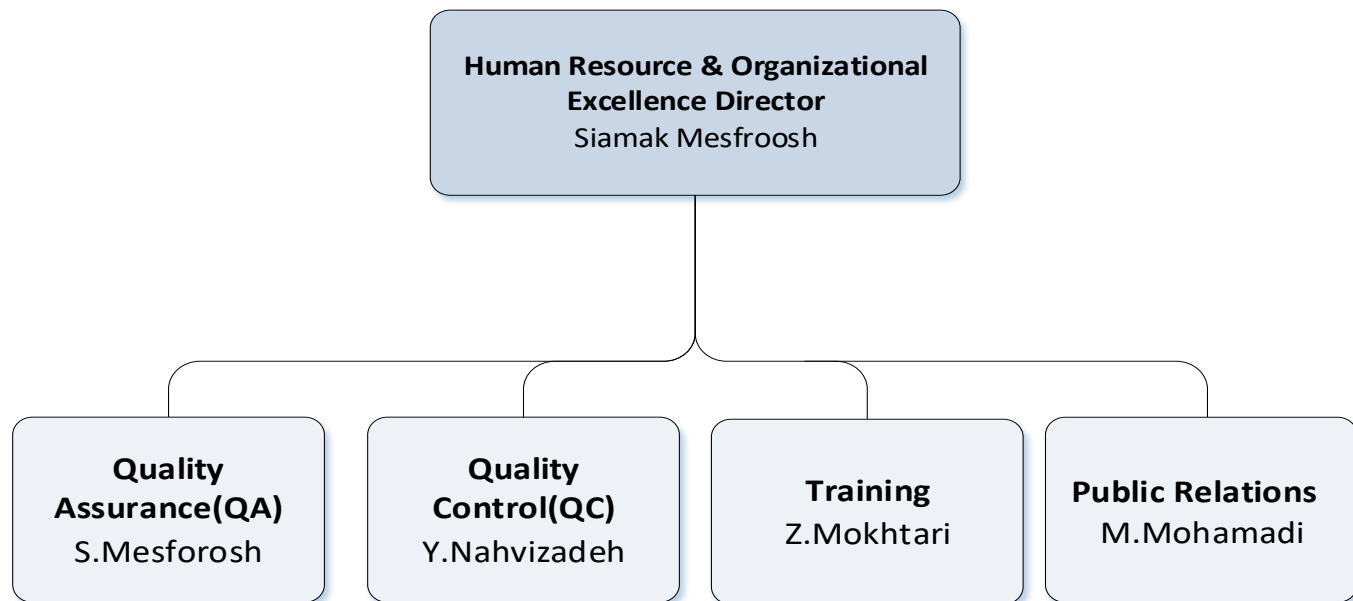
Organization Chart of HEDCO



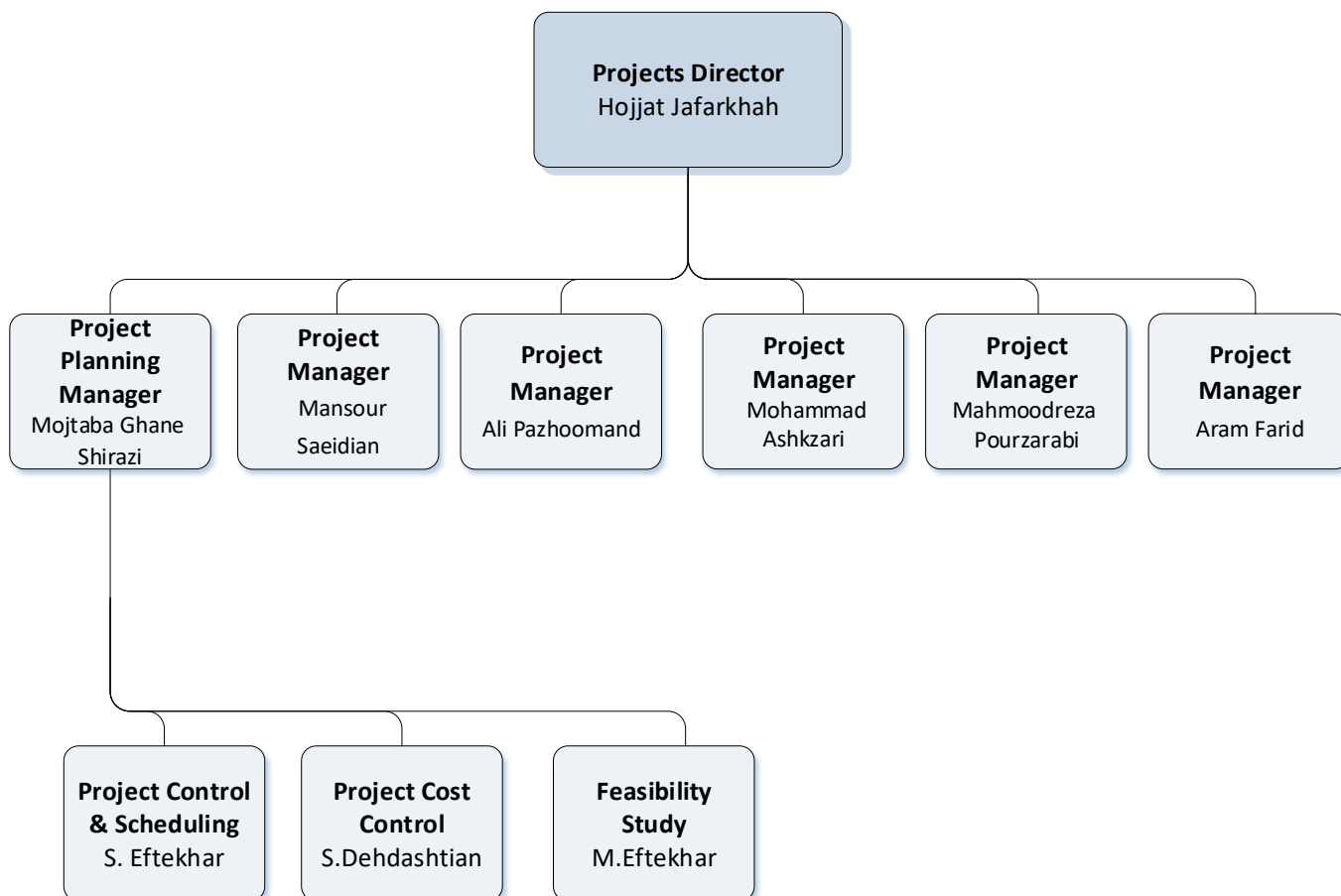
Commercial Chart



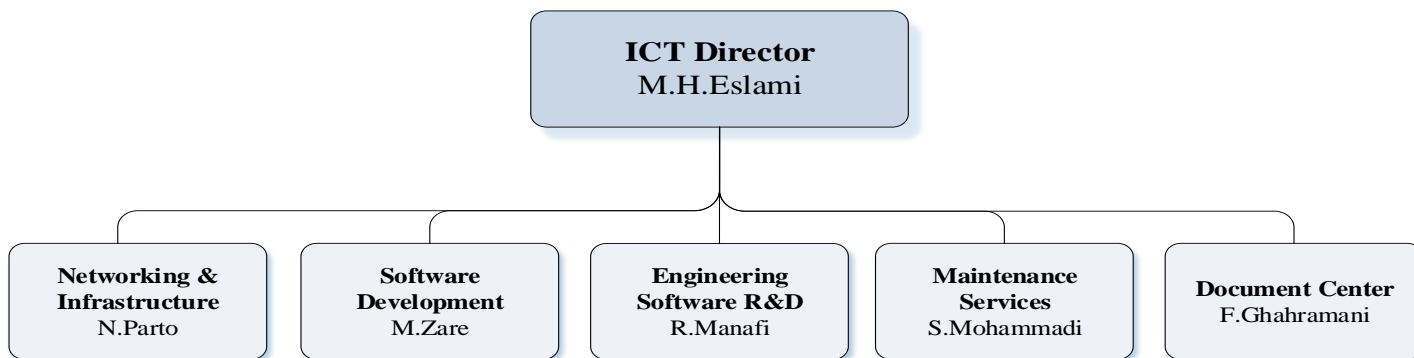
Quality Chart



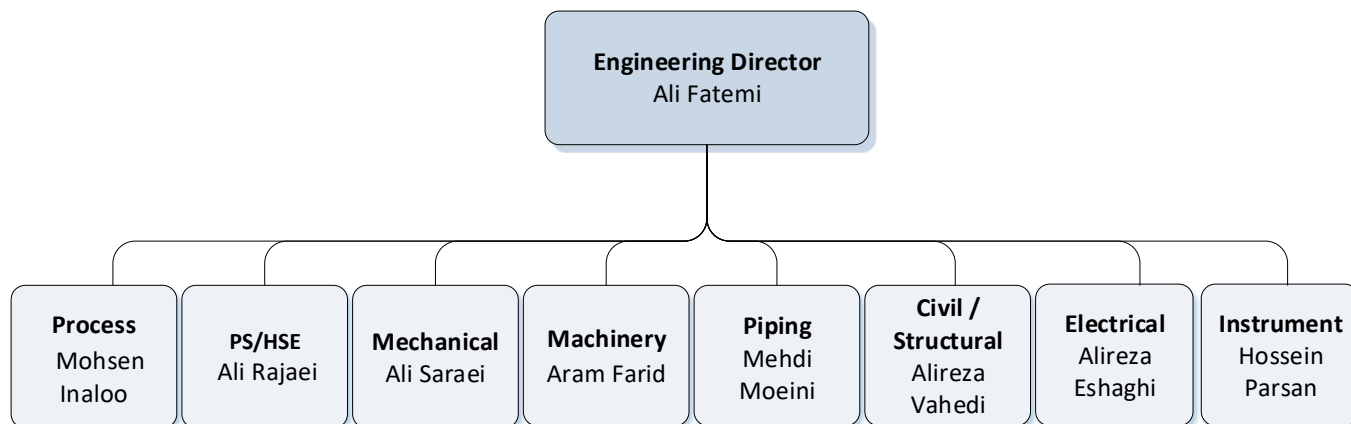
Projects Chart



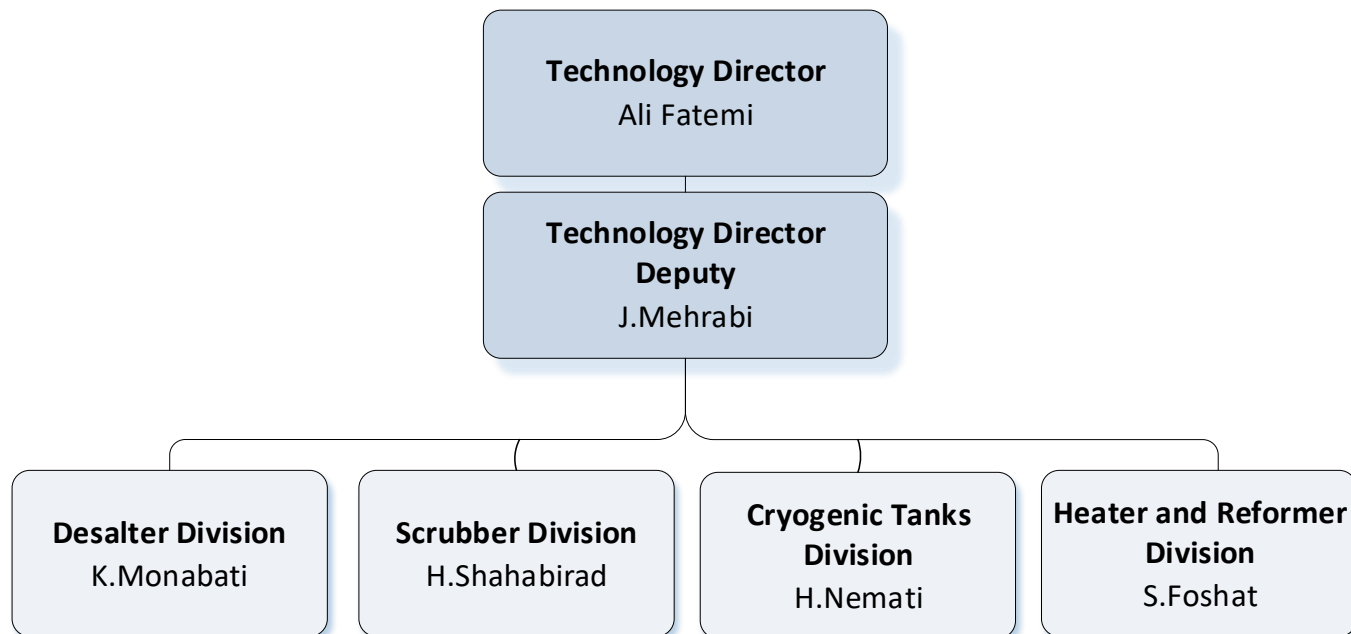
ICT Chart



Engineering Chart



Technology Chart



HEDCO

PERFORMANCE

*HEDCO is certified as Level 1 Consulting company
in the Branch of “Oil , Gas & Petrochemical
Industries” by MPO of Iran*



ریاست جمهوری
سازمان برنامه و بودجه کشور

شماره: ۳۱۵۳۵۸
تاریخ: ۱۳۹۸/۰۶/۱۱

گواهینامه صلاحیت خدمات مشاوره

جناب آقای محسن زمریدیان
مدیرعامل محترم شرکت مهندسی و طراحی همپا انرژی
شماره ثبت: ۲۴۳۱۲

با استناد به مصوبه شماره ۲۰۶۳۷/ت/۲۸۴۳۷-هـ مورخ ۱۳۸۳/۴/۲۳ هیأت محترم وزیران و با توجه به احراز شرایط لازم و تایید صلاحیت آن شرکت در سامانه جامع تشخیص صلاحیت عوامل نظام فنی اجرایی، به این وسیله صلاحیت آن شرکت برای انجام خدمات مشاوره از تاریخ صدور این گواهی نامه تا پایان دوره ارزشیابی و حداکثر تا تاریخ ۱۴۰۲/۰۶/۰۲ اعلام می گردد.

شناسه ملی شرکت: ۱۰۵۳۰۳۶۳۰۵۳
مقتضی است برای مشاهده جزئیات گواهینامه صادره به پایگاه
<https://sajar.mporg.ir> مراجعه فرمایید.

رعایت قانون برگزاری مناقصات، موضوع ابلاغیه شماره ۱۳۰۸۹۰ مورخ ۱۳۸۳/۱۱/۱۷ رئیس مجلس شورای اسلامی، این نامه های اجرایی مربوطه و ظرفیت کاری مجاز در زمان ارجاع کار توسط آن شرکت ضروری است.


سیدجواد فارد
 رئیس امور نظام فنی اجرایی، مشاورین و پیمانکاران

- هرگونه تغییر در ارکان و سهام شرکت و اطلاعات امتیازآوران (مدیرعامل، هیأت مدیره و کارکنان امتیازآور)، باید حداکثر ظرف مدت سه ماه در سامانه ساجار (<https://sajar.mporg.ir>) ثبت و ارسال شود.
- هر قرارداد جدید حداکثر ظرف مدت سه ماه پس از انعقاد قرارداد و صورت وضعیت های جدید پس از تأیید کارفرما باید در سامانه ساجار ثبت شود، تا امتیاز آنها هنگام تشخیص صلاحیت دوره بعد و آزادسازی ظرفیت منظور شود.
- در صورت مغایرت مطالب این گواهینامه با اطلاعات موجود در پایگاه <https://sajar.mporg.ir> اطلاعات پایگاه اصالت دارد.

به مندرجات پشت صفحه گواهینامه توجه فرمایید.

ش.ش: ۳۸۸۷۷۱۶

HEDCO is certified as Level 1 Construction contracting company in the Branch of "Oil , Gas & Petrochemical Industries" by MPO of Iran

شماره : ۵۴۹۶۷۸
تاریخ : ۱۳۹۷/۱۰/۰۸


ریاست جمهوری
سازمان برنامه و بودجه

گواهینامه صلاحیت پیمانکاری

جناب آقای محسن زمردیان
مدیر عامل محترم شرکت مهندسی و طراحی همپا انرژی
شماره ثبت : ۲۴۳۱۲

با استناد به مصوبه شماره ۱۳/۴۸۰/ت.۳۳۲۵۱-هـ مورخ ۱۳۸۱/۱۲/۱۱ هیأت محترم وزیران و با توجه به احراز شرایط لازم و تأیید صلاحیت آن شرکت در سامانه جامع تشخیص صلاحیت عوامل نظام فنی اجرایی، به این وسیله صلاحیت آن شرکت برای انجام امور پیمانکاری از تاریخ صدور این گواهینامه تا پایان دوره ارزشیابی و حداکثر تا تاریخ ۱۴۰۱/۰۹/۲۴ اعلام می‌گردد.

شناسه ملی شرکت : ۱۰۵۳۰۳۶۳۰۵۳
خواهشمند است برای مشاهده جزئیات گواهینامه صادره به پایگاه <http://sajar.mporg.ir> مراجعه فرمائید.

رعایت قانون برگزاری مناقصات، موضوع ابلاغیه شماره ۱۳۰۸۹۰ مورخ ۱۳۸۳/۱۱/۱۷ رئیس مجلس شورای اسلامی، آیین‌نامه‌های اجرایی مربوطه و ظرفیت کاری مجاز در زمان ارجاع کار توسط آن شرکت ضروری است.

