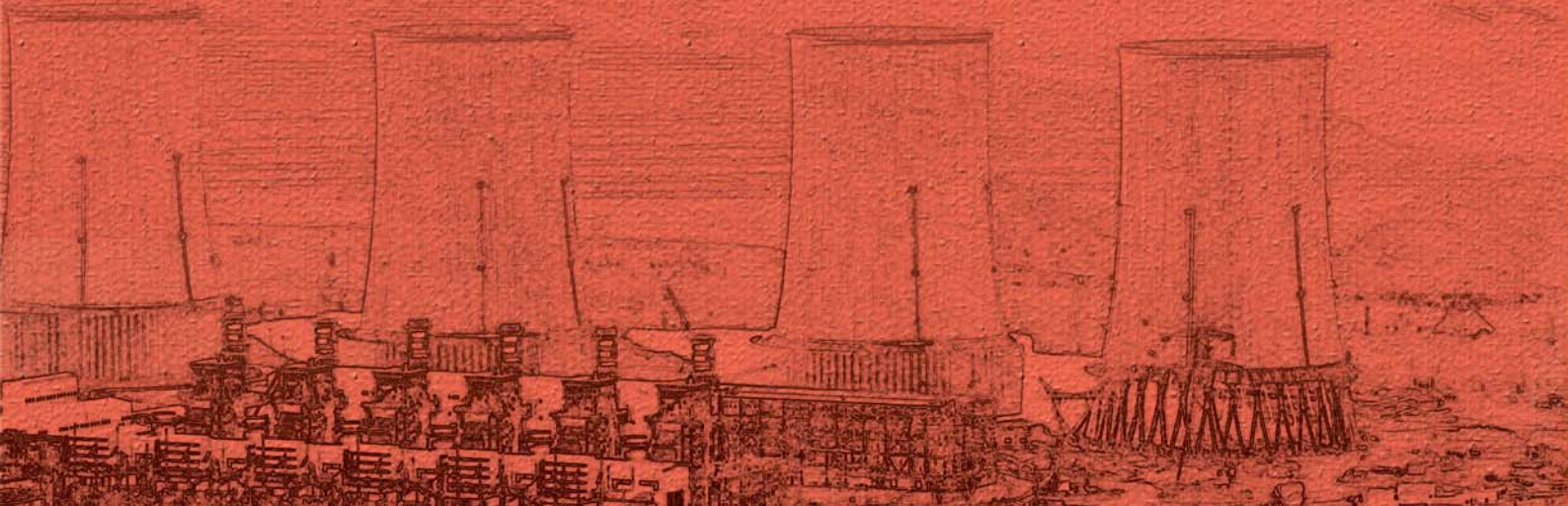
Monenco

Monenco Iran Consulting Engineers

Iran

2014 Annual Report



Siosepol Bridge:

Siosepol Bridge (the Bridge of 33 arches), Built at the beginning of the 17th century is the longest bridge on Zayandeh River located in Isfahan-Iran with 295 meters long and 13.75 meters wide.

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. 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 2014, Monenco managed to expand its consultancy services in Iraq including synchronous interconnection of Iran-Iraq Grids also achieved the certificate of approved supplier to the Oman Oil and Gas Industry (JSRS) in Oman.

