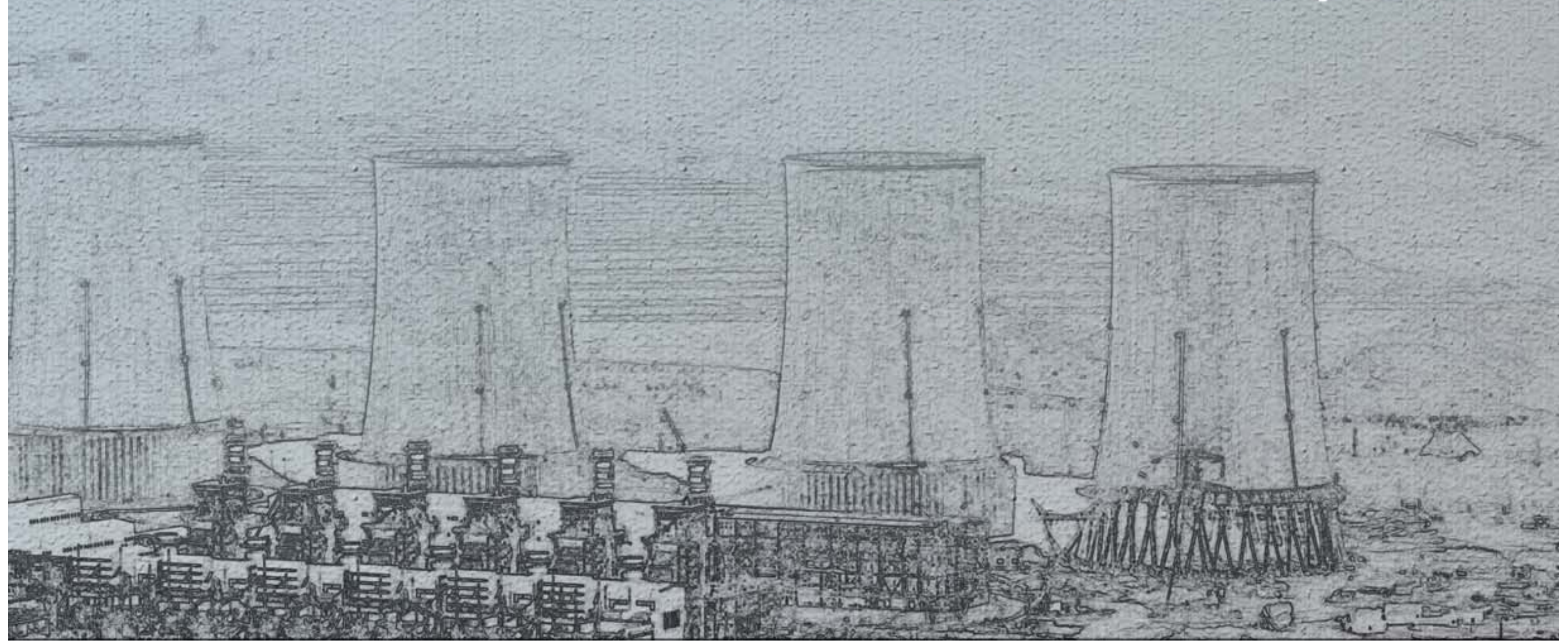
monenco

Monenco Iran

2013 Annual Report



The **Arg-e Bam**, located in Iran - Kerman Province on the Silk Road, was the largest mud-brick complex in the world during 4th to 6th centuries BC and is listed by UNESCO as part of the World Heritage Site "Bam and its Cultural Landscape".

Monenco Iran

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Monenco Iran

Monenco, a leading global provider of professional engineering and consulting services in Iran was formed in 1973 as a joint venture between the private sector of Iran and Montreal Engineering Company of Canada. Currently, Monenco Iran is a private entity which Mapna Group, AMEC, and Mir (employee's share) are its main share holders.

Over the past 40 years; experienced qualified personnel, using modern systems & international standards, providing high quality services, and considering principle of customer satisfaction led Monenco to grow widely and achieve significant success in the target markets. For those reasons, in 2011, Monenco became the only consulting Engineering Company among 400 economical giants in Iran also in 2012 was ranked 144th consulting firm among the top 200 international design and consulting firms worldwide, as stated by ENR.

Monenco provides engineering, consultancy and supervision services in a broad range of target markets worldwide including Combined Cycle and Themal Power Plants, Renewable and Cogeneration, Distributed Generation, Electrical Power Transmission Lines, High Voltage Substations up to EHV and HVDC Systems, Telecommunication, SCADA, Dispatching Centers and Smart Grids, Electrical Railways, Electrical Network Studies, System and Energy Studies, Oil & Gas and Mining, Architecture, Civil, Urban Design and Roads.

Furthermore, in order to penetrate in the Middle East and Africa, Monenco has established Monenco Consulting Engineering (MCE) in Oman and Monenco Engineering Limited (MEL) in Nigeria and was successful to enter Oil & Gas market in Bangladesh in 2012. Also, in 2013, Monenco managed to expand its consultancy services in Iraq and Oman.

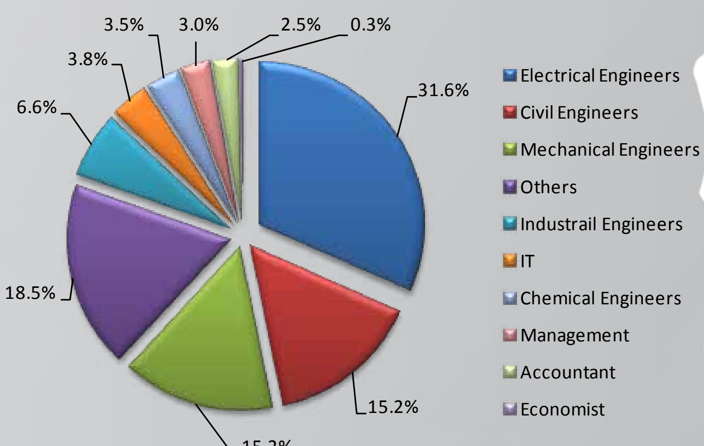
Major Experiences of Monenco

- Over 46,000 MW Power Plants
- 8 Renewable Energy Projects
- 14 Dispersed Generation Projects
- 14 Heat Recovery & Energy Optimization Projects
- 22,200 Km Transmission Lines & OPGW
- 21,900 MVA Substations
- 49 National & Regional Dispatching Centers
- 42 Telecommunication Systems & Networks and Master Plans
- 13 Metering System & Smart Grids
- 5 Electrical Railway Projects
- 30 Oil & Gas Complexes
- 15 Mining & Geology Projects
- 32 Economical & Technical Feasibility Studies
- 4 Projects on Iran Power Grid Study
- 1 Heat Recovery project in steel industry
- 1 Study on the interconnection of Iran and Iraq Electricity Network

28 Overseas Projects

- 11 projects in the field of transmission lines, distribution networks, high voltage substations and dispatching centers
- 8 projects in the field of thermal power plants
- 2 projects in the field of hydro power plants
- 1 project in the field of wind power plant
- 2 projects in the field of oil & Gas
- 1 project in the field of power quality improvement of Modern Steel Mills
- 2 projects in the field of Small Scale Power Generation Plant
- 1 study on the interconnection of Iran and Iraq Electricity Netwrok

Composition of Experts in 2013



Samad Raeispour

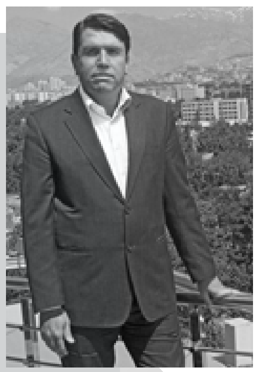
Raeispour.Samad@monenco.com

Obtained his B.Sc. and Master in Electrical Engineering from KNT University of Technology and Tehran University in 1991 and 1994, respectively. He joined Khuzestan Water & Power Authority (KWPA) at 1994. At the beginning, he was a high voltage substation designer and then, he followed up his carrier as the HV Substation Design and Construction Manager, and the Technical & Engineering Management of Transmission & High Voltage Substations Design. At 2003, he has got his new position as Planning & Research Deputy of KWPA which last 6 years. From 2009 to 2011, he joined Nosazi Karan Khuzestan as the Chairman & Technical Manager. Finally, He joined Monenco in 2011 as Department Manager of High Voltage Substations and was appointed as the Transmission and Dispatching Deputy in 2012.

Mohammad Dana Manavi

Manavi.Mohammad@monenco.com

Obtained his B.Sc. in Civil Engineering from Sharif University of technology. From 1992 to 1996 he worked for Bonyad Sazeh Consulting Engineers. He joined Monenco in 1996 as Structural Designer.
He continued his work till 2003 in Power Generation Department. From 2003 to 2006 his duty was Project Coordinator. From 2006 to 2008 he continued his duty as a Project Manager. From 2008 to 2011 he acted as the manager of Gas Turbine Power Plant and Utilities Section. In 2011 he was appointed as the Power Generation Deputy.



Mahmood Makhdoomi

Makhdoomi.Mahmood@monenco.com

Obtained his B.Sc. in 1992 and M.Sc. in 1995 in Electrical Engineering from Sharif University of Technology and University of Tehran respectively. From 1992 to 1996 he worked in Ghods Niroo Consulting Engineers as Head of MODEC Software and from 1997 to 2005, in Niroo Research Institute as Head of Control and Dispatching Reasech center. He has been Managing Director of Ofogh Consulting Engineers and SURENA Company in 2006-2007 and 2007-2009 respectively. It was 2009 when he was appointed as the Power Generation Deputy in Monenco until 2011 when he was appointed as the Oil & Gas Deputy in Monenco.

Hassan Siahkali

Siahkali.Hassan@monenco.com

Received his Ph.D. from Sharif University of Technology and M.Sc. from Amirkabir University of Technology and his B.Sc from Tabriz University in Electrical Engineering. From 1996 to 1999 he worked in Iranian Center of Energy Studies (ICES) as Project Manager. From 1999 to 2006 he worked in Niroo Research Institute (NRI) as Project Manager. Since 2009 he has been working in Monenco. It was 2011 when he became the manager of Energy & System Studies Center in the company.

Ramin Khoshkho

Khoshkho.Ramin@monenco.com

Received his Ph.D. from University of Joseph Fourier of France, M.Sc. and B.Sc. from University of Tehran all in Mechanical Engineering. From 1990 to 1998, he worked in MATN Co. (Electric Power Research Center) as Senior Mechanical Engineer and Manager of Mechanical Department. From 1998 for two years, he has been Vice President of Power Generation Research Center, and in year 2007 he has been appointed as R&D Manager of Monenco.

Safdar Mahdavi

Mahdavi.safdar@monenco.com

Obtained his B.Sc. from Iran Industrial and Science University in Electrical Engineering in 1992. From 1993 until 1994 he worked in Seaports and Shipping Organization and From 1994 to 1995 in Amin Electrical Eng. Company as Electrical Engineer. He joined Poolad Consulting Engineering as Electrical Engineer in 1995 and worked there for 4 years. In 1999, he joined Monenco Iran as Electrical Engineer then as Electrical Coordinator and Project Manager. He was appointed as Engineering Deputy in 2013.

Faramarz Ghelichi:

Ghelichi.Faramarz@monenco.com

Obtained his B.Sc. in Electrical Engineering from Ferdowsi University. He is specialist in H.V. Transmission Lines. From 1992 to 1997, he has worked in Moshanir Consulting Engineers Company as Project Engineer, Site Manager and Project Manager. In 1997, he joined Monenco Iran then in 2007 he was appointed as the Transmission and Dispatching Deputy and finally in 2012 was appointed as MCE Managing Director in Oman.

Amirali Bankian

Bankian.amir@monenco.com

Obtained his B.Sc. in Industrial Engineering from K.N.Toosi University of Technology in 2002. Since 2002 he joined Monenco Iran and has been working for the company for 12 years. His first position was Project Engineer and later in 2005 he got into position of Planning and Project Control Engineer. In 2007 he was appointed as Head of Control and Monitoring Department. Also, since 2010 he is a PMD Certificate holder. Then, in 2014 he was appointed as Planning and system Deputy.

Siamak Khalaj

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Obtained his B.Sc. in Electrical Engineering in 1997 from Iran University of Science and Technology. Since then he joined Monenco and has been working for the company for 15 years. He was the head of Power Transmission Department and in 2010 was promoted to be the Managing Director of MEL Nigeria.

Mehdi Shokri

Shokri.Mehdi@monenco.com

Obtained his B.Sc. in Industrial Engineering in 2001 from Iran University of Science & Technology (IUST). As the project & quality controller worked one year in Energy Technology Development Center. From 2003 to 2004 he has worked in Danesh Gostar Ariana Institute as Instructor & consultant in field of QMS & project control softwares and methods. From 2004 to 2010 he has worked as quality & project control expert, technical inspection project manager and QHSE head in Energy Technology Development Center. In June 2010 he joined Monenco as quality expert and later worked as head of quality section. He was appointed as the Quality & Productivity manager in June 2012.

Elham Sadeghian

Sadeghian.Elham@monenco.com

Obtained her B.Sc. in 1995 from Bahonar University and her M.Sc. in 1999 from Khaje Nasir Tusi University in Electrical Engineering. From 1999 to 2007 she worked in Niroo Research Institute as a Project Manager and as the Head of Electric Department. Since 2007 she has been working in Monenco as a Quality Manager and in 2010 she was appointed as the Financial and Administration Deputy.

Scope of services

- Substation Asset Management
- Consultancy services in distribution network
- Master plan of MV & LV network including load modeling, load forecasting, substation placement, feeder routing, capacitor placement, protective coordination, Reliability Assessmet
- High Level Design (HLD) and business modeling of National Broadband Network based on FTTx
- Detailed Design of telecommunication systems in National Gas pipelines
- Light planning and electrification of urban areas
- Supervision on investment projects of Electric Power Distribution Companies
- Renewable Energy Generation Projects such as Solar and wind Power Plant
- Massive data gathering and geo-marketing of telecommunication access networks
- GIS planning of FTTx
- Wide Area Monitoring, Protection and Control systems in national power grid
- Design of Heat Recovery in Oil & Gas Plants
- Energy Audit & Optimization in Oil & Gas Plants
- CO2 Absorption from the gases
- Basic and Detail Design of Petrochemical Plants
- Acting as a MC in Oil & Gas Projects
- Inspection in Oil & Gas Projects
- Engineering services for Conceptual, Basic and Detail Design in infrastructural Projects
- Consultancy and Engineering Services for Iranian Embassies located outside of Iran
- Engineering services for Conceptual, Basic and Detail Design of different kinds of desalination systems
- Engineering services for Conceptual, Basic and Detail Design of Geothermal Power Plants
- Engineering services for Heat Recovery in Cement and Copper Industry
- Technical and Economical Feasibility Study of industrial plants such as Power Plants and Steel, Cement and Copper Industries

Geographical expansion

Successful geographical expansion of Monenco Iran is due to the in-depth knowledge and know-how in several key areas; the regulatory environment, political climate, business opportunities, potential risks, and prospective customer base, among others.
Monenco Iran has selected channel partners and established distribution networks that will provide rapid access to the right markets internationally. In this regard, we could name the Middle East, Africa and CIS countries as well as Far East as the markets with Monenco presence.