سید جواد قانع فر
رئیس امور نظام فنی اجرایی

• هرگونه تغییر در ارکان و سهام شرکت و اطلاعات امتیازآور (مدیرعامل، هیأت مدیره و کارکنان امتیازآور) باید حداکثر ظرف مدت سه ماه در سامانه ساجات (<http://sajar.mporg.ir>) ثبت و ارسال شود.
• هر قرارداد جدید حداکثر ظرف مدت سه ماه پس از انعقاد قرارداد و صورت وضعیت‌های جدید پس از تأیید کارفرما باید در سامانه ساجات ثبت شود. تا امتیاز آنها هنگام تشخیص صلاحیت دوره بعد و آزادسازی ظرفیت منظور شود.
در صورت مغایرت مطالب این گواهینامه با اطلاعات موجود در پایگاه <http://sajar.mporg.ir>، اطلاعات پایگاه اصالت دارد. به مندرجات پشت صفحه گواهینامه توجه فرمایید.

ش.ش. ۲۸۸۲۳۹

*HEDCO is certified by the Ministry of Industry and Mine to perform
Research and Development Projects in the Oil , Gas and
Petrochemical Industry Branches*

شماره: ۱۰۸/۲۸۰۰۱
تاریخ: ۹۹۹/۱۲

جمهوری اسلامی ایران
وزارت صنعت، معدن و تجارت

گواهی تحقیق و توسعه

نظر به اینکه شرکت مهندسی و طراحی همپا انرژی دارای شماره جواز فنی مهندسی ۲۸۳۷۸ از نظر تشکیلات سازمانی، امکانات آزمایشگاهی، تجهیزات تخصصی و نیروی انسانی متخصص، از توانمندی لازم جهت انجام فعالیت های تحقیقات توسعه ای و کاربردی برخوردار می باشد، براساس ضوابط ایجاد واحد تحقیق و توسعه، این گواهی به آن بنگاه اعطاء می گردد.

مشخصات بنگاه:
زمینه تخصصی: صنعت نفت، گاز و پتروشیمی
عناوین محصولات: فنی مهندسی
آدرس بنگاه: فارس - شیراز - میدان جام جم - خیابان جهاد سازندگی - ساختمان ۷۷
تلفن: ۰۷۱۳۲۱۳۶۰۰۰ - ۰۹۱۷۷۱۴۳۴۷۹

حمیدرضا ایزدی
رئیس سازمان صنعت، معدن و تجارت استان فارس

این گواهی از زمان تاریخ صدور به مدت دو سال معتبر می باشد.

وزارت
صنعت، معدن
و تجارت

Our Fundamental Values

Trusting in God,

- we will not spare any effort to make our company a lively place for the excellence of creativity and decency while achieving a deep feeling of trust and honesty by respecting each other and perusing goals that benefits the whole rather than individuals.
- We feel a strong commitment to keep our customers constantly satisfied with our services.
- We are to understand and fulfill our societal responsibilities.
- We cherish our green Land, clean waters, blue sky and constantly try to reach the peaks of quality.

Our Vision

To be the most effective, knowledgeable and Professional EPC contractor of oil, gas and petrochemical industries in Iran

Our Mission Statement

HAMPA Energy Engineering and Design Company's goal is providing consistent promotion of values for customers, staff and shareholders relying on experienced and competent employees as well as knowledge centered technology by executing industrial projects, concentrating on oil, gas and petrochemical projects.

By applying the state of art management models in local and international opportunities, continuous improvement of organizational processes, promoting technical knowledge, recruiting and training creative and efficient human resource and complying with international standards, we whole heartedly try to obtain the highest levels of quality and work toward our stakeholders' best interests.

All parts of the company will make a tremendous effort to get actively engaged in the country's economic well being with a view to strengthening local industries.

Knowledge Management

By promotion of internal knowledge management, HEDCO is aiming at lowering the development costs, improving the quality and shortening the execution time for the projects.

Sustainable Economy

We provide ecologically compatible and environmental saving technologies when developing new processes and optimizing existing ones.

Engineering

Our successful engineering is based on the following principles:

- A clear strategy for the implementation of the work
- Efficient project management
- Well trained staff
- Interface control
- IT-assisted simulation tools
- Risk management (including early risk warning system) and quality assurance systems aligned with global plant engineering

Project Management

To efficiently manage the projects, HEDCO has developed its “HEDCO Total Management System (HTMS)” which is a fully web based software integrating all phases of engineering, planning, procurement and construction from of the project.

This software ensures a timely and thorough monitoring all stages of the project. Project stake holders can have access to documents and reports anywhere in the world by just having access to the internet and logging on to the website.

Process Safety Management, Health, Safety and Environment

For Process Safety Management, Health, Safety and Environment Protection (HSE) issues, HEDCO has developed a documented system which is capable of performing Safe and Environmental Friendly Design and exactly record the achievement of the targets set for health, safety and the environment.

Customer Focus: Quality for our Customers

We have managed to achieve the high quality of our services through consistent planning as well as systematic control and monitoring of all resources and activities involved in the processes from enquiry / proposal preparation to the handover of the plant to the customer. The continuous improvement of the QM system, work processes and services is achieved through examination and evaluation of the efficiency of the QM system, on the one hand, and drawing on the creative potential of our employees within the scope of a continuous improvement system (CIP), on the other.

In order to maintain HEDCO's cutting edge under rapidly changing conditions, we are promoting training and further education at all functional levels.

Certifications

Compliance of HEDCO's quality management system with the specifications of **ISO-9001, ISO-14001, ISO-18001 & ISO-29001** has been certified by TÜV Nord CERT GmbH.

Research and Development

We perform the following R&D as well as project-related services:

- Development of new products and technologies
- Improvement and optimization of existing technologies and the associated process equipment
- Scientific collaboration with universities and institutes
- Joint ventures with industrial partners
- Evaluation of operating data from customer plants.

Procurement and Supply

We have pulled any sources together to supply the equipment needed in projects in the shortest possible time by seeking the most economical ways and using the most qualified vendors.

To realize our goals, we have recruited one of the most skilled and resourceful groups enabling us to:

- Identify and evaluate the suppliers and update the vendors' databases.
- Possess one of the best supply networks catering to EPC projects through supply chain management.
- Shipment and custom clearance management of heavy lift and normal cargo

QA/QMS

(Quality Assurance/ Quality Management System)

CERTIFICATE

Management system as per
ISO 9001 : 2015

In accordance with TÜV NORD CERT procedures, it is hereby certified that

**HAMPA ENERGY ENGINEERING &
DESIGN COMPANY (HEDCo.)**



**Building No. 77 (Hampa Energy Building), No. 128,
Jahad Sazandegi Ave., Jamejam Sq.,
Shiraz, Iran**

applies a management system in line with the above standard for the following scope

**Development of Technology, Design, Engineering, Procurement
and Management of Construction in the Oil, Gas, Petrochemical,
Energy and Environment Projects**

Certificate Registration No. 44 100 898827
Audit Report No. 2078 100 R 19298

End of validity of previous certificate 2019-04-29
Valid from 2019-05-13
Valid until 2023-04-29
Initial certification 2009

M.A.Ahmadi

Certification Body
at TÜV NORD CERT GmbH

Tehran, 2019-05-13

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH

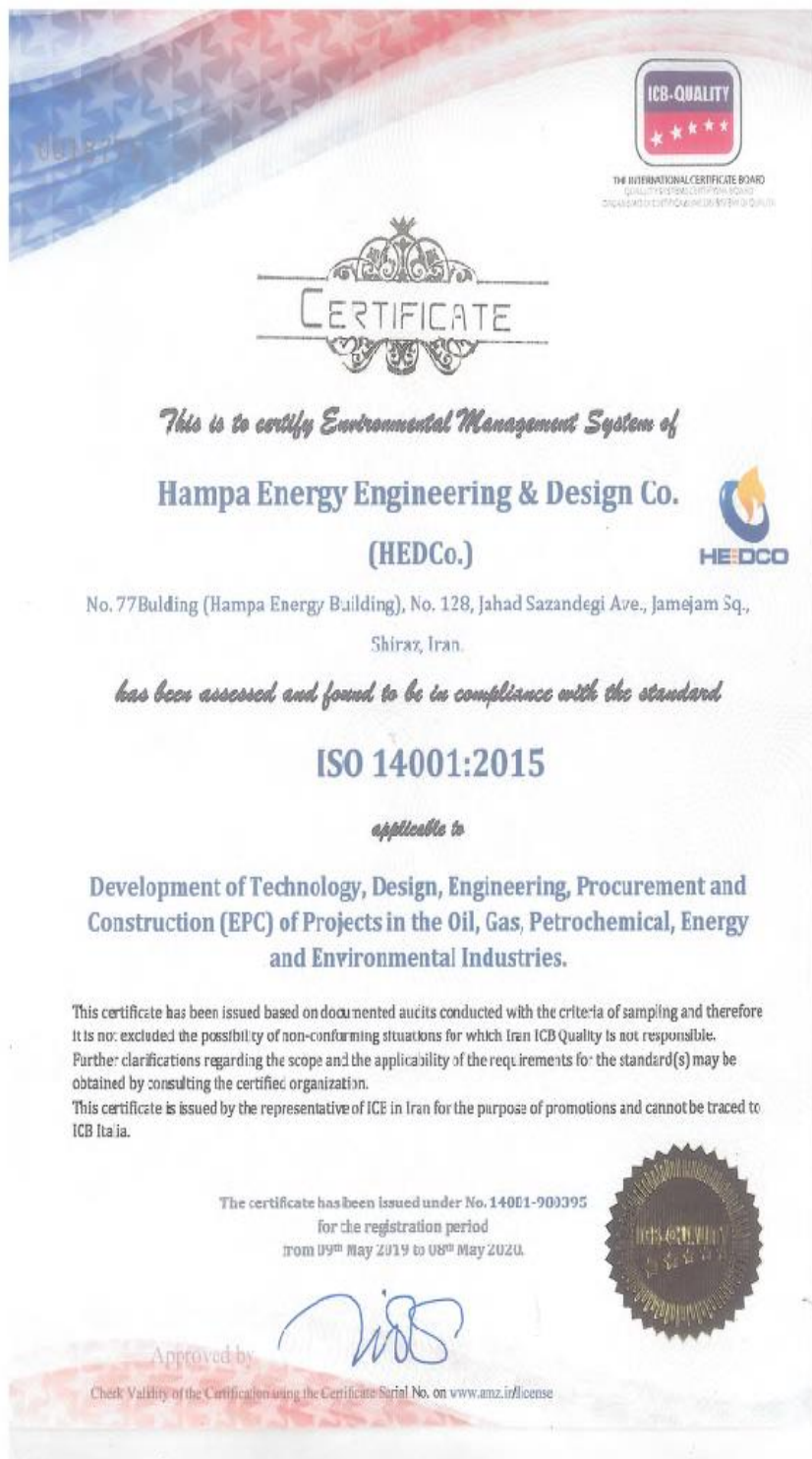
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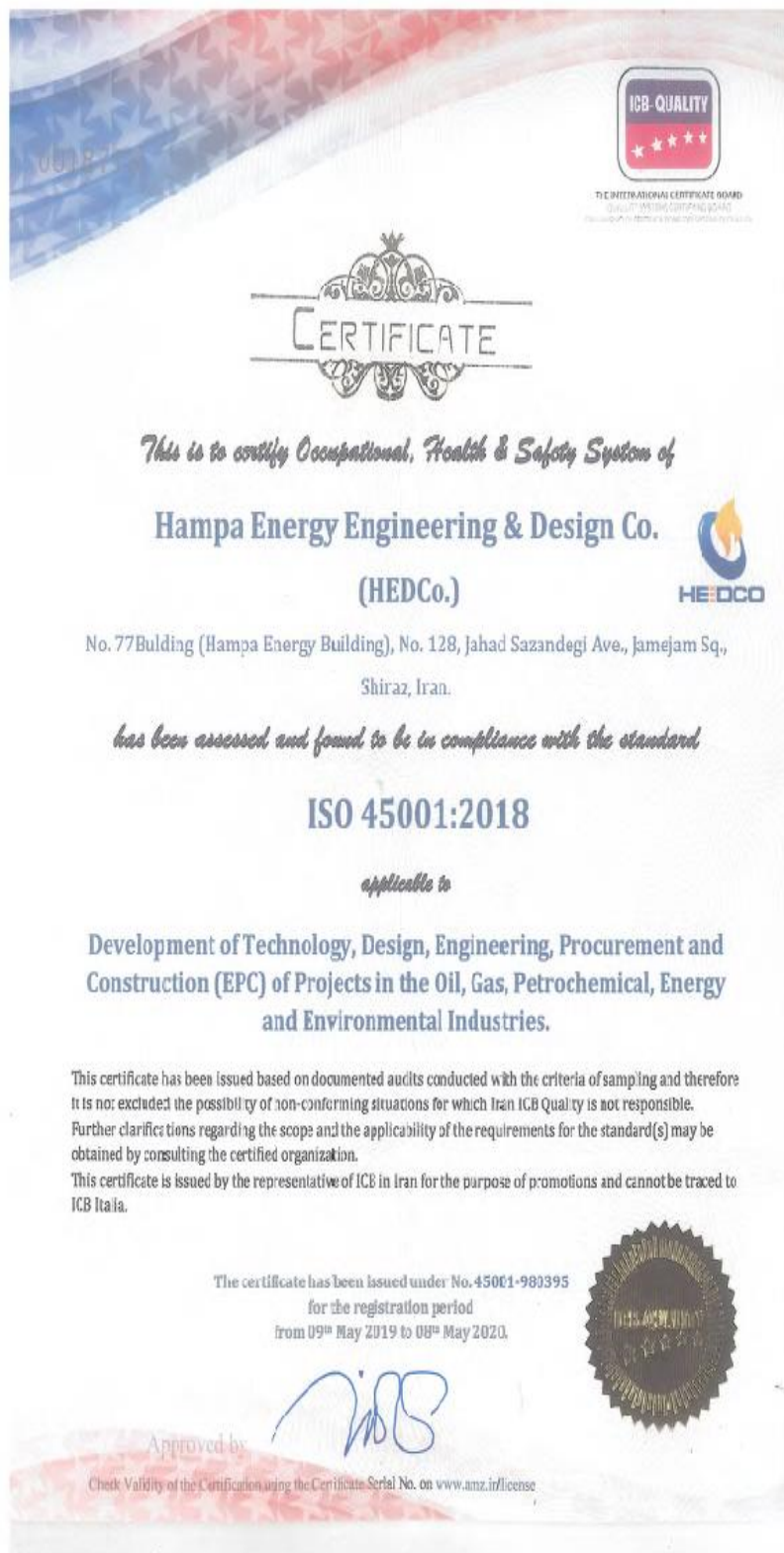
45141 Essen

www.tuev-nord-cert.com



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PMP & RMP Certificates

Some of our Colleagues succeeded to get the International PMP & RMP Certificates from PMI Institute and have been allocated to monitor Compliance of the Qualification of Company's Project Management System with International Standards:

















Quality Management System

One definition of Quality Assurance is:

A part of quality directorate that manages all the planned and systematic activities implemented within the quality management system that can be demonstrated to provide confidence that a product or service will fulfill requirements for quality.

We can say “Assurance” means: The art of giving confidence, the state of being certain or the act of making certain.

To achieve company goals and mission, the systematic workflow can be ensured. Moreover, the quality objectives of the company can also be fulfilled.

Quality Management System

Pyramid of QMS Documentation:



Quality Policy:

It is the policy of HEDCO to do everything possible to improve the quality and reliability of services to satisfy its customers by adhering to the followings:

- Providing services of the agreed quality in the specified time is the company's goal.
- By Quality we mean complying with acceptable standards as well as satisfaction of the customers and appreciation of their needs and ideas
- Quality is the consequence of every ones achievement throughout the company , hence our colleagues irrespective of position , undertake to respect the quality aims and to do their works right at the first time.
- HEDCO shall only use products and services of the companies, which are of satisfactory and approved quality.
- Management of HEDCO and employees do their best to sustain an acceptable quality and improve productivity.
- HEDCO will try to fulfill its quality objectives by appropriately organizing, suitable training and other required means.
- To implement Quality Management System complying with ISO 9001-2008, HEDCO authorizes the Quality Director to monitor the company's quality management system in order to assure its sufficiency and effectiveness.

HEDCO management, having the responsibility of the quality of the company services, expects adherence to the above principles by all the staff in order to assure continuous quality improvement in their work.

Quality Objective:

In line with the company policy, the following objectives have been targeted for the company: Increasing the customer satisfaction through improvement of on time delivery by concentrating on the activities processes and with consideration of: "DO IT RIGHT AT THE FIRST TIME" principal.

Manuals:

Quality manual
Organization manual
Engineering work flow manual

Company Procedures:

Quality Documentation System
Project Document Control
Control Of Quality Records
Project Management
Motivating Personnel for Cooperation in quality activities
Management Review
Proposal and Contract Review
Customer Feedback and Complaints
Design Control
Supplier Evaluation
Project Procurement and Purchasing
Project Control And Reporting
Maintenance and control of company software's
Customer Satisfaction Appraisal
Internal Quality Audits
Quality Control
Control of Non conforming Products
Continual Improvement
Corrective Action
Preventive Action

Company Generalities:

Standards & Procedures Index
Terminology & Definitions Of Technical Terms
Adapted System Of Units
Applied International Standards

Other Company Quality Documents:

Work Instructions
Engineering Work Instructions
Engineering Specifications & Standard Drawings
Formats

QUALITY MANUAL

SUMMARY

1. INTRODUCTION
2. ORGANISATION
3. QUALITY SYSTEM
4. PROCESS CONTROL
5. PROJECT START UP /CONTRACT REVIEW
6. DESIGN CONTROL
7. DOCUMENTS CONTROL
8. SELECTION OF SUBCONTRACTORS
9. PURCHASING
10. MATERIALCONTROL
11. SPECIAL MANUFACTURING CONTROL
12. EXPEDITING OF THE PROJECT
13. INSPECTION AND TESTING
14. INSPECTION, MEASURING, AND TEST EQUIPMENT
15. CONTROL OF NON CONFORMTIES
16. CORRECTIVE ACTIONS
17. HANDLING, STORAGE, PACKAGING AND DILIVERY
18. QUALITY RECORDS
19. INTERNAL QUALITY
20. INTERNAL TRAINING
21. SPARE PARTS SUPPLY
22. STATISTICAL TECHNIQUES

QUALITY MANUAL

1. INTRODUCTION

Scope of application

This Manual describes the organization set up to cover the whole activities from a to z for the oil, gas and petrochemical plants establishment (design, procurement, construction, start up and after sale service).