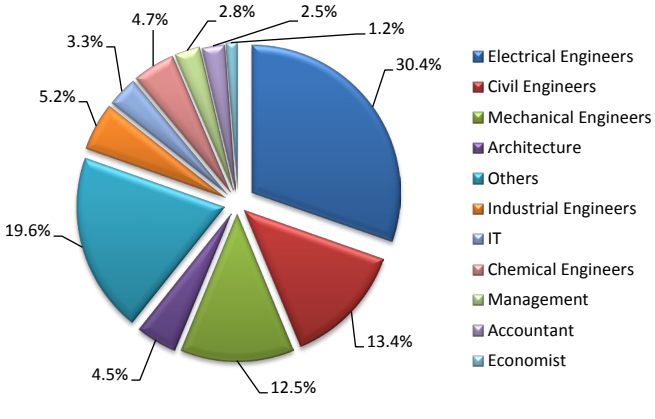
Major Experiences of Monenco

- Over 50,000 MW Power Plants
- 8 Renewable Energy Projects
- 17 Dispersed Generation Projects
- 14 Heat Recovery & Energy Optimization Projects
- 22,700 Km Transmission Lines & OPGW
- 22,780 MVA Substations
- 52 National & Regional Dispatching Centers
- 49 Telecommunication Systems & Networks and Master Plans
- 13 Metering System & Smart Grids
- 5 Electrical Railway Projects
- 36 Oil & Gas Complexes
- 15 Mining & Geology Projects
- 34 Economical & Technical Feasibility Studies
- 4 Projects of Iran Power Grid Study
- 2 Heat Recovery Project in Steel Industry
- 1 Study on the Interconnection of Electricity Network between Countreis
- 5 Studies on Interconnection of the Network to the Grid
- 1 Study on Network Reactive Power
- 4 Bank Feasibility Reports on Investment Projects
- 1 Study on Network Master Plan
- 1 Restructuring of Electric Power Industry

32 Overseas Projects

- 14 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 Steel Mills Factory
- 2 Projects in the field of Small Scale Power Generation Plant
- 1 Study on the interconnection of Electricity Network between Countreis
- 1 Network study - synchronization of networks

Composition of Experts in 2014



Mohammad Dana Manavi

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Obtained his B.Sc. in Civil Engineering from Sharif University of technology.
From 1992 to 1996 he worked for Bonyad Sazeh Consulting Engineers and 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 Coordination.
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.

Amirali Bankian

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Obtained his B.Sc. in Industrial Engineering from Khaje Nasir 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 & 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.

Ramin Khoshkho

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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 2 years, he was Vice President of Power Generation Research Center, and in 2007 he has been appointed as R&D Manager of Monenco.

Samad Raeispour

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Obtained his B.Sc. and Master in Electrical Engineering from Khaje Nasir Toosi University of Technology and Tehran University in 1991 and 1994, respectively.
He joined KWPA (Khuzestan Water & Power Authority) at 1994. At the beginning, he was a high voltage substation designer and then, he followed up his career as the HV Substation Design and Construction Manager, and the Technical & Engineering Management of Transmission & High Voltage Substations Design. In 2003, he got his new position as Planning and Research Deputy of Khuzestan Water and Power Authority (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.

Rahim Zeinali

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Received his M.Sc. in Electrical Engineering (Power Systems) from Sharif University of Technology in 2008 and his B.Sc. in Electrical Engineering from Tehran South University in 2005. From 2006 to 2007 he worked in Sharif university of Technology as a researcher. From 2007 to 2008 he worked in Paziresh Novin Company, and Beheen Ertebat Mehr Company as a consultant. Since 2008 he joined Monenco as an Electrical Engineer in System & Energy Study Center. in 2009 he became the Project Manager and in 2012 he was appointed as Head of Power System Study Group in System & Energy Study Center. In 2015 he was appointed as Manager of System & Energy Study Center.

Faramarz Ghelichi

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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 Managing Director Monenco Consulting Engineers (MCE) in Oman.

Abbas Rasaienia

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Obtained his PhD. in Electrical Engineering (Instrumentation and Control) from Science and Research Branch Islamic azad university in 2012 and his M.Sc. of Electrical Engineering (Instrumentation and Control) from Amirkabir University of Technology in 1997 and his B.Sc. of Electrical Engineering (Telecommunication) from Khaje Nasir University of Technology in 1994. From 1994 to 1997 he worked as Technical Expert in Modeling and Simulation of Thermal Cycle of Power Plants in Tavan Gostar Company and from 1997 to 2001 in Ofogh Consulting Engineers as Head of Automatic Process Control System (APCS) Section. Then, from 2001 to 2003 he worked as Technical Representative in Russian Federation (Moscow) for Supervision of Design and Engineering of I&C systems for BNPP-1 in Ofogh Consulting Engineers. At last, in 2003 he joined Monenco as Manager of Instrumentation and Control Department and in 2015 was appointed to Oil & Gas Deputy Manager.

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 Monenco Engineering Limited (MEL) in Nigeria. In 2014 he was appointed as Telecommunication and Dispatching Deputy in Monenco Iran.

Safdar Mahdavi

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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.

Elham Sadeghian

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Obtained her B.Sc. from Bahonar University in 1995 and her M.Sc. from Khaje Nasir Toosi University in Electrical Engineering in 1999.
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.