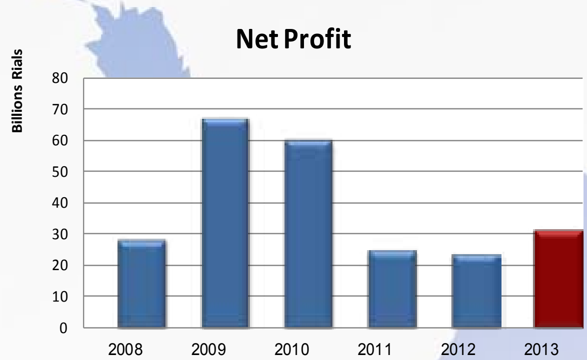
International market penetration

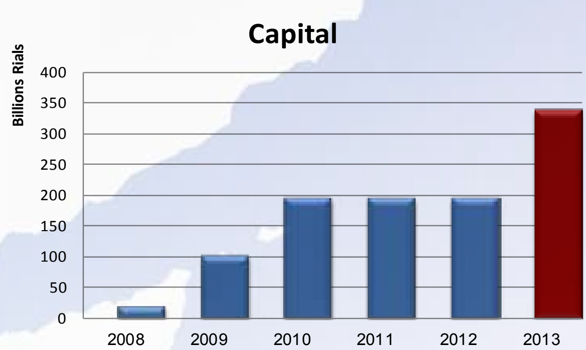
Due to Monenco capabilities and high quality of services, one of the most prominent projects in the region has been awarded to Monenco for the **Feasibility Study of Iran-Iraq Electricity Network Synchronization.** In addition, earning a good reputation in Africa, Monenco has been recommended for the award of Consultancy and Supervision Services for:

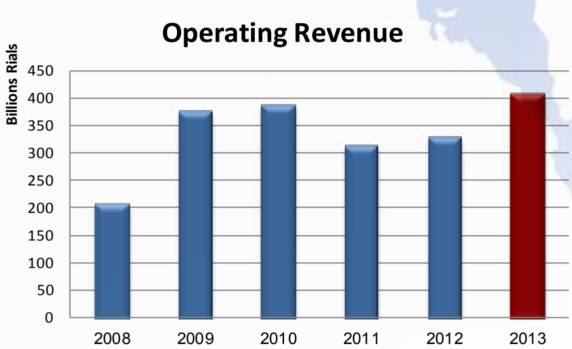
- Little Gombi – Mubi-Gulak 132Kv DC Transmission Line (125km), Nigeria
- 2x60MVA, 132/33KV substation at Mubi, Nigeria
- 2x 132kv line bay extension at Mubi substation, Nigeria
- 2x60MVA, 132/33kv substation at Gulak, Nigeria

Also, Monenco was successful to penetrate in the International Market by working with new clients and scope of work by offering latest technologies such as:

- Consultancy Services for Rehabilitation and Upgrading of Saih Al Khairat Power Station in Dhofar Governorate - Rural Electricity
- Consultancy Services for Power Evacuation System Study For IPP-2 - Dhofar Power Company S.A.O.C
- Owner's Engineer Services for Implementation of 33kV Capacity Expansion Works, Asset Replacement Works and distribution System Improvement Works





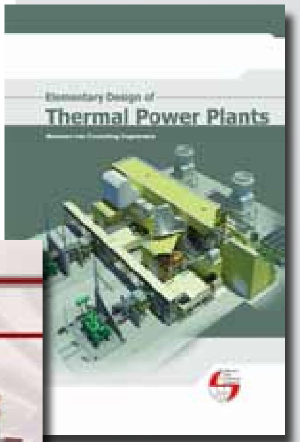


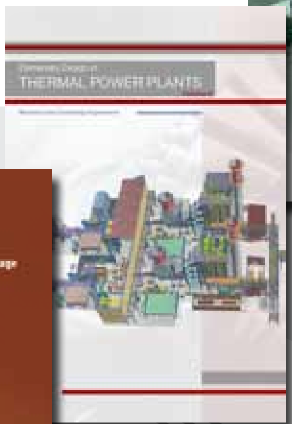
Certificates and Awards

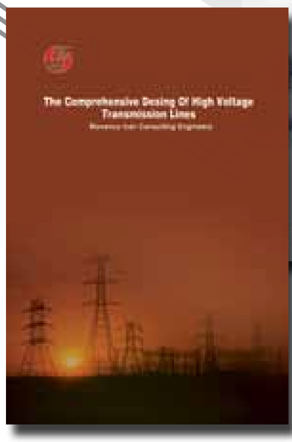
- ▶ Ranked 1st for publishing the “Design of High Voltage Transmission Lines” book by the 28th Iran International Power and Electricity Conference Committee
- ▶ Upgrade to 2nd grade in Oil & Gas Consultancy Services by Vice President Strategic and Planning Deputy
- ▶ upgrade to 1st grade on “Feasibility Study and Supervision of High Technology Projects” by Banking & Credit Investment Consultant Centre of Iran
- ▶ Feasibility Study for 34MW Dadinkowa Hydro Dam was carried out completely and final report presented to Nigeria Federal Ministry of Power. Accordingly, the Job Completion Certificate was granted.
- ▶ Monenco is accredited as Environmental Consultant with Nigeria National Environmental Standards and Regulations Enforcement Agency (NESREA) in the following category:
  - Environmental Management System
  - Environmental Audit
  - Environmental Studies
- ▶ Obtaining the Integrated Management System certificate IMS from Bureau Veritas (BV):
  - Quality Management System certificate ISO9001:2008
  - Environmental Management System certificates ISO14001:2004
  - Occupational Health & Safety Assessment Services OHSAS 18001:2007
  - Quality Management Systems for the Petroleum, Petrochemical and natural gas industries ISO/TS 29001:2010

Publications and Presence in the Conferences

Monenco has published the book “Restructuring of Electric Power Industry” by it’s outstanding experts in 2013. 52 technical reports based on the latest technologies were prepared by Monenco technical team. In addition, 13 national and 19 international researches and technical papers were submitted to and got accepted by prestigious international and national conferences and journals.







Transmission & Distribution Achievements:

- Master Plan of Great Tehran Distribution Network, including 4 milion customers in 22 Zones, 100 substations and more than 1400 MV Feeders
- Master Plan of MV & LV Network
- Light Planning of 22 regions of Tehran
- Engineering & Mechanization Services for Investment Projects
- Engineering, Basic Design and Supervision of SCADA System for Copper Production Complex

Power Generation Achievements

- Synchronization of 2 Wind Turbines each with the capacity of 2.5 MW
- Design of 1000 MW Wind Power Plant
- Penetration in Steel Industry
- Penetration in Mining Industry
- Penetration in Rehabilitation and Retrofitting of Steam Power Plants
- Design of Power and Desalination Plant with capacity of 50 MW and 18000 m3 liter water per day

Oil and Gas Achievements

- Penetration in Petrochemical Plants
- Know How Transfer of new technologies
- Penetration in design of Bioethanol Plant
- Penetration in Coal Mining Projects

Alireza Shirani
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Obtained his B.Sc. in Electrical Engineering from Sharif University of Technology in 1988. He has passed two years in Ministry of Energy as a System Engineer in Energy Division. From 1990 to 1997, he joined in Electric Power Research Center and from 1994 he was appointed as the Head of Electric Department. Since 1997, he has been Vice President of Research in Niroo Research Institute. Finally in 2007, he was appointed as the Managing Director of Monenco Iran.

Economical growth has a direct relation with electricity consumption growth. As the world economical growth was in its minimum during the past several years, consulting companies are one of those firms that assumed to have significant roles in solving such complicated situations. Because they are the ones that must make the project feasible, encourage the applications of new technologies and optimize the platforms to decrease the required investment.

Believing to these roles, Monenco has defined its adaptive strategies in such way that with participation of the investors, clients and contractors not only didn't slow down its ongoing projects but fortunately speed it up. Generally speaking, all the projects in Monenco are progressing based on the planned time schedule as the well trained experts of Monenco conduct the projects in a manner that the clients gave the highest priority of the projects being consulted by Monenco and as the consequences the work orders of Monenco are growing rapidly.

Over the past couple of years Monenco was successful to expand its services and penetrate in Africa, Middle East, and Far East while high volume pressure and restrictions were imposed and the world economy was going downward. It must be noted that in 2011 Monenco was the only consulting company among the 400 economical giants in Iran and in 2012 was ranked 144th among top 200 international consulting and design firms on McGraw-Hill published by ENR.

Although Monenco plays the main role in Iran Power Industry, still is eager to expands it's activities geographically more and more and spreads it's scope of services to the new fields which were not included in the core business of the company including water and gas pipelines, roads, railways and commercial buildings and finally mining.

Furthermore, Monenco was able to establish Monenco Consulting Engineers (MCE) in Oman in 2010 and Monenco Engineering Limited (MEL) in Nigeria in 2011 due to its high proficiency and capability also in 2012, Monenco was successful to enter Oil & Gas market. Consequently, in 2013, Monenco indication was stepping into the field of Petrochemical Industry. Penetration in this field started by Pentaerythritol Complex and Bio-ethanol Plant as well as Methylamines Complex. Also, Monenco was selected as the superior consultant for the Iraq Ministry of Electricity to conduct a study on the Synchronous Interconnection of Iran-Iraq Grids. Other than the above, Consultancy Services on the Network Asset Management and Coke & Steel Complexes are the new areas of activities of Monenco in 2013.

At the final point, the role that we have assumed for ourselves, whether we are involved in the project or not, is to give the best consultancy.

Transmission & Distribution

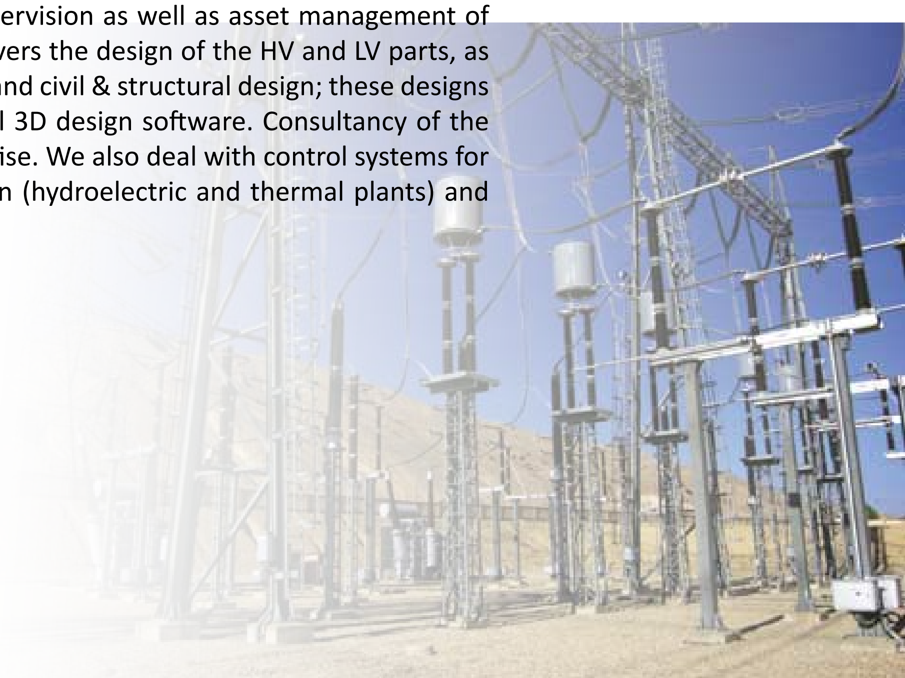
The Division of Power Transmission & Distribution handles projects in Networks, Substations, Transmission Lines, Distribution, Dispatching Centers and System Automation, Telecommunication Networks, Smart Grids and Advanced Metering Infrastructures (AMI). This Division has designed, consulted and supervised +/- 500 kV HVDC system, more than 720 km Transmission Lines up to 765 Kv, Hot Line OPGW with the length of more than 550 km and 7100 MVA Substations from 33 kV up to 400 kV, more than 24 Distribution Networks, 5 Dispatching and SCADA control centers, 8 Telecommunication Networks and AMI projects in 2013.

Transmission Lines and Distribution Networks

Transmission Lines and Distribution Networks Department offers client responsive and high quality design and engineering services in all stages of projects in the fields of network system studies, power transmission lines designs and supervision, OPGW & engineering of network distribution. In addition, using the latest version of software such as PLSCADD, PLS-Tower, CYMDIST, CYMTCC, Calculux, DIALux, DIgSILENT, ETAP also latest methods like intelligent GIS system for selecting the best route and surveying via (LiDAR) system enable us to reach the optimum design in our projects.

Substations

The High Voltage Substations Department is equipped to deal with all necessary aspects of engineering and construction supervision as well as asset management of HV substations. Substation engineering covers the design of the HV and LV parts, as well as control systems, auxiliary services, and civil & structural design; these designs are fully accomplished based on structural 3D design software. Consultancy of the projects also falls within our area of expertise. We also deal with control systems for equipment designed for energy production (hydroelectric and thermal plants) and petrochemical plant.



Dispatching & Automation

Dispatching and Automation Department has been serving consultancy services in various stages of the SCADA and automation plans of electricity industry including generation, transmission and distribution, copper and steel production industries, metro & railway, oil & gas and water distribution industries. In this regard this group has been taking advantages of up to date technologies in projects like WAMS systems and Smart Grids. Furthermore, in this department some technical reports have been provided for many of the clients around the country in various fields such as smart grids, leak detection system in oil & gas and water industries, and environment monitoring systems.

Telecommunication

As a natural partner for large telecommunication operators, we have supported the installation and upgrading of their telecom networks in core, aggregation and access layers. In various regions throughout the country, we've worked on projects to deploy fiber optic networks, radio / microwave systems, Power Line Carriers, etc. We've also worked on the high level design, business case and tendering of the National Broadband Network based on FTTx; national telecommunication infrastructure of power system; telecommunication infrastructure of oil and gas systems; Smart Grids and Advanced Metering Infrastructure (AMI); telecommunication network planning of Airports, Metro Systems, etc.

Civil & Structures

By gaining experience in different fields of design and consultancy, Monenco Iran also offers civil services for industrial facilities. This group provides consultancy and engineering services for industrial, commercial, residential buildings and civil parts of the transmission lines, high voltage substations, dispatching centers and railway transportation projects and other unusual structures. Also ergonomic construction and green buildings are in the scope of Monenco Iran.