Definitions

Quality vocabulary of this Manual is the one described in ISO 9000 : 2015.

2. ORGANISATION

Organization Chart

The Company organization chart is stated in the previous pages of company profile.

Functions and responsibilities

Project management is actuated by the following responsible persons:

Engineering Director

He is responsible for the technical requirements of the Client be met in the ongoing projects. He is responsible for quality and improvement of design and engineering processes, He reports to the Managing director.

Commercial Director

He is responsible for having contracts awarded to the company in such a way that requirements of the client can be met within the agreed time frame and cost, upon contract award, he is responsible for submission of full Information to the nominated Project Manager on all aspects of the order. During contract execution he will be informed of any problem arising and, If necessary, assists the Project Manager In settlements, He reports to the Managing director.

Projects Director

He is responsible for control and monitoring the whole projects by nominating a project manager for each project.

Project Manager

He is responsible for planning & costs management as well as technical and quality management aspects of the whole project.

He coordinates engineering, subcontracting and on site activities. He is in charge of communication with client. The Project Manager reports to the Projects Director.

Head of Design Department

He is in charge of all calculations and design supports from tender stage basic design calculation up to the point where the design department can proceed with detailed drawing of the components.

He is in charge of having drawings made and calculations performed in accordance with applicable specifications.

He improves and updates standard technical specifications.

For each particular project he entrusts a group leader with carrying out design of the desalination system. All technical matters that are met during project are reported to him.

He reports to the Engineering director.

Head of Procurement Department

He is in charge of quality, cost and timely delivery of subcontracted activities and

Particularly he is responsible for:

- Sourcing and organization of potential supplies evaluation,
- To assist the commercial department in building up proposals on the subcontractors offers,
- Completing orders placement for those orders, which have been initiated by the purchasing development team. For other orders he is responsible for subcontractors' selection and orders placement in accordance with the Project Management requirements,
- Control of equipment manufacturing (vessels, mechanical and electrical equipment) and control of subcontracted activities (civil works, transportation, erection) with regards to quality, cost and delivery.

He reports to the Projects Director.

Buyers

They report to the Head of Procurement Department.

For each project, a buyer team will be nominated who is responsible for preparation and gathering the necessary procurement specifications from the technical departments and have them approved by the Project Manager. The buyer team orders the components and monitors the fabrication with regards to quality, delivery and costs. He is responsible for inspection and expediting.

He reports to the head of procurement department and keeps the project manager and the planning department informed of the progress of the works.

The nominated buyers supports the Project Manager during detailed engineering of the system by obtaining from potential suppliers the necessary data and specifications to be submitted to the client for approval.

Once design is approved, he orders the component and monitors the fabrication with regards to quality, delivery and costs, He is responsible for inspection and expediting.

He reports to the Head of Procurement Department and keeps the Project Manager and the planning department informed of the progress of the works.

Head of Planning Department

He supports the Project Managers in monitoring the progress of their projects. He makes sure that intermediate progress milestones are met, and if not, that adequate decisions are made at the right level to put the project back on tracks.

He is responsible for the quality of overall time schedules.

Site Supervisor

The Site Supervisor is in charge of monitoring on site erection and commissioning works, He makes sure that aft requirements are met during erection and if not, has the corrective actions taken. On behalf of project manager, he monitors acceptance tests and has test results approved by the Client, He reports to the Head of Procurement Department and the Project Manager informed of the progress during plant erection, commissioning and start up (as applicable).

Quality Assurance and Control Manager

He is in charge of the Quality System of the company.

He makes sure that general management approved quality policy is understood and implemented at each necessary level of the company.

He audits organization on a permanent, formal & informal basis and, when necessary, makes sure that adequate corrective actions are taken within the required period of time.

When necessary he takes part in building up new procedures that are required to improve the Quality System. He is in charge of Improving and yearly updating the Quality Manual of the company. He assists the Project Manager and the Buyers to answer to any particular Quality requirement.

He is responsible for the Quality of inspections performed either by company representatives or, on behalf of company, by external inspection agencies representatives.

He reviews the Inspection and Test Plans. He is in charge of the co-ordination of inspections between the dent and company. He informs the Head of Procurement Department and the Project Manager of any Quality problem to be solved.

He also visits subcontractors to assess their capability to comply with applicable Quality requirements. He reports to the project director.

3. QUALITY SYSTEM

Quality management of company activity is implemented through the following main stages

- Process design control
- Project start up / contract review
- Design control,
- Documents control,
- Selection of subcontractors,subsuppliers
- Purchasing control,
- Material control,
- Special manufacturing processes control;
- Expediting,
- Inspection and testing,
- Inspection, measuring and test equipment,
- Control of nonconformities,
- Corrective actions,
- Handling, storage, packaging and delivery,
- Quality records,
- Internal quality audits,
- Internal training,
- Spare parts supply,
- Statistical techniques,

The here above 19 points are addressed in the following paragraphs,

4. PROCESS DESIGN CONTROL

Process design starts at tender stage to make sure that Client's requirements can be met.

Design methods have been validated step by step with qualification tests and field analysis of similar design.

All design methods and calculation procedures are checked and approved by the Engineering Director.

Once the contract awarded to company, a complete process file is released to fix any major parameter and let the design department start detailed design activity.

The process file is checked by the Head of process Department.

5. PROJECT START UP / CONTRACT REVIEW

At start up of any new project the Project Manager is nominated by the Projects Director and the following actions are carried out:

Review of technical specifications

A first review takes place during pre-award meetings.

Minutes of this meeting clarify any possible matter that may arise.

Then within the very first days after contract entering into force, each technical specification is reviewed by the relevant company specialist.

Any request for clarification is then transmitted to the Project Manager who addresses this subject with the Client. Decisions or clarification statements are recorded in writing and duly dispatched under responsibility of Project Manager.

Dispatching of applicable documents

It is the Project Manager's responsibility to review and dispatch the applicable documents to the relevant Department and to draw their attention on the requirements of the Project that may be specific.

It is the responsibility of everybody involved in the project to review the contractual documents applicable to their Department and to refer to the Project Manager in case of doubt.

Review of overall time schedule

The Planning Department issues a general milestones schedule showing periods of time within which main activities have to be completed in order to match with final delivery requirements.

On a co-ordination and information purpose, this time schedule is transmitted to internal person who may be involved in the project.

Adaptation of the documents classification system

The Project Manager gives the necessary instructions to the Computer Department in order to adapt the company computerized document data base to the requirement of the Project regarding transmittals, revisions and approval stages, lists of documents etc.

Drawing UP of an Inspection Plan

An Inspection Plan is drawn up under responsibility of Quality Assurance and Control Manager. This document sets up the list of applicable Inspection and Test Plans and/or Inspection Requirements for main suborders.

6. DESIGN CONTROL

Design work is assigned to Design Department, specialists of the Procurement Department and subcontractors. Technical interfaces between all these different groups are controlled by the Project Manager. Each group is responsible for the quality of its own design.

Main activity is generally carried out within company Design Department.

The Head of this Department nominates a design group leader who is in charge of drawings. Structural calculation work is also assigned to a specialized group of the Design Dept.

Internal reviews are held by the Head of Department on a weekly basis in order to clarify input requirements and make sure that design output meets Client's requirements.

Verification of the design is done by the Head of the Design Department and/or by the Project Manager as it goes on and at final stage, it is either done at random or by full checking of a particular component. No written record of this activity is kept but the visas of responsible persons on the drawings.

Whenever a design change is required, the Project Manager and the Head of Design Department meet together to fully address all consequences of the change, they make sure that the new requirements are properly taken into account by those persons who are concerned.

Review and approval of all changes or modifications of documentation are performed as for

here-above mentioned normal design work.

7. DOCUMENTS CONTROL

Numbering, recording and storing of documents

An internal company number is given to any major document relating to the project, this includes;

- drawings, specifications, calculation notes
- external mailing,
- suborders

These numbers are recorded in a computer file by the person they originate from.

When the document originates from a subcontractor; it is the responsibility of the person dealing with this subcontractor to give a company number to the document, to record it in the computer and to update the revisions.

Whenever the Client requires it, a particular numbering is added to documents without masking the company numbering.

In each department of company, the one who issues a document is responsible for storing it.

Verification of documents

The levels of verification of the above-mentioned documents are the following:

- design or writing: operator control from the author,
- checking: author's supervisor,
- approval: Head of Department or Project Manager

At least one of these will sign down on the document to certify his control.

Original documents are hand signed by verifiers. Copies are then issued as computer printouts with the names of verifiers in block letters only.

The date of signature of author is the original date of creation of the document.

The date of signature for the other levels of verification is the date of revision of the document.

Monitoring of approval status

Transmittal of documents and status of approval by Client are fully recorded on the document computer files. From any computer screen, one can easily find out what the

applicable revision is or what the actual level of approval is.

It is the responsibility of the Project Manager to monitor and update the status of approval of relevant document by the Client and to inform the Design Department and Procurement Department about the status of approval by the Client of the submitted documents and to require the necessary modifications.

It is the responsibility of the Design Department and the Procurement Department to manage the approval of the documents issued by their subcontractors, The Procurement Department is responsible for the control of documents sent to subcontractors for manufacturing.

Document modification

Further to a change of requirements some documents may happen to be modified, New revisions are checked as original ones (see 7,2) with at least the visa of one responsible person. It is the issuer responsibility to internally dispatch new revisions of his documents.

Referring to the centralized documents computer file is an easy operation from everywhere within the company for anyone who needs to check what revision is actually applicable.

The Procurement Department is responsible for dispatching updated documentation to sub-suppliers in order to have modifications taken into account as soon as possible in the fabrication process. Quality system of subcontractors is checked to be able to manage properly modification of documents (dispatching of new ones and withdrawal of old ones).

8. SELECTION OF SUBCONTRACTORS, SUBSUPPLIERS

In the field of oil, gas and petrochemical plants, company have been working frequently for years with the same subcontractors that have become acceptable and reliable suppliers. A technical standard has been progressively built up with them.

When a new subcontractor is likely to be selected, then an assessment visit is paid to him by either the Quality Assurance and Control Manager or the responsible Buyer, The aim of the visit is to audit his facilities, his reference list and his quality organization against ISO 9000 requirements. Afterwards a report is issued by the auditor to approve or not selection of this new subcontractor.

When a subcontractor fails to fulfill his contractual commitments with company, then tenders

are no longer sent to him for a while. Later on, if company happens to give him a new chance,

then he is deemed to be a new subcontractor.

No official list of approved subcontractor is held by company as usual suppliers are not numerous and each of them is well-known: such a list is not an internal need for quality.

9. PURCHASING

The Design Department, the Project Manager and the Quality Assurance and Control Manager are to provide the Procurement Department and the Purchasing Development Section with all applicable specifications.

At tender stage as well as when placing the order, documentation sent to subcontractors includes, but is not limited to, the following:

- Description of supply and/or services,
- Applicable technical specifications and drawings,
- Delivery requirements,
- Inspection and Test Plans, with applicable inspection and testing specifications,
- Applicable specification for packing and marking,
- Administrative and commercial clauses.

Most of this information is based on company standard specifications unless otherwise specified by Client Company.

All the purchase orders issued by company are finally checked and signed by the Buyer nominated for follow-up and/or expediting.

10. MATERIAL CONTROL

Most critical rough or semi-finish materials, as far as quality is concerned, are directly bought by company who delivers them to subcontractors for manufacturing. It is the case for special stainless steels, clad steels or heating bundle tubes. These materials are bought from approved suppliers in accordance with international standards. The quality organization of these suppliers is required to be at least equivalent to ISO 9002.

Therefore first level of control is "operator control" from the supplier who is, at least, to report

to company any failure in meeting specifications with the final product.

At delivery of materials to the manufacturer, the invoice is forwarded to company with relevant material certificates attached to it. The second level of control is company buyers who check material certificates against applicable standard.

In case of nonconformity, a "hold" is immediately put on the manufacturer's shop. Some standard stainless or carbon steels are directly bought by the manufacturer.

In that case it is part of company evaluation of the ability of his manufacturer to make sure that he is applying an equivalent to ISO 9002 QA system and therefore, that his control of incoming materials is acceptable.

In any case, material certificates are collected by the manufacturer who is to put them into his constructor's file.

11. SPECIAL MANUFACTURING PROCESSES CONTROL

The resulting quality of some manufacturing processes such as welding or painting cannot be proved by a simple final control. Therefore special organization is to be foreseen to ensure that final quality requirements will be met.

Unless otherwise is specified in the purchase order, company applies their standard specifications which include:

For welding:

1-For vessels and steelworks manufactured on company design and drawings:

- Company approval of the welding book and WPS/PQR file prior to the beginning of welding,
- In course inspection by an Inspection Agency or by company inspectors, this is to check the applied procedure against the approved one together with welders qualification,
- non destructive testing

2-For standard, off the shelf equipment manufactured based on Manufacturer drawings, the

Welding book is only reviewed by company except otherwise stipulated in the purchase

order or the Contract. Inspections are performed in accordance with the applicable Inspection and Test Plan.

And for painting:

- Company approval of the painting files prior to beginning,
- In course inspection of painting parameters
- Final inspection

12. EXPEDITING OF THE PROJECT

As per paragraph 5 .1 the milestones schedule issued by the Banning Department is transmitted to any internal person who may be involved in the project.

Everyone is then to meet the completion date which has been assigned to his own activity.

Any problem, either internal or external, that may jeopardize final delivery of the project is reported to the Planning Department for action.

Expediting of suborders is the responsibility of the Head of Procurement Department who nominates a responsible Buyer and/or Expediter for each order placed.

Progress control on main components manufacturing (pumps etc.,) is based on a fabrication schedule that subcontractor is to submit to company at the very beginning of its contract.

This schedule shows main stages, links between tasks, critical path, external procurement key dates, etc Once it is approved by company expediting is based on it the Inspection Agency committed to the suborder, if any, issues expediting reports. And when necessary the Planning Department carries out some expediting visits on behalf of Buyers.

This department also carries out some expediting on a random basis both internally and externally for those activities which are most critical.

13. INSPECTION AND TESTING

Responsibilities

It is the responsibility of each nominated Buyer to make sure that all applicable inspection requirements are mentioned in their purchase order.

The nominated Buyer is also responsible for inspection and testing of the purchased material/equipment.

He keeps informed the Project Manager and the Quality Assurance and Control Manager of the inspection schedule.

Either he performs inspection by himself or, he requests inspection by an in-house inspector.

If inspection agency services are required, the scope of mission of inspection shall be reviewed by Quality Assurance and Control Manager.

The QA/QC Manager may decide to inspect any subcontracted components when he deems it necessary as part of his Quality System auditing role.

The Quality Assurance and Control Manager are in charge of co-ordination of inspection between company and the Client.

Inspection and testing requirements

Unless otherwise is specified in the purchase order, company apply their standard inspection and testing requirements.

These standards can be either international standards when a satisfactory one is available and applicable, or company inspection requirements when not, the latter inspection requirements are listed in documents so called "SHOP INSPECTION REQUIREMENT" (SIR).

SIR's specify the minimum list of inspections and/or controls to be performed by the subcontractor. For each inspection it indicates whether it is a "Review or Random check", a "Witness" or a "Hold" point and whether quality records are to be issued or not.

They fire prepared by the Buyer and approved by the Quality Assurance and Control Manager, and from company standard SIR's that may be slightly modified to fully comply

With particular Client's requirements, if any during commissioning.

Pre-inspection Meeting

It is buyer's responsibility to make sure that all applicable inspection requirements have been handed over to the subcontractor and that he understands what company is expecting from him. When necessary and mainly before manufacturing of major components, a Pre-Inspection Meeting is held at the subcontractor's premises with manufacturer's inspector, Inspection Agency representative, Client's representatives (If required) and company representatives. The purpose of this meeting is to clarify inspection requirements and organization (notification and reporting procedures, constructor file etc...).

Organization

Company inspector or committed Inspection Agency attend all inspection points and report to buyer, a copy of their report is forwarded to the Quality Assurance and Control Manager.

Constructor File

As part of their scope of supply within the suborders placed to them by company, subcontractors are to provide their constructor file with the supplied equipment or vessel. The constructor file certifies that inspection and testing of the equipment were done in accordance with contractual requirements and with satisfactory results.

This constructor file may be either:

- The inspection, test or conformity certificates when no I.T.P. was set for this supply, in that case the certificates are simply bound in one document referring to the suborder.
- a complete book including the I.T.P. duly signed off, with all mentioned certificates and records, sorted and classified so that information is easy to retrieve, The nominated Buyer is responsible for keeping these records till Final Acceptance of the plant and to make them available upon request of the Project Manager.

Commissioning of plants

Operations, company representative makes sure that approved commissioning procedures are applied by operators.

He continuously reports to the Project Manager in order to progressively achieve a satisfactory tuning of the plant.