Expansion of Services

- Providing master plan for Water and Waste Water Telemetry Systems
- Providing master communication plans for Iranian Railway System
- Consultancy and Engineering Services for Urban Railway
- Construction Supervision Services for Urban Railway
- Providing key indices and methods of measurement and reviewing of the Regulation and Supervision for fixed and mobile operators
- Providing Substation Asset Management
- Engineering Services and Supervision of ADSS cable installation on Distribution Network poles
- Detailed Design of Telecommunication systems in National Gas pipelines
- Feasibility study for GTP and GTO in Petrochemical Plants
- Studies of Vapor Control & Recovery in Refineries & Tank Farms
- Bio-ethanol Plants
- Technical Inspection in Oil & Gas plants
- Fire Protection and Alarm System of oil fields of South Iran
- Control & Monitoring System of Oil Fields (offshore/onshore)
- Consultancy Services and Supervision in Oil & Gas Pipeline
- Engineering and Consultancy Services for Renewable Energy Generation Projects such as Solar and wind Plants

Publications and Presence in the Conferences

31 technical reports based on the latest technologies were prepared by Monenco technical team. In addition, 18 national and 13 international researches and papers were submitted and got accepted by prestigious international and national conferences and journals.
Monenco also has published the first English book “Consultancy Engineering Industry in the Developing Countries” which would be a great reference for the clients, shareholders and decision makers of organizations. The book considers the role of consulting engineers in accelerating the development in developing countries.

Certificates and Awards

- Achieved 1st grade in providing consultancy services for “Utilities, Electrical and Mechanical” by Vice President Planning and Strategic Supervision
- Gratitude and appreciation Certificate for contribution of Monenco in developing the electrical network infrastructure during the period 2011-2014 for costumers in Dhofar Region- Oman
- Appreciation Certificate for Contribution towards the achievement of 4.5 million safe man hours without LTI
- Certificate of approved supplier to the Oman Oil and Gas Industry Joint Supplier Registration System (JSRS)
- Consultancy Services for preparation of Network Asset Maintenance Standards and Associated Asset Management Documentation- Job Completion and satisfaction Certificate by Majan Co. in Oman
- Performance satisfactory Certificate for Technical Advisory Services for the Supervision of Implementation of the Barka III & Sohar II Independent Power Plants by OPWP Co. in Oman
- Obtaining the Integrated Management System certificate IMS from IMQ:
  - 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
  - Health, Safety and Environmental Management Systems, HSE - MS certificate
- Certificate of appreciation for being Ranked as the top consultant in the evaluation of Esfahan Regional Electric Company (Iran) for providing consultancy services in different projects

Internal Market Penetration

In Monenco, Development and Growth will be followed by reviewing the goals, program preparation, prioritizing actions and also continuous improvement.
Definitely, access to goals need to spread a culture of excellence, retain and improve values, ethical principles and observation of social responsibilities. In this regard moving towards realization of vision statement of 1400 horizon as specified bellow is fundamental:

- Activity in all fields of engineering
- Retain and development the present position in the domestic market

In 2014, Monenco was successful in increasing internal capacity and capabilities, which led to getting awarded the projects in new, national and strategic fields including:

- Gasoline Vapor Recovery Unit
- Heat Recovery of Petrochemical Industry VC & Olefin Units
- Desalination of Brackish & Saline Waterin all fields of engineering
- Quality and Performance Monitoring of Fixed and Mobile Telecommunication Network Operators
- Electric Grid Synchronize between Countries
- Incinerator Power Plant
- Urban Water & Wastewater Telemetry Master Planning
- Geothermal Air Conditioning Systems
- Urban Train lines & Stations
- Petrochemical Capacity Development
- Construction of Olefins & Propylene Production from Natural Gas (GTO/GTP)

From the other hand, awarding projects from new clients including:

- Industrial Development and Renovation Organization of Iran (IDRO)
- Tehran Province Water & Wastewater Company
- Communication regulatory Authority of the I.R of IRAN Organization
- Shiraz Urban Railway Organization
- Abadan Oil Refinery Company
- Iran Power & water Equipment & Services Export Company (SUNIR)
- Iran International Engineering Company (IRITEC)
- Tabriz Electric Energy Distribution Company
- Kordestan province Energy Distribution Company
- Rasht Municipality
- Shiraz University of Technology
- Taban Water Development Engineering Company
- Tavan Bad Ardebil Company
- Dana Energy Company