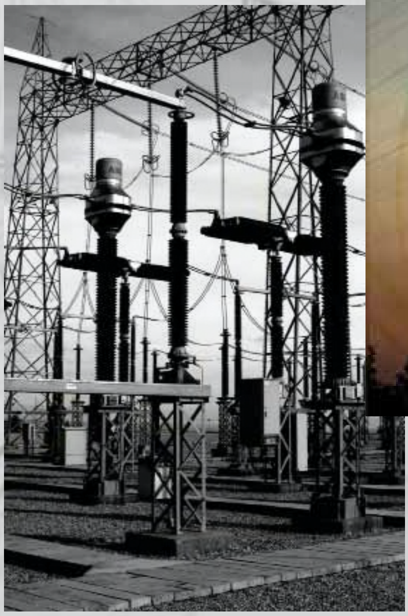
Significant Ongoing Projects:

- Master Plan of Great Tehran Distribution Network, including 4milion customers in 22 Zones
- 100 substations and more than 1400 MV Feeders
- Master Plan of Tabriz MV&LV Network
- Lightening Plan of 22 regions of Tehran
- Engineering & Mechanization Services for Investment Projects in Alborz Province
- Engineering, Design services and Site Supervision for five 400/63 and 230/63 kV Substations in Esfahan REC
- Relay setting and coordination for FAJR II petrochemical
- Engineering and Design services for 230 kV Substation of Mahshar power plant
- System study, Engineering and Design services for 63/20 kV Substation of 1001 City
- Engineering and Design services for 63/20 kV Substation of Kahak Wind Power Plant
- Engineering services of asset management based on CBM in Tehran distribution
- Engineering services for tender document of 42 Capacitor banks
- Sayah Alkhayrat 33/11 kV Substations (Sultanate of Oman)
- Engineering Services for Implementation of 33kV Capacity Expansion Works in Holaylan 63/20kV Substation
- Engineering, Basic Design and Supervision of Copper Industries SCADA system for entire Shahr-e Babak Copper Production Complex
- Consultancy services to implement operation instructions for Distribution Dispatching Systems
- Supervision of DAMs dispatching control room in Kermanshah
- Iran's FTTx National Broadband Network
- Telecommunication and SCADA systems of Iran's 6th Gas Pipeline
- Supervision on the first phase of Iran Advanced Metering Infrastructure (FAHAM project)
- Comprehensive ICT Plan for Tehran Regional Electric Company (TREC)
- Telecommunication Infrastructure of 1001 Cities Complex

Articles and Technical Reports

T & D has published 6 technical reports, 2 international and 4 national articles and papers in 2013 to introduce new technologies & systems to its clients. Below is the list of mentioned reports;

- GUI Based Optimal Drumming Algorithm for Optical Ground Wire (OPGW) Cables
- Determination of Minimum Length for Power Transmission Lines Transposition According to Return of - Transposition Cost
- Capacity Sharing market; an effective approach for alleviating problems associated with the supply of peak load
- Smart metering system and gas smart meter
- Smart grid rollout; the roadmap
- Enhancement of the reliability of Wireless systems utilizing neural networks



Engineering Services for Implementation of 33kV Capacity Expansion, Asset Replacement and Distribution System Improvement for DPC - Grid Station & Associated Transmission Line

Start date: 2013 **Finish date:** 2015 **Status:** Ongoing **Project Type:** 33kV Substation **Capacity:** 33/11kV switchgear **Location:** Sultanate of Oman

Client: Dhofar Power Company S.A.O.C (DPC)

Scope of work:
- Project management
- Contract management
- EPC Design Review Services
- Construction Supervision Services

Description: Dhofar Power Company S.A.O.C (DPC) headquartered in Salalah-Dhofar-Sultanate of Oman, is the owner and operator of the Salalah Power System. The Company plans the developmental needs of the Salalah Power System in line with the development needs of the Dhofar region and implements such of those plans approved by the Government.

In line with the above, now, the Company intends to avail the services of a Consultant (Owner's Engineer) to provide certain services for implementation of 33 kV Capacity Expansion Works, asset replacement works and Distribution System improvement Works in the Salalah Power System.

- Implementation of 2x20 MVA, 33/11kV Primary Substation at Port of Salalah
- Implementation of 2x10 MVA, 33/11kV Primary Substation at Madinat Al Haq
- Asset Replacement works at the existing 2x20 MVA Primary Substation at Raysut Industrial Estate (RIE)
- Distribution Improvement Works

Engineering Design and Site Supervision Services for five 400/63 and 230/63 kV Substations in Esfahan Regional Electricity Company (EREC)

Start date: 2013 **Finish date:** 2015 **Status:** Ongoing

Location: Esfahan (Iran) **Client:** Esfahan Regional Electric Company (EREC)

Scope of work:
- Design and supplementary studies
- Preparing technical specifications of equipments and systems and designing executive drawings
- Preparation of tender documents for each substation
- Cooperation in floating tender
- Contract Negotiation
- Design review of EPC contractor documents

Description: These five substations will be connected to the national network through overhead lines. Regional electric stability will be increased by connecting this substation to the network. Also this project is very important in view of configuration and maneuver operation. In this project Monenco is responsible for Conceptual Design, preparing EPC contactor's scope of work, tendering and selecting EPC contractor, contractor's design inspection, FAT Inspection, Site Supervision, project and contract management as well as Engineering of HV, LV, Civil, Electrical and Mechanical.

Master Plan of Great Tehran Distribution Network

Start date: 2013 **Finish date:**2014 **Status:** on going **Location:** 22 Regions of Tehran

Client: Great TEHRAN Electrical Distribution Company

Scope of work:

- Load modeling & load forecasted up to 2026
- Distribution transformers placement
- Substation placement
- MV feeders routing and substation capacity expansion
- Short circuit analyzing and protection devices coordination
- Network reliability assessment
- Study on existing network with CYMDIST software to specify weak points

Description: Tehran Distribution Network with over 3 million customers in 22 regions of Tehran is the biggest Distribution Network in Iran. However, Tehran has a very important position in terms of political situation also it's the capital of Iran. Therefore, quality and quantity of the electricity being delivered to the customers is a very important issue for this company. In this project, a long term development plan including substations, medium voltage feeders and distribution transformers with respect to network load, design, safety and reliability till 2025 have been compiled. The review of the mentioned plans with the aim of 3 years short-term plans is under the action by Monenco. Analysis of the distribution network includes:

- 100 * 63/20 kV Substation
- 14000 * Transformers Station
- 1200 * MV feeders with 7000 km length
- Over 3 million Costumers

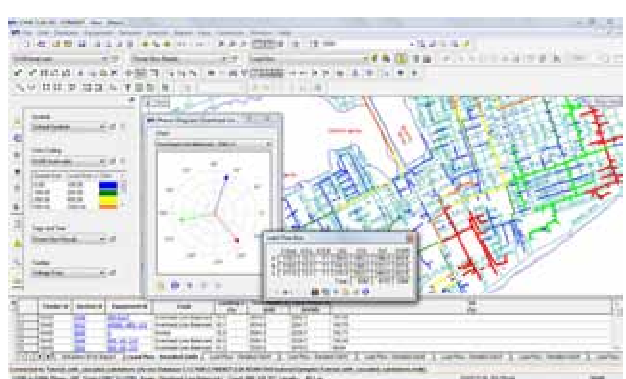
Master Plan of Tabriz MV and LV Distribution Networks

Start date: 2013 **Finish date:** 2016 **Location:** Tabriz

Client: Tabriz Electrical Distribution Company

Scope of work: Consulting services for preparing master plan of distribution network, which includes engineering services regarding basic design, Load modeling & load forecasting, Distribution transformers placement, Substation placement, MV&LV feeders routing and substation capacity expansion, Short circuit analyzing and protection devices coordination, Network reliability assessment.

Description: Due to the exponential increase in the number of equipments in distribution networks in comparison with transmission and power generation sections also urban limitations and other plans of different organizations, a master development plan in respect of future electrification needs is a must. In this project Monenco Iran is responsible for Master Development Plan in 9 years for Tabriz Distribution Company. Extension and Greenfield planning will be done for the full medium voltage network and three low voltage areas. The goal of this project is to give the planners a guideline so that they would be able to perform similar planning tasks on their own. The final network planning should be reliable, flexible and operable. The procedure to perform the strategic planning for the long term is demonstrated. After the decision, which long term option should be elaborated further, a planning of the short term and medium term network will be performed in the next step.

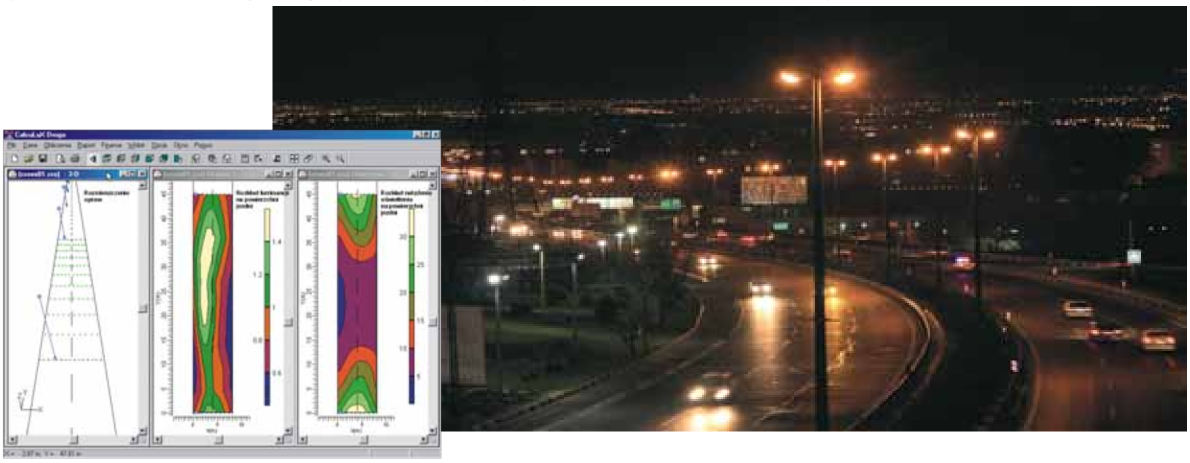


Lightening Plan of 22 Regions of Tehran

Start date: 2013 **Finish date:** 2015 **Status:** Ongoing **Location:** 22 Regions of Tehran
Client: Great TEHRAN Electrical Distribution Company,

Scope of work: Engineering services for designing of street lighting which includes Basic and Detailed Design, Control and Revise Owner Design, Data Sheet Design and Cost Estimating. Also, DIALux software is used in this project.

Description: Tehran Distribution Network Company is intended to increase the quality of lighting systems in Tehran. Therefore, due to high capability of Monenco Iran in such projects also the sensitivity of design, quality and efficiency of lighting systems, this project in under the action by Monenco.



Engineering & Mechanization Services for Investment Projects

Start date: 2013 **Finish date:** 2014 **Status:** Ongoing **Location:** Alborz (Mehrshahr, Savojbolagh, Nazarabad and Taleghan)
Client: Alborz Electrical Distribution Company

Scope of work: Engineering services for supervision on investment projects, equipment quality control and mechanization services, which include equipment procurement, construction, renewing & reconstruction network and new electrification according to standards and technical criteria. this project will be carried out in 4 regions of Alborz States with 13 supervisors and 4 GIS Operators.

Description: One of the most important issues in operations and management of the plans is implementation for development, modifications, service, repair and maintenance as well as updating and automation & mechanization of distribution networks in line with modern standards and in a safe situation. In this project Monenco Iran is in charge of supervision on operational plans for distribution networks in Alborz Province based on modern technologies.

Engineering, Basic Design and Supervision of Copper Indutsry SCADA System

Start date: 2013 **Finish date:** 2016 **Status:** Ongoing **Location:** Shahre-Babak, Kerman, Iran

Client: National Iranian Copper Industries Company

Scope of work:

- Preliminary Study
- Gather information from the client, Preliminary study and design
- Preparation of tender documents and technical specifications based on the first agreements
- Tendering and contracts
- Design Review
- Supervision
- Site supervision

Description: The whole electrical infrastructure of Shahr-e Babak Copper Production Complex include; Miduk Copper Mine, Khatunabad Copper Smelting as well as some private HV Electrical Substations will be monitored and controled through a hierarchical SCADA System. Through implementation of this project, the client will acquire enough visibility for better supply and maintain of electrical power to each individual copper plants which are involved in the Copper Production process such as Concentration, Smelting and Refinery. Energy management is also another important purpose of this project.

Consulting Services for Analysis, Confirmation, Design, Implementation and Operation of FTTx NBN in Iran

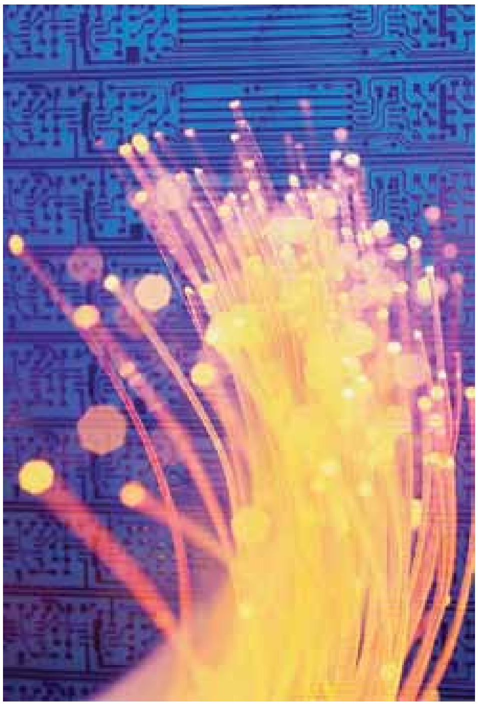
Start date: 2013 **Finish date:** 2014 **Status:** Ongoing **Location:** all around the country, Iran

Client: Iranian-Net (the 4th telecommunication operator in Iran)

Scope of work:

- Data Gathering and geo-referencing in 31 Cities (8 million customers)
- Competitive analysis of Iranian Broadband Market - Players Strategies
- Business Model for 8 Million FTTx port to be deployed in 31 Cities
- High Level Design of the FTTx Network
- Tendering and implementation of different RFQs
- Assistance in Vendors Selections

Description: Fiber To The X (FTTx) is a network, based on fiber optic technology which provides direct access to the broadband telecommunications through fiber optic for an enormous number of customers. The speed of fiber optic and copper cables are both limited by length but copper is much more sharply limited in this respect. For the purpose of improvement on the telecommunication network, Monenco is providing consulting services together with our European partner to provide the Strategy, High Level Design (HLD), Business Plan and tendering of the first National Broadband Network (NBN) of Iran.



Power Generation

Power Generation Division covers all types of power generation projects from Combined Cycle, Thermal Power Plant, to Renewable and CHP, CCHP. More than 46500 MW power generation projects have been Engineered, Designed, and Supervised by this department including 19,000 MW Gas Turbine and 27,000 MW Combined Cycle Power Plants. Also feasibility studies of more than 3000 MW Thermal Power Plants have been done by Monenco. In 2013, Monenco Iran was involved in 7000 MW power generation projects globally.

Desalination

The desalination plants for supplying potable and industrial water, are frequently constructed as integrated part of power generation and sea water desalination plants. In this context it is very important to choose and optimise the most appropriate plant configuration and technology for the desalination process. This applies in particular to privately financed projects in public-private partnership models.

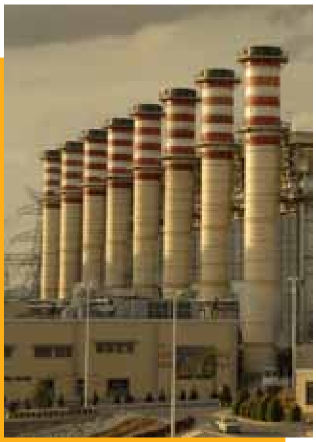
That is why Monenco always designs such facilities individually to best meet the specific project requirements. This includes both processes for sea water desalination as well as raw water treatment and also post-treatment and/or conditioning of product water according to the relevant requirements.