14. INSPECTION. MEASURING AND TEST EQUIPMENT

As companies are not a manufacturer they do not own any Inspection, measuring or test equipment. As a general consideration they make sure that their subcontractors make proper use of this kind of equipment.

Company's control takes place at evaluation stage for new subcontractors and during manufacturing. It can be either performed by a company inspector or by the inspection Agency representative. Particular attention is paid at calibration of pressure gauges prior to any pressure test in order to make sure that these instruments comply with company testing specifications. When commissioning a new plant, company site supervisor ensures that calibration of all field instruments is consistent with required measurements accuracy.

15. CONTROL OF NON CONFORMITIES

General comment

Non conformities are detected by inspectors of subcontractors, company inspectors or authorized inspectors. They are documented and reported to responsible company engineer or buyer.

But besides this, it is everyone's duty to "put up a flag" when a nonconformity appears to him and to report it to responsible person.

Non conformities review and disposal

Once nonconformity is detected and documented, it is reviewed by Project Manager or responsible engineer or Quality Control Manager. Review of major ones is attended by Quality Assurance and Control Manager. Dispositions may be as follows:

- Repair: when a repairing procedure is available to restore acceptability of the nonconforming product. This procedure is submitted to company approval.
When required by specification, Client's approval is requested by company.
- Use-as-is: products deviate from specification requirements and no repairing procedure is available. However company can prove that it is still acceptable quality-wise.

Agreement of the Client is sought by company who will fully describe the technical status

of the product

- Reject: when none of the above dispositions is possible, then companies have to replace the nonconforming product.

Documentation of non conformities is done on Nonconformity Report standard form sheets, It is Quality Assurance and Control Manager's responsibility to keep records of Nonconformity reports, a copy of them is made for the Project Manager who will keep them till Final Acceptance of the desalination plant.

Control of Nonconforming products

Subcontractors evaluation include audit of their traceability and marking/tagging procedures. Nonconforming products are to be highlighted by bright colored tags and put out of production area as soon as possible.

16. CORRECTIVE ACTIONS

Difficulties ever met during manufacturing and operation of the plant may happen to originate either from design or organization.

Whenever such a situation appears, the Quality Assurance and Control Manager make sure that actual causes are properly identified. Corrective actions are defined either by improvement of organization or modification of standard design and specifications, the purpose of this corrective action is to prevent any further identical problem without inducing other ones.

Quality Assurance and Control Manager is to pay particular attention to consequences of corrective actions and their effectiveness on quality.

17. HANDLING, STORAGE, PACKAGING AND DELIVERY

Handling of heavy parcel is taken into account already at project stage to confirm the feasibility of transportation.

Client requirements are Eater confirmed during contract review.

Handling and transport are taken into account in company from the design stage:

- by design and calculation of lifting lugs
- by issuing a transport drawing when necessary

At the procurement level, necessary requirements regarding handling, storage, packaging and delivery are described in the purchase order with reference to company internal packing and shipment specification and international standard (SEI).

It is part of company evaluation and inspection of their subcontractors to make sure that they can and do apply the requirements of the purchase order.

In some cases company may use specialized subcontractor for packing and handling.

Packing inspection is a standard point of I.T.P, (Inspection and Test Plan).

18. QUALITY RECORDS

All documents relating to quality on a particular job are filed together by each buyer in order to be available for Clients or their representatives if required. These documents include, but are not limited to, the following:

- Completed Inspection and Test Plans together with all relevant certificates and reports,
- Nonconformity documentation,

The language of these documents is the language of the contract (English most often) in order to ensure satisfactory legibility to Clients.

These records are kept for the stipulated duration of the contract.

19. INTERNAL QUALITY AUDITS

Quality Assurance and Control Manager is responsible for internal quality audits. Whenever necessary, he plans auditing of departments or activities within company in order to identify non quality sources in the organization.

Either one department (Design, Procurement) or one activity (inspection, shipment, etc.,) may be valued each year under responsibility of Quality Assurance and Control Manager who documents his conclusions in order to have the corrective actions taken when necessary.

20. SPARE PARTS SUPPLY

The Spare Parts Department is part of the Procurement Department, at final acceptance of desalination plants; it collects all information relating to spare parts. During operation of the plant, it keeps updating the technical configuration of the plants in order to be able to provide quality spare parts when required.

Basically the Quality requirements for spare parts supply are the same as for main equipment. Yet the relevant procedures may be alleviated depending on the criticality of the parts, it is the responsibility of spare part department Buyers to assess these Quality requirements or to ask, in case of doubt the necessary assistance to the other relevant department.

21. STATISTICAL TECHNIQUES

A statistical file is held up by the Design Department to have an easy look at major characteristics of all plants designed by company in the past. With the feedback of Spare Parts Department and Commercial Managers, It is easy to improve or confirm technical choices for new tenders,

PSM/HSE

(Process Safety / Health & Environment Management Systems)



PSM/HSE POLICY:

In **HEDCO**, ultimate care for safety, environment and health is integrated. It is a normal practice at **HEDCO** that economical considerations are always balanced with PSM & HSE arguments. Our aim is to match technological innovations with constant improvements in the Health Safety & Environment. These are combined with progressive reductions in potentially harmful risk to levels far below legal requirements. It goes without saying that **HEDCO** policy in relation to Technical and Process safety and the environment (PSM/HSE) is the subject of constant and intense attention in the **HEDCO** corporate board, as well as design, sales and services. Our reputation is closely linked to our ability to generate sustained, profitable growth under conditions in which care for the individual, equipment and the environment sets the standard. Because of the strong relationship between the key (PSM/HSE) factors of People, Planet, Environment and Profit, **HEDCO** believes that goal-setting and monitoring of (PSM/HSE) performance must be done at the highest executive level. A structure for monitoring and reporting to the **HEDCO** board has therefore been put in place.

Briefly, we can state that our TS/HSE MS based on OHSAS 18001 elements that include:

- Policy & Strategic Objectives
- Organization Resources & Documentation
- Evaluation and Risk Management
- Planning
- Implementation & Monitoring

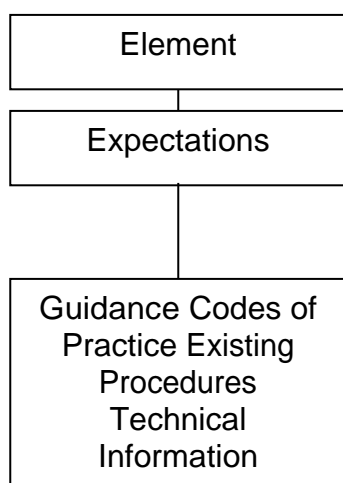
Continuous improvement of PSM/HSE performance

Because we are part of a dynamic world, we have to act and respond constantly to changing needs, demands and requirements. Our PSM/HSE performance is therefore monitored and improved continuously. This is an integral part of our day-to-day business and management process.

The company is committed to continuously improving the PSM/HSE performance of all our activities, products, processes and services. Therefore **HEDCO** set the HSE policy to conduct all business activities in a socially responsible way, preventing health, safety and environmental risks and to achieve sustainable and profitable growth.

Purpose

- **States the TS/HSE MS policy.**
- **States various responsibilities.**
- **Contains, or points to, standards in TS/HSE MS that should be achieved.**
- **A "Top level" document against which other guidance or reference document are positioned**



Element description or high level goal

Activities are required to form in position in order to satisfy the 'element1. They are written as, or indicate, performance standards

Descriptions of procedures that already exist within COMPANY and are used as guidance in satisfying the expectations

Elements of Company PSM/HSE

Elements 1	Leadership
Elements 2	Safety
Elements 3	Occupational Health
Elements 4	Product Safety
Elements 5	Environmental Protection
Elements 6	Risk Management
Elements 7	Emergency response
Elements 8	Incident reporting and investigation
Elements 9	Personnel selection, competency and training
Elements 10	External communication
Elements 11	Legal requirements
Elements 12	Continuous improvement

Company PSM/HSE Expectations

These expectations should infer to a standard and should be measurable:

Expectations Shall refer to:

- Policy & Strategic Objectives
- Organization Resources & Documentation
- Evaluation and Risk Management
- Planning
- Implementation & Monitoring

PSM/HSE in ENGINEERING

Preparation of Engineering Specification

Preparation of Procedures

Performing Hazard Analysis

Design of Firefighting Systems including

Design & Procurement of Firefighting Equipment

Design and Procurement of Safety Equipment

Design and Procurement of Emission Control Systems

Design and Procurement of Emission Monitoring Systems

Preparation of layout drawings

Design & Procurement of Wastewater Treatment Systems

Preparation of Procedures for:

- Approaching Zero Waste , Zero Flaring Philosophy
- HAZID Study
- HAZOP Study
- SIL Study
- QRA Study
- Safe Handling of Hazardous Material

Performing:

- Safety Review
- HAZOP Study
- HAZID Study
- SIL Study
- QRA Study

Preparation of layout drawings:

- Fire water distribution system
- Fire proofing radiation zone
- Hazardous Area Classification
- Noise Map (if required)
- Gas emission Plan (if required)
- Gas Detection
- Fire Detection
- Fire break Glass
- Gas Flooding (CO2 ...)

Preparation of Engineering Specification for:

- Safety Philosophy
- Fireproofing Requirement
- Foam system
- Firefighting Sprinkler System
- CO2 Fire Extinguishing System
- Firewater Distribution & Storage Facilities
- Fire Extinguishers
- Incinerators
- Flare & Flare Stacks
- Firefighting Equipment & Facility

Design of Firefighting Systems including:

- Firewater System
- Foam System
- Gas Flooding Systems (CO₂, Inergen, Argonite ...)

Design & Procurement of :

- **Firefighting Equipment including:**
 - Firewater Tanks
 - Firewater Pumps
 - Hydrants & Monitors (water, foam ...)
 - Gas Flooding Systems
 - Deluge Valves
 - Spray Nozzles
 - Foam Systems (fixed, semi-fixed, mobile ...)
- **Safety Equipment including:**
 - Eyewash & Safety Showers
 - Portable Extinguishers
 - Personnel Safety Devices
 - Safety Signs
- **Emission Control Systems:**
 - Gas Scrubbers
 - Flare Stacks
 - Incinerators

- **Emission Monitoring Systems:**
 - Toxic Gas Detectors
 - Flammable Gas Detectors
 - Fire Detectors (Smoke, Flame, Heat ...)
 - Fire Break Glasses
 - Annunciators
 - Sirens
 - F&G Panels
 - F&G Flashers

Design & Engineering of Wastewater Treatment Systems:

- Oil Removal Units (API, CPI, DAF ...)
- Neutralization Systems
- Biological Treatment Systems
- Chemical Treatment Systems
- Filtration (gravity, pressure, ultra- ...)

HTMS

(HEDCO Total Management System)

ICT, THE KEY TO SUCCESS

Information Management & Software Applications are fundamentals to HEDCO success

HEDCO believes Project management expertise vested through sophisticated IT based systems is one of the key elements in achieving successful culmination of EPC projects. In this regard, extensive investment in ICT (Information Technology & Communication) is done for providing our customers the optimum and reliable plant design and engineering.

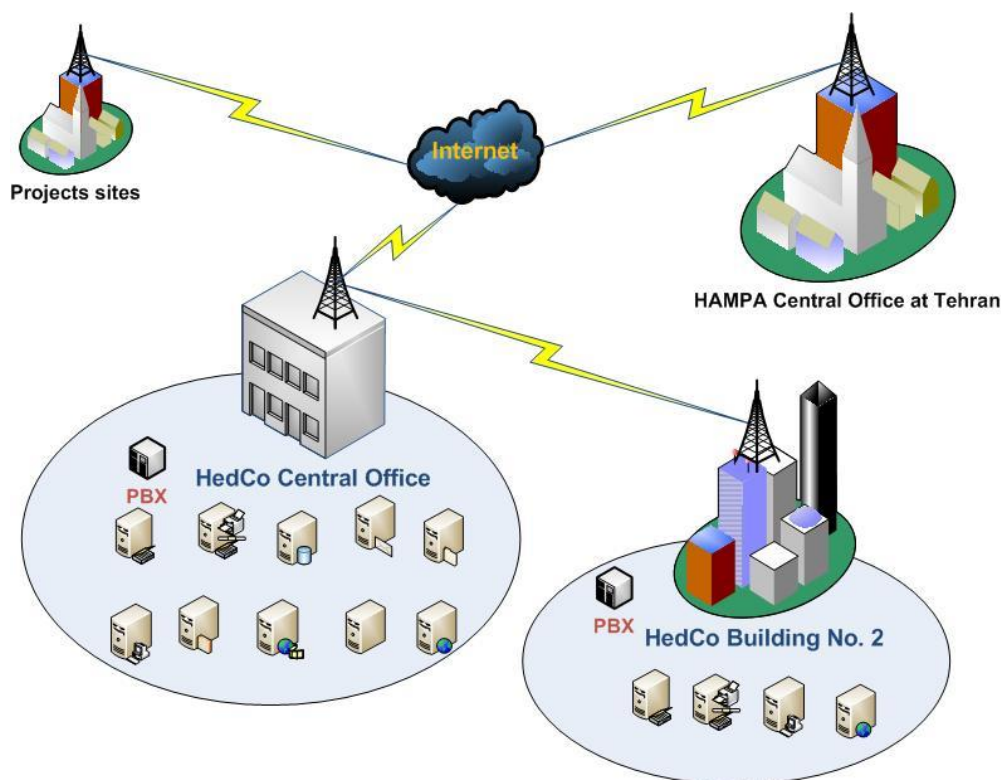
By utilizing best practices of Information Engineering, HEDCO Engineering Portal is the key factor which provides all necessary information for our customers, employees and partners. Electronic Document Management System, Electronic Team Collaboration, Project based portals and Project Management, Electronic Standard, Technical Codes and Information Libraries, as well as interactive database systems ensures use to meet our customer's requirements in all phases of project activities including plant design, engineering, drafting, project execution, procurement, planning and cost control.

The ICT group key services to HAMPA group, includes:

- **Knowledge management and tracking across the enterprise**
- **IT security/business continuity**
- **Networking and Communications between HEDCO and all project sites**
- **General IT advice and strategy business performance improvement**
- **Software development and services**

Network and Communication Infrastructure

HEDCO Network is based on the best known modern and new computer technologies such as high performance servers, network management tools and backup facilities, which enable our employees to experience high speed data interchange. By employing 12 HP DL380 dual processor server and potential storage capacity up to 12 Terabytes, we are sure all necessary software and solutions would run at their best performance. The company backbone is based on fiber optics core and designed based on reliable equipments from known brands such as CISCO and HP. As HEDCO have two different buildings, they are connected with two distinct wireless links, one 75 Mbps *real bandwidth* for data transformation and another 11Mbps real bandwidth for telephone communications.



All the network service are designed by having the IT security best practices in mind, including firewalls, network access control list, user activities logging & monitoring, and so on. By employing Windows 2003 Active Directory Services, HEDCO has provided all reliable and integrated necessary basic services such as email, video conference, file and print sharing and project workspaces.

Telecommunications at HEDCO has been designed based on Panasonic TDA digital switches, which are connected based on IP to each other. These telecommunication Equipment has been completed by employing Microsoft Communication Service for IP based video conferencing.

The infrastructure has been designed to provide all public and private resource to more than 350 clients in LAN and 1000 simultaneous WAN users. Also the company can provide wireless access to all necessary resources for guest/visitors. The current information storage capacity of the company is 3 terabytes; however the potential designed capacity is 9 terabytes which can be met on demand.

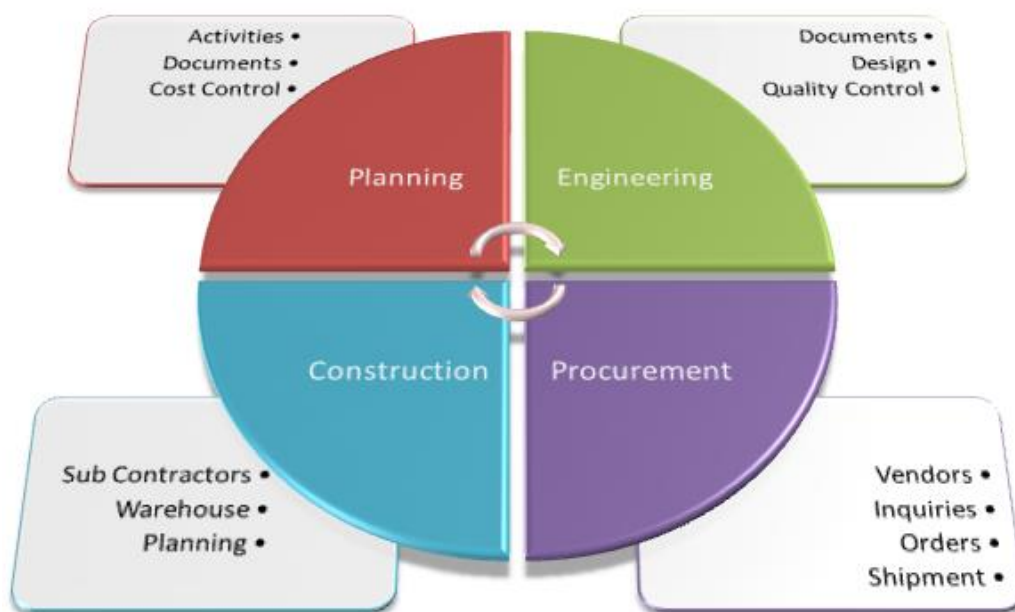
HTMS (HEDCO Total Management System)

HEDCO needs to manage its growing information, documents and activities based on its standards and work disciplines, yet in a flexible way to improve the speed of information flow. In this way, HEDCO started to develop set of in house Web based software applications in different categories, base of known and proved Microsoft high tech information collaboration tool, Microsoft SharePoint Enterprise Portal 2007 and Microsoft Enterprise Project Server 2007 , including:

- **Electronic Document Management System**
- **Planning Management Information System**
- **Project Cost Control System**
- **Procurement Management System**
- **Vendor Document Management System**
- **Project Warehouse Management System**
- **Construction Planning Support System**

which are developed as dependent modules of an integrated software,

HEDCO Total Management System (HTMS). The **HTMS** controls and manages all activities and resources across the enterprise



HTMSe – The Design & Engineering management section of HTMS

Today's complex projects produce lots of documents in different formats. The main source of these documents is engineering departments and includes varies range of documents such as technical specifications, datasheets, requisitions, drawings, etc. The HTMSe is a web based system for managing the distribution, of controlled documents under transmittal.