International Market Penetration

Global success is not an accident, Monenco consistent penetration in new markets is one of the key factors into a company's international success. Due to Monenco competency and know how, we've been technically ranked the 1st company in several international tenders, which one of the most prominent one in the Middle East is "Master plan for Iraq Electricity transmission system -up to year 2030".
In addition, being listed as one of top 5 consultants in Oman empowered Monenco to simply being awarded the following projects:

- Consultancy Services for Design & Supervision of New 132 kV Grid Stations at Dil Abdusalam (DAS) & Suwaiq (Client: OETC)
- Consultancy Services for Design and Supervision of New 132/ 33kV Jebreen Grid Stations
- Framework Consultancy Service Level Agreement for OETC LDC (Client: OETC)
- Additional work for Study of Power Quality Improvement (Client: Modern Steel Mills)
- Consultancy Services for Design and Tendering Services for Construction of 3x20 MVA Primary Substation at Rusayl (Client: MEDC)
- "Global" Strategic Collaboration & Partnership Business Model & Planning (Al-Rawas Group)

Also, Monenco was awarded a project to provide:

- Owner's Engineer for Shahjibazar 330 MW Combined Cycle Power Plant Construction (Bangladesh)

Geographical Expansion

Monenco Iran success, achieved by Geographical Expansion in the international markets, has motivated and paved the way for other Iranian consulting firms to follow. While, a unique set of challenges will be associated with every business expansion especially in new geographical markets, Monenco achievement in its extended markets, due to focusing on the highest standards of professionalism, is one of the attractive success stories. Expanding our market in the Middle East, South East Asia and Africa also penetrating in CIS countries is our overall global achievements.

Transmission & Distribution Achievements

- Engineering, Detail Design and supervision of ADSS cable installation on distribution network poles in more than 20 cities in the country
- Engineering services and supervision of distribution projects in the country and updating distribution network GIS system in Alborz, Tabriz and Hormozgan provinces in Iran
- Engineering, Consultancy and Supervision on Implementation and Commissioning of Shiraz Urban Railway
- Consultancy Services for Preparation of Network Asset Maintenance Standards & Associated Asset Management Documentation of MJEC (Majan Electricity Company S.A.O.C)
- Commissioning of first independent Grid Station of OETC (Oman Electricity Transmission Company)
- Commissioning of Primary Substations of DPC (Dhofar Power Company S.A.O.C)
- Engineering, Consultancy and Supervision of 3 Grid Stations of OETC (Oman Electricity Transmission Company)
- Engineering, Consultancy and Supervision of a Primary Substations of MEDC (Muscat Electricity Distribution Company)
- Engineering and Detail Design of Grid Stations and Primary Substations of RAECO (Rural Areas Electricity Company SAOC), MEDC(Muscat Electricity Distribution Company) and BEC (BAHWAN Engineering Company L.L.C)

Power Generation Achievements

- Synchronization of 1800 MW Thermal Power Plants in Kahnooj, Chadormaloo, Iranshahr, Hormozgan, etc.
- Synchronization of 10 Wind Turbines each with the capacity of 2.5 MW
- Design of 1000 MW Wind Power Plant
- Design and Engineering Services for Geothermal System (Low grade) in Shiraz University of Technology
- Engineering Services for Municipal Incinerator of Rasht
- Yazd Solar Thermal Power Plant
- Desalination of Brackish & Saline Water

Oil and Gas Achievements

- Penetration in Petrochemical Plants; acting as licensor and design engineer for Pentaerythritol & Acetaldehyde in South Pars Province
- Know How Transfer of new technologies
- Furnishing Import & Export Stations with Custody Metering System across the country
- Penetration in volatile organic compound emission control and recovery for refineries, tank farms loading recovery
- 3D Modeling of off-shore Platforms with Laser Scan Technology in South of Iran

Alireza Shirani
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Obtained his B.Sc. in Electrical Engineering from Sharif University of Technology in 1988. He spent 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.

The energy outlook has fundamentally changed in the nearly eight years that I have joined Monenco as CEO. Markets are challenging both domestic and international, and in this environment clients seek strength, reliability and consistency. It is in these periods that Monenco thrives and the quality of its operation shines through.