Combined Cycle Power Plants

Due to the economical and environmental concerns, there is general tendency towards constructing combined cycle power plants or converting gas turbine power plants into combined cycle power plants, to increase efficiency. Monenco is a pioneer company in offering engineering and consultancy services for different modules of combined cycle power plants.

Feasibility Studies

To start a business, there is a need for insight and vision in terms of the viability of the proposed project concept. Most rational decisions, taken either by existing or aspiring entrepreneurs to make a business investment, is preceded by an investigation of the feasibility of the project.
The analysis of the project involves a certain number of stages also some parameters and elements need to be analyzed in order to make decisions about the viability and direction of the business. In Monenco, we have an expert team for the technical and economical feasibility studies of the projects in all fields.



Gas Turbine Power Plants

Currently a significant fraction of electrical power in Iran is generated through gas turbine power plants and this is growing rapidly. Monenco has long experience of offering engineering, design and consultancy services for gas turbine power plants.

Renewable/Green Energies & Distributed Generation

Monenco actively participates in eco-friendly and clean energy projects such as, renewable energy generation from water, wind and sunlight and distributed generation with use of combine heat and power generation (CHP). We are well aware that protecting and preserving the environment is both a social responsibility and a crucial element to sustainable development.
The renewable energy generation and distributed generation in Iran is increasing with a significant rate and this can be seen as an emerging market for Monenco. In 2009, Monenco started participating in this market.

Consultancy Services and Supervision of Construction of Coke Manufacturing Plant

Project Type: Heat Recovery Power Generation Plant **Start Date:** 2013 **Finished Date:** 2017

Location: Mazandaran

Client: Iran Minerals Production and Supply Co.

Capacity: 25 MW

Scope of work: Monenco scope of work in this project is, consultancy services and supervision for Project financing, basic design, detail design, engineering, procurement, manufacturing, shop testing, painting, protection, packing, transportation, custom clearance, provision and delivery of drawings and documentation, supply and delivery of Plant and Equipment, proper storage at Site before erection, execution of civil works, erection of steel structure, Plant and Equipment, testing, successful commissioning, setting to work and demonstration of performance guaranteed figures, rendering supervisory and technical assistant services and training of IMPASCO personnel. Also all infrastructure are included; but not limited to buildings, overhead crane, fencing, lighting, piping, cabling, drainage, swage Work, effluent collection, surface water collection, fluid distribution network, distribution of electrical power, natural gas, water, hydraulic system, lubrication system, emergency compressed air, steam and other industrial gases together with all auxiliaries and communications necessary for completion of the Plant on a full turnkey basis all as per Contract in Heat Recovery Power Generation Plant.

Description: Construction of Coke Manufacturing Plant with the capacity of 300 thousand ton coke and 25 MW power generation is under the action. The plant is located in Mazandaran Province – Savadkooh. However, Monenco Iran is responsible for consultancy services and supervision on 25 MW Power Generation Plant from Heat Loss Recovery.

Design of YAZD 2 Water Treatment Plant

Project Type: WTP OF YAZD 2 POWER PLANT **Start Date:** 2013 **Finished Date:** 2014

Location: Yazd **Owner:** Jam Energy Development Company

Client: MAPNA Group

Scope of work: Scope of this project includes Detailed Design (Civil, Mechanical, Electrical, Process, I&C and General Engineering) of water treatment of YAZD 2 power plant. It includes erection and commissioning doc of these systems.

Description: In this project, Monenco designs pretreatment and water treatment of both water sources of the plant including dam water and well water which includes detail design of various aspects of related systems.

Design of ChadorMalu Combined Cycle Power Plant

Project type: Combined Cycle power plant **Start Date:** 2013 **Finished Date:** 2016

Location: Ardkan City - Chadurmalu Kundule Complex

Owner: CHADORMALU Mining & Industrial Co.

Capacity: 968 MW (4 GTG *162 MW + 2 STG * 160 MW)

Scope of work: Monenco provides Basic Design, Detail Design, Vendor Design Review, 3D Modeling of Plant and overall engineering

Description: The plant is located at 25Km far away from Ardkan City and inside of Chadurmalu Kundule Complex. This power plant is implemented by investment of private sector based on BOO scheme. Produced power will be sold to the national authority and transfer via electricity grid for urban and industrial demand. The project will be completed through 2 phases. In the first phase that is under construction at this moment, 2 GTG and 1 STG with common utilities will be installed and second phase includes 2 GTG and 1 STG that will be developed in future. In addition, the system of cooling type is Air Cooled Condenser.

Design of Shirvan Water Treatment Plant

Project Type: WTP OF SHIRVAN POWER PLANT **Start Date:** 2013 **Finished Date:** 2015

Owner: Iran Power Development Company

Client: MAPNA Group

Scope of work: Scope of this project includes Detail Design (civil, mechanical, electrical, process, I&C and General Engineering) of pre-water treatment and water treatment of Shirvan Power Plant. It includes erection and commissioning doc of these systems.

Description: In this project, Monenco designs pretreatment and water treatment of both water sources of the plant including dam water and well water which includes detail design of various aspects of related systems.

Engineering Services for Kahak Wind Farm

Project Type: Wind Power Plant **Start Date:** 2013 **Finished Date:** 2014
Location: Qazvin Province **Owner:** MAPNA Group- Renewable Energies Co.
Client: MAPNA Group
Capacity: 20 MW (8x2.5 MW Wind Turbine)

Scope of work: Basic and Detail Design for Micrositing, Electrical Systems, Civil Works, Mechanical Systems, and Substation.

Description: Kahak is located in Qazvin province, Iran. This project is the first phase of a wind farm with final capacity of 100 MW. Primary site selection of this project was carried out by Monenco 2 years ago and afterward a meteorological mast was installed in the site. After 1 year data gathering, collected data from mast is used to perform micrositing which includes determination the position of 8 wind turbines. The rated power of wind turbines is 2.5 MW with 85 m hub height and 104 m rotor diameter. The produced electricity is transmitted to a 63kv over head line by a 63/20kv substation.

Consultancy & Engineering Services for Infrastructure of 1001 City Complex

Project Type: Infrastructural project **Start Date:** 2013 **Finished Date:** 2014 **Location:** Tehran
Capacity: Complexes Recreational, Commercial, Tourism, Sport 139 Hectare Area.
Client: Ezam Investment Company

Scope of work: Monenco has been assigned to review of previous studies, conceptual design, basic design, detail design of infrastructural (water, gas, power,…) for elements of projects.

Description: The 1001 SHAHR is located on the outskirts of Tehran along the Hemmat highway. This project will comprise a world-class Theme park, water Park and Retail Mall supported by three hotels which cater to three, four and five star guests respectively, an office tower, entertainment street and Islamic center.

Determination of Strategy and Technical and Commercial Feasibility Study for Anahita Steel Mill Factory

Project Type: Determination of strategy and technical and commercial feasibility study

Start Date: 2013 **Finished Date:** 2014 **Location:** Khuzestan Province - Mahshahr

Owner: Anahita Steel Co. - Iran

Capacity: 2000000 Ton Steel

Scope of work: Monenco provides technical, environmental and economical feasibility studies for Steel Mill Factory in three seasons.

Description: Monenco will provide the feasibility studies in three seasons. In the first season, global marketing and different kinds of steel products will be introduced and investigated. In the second season the optimum scenario of steel making will be chosen and finally in the third season, Technical and Economical Feasibility Study will be prepared. However, the third season will be presented to the bank. Also Monenco is in charge of specifying site location of the factory. The plant is going to be constructed in the Khuzestan province, near Mahshahr (city in Southwest of Iran).

Energy Conversion Management of Zargan Power Plant

Project Type: Energy Conversion Management **Start Date:** 2013 **Finished Date:** 2014

Client: Khozestan Power Generation Company - Iran

Scope of work: Controlling, Coordinating and Supervision of E.C.A contract between Zargan power plant and Tavanir Company

Description: In this project, Monenco has two main duties as a supervisor and financial expert and some of them are:

- Checking and finalizing the rate of consumption of gas in power plant
- Preparing monthly financial report according to E.C.A contract
- Announcing the rate of production to client in daily reports
- Calculating the power purchase rate in power market

Feasibility Study, EPC Contractor Selection and Supervision of Renovation of DCS Control System and Generator Protection System for Rey Gas Power Plant, GE-F5

Project Type: Phase one: Feasibility Evaluation, Preparation of Tender Documents, EPC Contractor Selection – Phase Two: Supervising the project **Start Date:** 2013 **Finished Date:** 2015

Client: SABA - Iran

Scope of work: Monenco has reviewed the existing documents of control system and generator protection system and suggested the modern and up to date control and protection system. According to suggested system, tender documents in order to select EPC contractor were prepared and after tender, the contractor was selected. At this stage, as the EPC contractor has started the operation phase, Monenco does the supervisory on contractor's performance.

Description: As Rey gas power plant was manufactured over 30 years ago, its control and protection systems are old and outdated. This project considers changing the control system in order to provide up to date capabilities for control and monitoring of the system to reach an optimum power generation.

Consultancy Services and Design Of Burner Management System (BMS) For First Unit Of Bandar Abbas

Project Type: Feasibility Evaluation, Design of New Control System, Preparation of Tender Documents
Start Date: 2013 **Finished Date:** 2014

Client: Hormozgan Power Generation

Scope of work: Monenco has reviewed the existing documents of Burner control system and by comparing it to the standard NFPA 85, Monenco has suggested the modern and up to date control system. According to suggested system, tender documents in order to select EPC contractor were prepared.

Description: As Bandar Abbas thermal power plant was manufactured over 40 years ago, its control and protection systems are old and outdated. This project considers changing the Burner Management system in order to provide up to date capabilities for control and monitoring of the system to reach an optimum power generation.

Consulting & Design Services for Iran Embassy Building in Nigeria

Project Type: Building Engineering Service

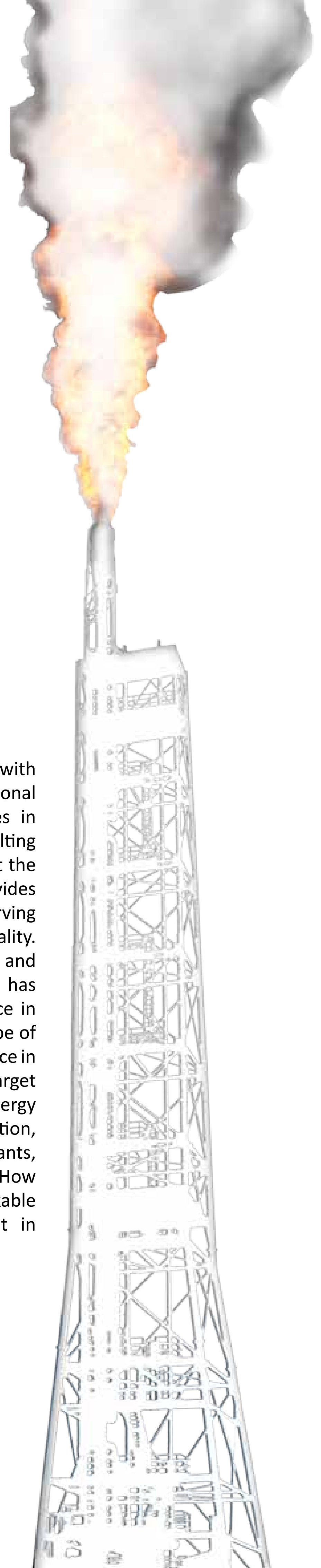
Start Date: 2013 **Finished Date:** 2014 **Location:** Abuja - Nigeria

Client: Foreign Ministry of Islamic Republic of Iran

Capacity: G+2 Embassy Building

Scope of work: Engineering of Architectural/Structural and MEP services

Description: The project consists of Ground plus 2 story with special consideration of embassy occupancy, located at Abuja which is capital of Nigeria. The main scope of working is about design services at both basic and detail phases.



Oil & Gas

Oil & Gas and Petrochemical consultants across the globe are looking for timely solutions to help them address the current challenges of a global economic down turn, decline the overall margins and increase emphasis in process safety compliance. Monenco offers innovative engineering solutions that provide unique answers to these challenges in areas of auditing, metering, upstream and process safety management consulting of petrochemical plants, Oil & Gas complexes and transmission lines. Our technical team has delivered leading methodologies, best practices and robust software solutions that reflect Oil & Gas industry insights and vast experience in our core competencies. We are, and will continue to be, second to none in understanding our client's needs and the most worthy steward of their resources. This department benefits from participation and cooperation with prominent International and regional Engineering consultancy companies in joint ventures in rendering consulting and engineering services abroad. At the same time this partnership provides broader opportunities for serving domestic clients with higher quality. Monenco, by having the major Oil and Gas projects in the work history has established an outstanding presence in this industry and expanded the scope of services in order to spread its presence in this market. Entering into the new target markets such as Heat Recover, Energy Audit and Optimization, CO2 Absorption, Bio-ethanol and Petrochemical Plants, Technical Inspection and Know How Transfer have been the most remarkable achievements for the department in 2013.

Conceptual, Basic Design and Detailed Design of Heat recovery from Olefin and VC units in Abadan Petrochemical Company

Start Date: 2013
Client: Abadan Petrochemical Co.

Scope of work: Monenco is responsible for performing all Design and Engineering Services in all phases of engineering including Conceptual Design studies, Basic Engineering Services and Detailed Engineering Services in this project.

Description: Abadan Petrochemical Company intends to perform heat recovery project in Abadan petrochemical in order to increase efficiency and operational performance from energy losses point of view. The purposes of this project are Heat Recovery from process streams of olefin furnace units and VC units and heat recovery from the flue gases of these two units in Abadan Petrochemical Company.

Carbon Capture Storage from Power Generation Units

Start Date: 2013

Client: MAPNA Group

Scope of Work: Feasibility study and a vast investigation to find out the possibility of CO2 absorption from flue gas of power plants, how to make storage and the ways of handling and distribution to various customers. Also to create a data base of all CO2 production companies and consumers in Iran and neighboring countries

Description: According to the Kyoto protocol of December 1997, due to different reasons such as global warming, the amount of Co2 gas emissions to the atmosphere, should be reduced significantly. This project provides an overview of how the Co2 gas could be captured at fossil fired power plants, how it would be stored and transported and finally how it will be used in different sectors of industries or injected into oil and gas fields.

Detailed Design Engineering Service for Methylamines Plant

Start date: 2013

Locatin: Shahrereza Razie Industrial Zone (Ranksazan)
Client: : Petro Amine Rahavard Sepahan (PARS

Scope of work:
Detail Design and Engineering service for designing Methylamines Plant in Products rate of 18000 Ton per Year from Ammonia & Methanol Feeds.

Engineering Services of Production of Formalin, Acetaldehyde and Pentaerythritol in Shahid Rasouli Petrochemical Complex

Start Date: 2013
Client: Shahid Rasouli Petrochemical Complex

Scope of work in Phase 1:

- ► Preparation Scope of Work for Phase 2
- ► Economical Study
- ► Preparation List of Basic, Feed, Detail & … Document

Scope of work in Phase 2:

- ► Basic design
- ► Detail designs
- ► Management & Supervision over procurement
- ► Training of client staff
- ► Supervision over erection and commissioning of a petrochemical complex located in Mahshahr (South of Iran).