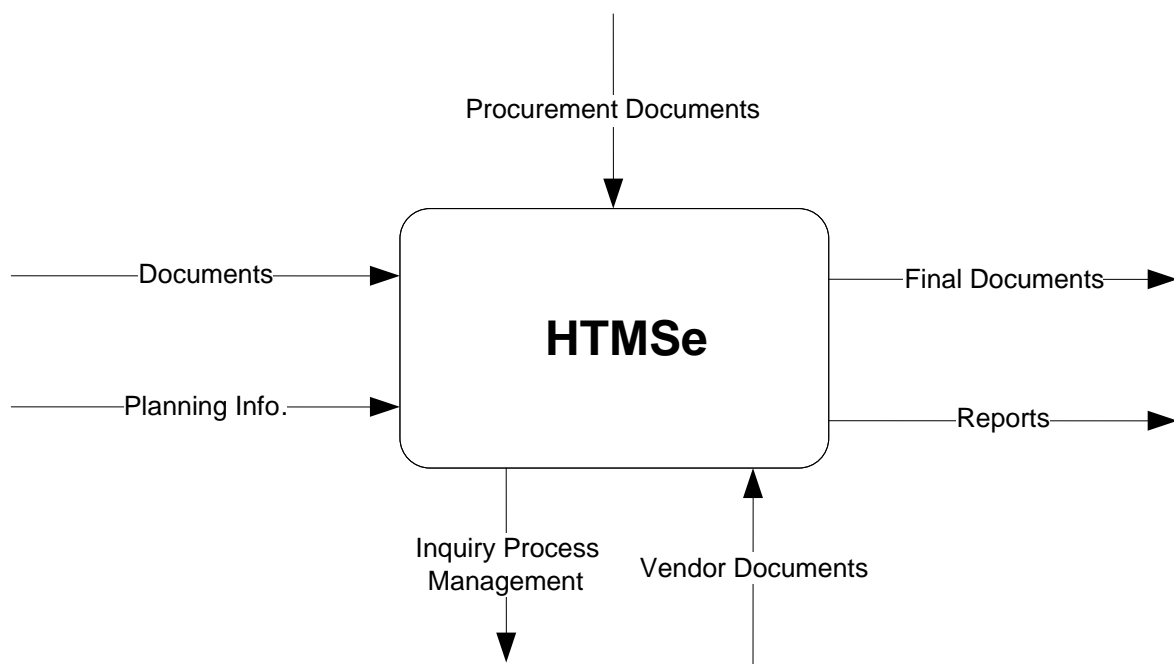
A controlled document is one that is subject to change control throughout its life cycle. A typical example is an engineering drawing, which often undergoes many changes between the time it is first issued, and the time when the work it depicts is completed on site. Its availability on the web and integration with company portal makes it a central point of day to day project activities. As users do not need to install any software for accessing the system, at the same time it reduces complexity and increases ease of access.

The need for a system to manage the distribution of controlled documents arises, when both the number of such documents, and the number of people who receive one or more them, is large. HTMSe ensures recipients are kept up to date with the latest revision of documents.

This reduces the risk of people using the wrong version of documents. HTMSe is facilitated by a workflow management system, which lets to issue and distribute any kind of documents, fire user defined and managed alerts to key users and prepare day to day TODO list for them. These features bring confidence and power to the project team and significantly reduce unnecessary communications and make them efficient.

HTMSe distributes documents across the project members, alerts them regarding any new change and collects all users' comments. Each comment would be available attached to documents revisions which provide further access to the full life cycle/history of each particular document.

One of the key benefits of HTMSe , is the ability to be able to leave document control to clerical staff, rather than have to use the valuable time of more senior engineers, on what is essentially a very straight forward task.



HTMSe closely works with DCI and HEDCO planning system, which is a web based system based on Microsoft Project Server 2007. Another key benefit of HTMSe, is its integration with HEDCO procurement management system, another HEDCO web based application for managing procurement activities from MTO to shipment information management. This integration lets project procurement staff to publish the requisitions and all inquiry related documents including requisitions for the selected vendors and manage all process like TQ, CQ, TBA, CBA and ...

HTMSe also manages Vendor Documents and the complex process after that for distributing and collecting the comments and issuing them to the vendors. This feature will bring the confidence of having all necessary project information at the finger.

Summary of HTMS Specifications:

A quick look at the specifications of HEDCO's Software platform (HTMS), you can understand why it is mentioned as one of the Company's best points:

- Total Project Tasks & Phases coverage
- Taylor made to Best Practice
- Work Flow Definition Flexibility
- User Friendly
- Integrated & Data Consistency
- Fully Paperless Document Generation, Circulation and Distribution
- Document Versioning , Restoring , Revision History
- Real Time Based & On-line
- Web-Based & Global Access
- Task Execution Transparency
- Electronic Library with Search Facility
- Hierarchical Information Access
- Automatic Task Assignment & Control
- Automatic Expedite
- Automatic Reporting
- Automatic Progress Measurement
- Automatic Large Data History Storage and Back-Up
- Correspondence Control

Project Control Software:

- **Project Management Software - Primavera (P6)**

HEDCO has established its Project Planning, Control & Reporting system on the Primavera (P6) software platform.

The Primavera Project Management module (P6) is a comprehensive, multi-project planning and control software, built on Oracle and Microsoft SQL Server relational databases for enterprise-wide project management scalability.

The Project Management module enables HEDCO PMO to store and manage its projects in a central location. The module supports work breakdown structures (WBS), organizational breakdown structures (OBS), user-defined fields and codes, critical-path-method (CPM) scheduling, and resource leveling.

The Primavera Project Management module (P6) provides an enterprise project structure (EPS), which enables HEDCO PMO to manage multiple projects, from the highest levels of the organization to the individuals that perform specific project tasks. Multiple users can access the same projects concurrently. It also enables HEDCO PMO to budget, prioritize, plan, administer, and manage multiple projects; optimize limited, shared resources; control changes; and consistently move projects to on-time and on-budget completion.

- **Project Server 2007**

Project Server 2007 has three major components:

The Project Web Access 2007 (PWA), including the collaboration features of Windows SharePoint Services (WSS),

The organization's interface to project data; Project Professional 2007 (Professional), The comprehensive scheduling engine; and

The technical architecture that integrates all the application components together in a single solution.

With the EPM solution, project schedules, resource pool information, custom data, and project data such as issues, risks, and documents are centrally stored in a database.

repository, leveraging Microsoft's SQL database functionality. This allows project data to be easily accessed by anyone with sufficient rights and permissions.

Project Server 2007 is designed to provide data and feature access via a role-based security architecture.

Out of the box, Project Server 2007 defines seven default roles and permissions based on those roles. Some users will access PWA to manage their project needs, whereas other users (mostly project managers) might also access Project Professional to build and analyze schedules.

For instance, a project manager can access and change project schedule data in Project Professional, but a programmer who has been designated as a project team member and needs to fill his timesheet, update status or enter project issues cannot access Project Professional and will use PWA as the Project Server interface.

Based on above information, HEDCO uses Project Server 2007 and related software's accompanied with EPM concepts to conduct and administer its projects, in SCOPE, on TIME and on BUDGET.

HSMS

(HEDCO Superior Management Services)

In order to reach the highest degree of esteemed client's satisfaction, HEDCO has developed some Project Management tools which consists of four parts described as below:

- ❖ Orange Blossom System (سامانه بهار نارنج - مرکز اسناد تبلی) which is a is comprised of two parts:
 - the Hardware section which is a standard industrial tablet
 - the software section which is an online project document center

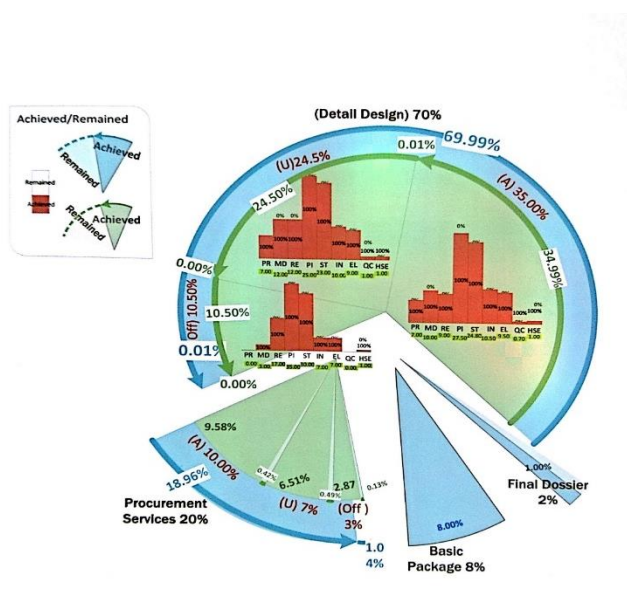
some of the the benefits of this system is outlined below:

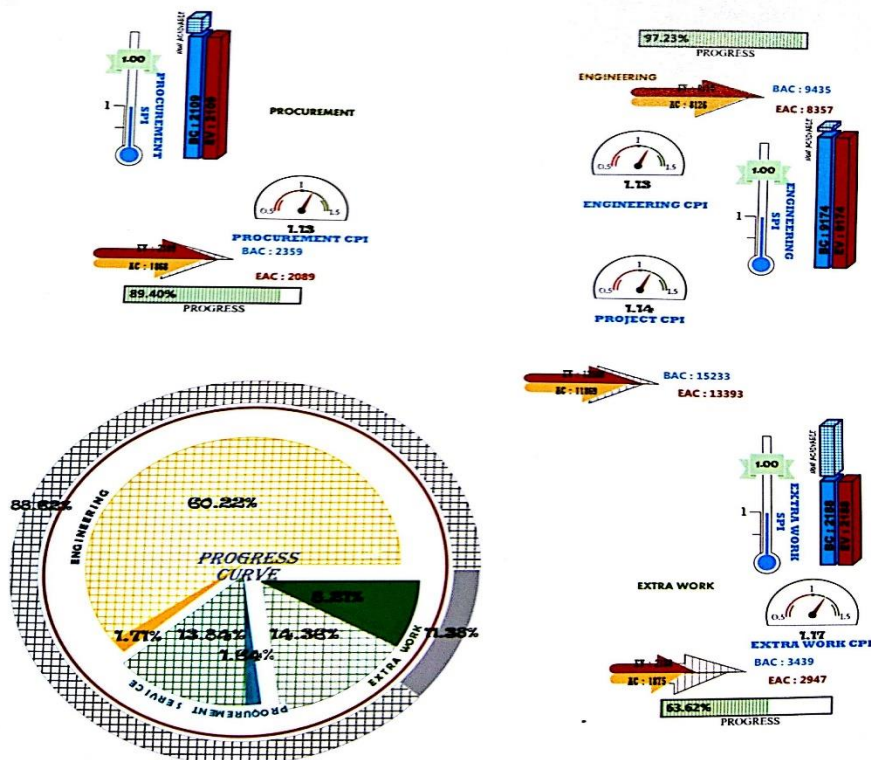
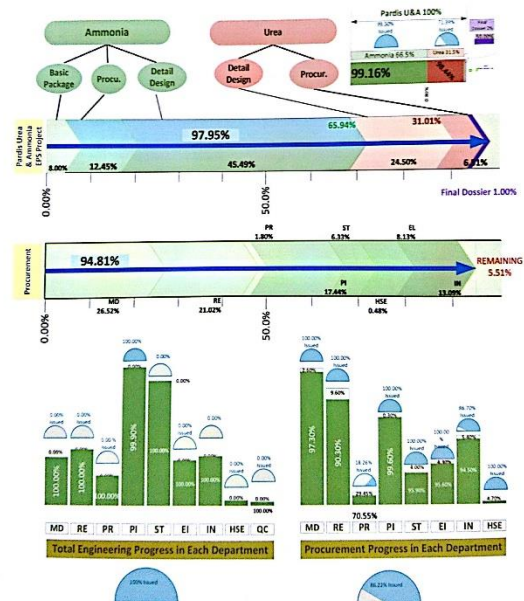
- ✓ Integration of complete project's document center in a portable tablet
- ✓ Ease of operator's access tpo documents
- ✓ Documents Search capabilities
- ✓ Documents Sorting
- ✓ Quick contact with HEDCO specialist for engineering consultancy
- ✓ Operators Training capabilities

- ❖ Real Time Dashboard (RTD) - داشبورده زمان واقعی

By this feature the clients can monitor the project by a user friendly real time visual tool.

Some of the sample dashboards are stated below:





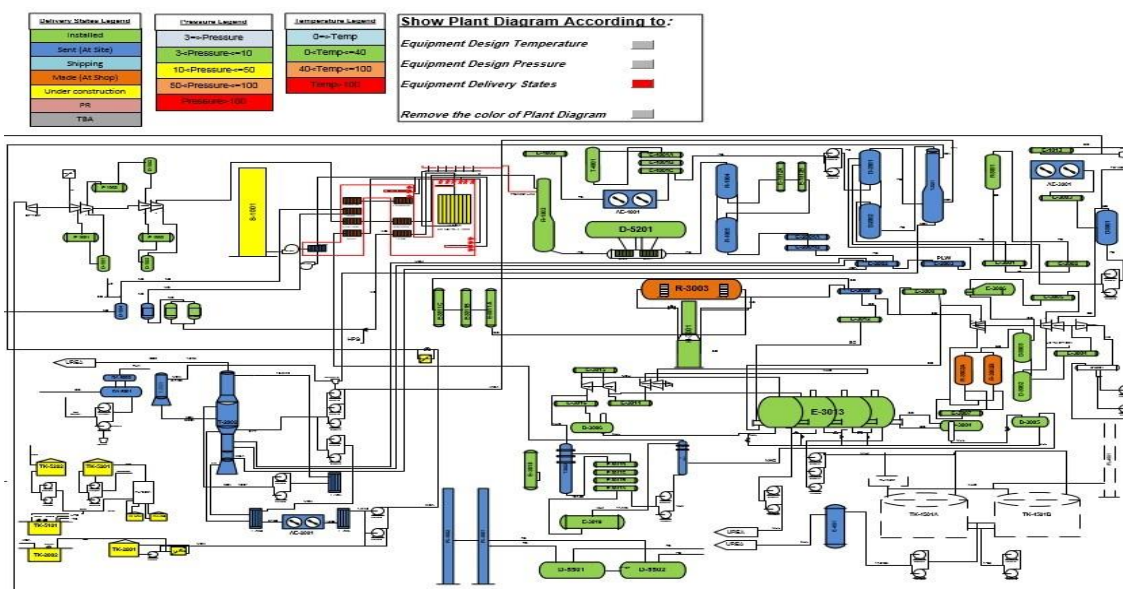
❖ Active Document Control Index (ADCI) - فهرست مدارک فعال

In this feature, the whole documents of project are linked to be filtered conceptually by process and mechanical design parameters like Pressure, Temperature, Corrosion Allowances,

SCRUBBERS													
Tag No.	Requisition	Piping and Instrument Flow Diagram	Mechanical Data Sheet Technorm Mechanical Data Sheet	Process Data Sheet	Foundation Drawing	General Drawing	Final Book	Vendor	Service	Weights (Kg)		Person in Charge	
										Erection	Operation		
3-SCR-8501	3-3406-REQ-HM-254	3-3485-PID-PR-043	-	-	3-5085-DSH-PR-029	3-3485-DWG-ST-230	3-VD-02-254-0101	HM-254	WATERLEAU	GRANULATOR SCRUBBER	220,000	400,000	Sera
3-C-8502	3-3406-REQ-HM-254	3-3485-PID-PR-043	-	-	3-5085-DSH-PR-029	3-3485-DWG-ST-230	3-VD-03-254-0101	HM-254	WATERLEAU	GRANULATOR SCRUBBER FAN	6,000	-	Sera
3-P-8501A/B	3-3406-REQ-HM-254	3-3485-PID-PR-043	-	-	3-5085-DSH-PR-029	3-3485-DWG-ST-230	3-VD-04-254-0101	HM-254	WATERLEAU	GRANULATOR SCRUBBER RECIRCULATION PUMPS	1,000	-	Sera
3-SCR-8502	3-3406-REQ-HM-254	3-3485-PID-PR-043	-	-	3-5085-DSH-PR-029	3-3485-DWG-ST-230	3-VD-02-254-0300	HM-254	WATERLEAU	COOLER SCRUBBER	140,000	230,000	Sera
3-P-8502A/B	3-3406-REQ-HM-254	3-3485-PID-PR-043	-	-	3-5085-DSH-PR-029	-	3-VD-04-254-0201	HM-254	WATERLEAU	COOLER SCRUBBER RECIRCULATION PUMPS	1,000	-	Sera
3-C-8506	3-3406-REQ-HM-254	3-3485-PID-PR-043	-	-	3-5085-DSH-PR-029	3-3485-DWG-ST-230	3-VD-03-254-0201	HM-254	WATERLEAU	COOLER SCRUBBER FAN	6,000	-	Sera

❖ Plant's Continuous Diagram (PCD) - دیاگرام پیوسته واحد

For ease of follow up of Project's PFD's and P&ID's, the whole such documents are connected in a wide spread sheet which can be monitored and followed continuously.