As our clients grow their business strategies to overcome market challenges they look for assistance from a professional services provider firms – one that understands the entire asset cycle from conceptualization through project development. Although many try to provide this full-service capability, it is rare to find a firm with the required diversity of skills.

In order to create value for our partners around the world - who are very essential to the continuing success of our business - Monenco fulfilled its commitment to deliver value for the stakeholders in 2014.

In East Asia and Africa as well as CIS we are investing to diversify further. Monenco operational excellence has been rolled out into Oman as well. In 2014, in Oman we achieved to enter the Water Distribution sector. Also for the purpose of penetration in Oil & Gas industry, the required registrations were completed. However, the amount of awarded contracts in Oman has been increased in the past few years.

Monenco also expanded the range of services across Iran market in 2014, by entering into the new target markets such as Fixed & Mobile Network Operators, Urban Water & Wastewater Telemetry Master Planning, Urban Trains Stations and Petrochemical Capacity Development.

Generally, in energy sector we see attractive channels of opportunities and positive momentum in the year ahead.

As we look forward to new financial year, we are confident of making further progress toward our strategic goals and will continually seek ways to deliver their requirements effectively and efficiently. We believe our exposure to energy market across the Middle East; provide us with a good backlog of business. We will continue to execute on the cost reduction and performance improvement program in 2015. Our focus on performance improvement and cost reduction will not comprise our efforts to improve safety performance.

Transmission & Distribution

The Division of Power Transmission & Distribution handles projects in energy and power industries. 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 700 km and 7100 MVA Substations from 33 kV up to 400 kV and more than 23 Distribution Networks in 2014.

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, ADSS & 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.

Grid Stations

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.

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.

Railways

By developing technical knowledge in the new fields also in line with the needs for infrastructure projects in the field of urban railways and stations in Iran, Monenco has expanded its services and entered into the mentioned fields. However, through the technical and engineering capabilities of Monenco, foreign partners, experienced qualified personnel and using modern technologies, Monenco is able to render high quality engineering services in different projects in mega cities of Iran such as Shiraz and Tabriz as well as different lines of Tehran Metro and railways projects.

Articles and Technical Reports

Transmission and Distribution Division has published 6 technical reports, 4 international and 2 national articles and papers in 2014 to introduce new technologies & systems to its clients. Below is the list of mentioned reports;

- Employing Decision Tree for Partial Discharge Location in Power Cables
- Simulation of partial discharge in closely coupled cavities embedded in solid dielectrics by finite element method
- Simulation of PTC devices as Fault Current Limiters in Power Systems by Finite Element Method
- Analysis of Shielding Failure Flashover Rate (SFFOR) using Overhead Line Modified Geometric Model
- Functional Comparison of Climate Parameters Based on Iran, IEC 60826, and ASCE 74 Standards for Transmission Line Equipment
- Partial Discharge Signal De-noising Employing Singular Spectral Analysis Algorithm

Significant Ongoing Projects

- Master Plan of Tabriz Distribution Network
- Engineering, Design Services and Site Supervision for ADSS Cable Installation on Distribution Network Poles for more than 20 Cities
- Engineering and Design Services for Conductor and Shield Wire Replacement in Gheshm (about 75km)
- Comprehensive and feasibility study for Arvand free zone electrical system
- Master Plan of Kordestan Province Distribution Network
- Engineering & Mechanization Services for Investment Projects in Alborz Province (2014 - 2015)
- Engineering, Design Services and Site Supervision for OPGW installation for more than 700 km
- Site Supervision for 230 kV Darian – Uramanat Transmission Line
- Engineering and Design Services for 20kV Distribution Network for Mines Industry Electrification
- Engineering, Design Services and Site Supervision for Rehabilitation of 400 kV Roudshoor – Jalal quad Circuits Transmission Line
- Consultancy Services for Design and Supervision of New 132/33kV Grid Station at DIL Abdusalam (DAS), Jebreen and Suwaiq in Oman
- Engineering, Design and Consultancy Services of two 63/20kV GIS Substations (7th line of Tehran Metro)
- Engineering, Consultancy and Supervision on Commissioning of Shiraz Urban Railway Line 1 (Second Phase) including: Installation of Electrical and Mechanical Equipment, Civil and Architecture Works of 14 Stations
- Engineering Services for Implementation of 33kV Capacity Expansion, Asset Replacement and Distribution System Improvement for DPC - Grid Station & Associated Transmission Line
- Engineering, Design Services and Site Supervision for 66/20kV Genaveh 3 and Sheshdeh Substations in Fars Regional Electricity Company (FREC)
- Consultancy Services for Preparation of Network Asset Maintenance Standards & Associated Asset Management Documentation of MJEC (Majan Electricity Company S.A.O.C) in Oman
- Commissioning of one Grid Station of OETC (Oman Electricity Transmission Company) 132/33kV Nizwa Grid Station in Oman
- Commissioning of three Primary Substations of DPC (Dhofar Power Company S.A.O.C) 33/11kV Salaleh PS, 33/11kV Madinat Al-Haq PSS and 33/11kV Qairoon PSS in Oman
- Engineering, Consultancy and Supervision for three Grid Stations of OETC (Oman Electricity Transmission Company)
- Engineering, Consultancy and Supervision of a Primary Substation of MEDC (Muscat Electricity Distribution Company)
- Engineering and Detail Design of Grid Stations and Primary Substations of Rural Areas Electricity Company SAOC, Muscat Electricity Distribution Company and Bahwan Engineering Company L.L.C
- Consultancy Services of Project Management Unit (PMU) of Azerbaijan Power Transmission Program; Financed by Islamic Development Bank in Iran