The plant will produce 20.000 Tons/Year, Formalin, Acetaldehyde and Pentaerythritol to cover Iran and neighboring markets

Energy Audit in Desalting Units and Revising Energy Consumption Standard

Start Date: 2013

Client: Iranian Fuel Conservation Co. (IFCO)

Scope of work:

- ► Data gathering in all Desalting units and data analyses
- ► Energy Auditing in order to supervise the energy criteria and standards in 15 Desalting units
- ► Revising the energy standards and criteria (based on every three years Plan)
- ► Provision of Training Course

Implementation of Turboexpander System as an Environmental Friendly Technology for Energy Conservation in Lavan Natural Gas Wellhead No. 3

Start Date: 2013 **Client:** Iranian Oil Offshore Company

Scope of work: FEASIBILITY STUDY

Description: It is common practice in the natural gas industry to utilize choke valves to reduce high pressure gas in the natural gas wellheads to lower pressures for downstream delivery. The industry has periodically evaluated the viability of using turboexpanders instead of choke valves to recover useful energy from the pressure drop in the form of shaft horsepower which could generate electricity for internal use or for sale to the electric grid. In this regard, the aim of this project is to replace the existing choke valve in natural gas wellhead no. 3 which is located in Lavan Island with turboexpander coupled to a generator to produce clean electricity at the site.

Project Management Engineering Services for Kermanshah Bio-ethanol Production Plant

Start date: 2013 **Locatin:** Bisoton Industrial Zone (Kermanshah

Client: **Gostaresh Sokht Sabz Zagros (Zagros Green Fuel Development Co.)**

Scope of Works: Project Management Engineering Services for all phases of Bioethanol Production Project such as;

- Pre-commissioning
- Commissioning
- Test Production
- Steady Production service
- Feasibility Study
- Basic Design Engineering
- Details Design Engineering
- Procumbent
- Construction

Description: This project is very important since it reduces the air pollution caused by gasoline fuels through using bioethanol fuel instead of MTBE which is a chemical and carcinogen material also increases the Octane of Gasoline. Accordingly, 200,000 liter/day Ethanol Alcohol (66 Million liter/year) and other auxiliary production from corn and other cereal feeds will be produced in this project.

Assessment of Strategies for Improving Manufacturing Technology, Manufacturing, Engineering, Procurement, Construction, Installation and Maintenance of Equipment used in Pipelines, Telecommunication Stations and Pressure Reducing Stations

Start Date: 2013 **Client:** Mapna Group

Scope of work:

- Evaluation of oil and gas pipeline projects include ethylene and gas stations in Iran
- Evaluate projects for Oil Pumping stations (booster stations)
- Study of communication projects and future market for oil and gas pipelines in Iran, entral Asia, the Middle East and North Africa (onshore and offshore)
- Study of future market for oil and gas pipelines in CStudy of special projects
- Maintenance market survey for pipelines and stations
- Investigate and provide a comprehensive list of all of the following:
    - Pipes manufacturers and suppliers
    - Contractors gray designs pipelines
    - Valves and Fittings manufacturers and repairers
    - Consulting and design firms
    - Steel production companies and suppliers
    - Producers and repairers of pig launcher and receiver
    - Universities and research institutes
    - Engineering Services Companies and repair of pipelines
    - Engineering services and maintenance companies pressure stations
- Investigate and provide a comprehensive plan of pipeline integrity management (onshore and offshore)
- Study funded projects in the pipeline
- Study logistics management in pipeline projects
- Convention and national laws and international pipelines
- Scrutiny and management of information technology in the pipeline
- Scrutiny and technologies in the pipeline
- SCADA and dispatching in pipelines
- Valves, fittings and seals
- The health, safety and environment (HSE)
- Guarantee quality and construction inspection
- Methods for implementation of onshore pipelines
- Methods of execution pipelines on offshore
- The characteristics and challenges of sour gas and oil pipelines
- Modern methods of pipeline operation
- The maintenance and repair of pipelines
- Pig, launchers and receivers
- Services of technical inspection during operation
- Protection, monitoring and control of corrosion
- making Intelligent pipelines by using optical fiber and its role in crisis prevention
- Risk management and its impact on pipelines to prevent the crisis
- The final report (final documents, along with CD)

Description: The main goal of this project is a comprehensive study for MAPNA Group in order to help them in strategic planning and facilitate their entrance into Pipeline market.

Mining & Geology

Monenco Iran is committed to provide high quality services to the geology, Exploration and Mining community through its experienced staff as well as established cooperation with internationally known firm in the field of Geology, Exploration and Mining. We offer services in Geology, Exploration, Resource Geology, Geochemistry, Geophysics, Mining, Resource Estimate, Grade Control, Monitoring, Feasibility Studies, Soil Mechanics, Rock Mechanics, Open Pit Mine Design, Underground Mine Design, Mine Optimization, Environmental Studies, Mine Planning and Hydrology. Monenco is equipped with sophisticated professional software such as Gemcom Surpac, Downhole Explorer, dataminestudio, FLAC, Gems, UDEC, GEO matica and prepared to provide consultancy in exploration and extraction of mineral deposits in other countries, partnering with highly skilled international companies and modern equipments and machineries.

Introduction of new technologies

Directional Core Drilling

Exploration drilling is one of the most important steps in Geometry identification and estimation of reserves. Drilling is considered one of the most expensive mining activities.

Geology and Mining Department with the introduction of new method of drilling as “Directional Core Drilling” to Iranian Clients active in mining is step forward saving time & money and improvement in exploration drilling in Iran.

Laser Scanning System for mine Survey

In mining operations determination block extraction in different period, geometry changes in place of extraction, volume of mineral depot, volume of waste depot, volume of waste depot are basis of mine design and planning. Now in our mines in Iran these works performed by manually surveying and followed by this method with human and system tolerance. Geology & Mining Department with the introdcution of new method of surveying as “Laser Scanning System for mine surveying” to Iranian clients active in extraction mining is step toward saving time & money and improvement in mining in Iran.

Selection of important projects

- Preliminary and Detailed Exploration of Iron Ore Anomalies in Yazd Province, Iran
- Detailed Exploration of Baba Ali 2 Iron Ore Deposit in the Hamadan Province
- Detailed Exploration of Galaly 2 Iron Ore Deposit in the Kurdistan Province
- Consultancy Services and Design Coke Making Plant in Central Alborz Coal Field, Savadkoh, Mazandaran Province Iran
- Consultancy Services of Exploration and Supervision on Contractor Operations in Central Alborz Coal Field, Mazandaran Province, Iran
- Engineering Services, Site Supervision, Additional Detailed Studies and Exploration Drilling of
- Water, Mining and Power Plant in Mazino I Tabas Coal Mine
- Consultancy Services, Study of Current Designs and Providing Detailed Design of Pabdana Coal Mine, Iran
- Coal Exploration Operations in Mazandaran, Zirab City
- Preliminary Coal Exploration in Takht Coal Mine in Golestan Province

Consultancy Services of Exploration and Supervision on Contractor Operations in Central Alborz Coal Field, Mazandaran Province, Iran

Duration: 24 Months
Client: Iran Minerals Production and Supply Co. (IMPASCO)
Scope of Work:
Geological and technical data gathering
Preparing an archive of maps, documents and project documentation
Topographical and geological mapping at 1:20000, 1:5000 and 1:1000 scales
Provide geodatabase
Design exploration plan
Preparation of tender documents
Site supervision
Feasibility study

Description: The project area is located between Firozkouh and Haraz road in central Alborz coal field. The project will be implemented in two phases. The first phase deals with data collection prior and after all the previous information therefore a comprehensive database is presented. In the second phase of drilling contractor monitoring and evaluation of promising locations in that area can be identified coal reserve volume

Consulting Services, Review of the Current Plans and Detailed Design from the lower level of +2400 to the Last Exploration Level of Main Pabdana Coal Mine

Duration: 6 months

Client: Kerman Coal Mine Company

Scope of Work:

- ► Revising and updating the reserves of the lower level of +2400
- ► Detailed Design of the underground network during the operation
- ► Detailed Design of the utilities and infrastructure services
- ► Technical and Economical Study of the plan

Description: Pabedana Mine is located 60 kilometers from Zarand City in Kerman Province. In 1969, the geological and exploration studies was started, in 1970 the design has been completed then in 1971, the mining operation has begun. For the time being, the reserves above the +2400 level are being operated and Kerman Coal Mine Company is intended to start the operation of the lower level of +2400. Therefore Monenco is responsible in rendering consultancy services for this project to analyze and study the reserves of lower level of +2400 for planning, preparing and excavation.

Preliminary and Detailed Exploration of Iron Ore Anomalies in Yazd Province, Iran

Duration: 36 Months
Client: Iran Minerals Production and Supply Co. (IMPASCO)
Scope of Work:
Geological data gathering
Management, planning and HSE
Surveying and mapping
Geophysical services
Geotechnical engineering services
Feasibility study
Preparation of technical and economical
Site supervision

Description: The project area is located in Yazd province. In this project Monenco will evaluate contractor´s primary work plan in order to start the operation and evaluate the detailed time schedule of the contractor to approve it. Other main purposes of this project are preparing topographical and geological maps at various scales, preparing a comprehensive information system in GIS environment and preparing of technical and economical plans.

Feasibility Studies of Tabas Coal Fired Power Plant and Mine

Duration: One month

Client: Mofid Economical Group

Scope of Work:

- Preliminary exploration studies of Mazinoo Mine
- Environmental, water resources and site seismicity studies
- Accessible roads, railways and electricity network connection studies
- Technical and Economical studies of Coal-fired Power Plant

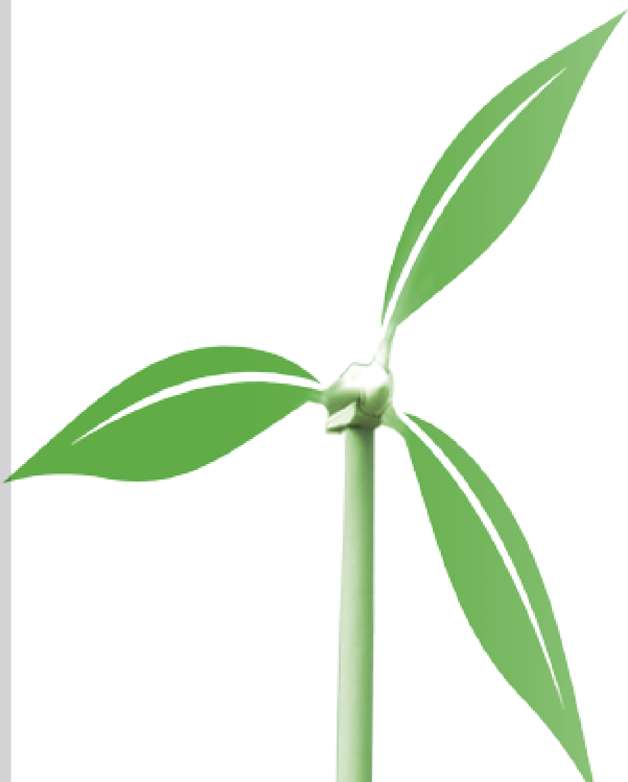
Description: The main purpose of this project is comprehensive study of the reserves of Mazino Thermal Coal Mine and determine the quantity of the reserves as well as providing water to the mine and environmental issues caused by mining activities. In addition, feeding Tabas 600 MW Coal-Fired Power Plant is another purpose of this project.

System and Energy Studies Center

System and Energy Studies Center (ESSC) as a special studies division in Monenco was established in 2008 in order to provide services based on the new business environment and enhance its technical capabilities. This center by means of its talented experts and devoting efforts made it possible to take part in different consulting areas.
Activities of ESSC can be categorized into four groups as follow:

- ► Energy System Planning
- ► Strategic Planning and Management
- ► Power System Studies
- ► Economical Feasibility and Electricity Market

Besides, ESSC has held different trainings, workshops, and seminars to spread its achieved technical knowledge to everyone involved in Iranian electric industry and other industry related to the energy.



Energy System Planning

Energy System Planning department has been responsible for comprehensive study of energy (electricity, Oil and Gas, etc.), studying the effect of economical, environmental, and social aspects of using new technologies to optimize and reduce energy consumption, establishment of energy management system, providing a road map for optimizing energy consumption in major processes, studies to identify bottlenecks and provide solutions to improve the energy consumption, auditing energy, and proposing tactics to save energy.

Strategic Planning and Management Group

Strategic Planning and Management has been performing as a consultancy group to provide services in the areas of strategic planning and management, evaluation of effectiveness and efficiency and planning for cascading strategies. Besides, this part has experience in management processes, operational planning, evaluating performance of companies and organizations, etc.

Power System Studies Group

Power System Studies as one of the main part in ESSC offers services and activities related to the generation, transmission, and distribution grid. This section provides consultancy services for feasibility studies of power plants, analyzing power system events, studying application of new technologies in power system, studying power quality, reducing loss in electrical networks, etc.

Economical Feasibility and Electricity Market

Economical Feasibility and Electricity Market studies covers all consulting services in the areas of economical feasibility and market studies. These services are not limited to electric industry but cover all industrial projects. Some of major tasks of this section are but not limited to: economical feasibility study for investment projects, developing the regulations related to the electricity market, electricity energy and services pricing, providing energy bidding strategy for private owners in the electricity market, competitive market analysis indicators, economic studies on electricity transit and studying and predicting the behavior of other market players. Moreover, this part has recently entered Stock Valuation area and tried gaining experiences in the field of public-private-partnership, operational planning, evaluating performance of companies and organizations, etc.

Master Plan Development for Tehran Transmission and Subtransmission Networks

Client: Tehran Regional Electricity Company (TREC)

Duration: 16 months

Description: Development of a Master Plan for TREC Transmission Network (2014-2024) is the main goal of this project. The outcome of this project is the transmission system expansion plan with aim of increasing the reliability of the system and its operational conditions. In addition, the characteristics and the time of need for enhancing the system (including installation of new power plants, transmission lines, and substations) are determined with the purpose of maintaining the adequacy of system in a least-cost manner.

Synchronous Interconnection of Iran-Iraq Grids

Start Date: 2013

Location: Iraq

Client: Electricity Ministry of Iraq

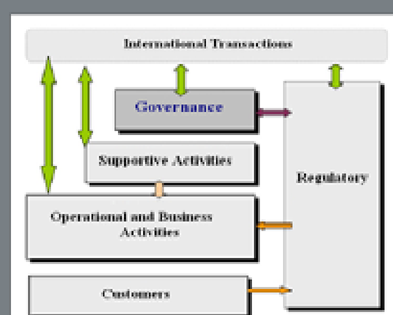
Description: Following the plan of developing an interconnected electrical network in Iran, it is time to investigate options concerning connection to neighboring countries. So, it is decided to conduct a comprehensive study regarding integration and synchronization of Iranian network to Iraqi power grid. In this project, by means of internal and global experiences of networks integration, a feasibility study about interconnection and synchronization of Iranian and Iraqi electrical networks will be performed and all strength and weakness points along with advantages and disadvantages of the plan will be investigated through an inclusive study from different technical and economical points of view.