SMART P&ID & PLANT 3D MODELLING

PDMS (Plant Design Management System)

HEDCO is equipped with **AVEVA PDMS** software CAD system (shortly called PDMS).

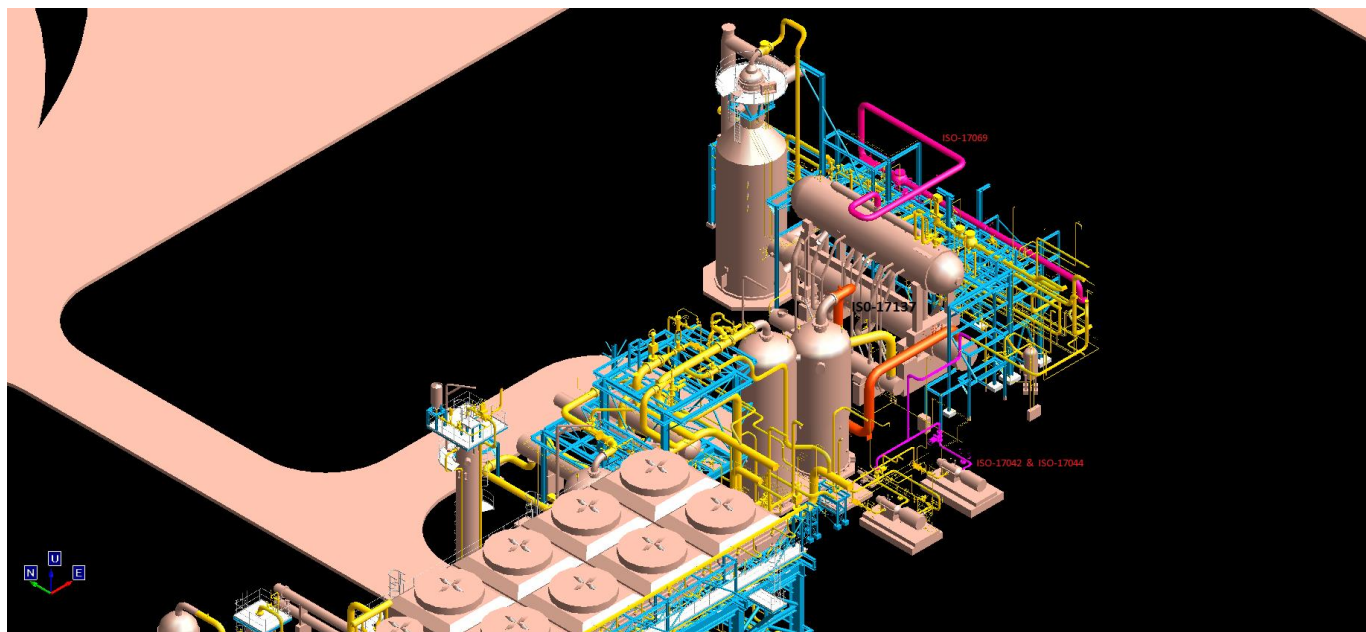
The PDMS is the market leader software that brings engineers the capability of modeling 2D & 3D objects. HEDCO vastly uses the PDMS system in his different engineering disciplines.

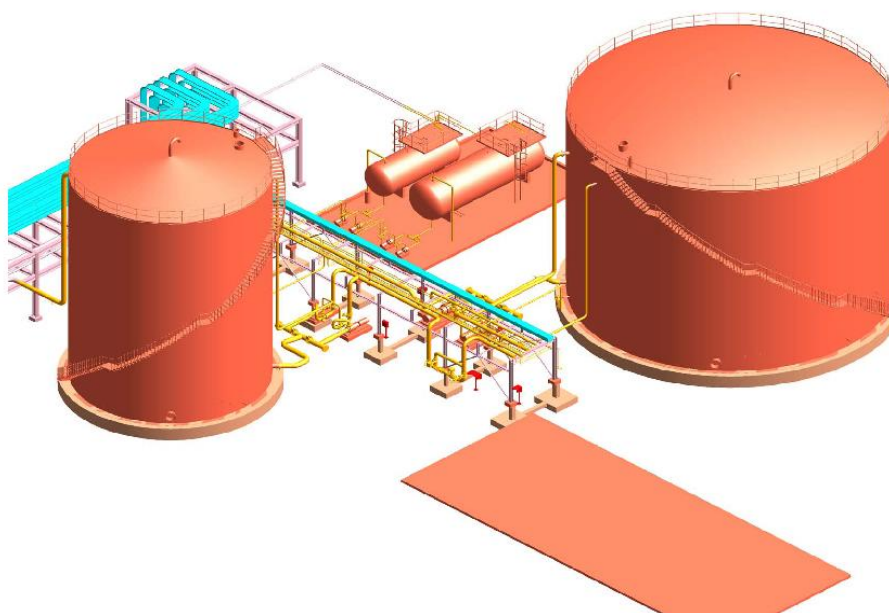
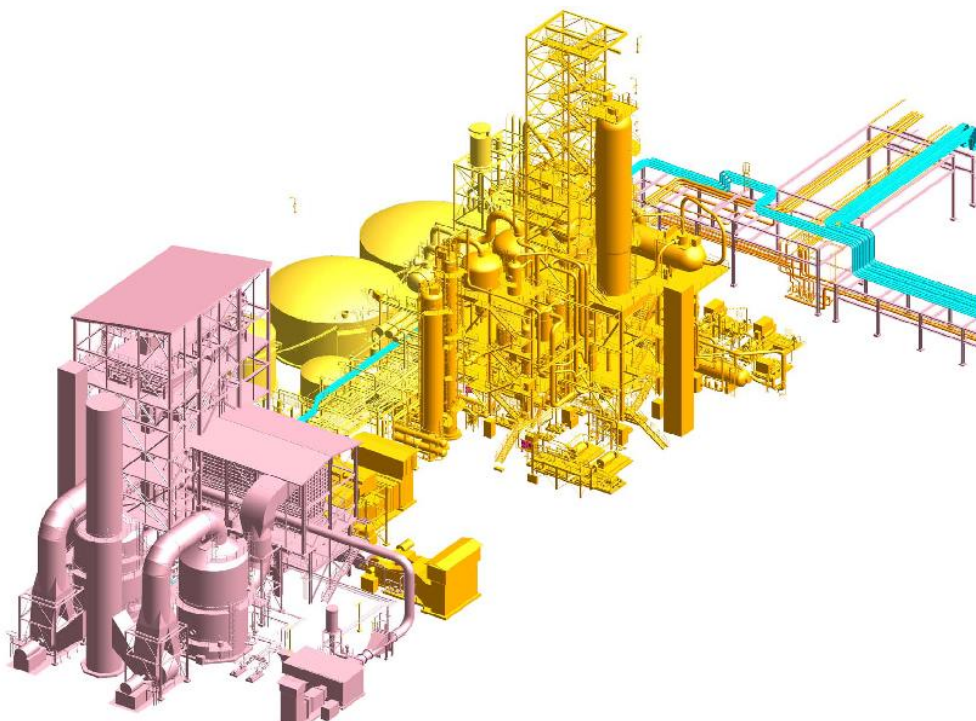
In addition to Piping Department, the Instrumentation and Electrical Departments also use the PDMS system for their design activities.

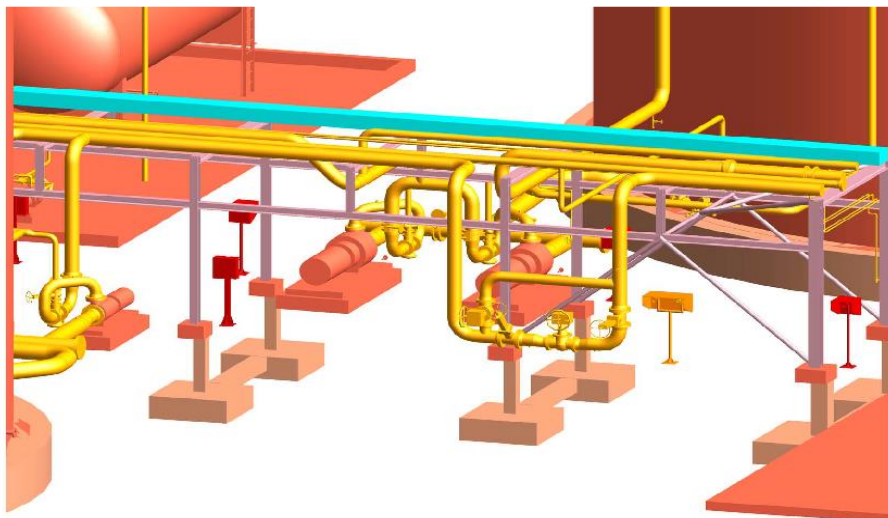
As a result of the above, the benefits of PDMS tool have been reached i.e.:

- Zero Defect Design
- Interference Checking and Clash Detection
- Accessibility Checking of Equipment & Instruments
- Automatic Material Take-Off Extract (100% precision)
- 3 Dimension Graphics Output

Here below some sample produced files from current projects can be observed:



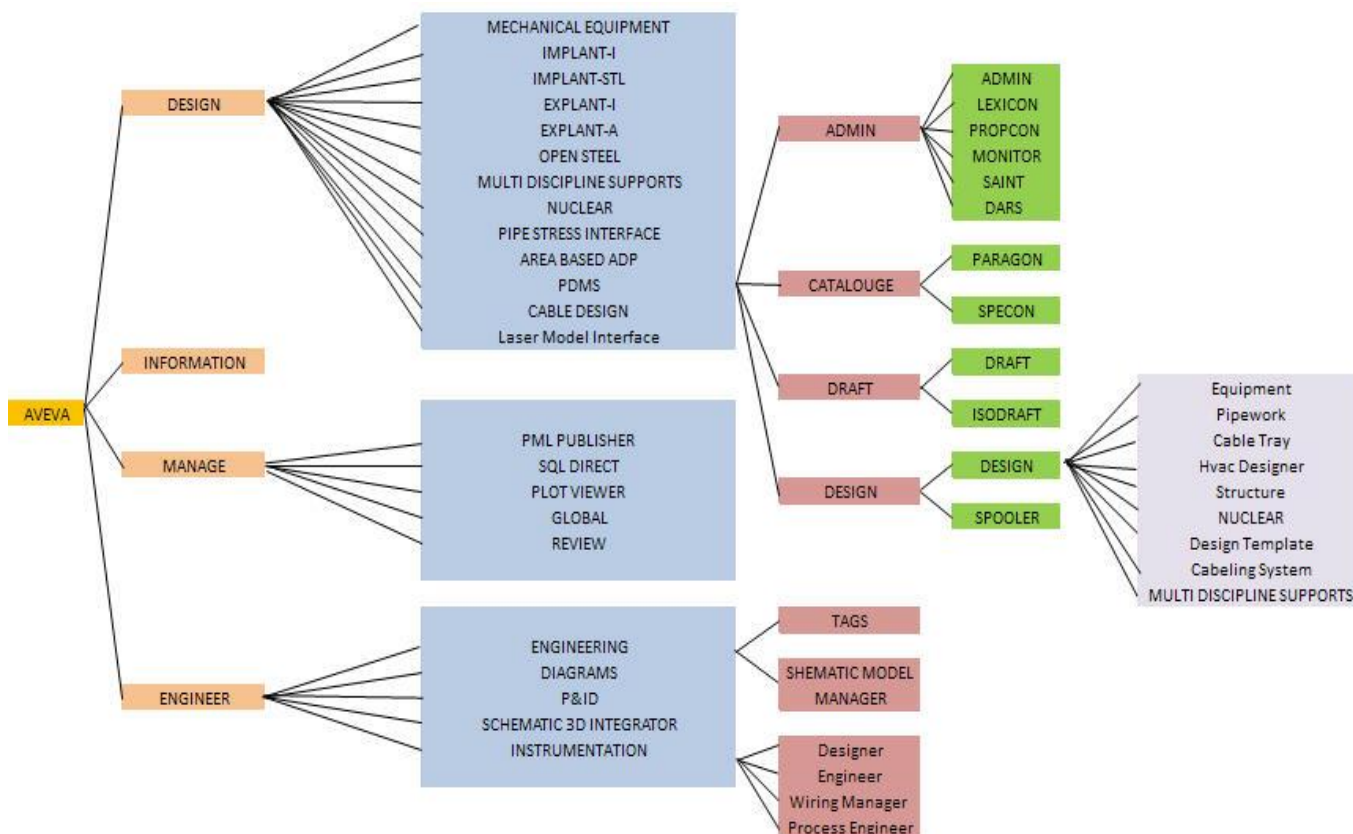




AVEVA Schematic-3D Integrator

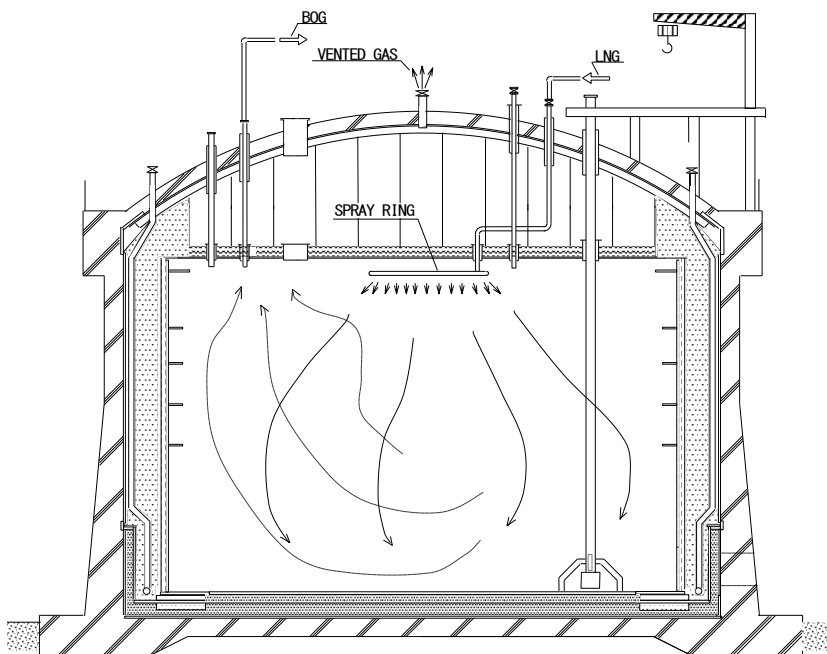
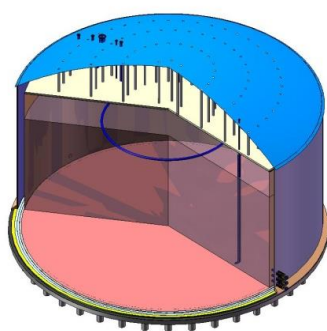
HEDCO has improved the quality of its services to the clients by hiring the AVEVA smart P&ID software module.

P&IDs (Piping & Instrumentation Diagram) are key documents that define the function of any equipment and object in the plant. They are a key part of the design activity and continue to be referenced and developed during the operation and maintenance phases. AVEVA Diagrams provides a fast, efficient and effective solution for creating P&IDs diagrams. It has the added value that, as the diagram is constructed, data is created in a schematic model database. The design information can therefore be effectively managed, and easily accessed, by any engineer who requires the information and has the appropriate access rights.



HEDCO TECHNOLOGY DIVISION

➤ Cryogenic Storage Tanks



- ✓ HEDCO is able to design different types of Cryogenic tanks including:
 - Single Containment
 - Double Containment
 - Full Containment
 - Membrane Tank
- ✓ HEDCO is now the leading company in Iran that has accomplished the engineering and construction of cryogenic storage tanks with the temperature range of up to -110 deg. C in different Site conditions, Capacities, Services & types.

- ✓ This temperature range covers the following services:
 - Butane
 - Ammonia
 - Propane
 - Propylene
 - Ethane
 - LPG
 - Ethylene

- ✓ HEDCO performs complete design of the Cryogenic Tanks including:
 - Mechanical design
 - Thermal design
 - Boil off rate
 - Insulation
 - Foundation
 - Frost heave
 - Roll over
 - Cool down
 - In tank pump

- ✓ The deliverables pertinent to this subject are a complete range required by as below:
 - PID & PFD
 - Design software for cryogenic storage tank (Mechanical design & thermal design)
 - Conducting safety reviews such as HAZOP, SIL and Fault tree analysis
 - Required specification (material, insulation, ...)
 - Construction, inspection commissioning and operating procedures.