Consultancy Services of Project Management Unit (PMU) of Azerbaijan Power Transmission Program; Financed by Islamic Development Bank in Iran

Start date: 2014 Finish date: 2017

Location: Western and Eastern Azerbaijan provinces and Ardebil province

Client: Azerbaijan Regional Electric Company (A.R.E.C)

Scope of work:

- Consulting services to the project management core to direct the project and achievement of plan targets
- Coordination with other organizations involved in the project such as Islamic Development Bank (IDB), contractors and consultants etc by observance of IDB guidelines
- Control and project management in order to optimize the four goals of the project in terms of time, cost, quality and safety issues with regard to risk management
- Preparation and production of progress reports to be presented to the stakeholders of the project(the Islamic Development Bank and Azerbaijan Regional Electric Company (A.R.E.C))
- Reviewing and conforming of the plan time schedules (including detailed design, construction, procurement, inspection and installation and commissioning, testing and delivery of the work
- Preparing and updating economic analysis of the project (The aim of this analysis will be to estimate the benefit of each party of beneficiaries and compare the total cost of the project with estimated cost)
- Providing the necessary data in order to satisfy the annual budget
- Implementation of archive and documentation system of projects
- Review, commentary and appraisal of contracts change orders
- Management of Followed claims by contractors and consultants
- Follow-up obligations of consultants, contractors and others involved in the guarantee period (Defect liability Period) and following the timely removal of defects.

Description: According to growth of energy consumption in Western and Eastern Azerbaijan provinces and Ardebil province and meet to the projected demand and in order to develop and optimize the power transmission and distribution system in the area , Azerbaijan Regional Electric Company(A.R.E.C) intends to develop Electric Networks (through a joint financing of Islamic Development Bank (IDB). In general, The Importance of Projects is as below:

- Possibility of supplying of electricity to underserved areas
- Improve the capacity, quality and reliability of the Local transmission network
- Overcome the voltage drop in sub-transmission and distribution networks.
- Supply the energy demand of new customers.

Master Plan of Kordestan Province Distribution Network

Start date: 2014 Finish date: 2015 Location: 10 cities of Kordestan province
Client: Kordestan Electrical Distribution Company

Scope of work:

- Load modeling & load forecasted up to 2018
- 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 DigSilent software to specify weak points

Description: Kordestan Distribution Network covers 10 cities of Kordestan province in Iran. Quality of services being delivered to the customers is a very important issue for the client. In this project, a long term development plan including Primary Substations, medium voltage feeders and distribution transformers with respect to network load, design, safety and reliability till 2018 have been compiled. The review of the mentioned plans with the aim of 3 years short-term plans is under the action by Monenco.