Iran Power Industry Restructuring

Client: TAVANIR Co. (Iran Power Generation, Transmission, and Distribution Management Company)

Duration: 5 Months

Scope of work: Monenco develops a new structure for electricity distribution sector of Iran.



Description: This study aims proposing a comprehensive structure for electricity distribution sector of Iran. The purpose of this study is responding to Iran national policy of promoting the private sector participation in electricity distribution companies. As well as, the requirements of legal and physical structure for private electricity retailer and circumstance for privatization of distribution companies are considered in this study.

Power Evacuation System Studies for Salalah Power Plant (IPP-2)

Client: Dhofar Power Company (DPC) - Oman

Duration: 2 Months

Scope of work: Detailed system study for finalization of proposed size of the plant, point of injection, the maximum unit size and additional transmission/substation requirement for the power evacuation.

Description: As part of development of the Dhofar region, the Government of Oman has planned an independent power plant (IPP-2) in the Salalah area. The proposed IPP-2 will be rated in the range 300-400 MW and its power output shall be evacuated through DPC transmission network within the Salalah Power System (SPS).

In view of the above, DPC is of the opinion that detailed system study is required for finalization of proposed size of the plant, point of injection, the maximum unit size and additional transmission/substation requirement for the power evacuation.

Feasibility Study of Exporting Electricity to Iran's Neighboring Countries

Client: MAPNA Group Co.--Investment Projects Division
Duration: 11 Months

Scope of work: Feasibility Study of exporting electricity to Iran's neighboring countries by MAPNA group

Description: Due to the global and regional electricity, the amount of exports have recently been raised, so many countries trying to create an interconnected grid to facilitate power exchanges with neighboring countries. In Iran, it is necessary that such studies be followed more closely. Looking at Iran's 20-years vision plan and the fourth and fifth development plan in electricity and energy, the importance of electricity export and becoming a regional hub for power industry is more and more evident. Naturally, this project aims to study electricity markets in order to export electricity to neighboring countries and regions and identify new business opportunities that will attempt to identify mentioned opportunities. The purpose of this study is to investigate the electricity market of neighboring countries, identify opportunities and threat and develop strategies for export of electricity to target markets by MAPNA Group.

Finished Projects

- Save Natural Gas to Export (SAVEX)
- System Studies of Asalouyeh-Esfahan 765 kV Transmission Line Project
- System studies of Engineering Services of Semnan - Golpaygan (Iran) HVDC line Project
- Power System Studies and Connection of New Power Plant in Esfahan Refinery
- Economical Studies for Construction of Bafq Combined Cycle Power Plant
- Power System Studied and Connection of Mobarakeh Mills New Plant to the Iran National Grid
- Feasibility Studies of Interconnection of MAPNA CHP Unit with Capacity of 25 MW to the Grid
- Electric and Heat Energy Auditing in Pars Special Economic Zone
- Consultancy Services on Applicability Studies for Usage FACTS Devices in Iran Grid
- Consultancy Services for Protection in Transmission and Sub-transmission Network Planning of Esfahan Regional Electricity Company
- Power Evacuation System Studies of Salalah Power Plant (IPP2) in Dhofar Power Company (Oman)
- Consultancy Services for Coordination Revising of Toos Power Plant Protection Relays and its Related Substation Project.
- Technical and Economical Feasibility Study for Recovery of Thermal Energy in Steel Industry

Important Topic of Ongoing Projects

- Synchronous Interconnection of Iran-Iraq Grids
- Static Voltage Stability Studies in Transmission and Sub-transmission Networks of Khoozestan Regional Electricity Company
- Power Quality Improvement of Modern Steel Mills (MSM) in Oman
- Feasibility Study of Exporting Electricity to Iran's Neighboring Countries
- Master Plan Development for Transmission and Sub-transmission Networks of Tehran Province
- Feasibility Studies and Engineering Services for SuperGrid (765 kV Transmission Lines and Associated Substations) in Nigeria
- Feasibility Studies of 750 MW Wind Farm in Iran
- Economical, Technical, and Market Studies for Stock Valuation of Power Distribution Companies
- Economical Analysis of the Coal Mine and its Coal-Burning Power Plant in Tabas
- Economical Analysis of Carbon Dioxide Capture in Gharbe-Karoun and Genaveh Power Plants

Research and Development

Research and Development (R&D) in Monenco aims to apply new ideas in energy industries in order to enhance efficiency, reliability and productivity. We meet the present and future demands of industries, while helping clients to make a better use of available resources to reduce the environmental impact and maintenance costs by developing the systems and products.The main goals of R&D office are as follow:

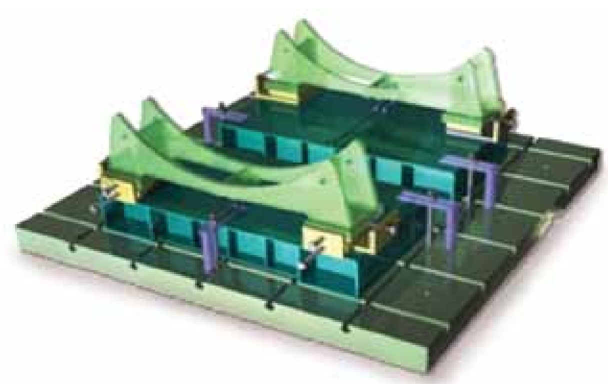
- Exploring research capabilities and capacities in different sections of Monenco
- Developing technical and scientific knowledge in new areas
- Know-how transfer of the new technologies to the design disciplines of Monenco
- Communication with academic and research centers in order to define and execute necessary research projects

Main ongoing R&D projects

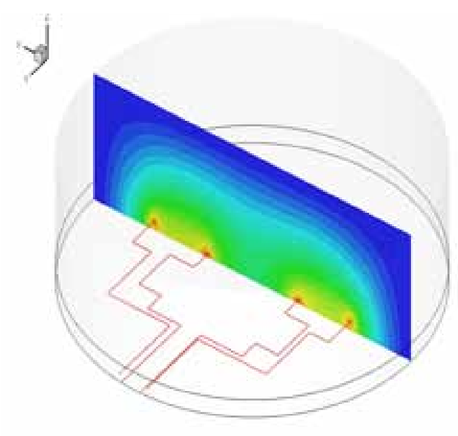
Designing test rig for 25 MW Gas Turbine and Centrifugal Compressor

Client: MAPNA Turbine Engineering & Manufacturing Co. (TUGA)

TUGA is in the process of manufacturing 25 MW industrial gas turbines in cooperation with Zorya-Mashproket (Ukrain). The complete design of the test station together with the necessary test calculations has been done in R&D office. The test bench was commissioned in August 2013.



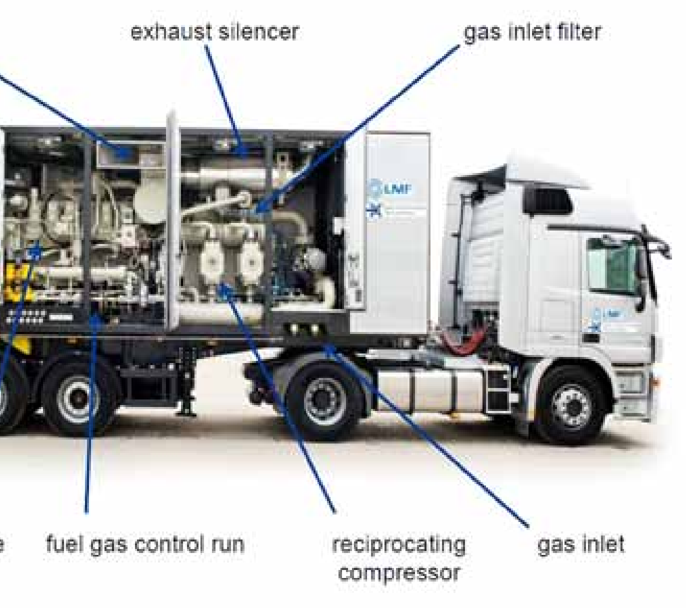
In a separate project, the R&D office designed a Test Rig for conducting performance and mechanical test of a Frunze (Ukrain) compressor according to the latest international standards. The project is under construction as of January 2014.



CFD Analysis Temperature Distribution in Fuel Oil Storage Tank with Heating coils

Client: Engineering Deputy of Monenco Iran

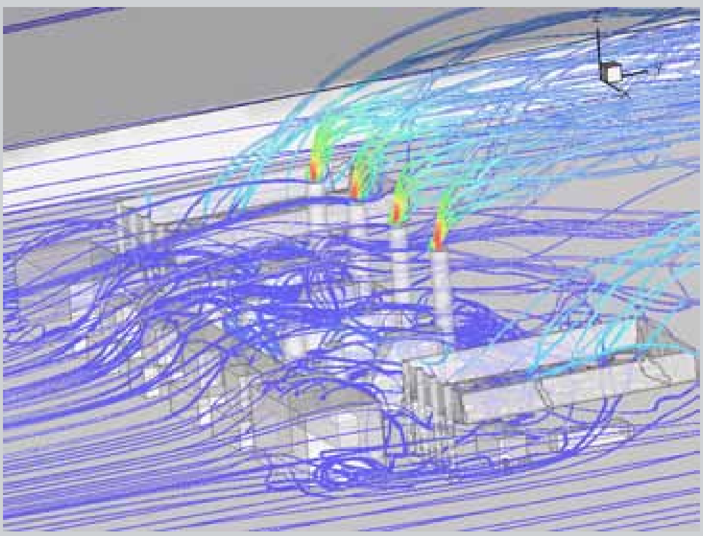
The objective of this research is to study the temperature distribution of YAZD-2 CCPP fuel oil storage tank with 20000 m3 capacity. The tank is heated by horizontal coils with specific configuration from below. The heat transfer is turbulent natural convection. Storage tank 3D model was generated and meshed in Gambit. The Fluent software is employed to studying the behavior of temperature profile in storage tank.



Feasibility Study of Methane Collecting System

Client: BUSHEHR Gas Company

This project has been running in R&D office since October 2013. The main activities are Literature survey of methane collecting systems during maintenance of pipelines, Technical investigation of selected methods (determining capacity of each system, waste gas and purged gas in each system and comparison of systems) and proposing the optimum method, and finally conducting economical analysis for proposed system. Project progress is 60% until March 2014.



CFD Analysis of Fan Bell Configuration and Wind Wall Height on ACC Performance

Client: Engineering Deputy of Monenco Iran

The configuration of 4×7 is considered for Kahnooj CCPP ACC. Based on different technical papers and CFD (Computational Fluid Dynamics) analysis has been conducted for studying the effect of geometrical parameters such as fan bell configuration and wind wall height on ACC performance. ACC 3D model was generated and meshed in Gambit, boundary condition was applied and numerical solution has been done with Fluent software.

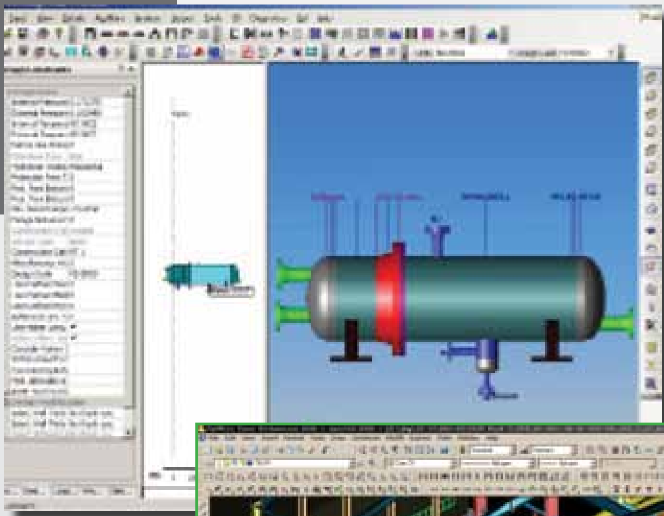
Energy Audit and Standard Compilation in Desalting units

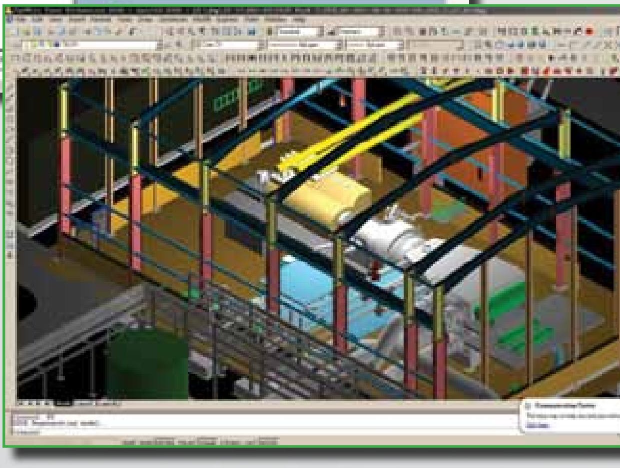
Client: Iranian Fuel Conservation Company (IFCO)

The project comprises three main phases. The first deals with the data gathering from desalting units all over the country, in either case of operational or design situations. Based on the observed and determined deviations between those situations regarding the energy consumption, number of 15 desalting units is supposed to be selected in the 2nd phase to be studied concerning the energy audit, utilizing the analytical tools of exergy analysis and pinch hypothesis. Some advice, thereafter, is to be proposed for the selected units while the energy and exergy analysis would prove the energy and exergy efficiencies would be enhanced. Furthermore, compilation of a set of standards for energy consumption in desalting units, together with the preparation of some educational notebooks is the main obligations for the 3rd phase.

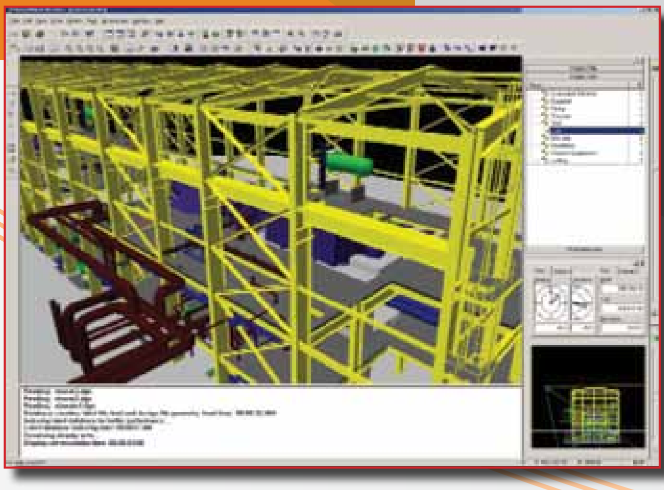
Engineering Capability

Engineering Division is the most significant division in Monenco that provides engineering services for a wide range of projects carried out in this company. Seeking for the latest science and technologies keep this division up to date in its daily tasks, providing services to the other divisions in a matrix based formation.