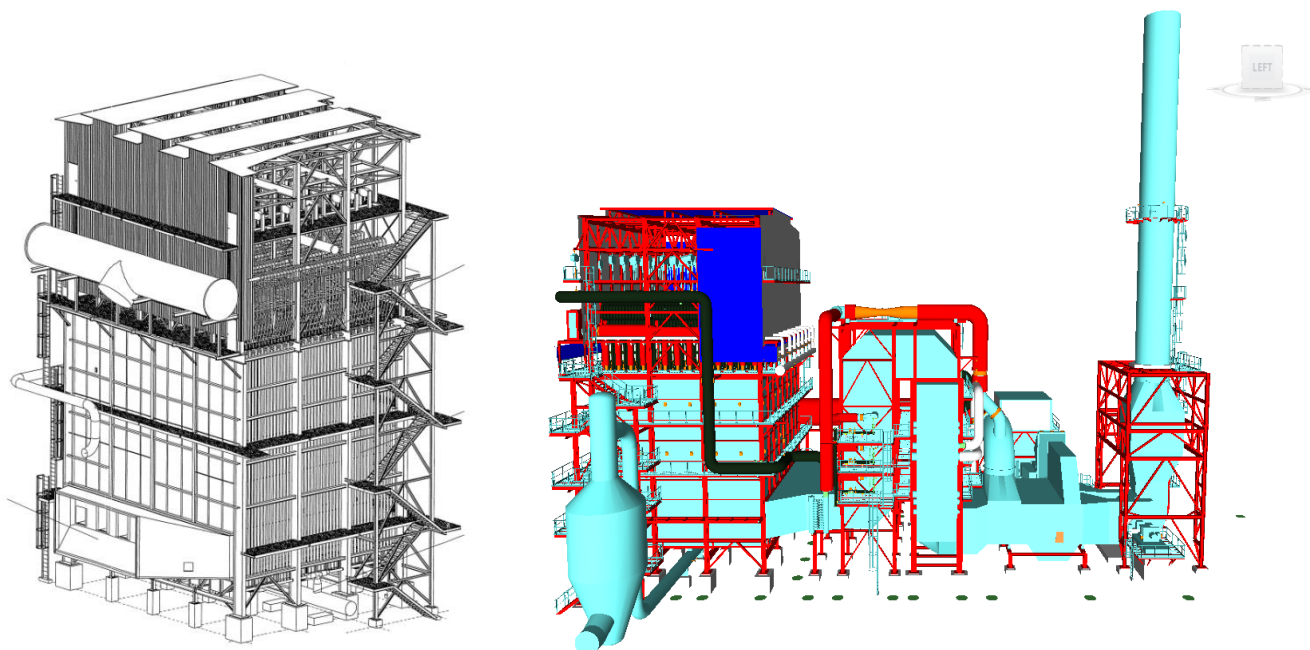
- ✓ Mechanical and thermal design of the tanks is guaranteed by HEDCO.

- ✓ HEDCO is the only Iranian company who has been registered in National Petrochemical Company - **NPC Vendor List** for Cryogenic Storage Tanks (Rev.: 6, Date: 2017, Page:15, under item 1.2.5. Cryogenic Tanks)

➤ Catalytic & Hydrogen Generation Reformers (Ammonia Primary Reformer , Methanol Reformer , ...)

HEDCO delivers the Reformers as a site fabricated package including the following tasks and supplies:

- Thermal and Mechanical calculations , design and engineering
- PID and PFD preparation
- Preparation of all necessary documents, drawings, procedures and specification for procurement and construction of the package
- Procurement & Supply of the Reformer sections , parts and loose items (from sub vendors)
- Construction
- Site supervision
- Erection
- Commissioning
- Start up
- Thermal guarantee
- Performance Guarantee



➤ **Fired heaters**

The heaters are being designed by the FRNC-5PC which is a Simulation Software specially made for design of fired heaters and is used for majority of heater Vendors.

The heaters will be supplied prefabricated as maximum as possible in shop , however , Based on final dimensions and transportation limitation the heaters may be delivered in multi-pieces to be assembled at site or final assembly may be done at shop for final bolting of mating flanges at site.



➤ Desalting Units and Desalter Packages

Desalting units are the most important oil refining and refining units.

Desalting in the oil industry is carried out in two stages:

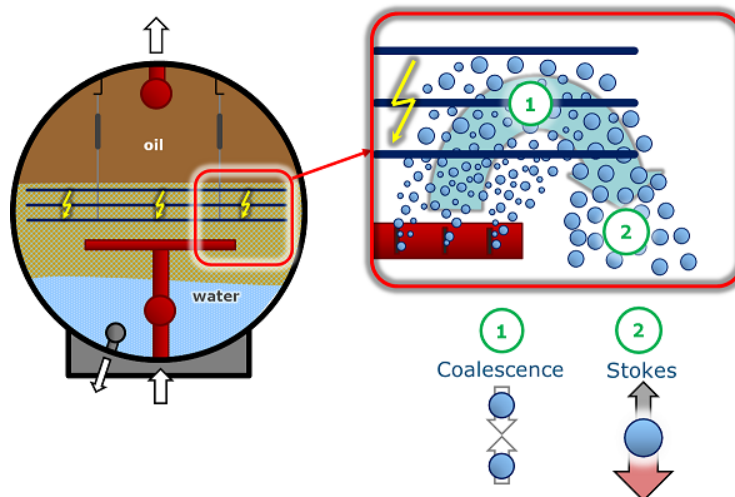
Stage 1: Desalting of crude oil in production fields and before transfer to refinery.

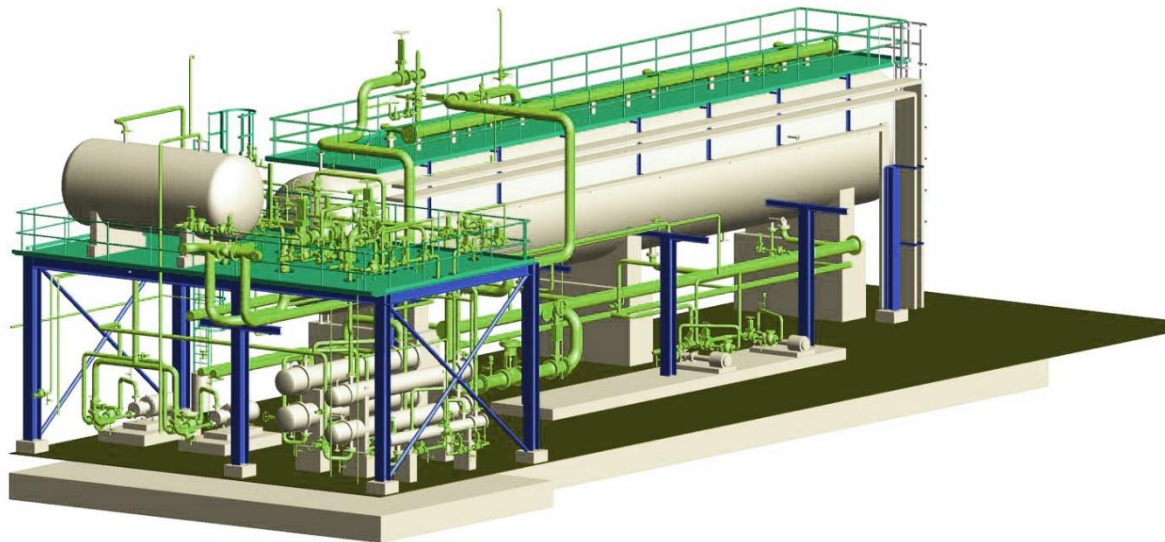
Stage 2: Desalting in the refinery, which is in the form of a process unit in the refinery and usually the first stage in the refining of crude oil.

In the absence of desalting of oil, there will be destructive effects on the environment, and downstream processes.

There are various methods for desalting crude oil, most notably electrostatic. In this method, the property of solubility of salt in water and not in the oil itself and the polarization of salt water solution is used against the electrical neutrality of the oil.

With regards to the key role of desalting units in the oil industry, the company has focused on the localization of the design, engineering and construction of these units and, thankfully, has succeeded in developing the knowledge of designing the units.





➤ Scrubbers (Wet Type)

Scrubbers are used for separating the air from gas, dust and other particles.

Scrubbers are mainly used to prevent the harmful gases and particles to spread in the environment.

Scrubbers are two type i.e. wet and dry types. Wet type scrubbers are operating by use of water (or in special cases other liquids) for extracting the dust and particles from air.



➤ Vapour Recovery units (VRU)

During loading or unloading of oil tanks, the release of a mixture of air and oil vapor causes three major damages, which are: The possibility of fire, environmental damage due to the release of hydrocarbon vapors and the loss of valuable vapors.

For this reason, the collection and recycling of these vapors is considered, and the purpose of the VRU package is to separate the hydrocarbon vapors from the air, convert the vapors into liquid, and return them to the tank.

There are two main methods for the vapor recycling process:

- Adsorption technology on activated carbon and then adsorption of vapors in the adsorption tower

And

- Refrigeration method, which is efficient for large volumes and in this method, hydrocarbon vapors are compressed in one (or more) stages and cooled using the fluid itself or a refrigerant and after liquefaction is transferred to the initial tank Becomes.

Both methods are provided by Hadco.



HEDCO in NIOC Vendor List

Hedco Has been registered in the Common Resource System of National Iranian Oil Company (NIOC) as Designer and Manufacturer for the following products:

1. Cryogenic Storage Tanks
2. Catalytic Reformers
3. Process Fired Heaters
4. Desalter Packages
5. Wet Scrubbers
6. Vapour Recovery units



HEDCO AMMONIA LICENSE

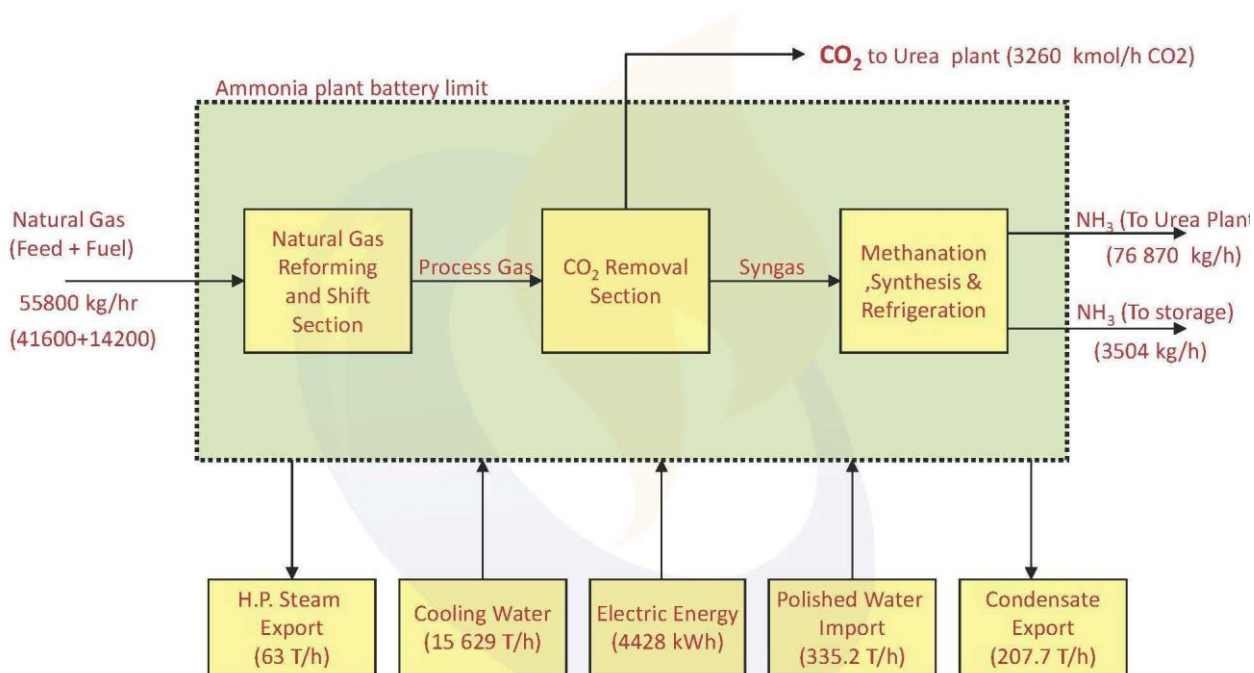
HEDCO Ammonia License

After many times performing the Basic and Detail engineering of Ammonia units, and acquiring complete knowledge about different methods of ammonia production process, HEDCO has developed and offered its specific method for production of Ammonia.

Compared to existing Licenses, HEDCO License has advantages in:

- Plant's Utility Consumption
- Installation Cost &
- Operating Cost.
- Ease of Operation

BLOCK FLOW DIAGRAM FOR A 2050 T/D AMMONIA UNIT



SULPHUR REMOVAL TECHNOLOGIES

Provision of Sulphur Removal Technologies

Due to importance of problems caused by existing of sulphur in Oil , Gas and Petrochemical industry , HEDCO has made cooperation agreement with different International companies with remarkable references and capabilities , for providing the sulphur removal technologies and is able to provide related services to the esteemed clients. Available technologies are listed and shortly explained here:

List of Available Technologies

- Amine-based sour gas treating technologies
- Claus-based Sulphur recovery technologies
- Tail gas treating technologies
- Sulphur degasser technologies
- Merox-type treating technologies
- Caustic-Scrubber-based treating technologies
- Seawater Flue Gas Desulphurization technologies
- Hydrocracking and Hydrodesulphurization technologies

List of Engineering Services related to Sulphur technology

In addition to provision of technology , HEDCO provides the following engineering services related to Sulphur technology:

- Conceptual Study
- Process Line up
- Process Simulation
- PDP – Process Design Package
- Feasibility study , CAPEX & OPEX , ...
- Basic Engineering

Adsorption Technology

Regenerable and non-regenerable adsorption are used for a variety of component removal steps throughout the entire Oil & Gas as well as Petrochemical industry, Upstream, Midstream and Downstream. Such units are typically installed to ensure that a certain specification is met, to protect downstream catalysts and equipment (e.g. cryogenic heat exchanger in an LNG plant), to prevent corrosion, hydrates, salt formation, etc.

A few examples are:

- Regenerable dehydration with molecular sieves applied on platforms, gas plants, LNG, ASU's, refineries and petrochemical plants in gas as well as liquid phase streams
- Sulphur and Sulphur species removal in non-regenerable (e.g. by ZnO , promoted alumina's, etc.) as well as regenerable systems (by molecular sieves) on platforms, gas plants, refineries (e.g. HMU), gas to liquids plants and petrochemical plants
- Hydrocarbon dew pointing using silicagel in gas plants
- Mercury removal on platforms, gas plants, LNG, refineries and petrochemical plants in gas as well as liquid phase streams
- Chloride and Fluoride removal in refineries and petrochemical plants
- Arsine removal in petrochemical plants

Amines Based Absorption Technology

Amines Based Absorption Technology is one of the main technologies for removal of acidic components (like H₂S, CO₂, Mercaptans and COS) from gas and liquid hydrocarbons streams. It is a process which can be found in almost every plant in the entire Oil & Gas as well as Petrochemical industry, Upstream, Midstream and Downstream.

Amine units are used to remove in general almost all H₂S to very low levels, in order to meet treated gas specifications. CO₂ can be removed to low levels as well, but often only part of the CO₂ needs to be removed, depending on the specifications. COS and mercaptans are more difficult to remove by amine, but often additives are added (like Sulfolane) to enhance the removal.

A few examples are:

- CO₂ removal in LNG application with mixture of MDEA and piperazine in water. Able to meet LNG specs of < 50 ppmv.
- H₂S and CO₂ removal from sour gas at high pressure with MDEA meeting spec of 5 ppmv of H₂S, while slipping part of the CO₂ in order to arrive at < 2 mol % in sales gas.
- Amine unit in TGTU where H₂S is removed to the required level (for SO₂ emission), while CO₂ slip is maximised in order to avoid large CO₂ recycle to Claus.
- Treating of LPG for removal of H₂S and COS with Amines. DIPA or DEA can be used for this purpose. Mercaptans present can be removed by the Caustic process or by molecular sieves

Caustic Based Mercaptan Removal Technology

Mercaptans are very weak acidic compounds which can be found in natural gas, NGL, LPG, condensate, and liquid hydrocarbon streams at refineries (LPG, gasoline and kerosene). Mercaptans are toxic and have a very bad smell and need to be removed to meet sulphur specification, reduce the corrosivity of the product or to remove the bad smell of the product. Caustic based processes are often used to treat liquid hydrocarbon stream for mercaptans:

- Light mercaptans (C1-C3 mercaptans) can be removed from the product stream (NGL, LPG, light condensate/naphtha) and converted into disulphide oil, which is produced as a separate product. This is done in the extractive caustic process.
- Heavier mercaptans (C4+ mercaptans) cannot be removed, but only converted into disulphides. This is called the sweetening caustic process.
- Caustic based processes are already used for decades for the removal of mercaptans. It is often the most cost efficient and simple process. These processes can be found in almost every refinery and every sour gas plant which has to deal with mercaptans.
- Caustic units can remove/convert mercaptans to very low levels. They will also remove H₂S, COS and CO₂ from these hydrocarbons streams. If required, caustic can also be used for mercaptan removal from gas streams.

A few examples are:-

- In a sour gas facility LPG is produced and treated with extractive caustic process to remove mercaptans.
- The Condensate of the same sour gas facility is first treated in an extractor to remove the light mercaptans. After that the condensate is treated in a sweetening caustic step to convert the remaining mercaptans in order to produce an odourless condensate ready for export.
- In traditional kerosene treating caustic plays an important role. It often has the following steps; caustic prewash, sand filter, caustic sweetening, settler, water wash, salt filter, clay filter, all required to produce kerosene on spec for aviation purposes

SRU, Claus Technology

SRU stands for Sulphur Recovery Unit. Claus Technology is a process where H₂S rich gas is being converted into elementary liquid sulphur and water. As liquid sulphur is being produced this product is recovered and routed to a sulphur degasser. In the degasser the liquid sulphur is stripped with steam to remove all dissolved H₂S.

The Claus process is a safe and environmental friendly process. Through-out the world many SRU's has been installed producing liquid sulphur and minimizing H₂S emission.

Claus based processes are already used for decades for the destruction of H₂S. It is often the most cost efficient and simple process. This process can be found in almost every refinery and every sour gas plant which has to deal with H₂S.

SRU can remove/convert H₂S to around 95% and the remaining 5% H₂S is routed to a Tail Gas Treating Unit to increase the sulphur recovery to around 99.9%. The Claus process also produces HP or LP steam for further usage.

TGTU, Tail Gas Treating Unit

The Tail Gas Treating Unit is there to enhance the overall sulphur recovery to around 99.9%. The tail gas from the SRU is being routed to a catalytic converter where all SO₂ is being converted into H₂S, which is routed to a quench column. In the quench column the majority of the water produced during the Claus process is being removed. The remaining components are then routed to an Amine Absorber which contains MDEA (selective absorption) to absorb all H₂S and slip around 80% of the CO₂ and some ppm H₂S. The H₂S rich MDEA is routed to a regenerator where the H₂S is removed and routed to the inlet of the SRU and cleaned MDEA is routed back to the Absorber.

The TGTU process is safe, environmental and proven technology. Through-out the world many TGTU has been installed to enhance liquid sulphur recovering and to minimize H₂S emission.

TGTU are already being used for decades for meeting overall H₂S emission legislation. It is often the most cost effective and simple process to increase overall sulphur recovery. This process can be found in almost every refinery and every sour gas plant which has to deal with H₂S.

TGTU increase overall SRU recovery to around 99.9% and is basically at the back-end of a SRU.

SOFTWARE ARCHIVE

Process Engineering

- Aspen
- AFT impulse
- Flare
- Flarenet
- FRNC
- Hysis
- Hextran
- HTFS
- Olga
- Phast
- Pipesim
- Pipe phase
- Pipenet
- Pro II
- PHA pro
- Reform 3pc
- Vessel Sizing

Mechanical Engineering

- Auto cad
- Algor
- Ansys
- Aspen
- Carrier
- Catia
- Cad works
- Caesar 2
- Compress
- Hvac
- Mechanical desktop
- Nastran
- Nozzle pro
- Pro Engineering
- PV Elite
- Pipe designer
- Super sap
- Solid Works
- Tank (API 650 Storage tank)
- Working model 3d

Civil Engineering

- Etabs Revit Structure
- Revit Architecture
- Sap
- Safe

Instrumentation Engineering

- **Control System Segment Design**
 - Foundation Field Bus Segment Checker V1.12
 - Loop Impedance Calculator (Home made software)
 - LOGICAD
- **Control valve Sizing**
 - Conval
 - Fisher
 - Metso
 - Worchster
- **Flow Elements Calculation**
 - Emerson (Rosemount)
 - INSFLOW
 - ISOFLO
 - Krohne
- **Safety Valves Calculation**
 - Bopp & Reuther
 - Crosby
 - IMI Bailey
 - Leser
- **Thermowell Stress Calculation**
 - Thermowell stress calculator (Home made)

Electrical Engineering

- **Electrical Installation Design & Equipment Selection**
 - Doc abb 007-a
 - Elle1.1
 - Hawke
 - Liberia 2
 - Vynckier Procera 2a
- **Chathodic Protection**
 - Pipe
 - Tank
- **Power system Analysis Software**
 - Atp 5
 - Neplan2000
 - Power cad
 - Etap Power plot
- **Lighting Calculation Software**
 - Calculux
 - Flood
 - Trilux
 - Tlgstr
 - Victor

Project Scheduling

- Microsoft Project
- Primavera

TECHNICAL STANDARDS

**(HEDCO Posses up to date archive of the International standards
required for project Execution)**

No.	STANDARD	DESCRIPTION
1	AISC	AISC - American Institute of Steel Construction
2	ANSI	ANSI - American National Standards Institute
3	API	API - American Petroleum Institute
4	ARI	ARI - Air-Conditioning and Refrigeration Institute
5	ASCE	ASCE - American Society of Civil Engineers
6	ASHRAE	ASHRAE - American Society of Heating ,Refrigerating and Air-Conditioning
7	ASME	ASME - American Society of Mechanical Engineers
8	ASTM	ASTM - American Society for Testing and Materials
9	AWS	AWS - American Welding Society
10	AWWA	AWWA - American Water Works Association
11	BSI	BSI - British Standards Institution
12	DIN	DIN - Deutsches Institut fur Normung e.v.
13	FCI	FCI - Fluid Controls Institute
14	HEI	HEI - Heat Exchange Institute
15	HI	HI - Hydraulic Institute
16	ICAD	ICAO - International Civil Aviation Organization
17	IEC	IEC - international Electrotechnical Commission
18	IEEE	IEEE - Institute of Electrical and Electronics Engineers
19	IP	IP - The Energy Institute (formerly Institute of Petrol)
20	ISA	ISA - The Instrumentation, Systems and Automation Society of America
21	ISO	ISO - International Organization for Standardization
22	JIS	JIS - Japanese Industrial Standard
23	MSS	MSS - Manufacturers Standardization Society
24	NACE	NACE - National Association of Corrosion Engineers
25	NEMA	NEMA - National Electrical Manufacturers Association
26	NFPA	NFPA - National Fire Protection Association
27	SMANCA	SMACNA - Sheet Metal and Air Conditioning Contractors National
28	TIA/EIA	TIA/EIA - Telecommunications Industry Assn/Electronic Industry
29	UL	UL - Underwriters Laboratories
30	VDI	VDI - Verein Deutscher Ingenieure
31	WRC	WRC - Welding Research Council

VENDOR LIST

(The Company owns a data bank of technical
information and catalogues
of about 1000 worldwide vendors
in different fields of manufacturing
and supply services)

STRATEGIC PATRNETERS

- ❖ HAMPAN ENGINEERING CORPORATION (HAMPAN)
- ❖ FANKAVAN ENERGY POOYA COMPANY (FEPCO)
- ❖ HEDCO OMAN
- ❖ SARIR INTERNATIONAL ENGINEERING AND TRADING COMPANY (SARIR)

➤ HAMPA ENGINEERING CORPORATION

HAMPA Engineering Corporation, the parent company (main shareholder) of HEDCO, is a first grade Construction Company in the field of Oil, Gas and Petrochemical Industries. HEDCO as and Engineering company in joint with HAMPA is able to do the large scale project in EPC form..



*Hampa Engineering
Corporation*



➤ FANKAVAN ENERGY POOYA COMPANY (FEPCO)

In order to expand its scope of services to clients, HEDCO has established FEPCO its sister company to act as a package integrator. FEPCO has a complementary role for HEDCO and together these companies can enter to the field of design, engineering and manufacturing of complicated process packages (Skid and Site mounted) consisting of rotating and static equipment, piping, instrumentation and electrical equipment and components.

Examples of Such Packages:

- Heaters
- Reformers
- Cryogenic Tanks
- Hydrogen Recovery and Purification units
- Crude Oil Desalting Package
- Vapor Recovery Unit
- Gas Dehydration Unit



➤ **SARIR INTERNATIONAL ENGINEERING AND TRADING COMPANY**

In order to play a strong role in the global market, HEDCO has established SARIR, its Turkish sister company, which is active in the same field of activities as HEDCO , concentrating on the international marketing as well as procurement activities of EPC projects.



HONORS AND AWARDS

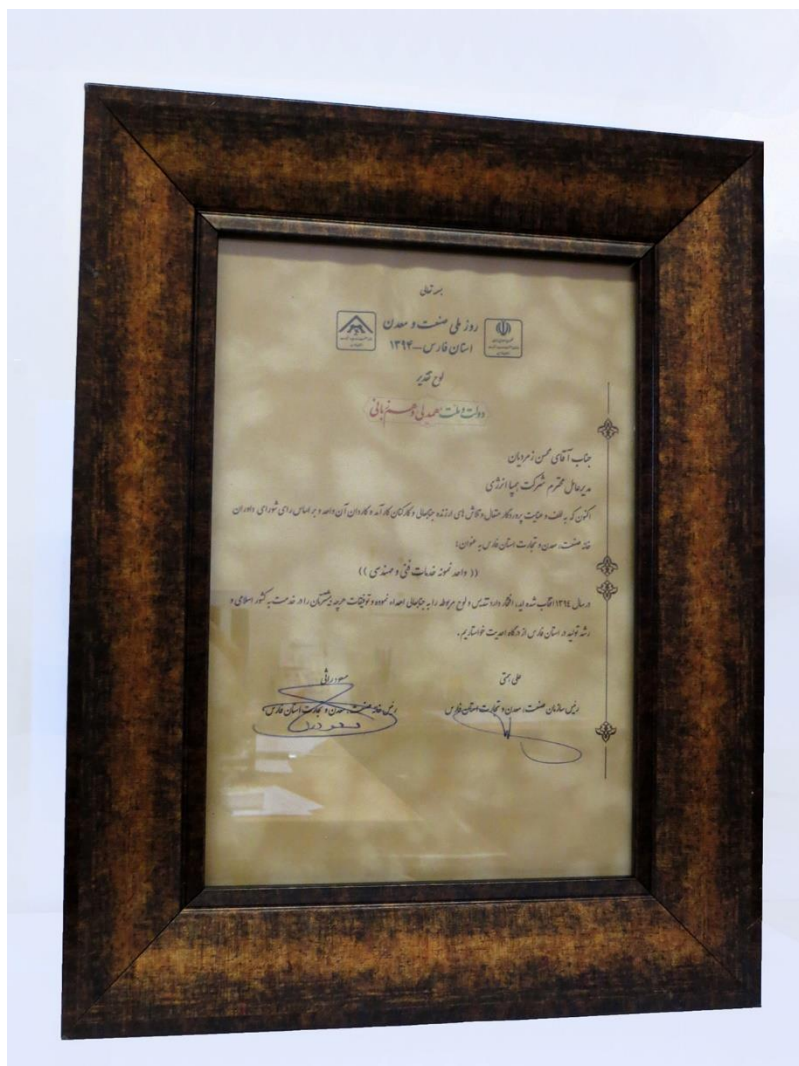
National Petrochemical Company's Certificate for Commitment to Excellence



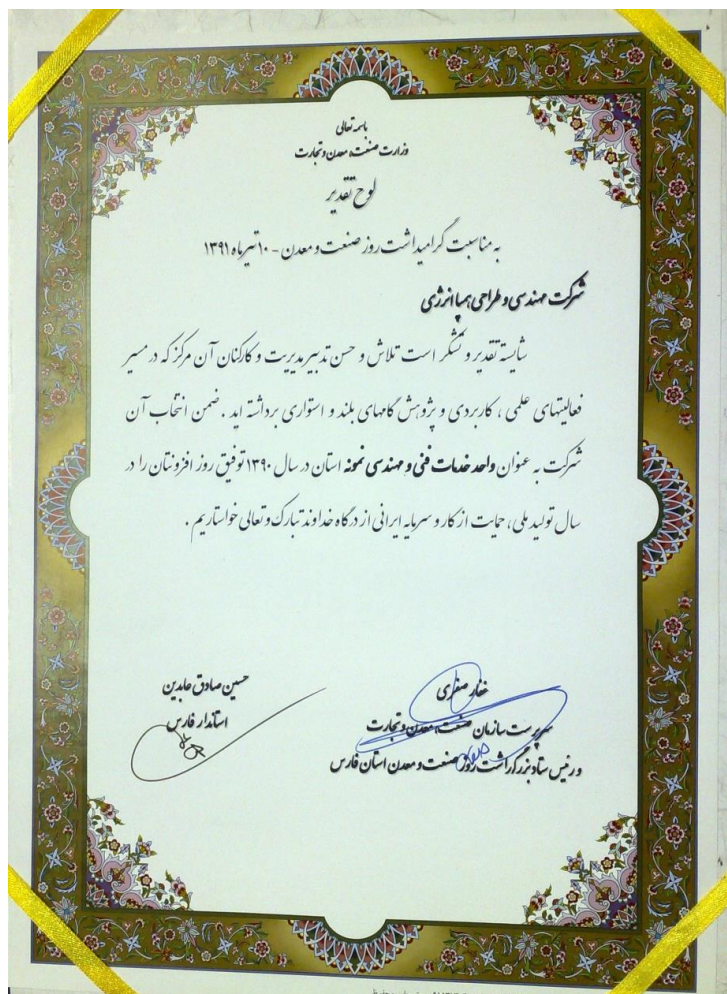
HEDCO

is the only Iranian Engineering company who has awarded this Prize

HEIDCO has been Selected by the Iran's Ministry of Industry, Mine and Commerce to be the "Best Engineering Company" of Fars Province for the year 2015.



HEIDCO has been Selected by the Iran's Ministry of Industry, Mine and Commerce to be the "Best Engineering Company" of Fars Province for the year 2012.



MEMBERSHIPS

ASSOCIATION OF PETROLEUM ENGINEERING AND CONSTRUCTION COMPANIES (APEC)



ENGINEERING & CONSTRUCTION COMPANIES ASSOCIATION (ECCA)



FEDERATION OF IRANIAN ENERGY EXPORT INDUSTRIES (FIEEI)

Issuance: May 2011
Validity: May 2012

تاریخ صدور: اردیبهشت ۱۳۹۰
تاریخ اعتبار: اردیبهشت ۱۳۹۱



Federation of Iranian Energy Export Industries
اتحادیه صادرکنندگان خدمات فنی، مهندسی و صنایع انرژی ایران

گواهی عضویت

Certificate of Membership

با استناد به ماده ۷ اساسنامه اتحادیه صادرکنندگان خدمات فنی، مهندسی و صنایع انرژی ایران بدینوسیله گواهی می شود

شرکت مهندسی و طراحی همپا انرژی (هدکو)

شماره ثبت: ۲۴۳۱۲ کد عضویت: ۱۰۲۱۰۳

به عضویت این اتحادیه پذیرفته شده و از کلیه حقوق و مزایای مربوطه بهره مند است.

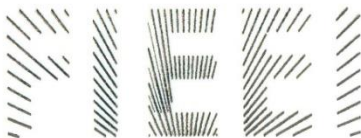
Reference to article No.7 of Federation of Iranian Energy Export Industries official statute; herewith, membership of

HAMPA ENERGY ENGINEERING AND DESIGN COMPANY (HEDCO)

Registrar No. : 24312 membership code: 102103

is confirmed and the mentioned company has all the related rights and benefits of membership in FIEEI during the period of membership.


Ali Shams Ardakani
رئیس هیات مدیره Chairman




Hamid Reza Salehi
دبیرکل Secretary General

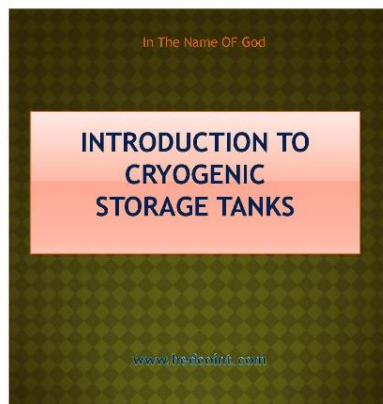
FARS ASSOCIATION OF TECHNICAL AND ENGINEERING SERVICES (FATES)

۱۴۵/۱۵۱/۱۴۰ ۹۱/۰۸/۰۴	شماره: تاریخ:	 <h1 style="margin: 0;">تشکل صادرات خدمات فنی و مهندسی فارس</h1> <p style="margin: 5px 0;"><i>Fars Association of Technical & Engineering Services</i></p> <h2 style="margin: 0;">FATES</h2>	 <h3 style="margin: 0;">گواهی عضویت</h3> <h3 style="margin: 0;">Certificate Of Membership</h3> <p style="margin: 5px 0;">بدینوسیله گواهی می گردد شرکت</p> <p style="margin: 0 0 0 40px;">This is to Certify that</p> <p style="margin: 5px 0;">همپا انرژی</p> <p style="margin: 0 0 0 40px;">.....</p> <p style="margin: 0 0 0 40px;">Hampa Energy Engineering & Design Company CO.</p>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> تشکل صادرات خدمات فنی و مهندسی استان فارس تحت پوشش اتاق بازرگانی شیراز </div> <div style="text-align: center;">  </div> <p style="margin: 0 0 0 40px;">رییس هیئت مدیره Head of Board of Directors مهندس سید مرتضی سیف زاده Eng.S.M.Seifzadeh</p>		<p style="margin: 0 0 0 40px;">به عضویت این تشکل پذیرفته شده است.</p> <p style="margin: 0 0 0 40px;">Is a Member of This Association</p>	
Membership No.	1038	۱۰۳۸	شماره عضویت:
Date of Issue:	25.oct.2012	۹۱/۰۸/۰۴	تاریخ عضویت:
Expire Date:	25.oct.2013	۹۲/۰۸/۰۴	تاریخ اعتبار:

TECHNICAL PUBLICATIONS

The following complementary documents are available in which the relevant subjects have been explained in more detail. These documents can be downloaded from HEDCO website:

- ✓ **Introduction to HTMS (HEDCO Total Management System)**
- ✓ **Introduction to plant Smart 3D design**
- ✓ **Introduction to Cryogenic Storage Tanks**
- ✓ **Introduction to Reformers**
- ✓ **Introduction to HEDCO Ammonia License specifications**
- ✓ **Introduction to Heaters**



HEDCO FAMILY



MAIN OFFICE LOCATION:

The HEDCO engineering office is located in Shiraz, south of Iran, with total floor area exceeding 7000 square meters.



HEDCO (Headquarter)

- HEDCO Building, No.128, Jam-e-Jam Blvd., Shiraz-Iran.
- Tel: (+9871) 32136000
- Fax: (+9871) 32136527
- e-mail: info@hedcoint.com
- Website: www.hedcoint.com

HEDCO (Headquarter Location Map)