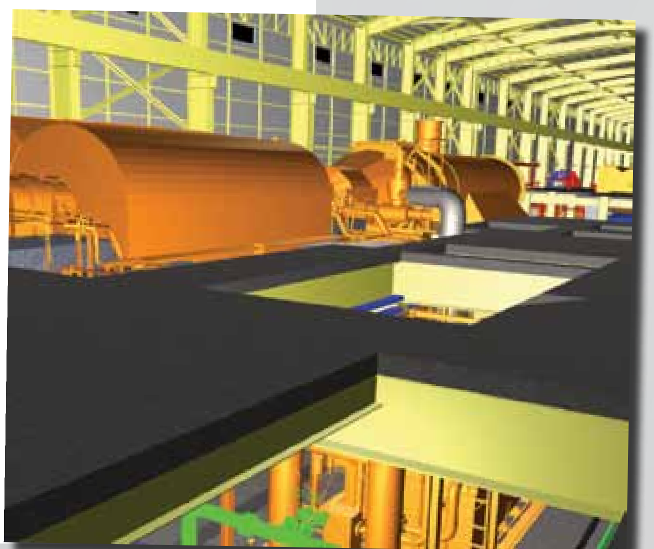


Moreover, this division has collaboration with Research and Development Department as well as several outstanding international companies in order to stay strong and innovative in the energy market. This division consists of seven professional departments; Civil & Structure, Piping, Mechanic, Process, Electrical, Instrumentation & Control (I&C) and General. The specialized experts of this division, design, review, endorse and modify all engineering documents if needed, based on the project specification and client technical requirements.



In 2013 this division besides giving services for all projects of our company, it was successful to extend its knowledge to the following fields and subjects:

- Upgrading the release of 3D Modeling Software (Release 12.1 of PDMS)
- 3D Design of Water Treatment plants (Demin Water Production Units)
- 3D Analyzing (Including FEA) and Design of Air-Cooled Condenser System (Steam Ducts)
- 3D Design of Pentaerythritol Petrochemical Plant
- Implementation the Relay Coordination Study by CYMTCC
- Basic and Detail Design of Cathodic Protection System for underground pipelines and tanks, aboveground tanks bottom and interior of storage tanks
- Detail design of Faraday Cage Lightning System
- Basic and Detail Design of Water Treatment Plants
- Basic and Detail Design of Condensate Polishing Plants
- Design of Steam & Water Cycle Chemical Quality Control Systems
- Basic and Detail Design of industrial and sanitary waste water collection and treatment systems
- Preparation of specifications for surface preparation and coating systems
- Preparation of specifications for chemical laboratory
- Preparation of EIA reports in feasibility study stage
- Preparation of specifications for Hazardous area classification
- Preparation of Intelligent oil well concept in a telemetry and SCADA backbone
- Definition of Steam & Water Cycle Chemical Quality Control Systems
- Preparing piping instruction and insulating manuals
- Welding procedure specification for all seam welds for manufacturing pressure vessels and piping systems at construction sites
- providing all leak detection instructions and pressure test manuals for piping systems and pressure vessels
- All quality control documents and NDT instructions
- Preparing all performance test manuals for overall plant and discrete systems
- Construction manual for tanks erection
- Preparing all erection and commissioning and O&M documents
- Providing training manuals
- Preparing spare parts lists for plants
- Evaluation of the behavior and design parameters of major structures and foundations in power plants such as turbine hall, air cooled condenser supporting structure and turbine generator condenser foundation under effect of maximum probable earthquake and design basis earthquake has been performed as well as the effect of economical aspects of design.



Information Technology Management

Through Sharepoint technology, Monenco's IT Group takes advantage of previously underutilized value emerging from our knowledge and experiences as well as changes in Monenco requirements. In line with these improvements, IT group has developed HR/Quality Control, HSE Dashboard as well as the new version of Financial Dashboard.

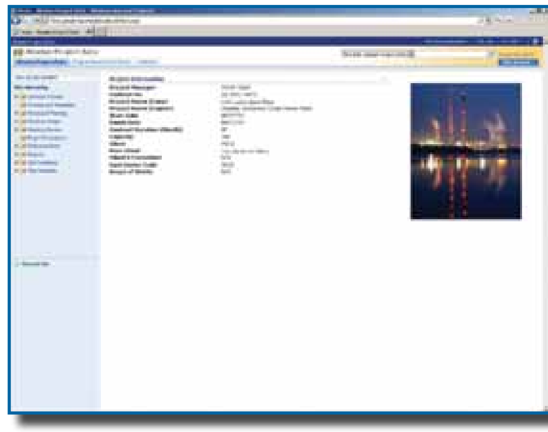
New "JAM" Training System has also been developed recently for monitoring and management of the training history and all the training requirements within the company.

In order to better control the costs of the projects, IT Group has developed an automated system for extra hours permit within the weekdays and weekend.

Upgrading %10 of data center's hardware including servers was one of our achievements this year.

Our aims of 2014:

- Developing latest version of "AVEVA PDMS" (Leading 3D Plant Design Software)
- Focusing on AVEVA solution for achieving ISO 15926 standards
- Upgrading 20% of servers
- Improving staff ICT knowledge



Knowledge Management (KM)

Following the development and implementation of knowledge management system, we concentrate our efforts on implementation phases which were defined on four steps; Analyzing the Current Status, Culture, Structure and Modeling. In assistance with a professional consultant and applying proper technology, we created knowledge repository of KM Document. In addition, the experiences achieved from the projects define the Knowledge Tree.

Besides, the KM Pilot Project on Water and Power Cogeneration of Qeshm is carrying out in collaboration with MAPNA Group.

Developing Systems and Methods

Since one of our vital goals is implementation of an integrated system, we attempt to develop the current systems to achieve this goal and improve company's productivity. "Document Control System" and "Human Resource Training Management System" are the two of these systems that were changed during the past year. Consequently web based connected systems, online reporting and errors reduction are the benefits of this development.

Strategic Management

Because of considerable changes in external environment, we focused on probable results and modified initiatives in BSC model. Therefore, new strategy map has been designed correspondingly to our parent company Mapna Group. On the other hand cascading of comprehensive objectives to lower level is in progress. Eventually the fundamental KPIs has been determined and measuring the potential gap between objectives and current situation is being performed.

Project control & Monitoring Department

As Project Controllers, we always have to think measurably

Monenco Control & Monitoring Department proudly honors to have more than 30 high standing experts in project planning and controlling field, incorporating updated methodologies like PMBOK, ISO 21500 etc., using latest software such as Primavera packages, Microsoft Projects and modern tools for archiving projects documents. Factors like Agility, Professionalism and astuteness are the values that the department is famous for. Our great passion is to increase projects efficiency in terms of cost, time and quality. Since Project control monitoring department does not provide design or engineering services, there is no conflict of interest. This independence allows us to be objective while assisting the project team in retaining defined scopes efficiently and effectively.

We as the project controllers involve colleagues from different departments such as engineering and financial to build an efficient communication way for achieving company expectations from each projects. Moreover, updating and improving the project management system of the company and collecting and keeping the lessons learned in past years have been the main concerns of this department.

In 2013, specifically the department worked intensively to implement PMBOK procedures and instructions. Regarding planning procedure, the department focus was incorporating the cost control tools and techniques for making the cost estimation of projects and developing cost management plan. Moreover, developing communication tools & techniques such as integrated project portals to link different involved parties was the other main focus area of the department. For fully consideration of PMBOK procedures in next year, the department has some plans to implement time and risk management standards by making its experts PMI-SP and PMI-RMP to develop procedures to all organization. Moreover, upgrading project control software like Primavera and using MSP server version will be the main concern of department in incoming year.

Global Presence

Determined to actualize the strategy of Monenco, diversification in sectors of activity and geographical presence took place based on company's codes of conducts and business guidelines. Despite the significant pressure and restrictions imposed, impressive success was achieved in Africa, Middle East, Near and Far East. New business relationships were formed with well-known European firms, such as Alpha, Laval, Olmi, and current bonds were strengthened and expanded. Strengthening our business network has led to enhanced technical capabilities, which helps us expand our domestic and international market.

"Think Globally, Act Locally". That is the reason that besides forming partnership with well-known international firms, Monenco has developed an extensive marketing network by deploying local resources in target markets including Iraq, Emirate, Qatar, Yemen, Pakistan, and Bangladesh. This has enabled us to reach local markets more easily, evaluate the actual condition of the propose opportunities more realistically and be very agile in international markets.

Clever and weighted decisions made by top directors of company, accompanied by technical support of company's technical staff, is the key to successful presence of Monenco in International markets. This has led to Monenco being a familiar name beside the technical giants of energy industry in global market. Our sister companies in Oman and Nigeria also gained great successes along with their parent company.

Quality work

- In 2007 Monenco established and implemented a Quality Management system (QMS) and certified according to International Standard ISO 9001:2000 in order to improve the quality of its engineering services and enhance the customer satisfaction. In 2011, Monenco was certified in accordance with ISO/TS 29001:2010 for petroleum, petrochemical and natural gas projects. The main achievements of QMS in 2013 are as follow:
- Improving procedures to control actual and potential non-confirm products to define and eliminate routing causes
- Ranked in the first technical score in 23% of tenders in all fields including new business.
- Increasing the customer satisfaction by 3.3%
- Obtaining the clients' letter of appreciation, 9 letters
- Decreasing the Revisions of issued drawings and technical documents by 1% on documents which have been approved in this year
- Documenting procedures, work instructions & quality plan for new types of projects
- Performing 32 important corrective & preventive actions according to personal observations, audits, stakeholders reports, etc.
- Decreasing the number of projects and departments nonconformities based on the corrective & preventive actions
- Improving data analysis system to coordinate all activities in the company

Health, Safety & Environment
of our Employees

In 2011, Monenco established and introduced HSE Management system was certified according to ISO 14001:2004 and OHSAS 18001:2007. In order to provide and increase personnel health and safety and environmental requirements. The main achievements of HSE management system in 2013 are as follow:

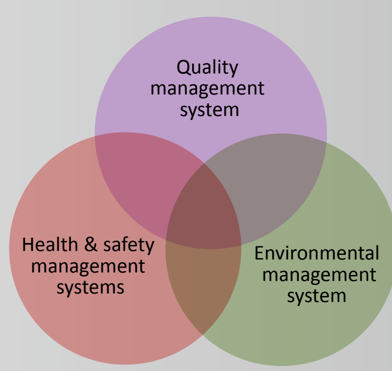
- Initiating HSE-MS of supervision, design and studies projects, based on OGP's guideline
- To strive providing safe & healthy workplace continually
- Measuring workplace harmful factors considering threshold limit values and performing corrective or preventive actions
- Considering 16 important corrective action related to office HSE
- Distributing musculoskeletal disorders questionnaire and analysis of results

Integrated Management System

In 2013, Integrated Management System (IMS) in Monenco was implemented in order to achieve:

- Reuction of planning cost, establishing and maintaining QHSE management systems
- Increasing the productivity and efficiency of the systems
- Avoiding repeated tasks and omitting reworks
- Optimum usage of resources
- Increasing the confidence of clients and customers

Integrated management system =
+ ISO9001:2008, ISO/TS29001:2010
+ OHSAS18001:2007
+ ISO14001:2004



Customer Satisfaction

To ensure to meet customer requirements and perform corrective & preventive actions in appropriate time, QM section independently communicate with customers according to Monenco CRM method by face to face meeting, phone calls and sending questioners.

Objectives & Development plans

Based on IMS policy & Monenco strategies, objectives and development plans of each department are determined yearly by "Monenco Enhancement Work-Group" performing by "QHSE & Productivity Office". Each department is responsible for performing the relevant plans & reporting the monthly progress. QHSE & Productivity Office is responsible to control progress plans and define appropriate corrective & preventive actions to achieve objectives. In 2013, 70% of company's objectives and 75% of quality, HSE and productivity's objectives have been met.

Productivity

Monenco has successfully been awarded first rank in the "4th Iranian national festival of productivity" in main section of Technical & Engineering services group, based on financial and economic results, from 2007 to 2011.

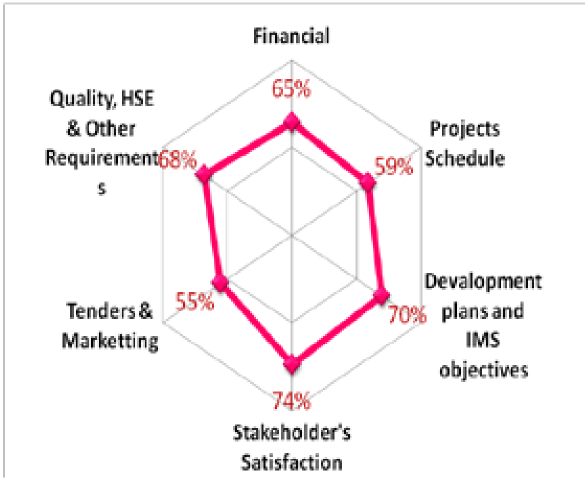
In 2013 new targets have been established for overall, capital and human factors, and also partly productivity indicators. 10% of productivity increase is supposed for the next year.

Quality, HSE and productivity dashboard has been provided to enhance managers improving sections productivity.

Excellence Model

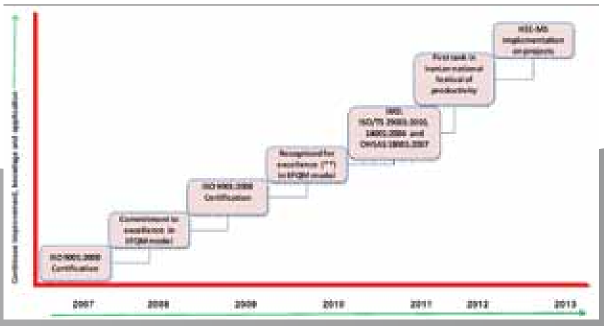
In order to provide sustainable excellence and achieving balanced results in all areas of organization, Monenco performance has been assessed based on EFQM excellence model and has awarded to "committed to excellence" level, in 2009. In 2011, Monenco has been awarded "Recognized for Excellence" level, based on EFQM model (2010 version). Improvement of projects has been continually defined and developed in Monenco based on EFQM framework.

Value engineering committee began on June 2013, including technical, planning, R&D and quality, HSE and productivity staff. There was 2 new approbated idea in 2013. The company's overall indicators have showed in the diagram.



Continuous Improvement

The effectiveness of implemented models & systems yearly is being controlled by QHSE and Productivity Office. The trend of Monenco Continual Improvement is demonstrated as shown in the picture.



Monenco in the Middle East

As you know, core business in the Middle East and especially in GCC countries is Oil & Gas and related industries.

So, all of them look at and plan to built and extend their infrastructures like power & water, telecommunication and IT services and transportation. When you go through their plans, you can find two major lines, one is to improve and develop Oil & Gas business and second line is parallel with first line for extending other industries like food, healthy services, tourist and investing in the related factories and taking care waste management.

MCE plans to expand its activities in 2014 to include Oil and Gas, Water Transmission lines, Architect & Building and the vast potential in the renewable energy sector in the Sultanate of Oman.

Some of our projects in 2013 are as follows:

Power Generation

- ► Technical Advisory Services for Implementation of Barka III & Sohar II Independent Power Projects(2 Combined Cycle 750 MW Power Plants with 2×250 MW Gas Turbines and 1×250 MW Steam Turbine)
- ► Consultancy Services for Rehabilitation and Upgrading of Saih Al Khairat Power Station in Dhofar Governorate (which changed to Consultancy Services for New Power Plant at Saih Al Khairat – 6×8 MW Diesel Generators)

Substation and Transmission Line

- ► Implementation of 33 kV Capacity Expansion Works, asset Replacement Works and Distribution System Improvement works

Asset Management

- ► Consultancy Services for Preparation of Network Asset Maintenance Implementation Standards & Associated Asset Management Documentation

Dispatching

- ► Supervision on SCADA/DMS Phase 3 Project of Majan Electricity Co. (MJEC)

System Study

- ► System Study Power Quality Improvement of Modern Steel Mills
- ► Consultancy Services for Power Evacuation System Study for IPP-2

Number of projects with each Client

Client	No. of Project in 2012
Oman Electricity Transmission Company (OETC)	3
Muscat Electricity Distribution Company (MEDC)	3
Modern Steel Mills (MSM)	1
Majan Electricity Company (MJEC)	2
Oman Power and Water Procurement Company (OPWP)	1
Dhofar Power Company (DPC)	3
Rural Areas Electricity Company (RAECO)	1

New Areas of Activity in 2013:

Consultancy Services for Preparation of Network Asset Maintenance Implementation Standards & Associated Asset Management Documentation

Description: To enhance Majan Maintenance and Asset Management practices by:

- Conducting Failure Mode and Effects Analysis (FMEA) studies on selected asset classes
- Preparation of a MJEC Maintenance Standards Document
- Preparation of Asset Mission Documents for selected

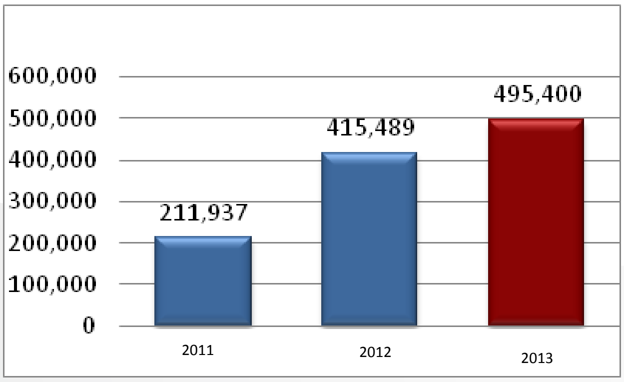
Consultancy Services for construction of (6x8) MW of new Saih Al Khairat Power station In Dhofar Governorate (Change Order)

Description: The new D.G power plant should be constructed in 300x250m^2 area with all accessories and utilities. For this purpose, the related Studies, basic designs, Tendering services and Supervision for Construction should be provided by consultant for new Saih Al-Khairat power station. New power plant will be designed for 48 MW (6x8 MW New D.G. Sets) with 2x0.5 MW Black Start units that completed with all their mechanical, instrument and electrical systems including Switchgears (11,33 Kv), Step–up & Step down Transformers, control systems, Fuel Storage Tanks, Oil Storage Tanks, D.G Engines Hall, Two Stories Central Control Building (CCB), Water Treatment Plant (WTP), Swage Package system, Fire Fighting Pump House, Fire Water Distribution System, Fuel Forwarding Pump House, Unloading bay, Unloading pump house, Administration Building, Dorm & main client Building, Guard House Building, CCTV, Internal roads, Lighting, Lightening and Landscaping etc.

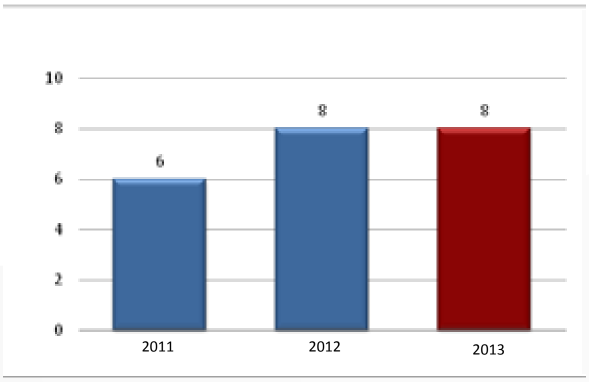
MCE Certificates

Oman Ministry of Commerce and Industry
Oman Chamber of Commerce and Industry
Oman Tender Board
Oman Ministry of Defense
Muscat Municipality for Issuing Permit Building

MCE Revenue (RO) in 2011, 2012 and 2013



Number of Clients in 2011, 2012 and 2013



Monenco in Africa

In 2013 Monenco Engineering Ltd. (MEL) finished the 3rd year of operation. Combination of the international expertise with local experiences led us to become a strong and professional company and as a result at the very beginning of operation, two projects were awarded to the company from different Nigerian clients. Our goal is to achieve 100% client's satisfaction, so our focus would be on service quality; we will be by the side of our clients from very beginning to the end and assist them from investment to the commissioning. At MEL we focused on delivering life of asset support to our clients' assets and deploy both international and local expertise in order to meet clients' needs.

MEL provides consultancy and engineering services to infrastructure with focus on energy sector. Despite being new in Nigeria, MEL has contributed significantly in developing projects within the country and became a well reputable consulting Company.

As part of MEL business development strategy also in order to extend business opportunities, MEL has entered into partnership agreement with different international and local companies and participated in several pre-qualification and bidding exercises within Nigeria.

Monenco Nigeria has won the following tenders and expected to be awarded in near future;

- Feasibility Studies and Engineering and Design of 765 kV Nigeria Super Grid project including 4600 Km Transmission Lines and 11 Substations
- Consultancy Service, Project Management & Site Supervision of 132kV Transmission Line and associated Substations
- Little Gombi – Mubi – Gulak 132 kV Double Circuit Transmission Line (125km)
- 2 × 60MVA, 132/33 kV Substation at Mubi
- 2 × 132 kV Line Bay Extension at Mubi Substation
- 2 × 60 MVA, 132/33 kV Substation at Gulak

Professional Affiliations

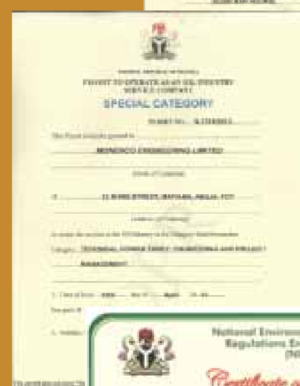
Consultancy certificate for Oil & Gas sector: With regards to recent field development and international investment in Nigeria Hydrocarbon Sector, MEL has put on place necessary provision in order to initiate its business in Oil & Gas sector. As the first step MEL has been granted a Consultancy Certificate for Oil & Gas Sector from Department of Petroleum Resources (DPR) of Nigeria. This certificate identifies MEL as a consultant and authorize the company to engage in Oil & Gas Projects.

General Consultancy Certificate: MEL has applied for a Consultancy Certificate under Council for Regulation of Engineers in Nigeria (COREN), the Individual Certificates has been secured and the Corporate Certificate will be granted in near future.

Environmental Consultant: MEL is accredited as Environmental Consultant with Nigeria National Environmental Standards and Regulations Enforcement Agency (NESREA) in the following category:

- Environmental Management System
- Environmental Audit
- Environmental Studies

SPECIAL CATEGORY



SPECIAL CATEGORY

National Environmental Standards and Regulations Enforcement Agency (NESREA)

Certificate of Accreditation

Projects

- Feasibility Studies, Engineering Design and Preparation of Contract Documents for 34MW Dadinkowa Hydro Dam: The engineering service was compeleted and relevant bankable feasibility study report submitted to the client. Job Completion certificate was granted.
- Engineering Services for Kabompo Gorge Hydro power plant in Zambia: MEL received job satisfaction certificate from the client.
- EPC Bid evaluation (PHCN-TCN): Satisfaction certificate was received from the client.

Profit(Loss) Statement at 20 March 2014

	1392 (at 20 March 2014) Rial	1391 (at 20 March 2013) Rial
Services Income	406,948,331,244	328,701,752,727
Services Finished Price	302,545,564,251	258,984,597,294
Gross Profit	104,402,766,993	69,717,155,433
General & Administrative Costs	-50,430,893,503	-39,347,049,560
Other Operating Incom (net)	0	
Operating Profif	53,971,873,490	30,370,105,873
Financial Costs	-22,667,072,830	-21,821,003,872
Other non-operating income	2,657,605,624	2,288,752,860
Profit from selling asset	0	13,959,928,081
	-20,009,467,206	-5,572,322,931
Profit Before Tax	33,962,406,284	24,797,782,942
Tax on Income	-2,829,103,559	0
Net profit	31,133,302,725	24,797,782,942
Accumulated Profit/Loss Account Turnover		
Net profit	31,133,302,725	24,797,782,942
Accumulated Profit in the beginning	198,910,003,604	219,670,485,463
Annual Modifications	-7,321,217,405	-38,675,392,619
Accumulated Profit in the beginning-modified	191,588,786,199	180,995,092,844
Profit Distribution	222,722,088,924	205,792,875,786
Appropration of Profit		
Legal Reserve	-1,556,665,136	-1,189,706,981
Dividend	-2,402,166,075	-13,014,382,606
Board Bonus	0	0
	-3,958,831,211	-14,204,089,587
Accumulated Profit in the Final Period	218,763,257,713	191,588,786,199

Monenco Iran (Private Joint Stock Co.)

Balance Sheet

At 20 March 2014

Assests	1392/12/29 20-Mar-14 Rial	1391/12/30 20-Mar-13 Rial	Liabilities And Equities	1392/12/29 20-Mar-14 Rial	1391/12/30 20-Mar-13 Rial
Current Assest:			Accounts Payable:		
Cash in Bank	22,153,408,055	9,042,884,001	Accounts Payable:	14,926,417,031	11,442,185,363
Accounts Receivale	159,759,455,249	120,785,067,669	Credit From Mapna Group	90,548,881,816	65,091,857,728
Debit Of Mapna Group	376,839,948,698	371,708,413,802	Other Accounts Payable	348,578,092,927	354,904,997,757
Other Accounts Recevale	59,642,446,519	42,035,088,153	Advanced Received	33,506,921,852	23,542,307,310
Material & Gooda Inventory	1,533,834,681	710,708,088	Dividen Payable	3,768,480,148	1,366,314,073
Prepayments	22,135,627,278	12,535,703,259	Portion Of Borrowing	93,479,452,054	93,372,969,284
Total Current Assests	642,064,720,480	556,817,864,972	Total Current Liabilities	584,808,245,828	549,720,631,515
Fix Assests:			Non-Current Liabilities:		
Tangibel Assests	565,681,732,805	578,866,983,348	Long-term Acounts Payable	16,998,099,469	16,998,099,469
Long-term Investments	5,644,518,405	5,830,523,556	Benefits Reservation For Employees	34,559,817,600	26,710,526,337
Intangible Assests	1,613,639,388	1,834,756,218	Total Non- Current Liabilities	51,557,917,069	43,708,625,806
Otherr Assests	4,872,328,401	4,858,769,159			
Total Fix Assests	577,812,218,999	591,391,032,281	Total Liabilities	636,366,162,897	593,429,257,321
			Equities:		
			Capital	338,333,250,000	195,118,180,000
			prepayment of capital increased	0	143,215,070,000
			Legal Reserve	19,240,736,957	17,684,071,821
			Other Reserve	7,173,531,912	7,173,531,912
			Accumulated Profit	218,763,257,713	191,588,786,199
			Total Equities:	583,510,776,582	554,779,639,932
	1,219,876,939,479	1,148,208,897,253	Total Liabilities and Equities	1,219,876,939,479	1,148,208,897,253

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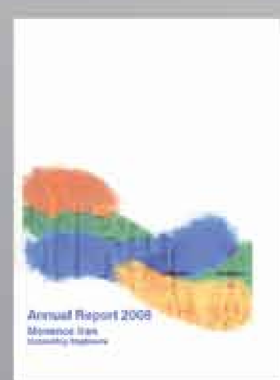

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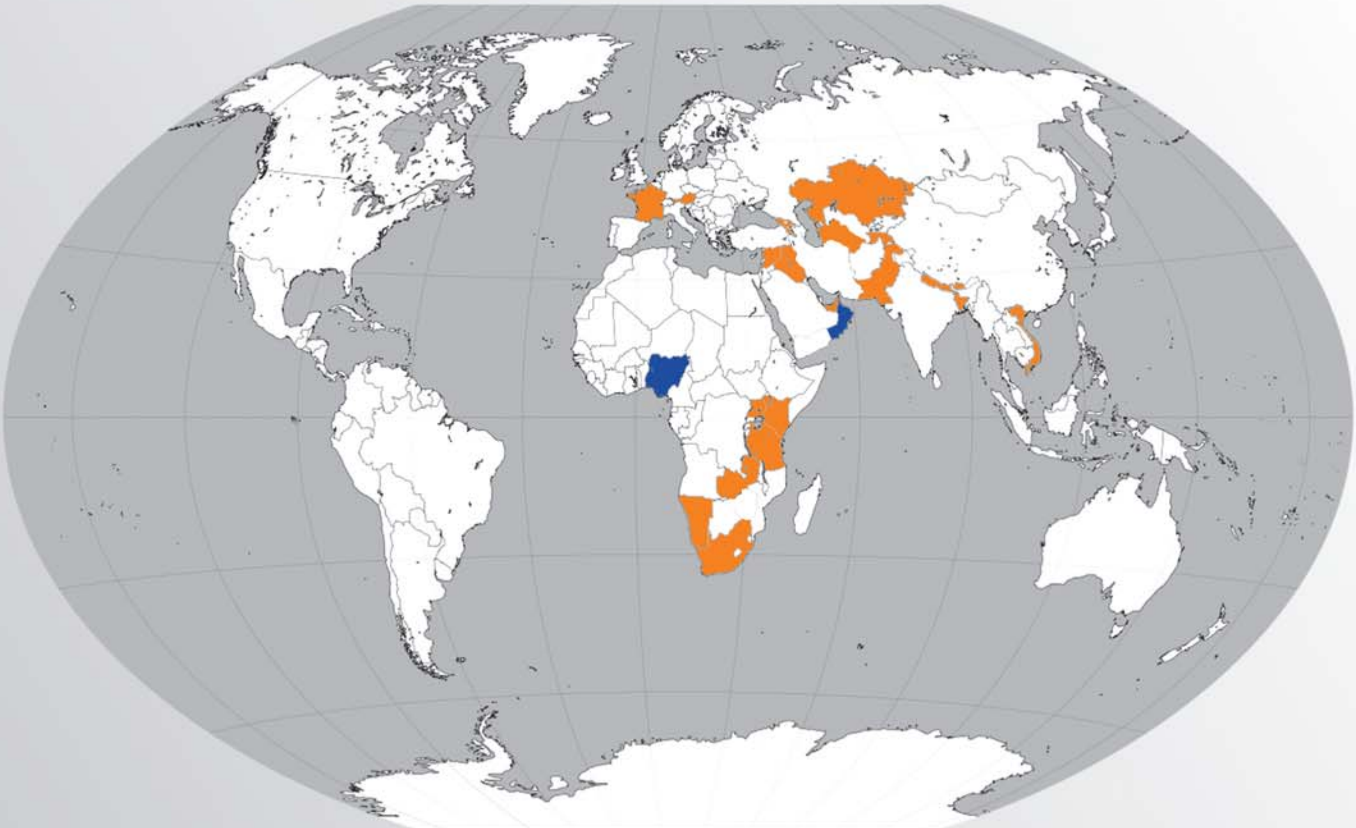

Monenco global networking and project foot prints:
Monenco Registered Companies Internationally
Monenco International Presence

Designer: Fariba Rajabpour

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