Engineering, Consultancy and Supervision on Implementation and Commissioning of Shiraz Urban Railway Line 1 (Second Phase)

Start date: 2014 Finish date: 2017
Location: Shiraz (Iran) Client: Shiraz Urban Railway Organization (SURO)

Scope of work:

- Project management
- Contract management
- Design Review Services
- Construction and Comissioning Supervision Services

Description: Shiraz Urban Railway Line 1 includes 21 stations and also one depot and parking. This project has two phases. However, the first phase has approximately finished and at the present time second phase including 14 stations and one depot are commissioning. In this huge and complex project, Monenco is responsible for Conceptual Design, preparing EPC contactor's scope of work, tendering and selecting EPC contractors, contractor's design inspection, Site Supervision, project and contract management as well as Engineering of MV, LV, Civil, Architecture, Electrical, Mechanical, Structures, SCADA, Telecommunication and Signaling.

Consultancy Services for Design and Supervision of three New 132/33kV Jebreen, DIL Abdusalam (DAS) and Suwaiq Grid Station

Start date: 2015 Finish date:2017 Location: Oman
Client: Oman Electricity Transmission Company S.A.O.C (OETC)

Scope of work:

- Preparing Conceptual Study Report
- Preparing Preliminary Design
- Design Review Workshop
- Preparing Tender Documents
- Floating Tender
- Tender Evaluation
- Preparation of Contract Documents and Award of Contract
- Supervision
- Design Review of EPC Contractor Documents

Description: These three Grid Stations will be connected to the transmission network through overhead lines. Electrical stability of transmission network will be increased by connecting these substations to the network. In these projects, Monenco is responsible for conceptual study report, preliminary design, review workshop, tender documents, floating tenders, tender's evaluation, Contract Documents, contractor's design inspection, FAT Inspection, site supervision, project and contract management as well as Engineering of HV, MV, LV, Structure, Civil, Electrical and Mechanical.

Engineering Services and Supervision of ADSS Cable Installation

Start date: 2014 Finish date: 2015 Location: 22 cities in Iran
Client: Aryacell Company

Scope of work:

- Routing for fiber connection between substations and telecommunication centers
- Surveying and preparation of plan and profile
- Detail Engineering Services
- Final LOM preparation
- Site Supervision

Description: For possibility of telecommunication trading with neighborhood countries of Iran, strengthen of fiber Optic connection in Iran is vital. In this regard, this project has been defined for connecting the lack point of the network in the country and fiber connection between substations and telecommunication centers. The feasibility study shows that the best plan for this connection is using ADSS cable. However, Monenco has been selected for engineering services and site supervision of this project. The length of the project is more than 150 km in 22 cities.

Telecommunication & Dispatching

The Telecommunication and Dispatching Division is one of the most important and fast growing division as it deals with an enter-technological, robust and progressive industry. It provides engineering and design services for dispatching centers and telecommunication networks inside and outside the country including SCADA, monitoring and dispatching, networks, telecommunication systems, metering systems and smart grids.

Benefiting from high qualified engineers, software and hardware infrastructures and the latest technology of the day in addition to the valuable experience and knowledge of the company, we provide the best quality of engineering and consulting services from conceptual, basic and detail design, technical training, site supervision and management of the most important and high tech projects of the country.

Having technical teams dedicated for mobile, fiber optic, smart grid and signaling areas of knowledge and our joint cooperation with top ranked companies has made us unique in providing services to the clients.

Dispatching & Automation

Dispatching and Automation Department serves 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 thier projects such as WAMS systems and Smart Grids. Furthermore, in this department technical reports have been provided in various fields such as smart grids, leak detection system in oil & gas and water industries, and environment monitoring systems.

Telecommunication

As a reliable partner for large telecommunication operators, we support the installation and upgrading of their telecom networks in core, aggregation and access layers. Throughout the country, we've carried out 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.

Articles and Technical Reports

The Telecommunication Departmet has published 2 national technical reports in 2014 in order to introduce new technologies & systems to its clients. Below is the list of mentioned reports;

- Application of TETRA radio trunk network at mission critical industrial in earthquake condition
- Preparation of business plan & design methodology for FTTx network

Providing, gathering and updating the parameters and key indices and methods of measurement and reviewing of the regulating and supervision structure on service quality and performance for fixed and mobile operators

Start date: 2014 Finish date: 2015 Status: on going Location: Tehran, Iran

Client: Communications Regulatory Authority of the I.R. of Iran

Scope of work:

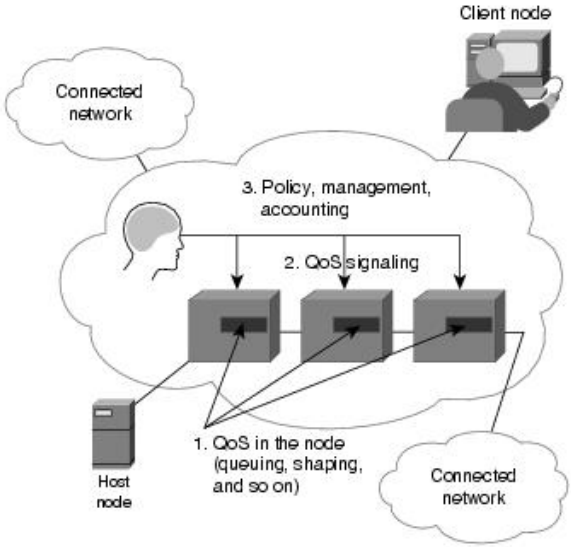
- Phase 1: To extract key parameters of quality of service and performance of the communication services including relevant formulas
- Phase 2: To determine the key parameters of quality of service and performance of the communication services including relevant formulas and allowances (expectable) for the implementation of the monitoring patterns of telecommunications operators in the country
- Phase 3: To determine monitoring, measurement and supervision on parameters and required facilities

Description: One of the roles of Communications Regulatory Authority of the I.R. (CRA) is to determine the quality requirements of communication services (including Internet services) and supervision on performance of telecommunication services providers having the related license from the mentioned organization.

In this regard, regulatory of Quality of Service (QoS) is one of the most important aspects of communication and postal services regulatory. In summary, the regulatory (QoS) determines which quality of services parameters should be measured and monitored by the CRA as well as the permissible range of each parameter according to customer and technology requirements and the country's overall policies.

Communications Regulatory Authority of the I.R. proposed a project to develop national standards for ICT and supervision on the quality of communications and postal networks to Monenco Iran (Department of Telecommunications).

The purpose of this project is developing the requirements of quality of services for fixed communication network, Mobile and postal by analyzing the information contained in the licenses, international standards also regulatory experience of other countries including measurement methods and monitoring which runs in three stages.



Consultancy Services for Master Plan of Tehran Water and Waste Water Telemetry Systems and Site and Official Supervision

Start date: 2014 Finish date: 2021 Status: on going Location: Tehran, Iran
Client: Tehran Water and Waste Water Supply and Treatment Company

Scope of work:

- Implementation of SCADA system for Tehran water wells
- Automation of Bilaghan intake
- Review of existing Radio Communication Network in UHF band telecommunication network and resolving its existing problems
- Preparing report on existing SCADA system status and its comparison with similar cases in the world
- Automation of pressure reduction stations and implementation of data loggers
- Upgrading protection and security considerations for existing SCADA center
- Using Data transmission system over mobile system operators' networks (Access Point Name) for water and waste water equipment
- Extension of existing SCADA center building and related equipment
- Monitoring system for water treatment plants (through data communication with existing SCADA system)
- Implementation of water quality assessment system for Tehran water network
- Implementation of water pre-payment services system with providing pre-payment meters
- Meter reading system for high consumption customers
- Implementation of Tehran waste water SCADA system
- Remote meter reading system for urban water customers

Description: The necessity of safe operation of the water network, continuity of supply, principles of operation, the extent of the water network and the number of stations, makes it inevitable to prepare an integrated reliable system and provides managing and control facilities with real time system monitoring, supervision capabilities. Implementation of automation and SCADA systems in the water and wastewater treatment systems has an important effect on the improvement of social, economic and environmental performance of the country.

Engineering, Basic Design and Supervision of Copper Industry SCADA System Services

Start date: 2014 Finish date: 2016 Status: on going Location: Shahre-Babak, Kerman, Iran
Client: National Iranian Copper Industries Company-Net

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: 2015 Status: on going Location: 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 50,000 MW power generation projects have been Engineered, Designed, and Supervised by this department including 20,000 MW Gas Turbine and 30,000 MW Combined Cycle Power Plants. Also feasibility studies of more than 3000 MW Thermal Power Plants have been done by Monenco. In 2014, 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 optimize 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.

Design of Sirjan (Shahid Ahmad Kazemi) Combined Cycle Power Plant

Project type: Combined Cycle Power Plant Start Date: 2013
Location: Sirjan, Near Gol Gohar Ironstone Complex City
Owner: Gohar Enegy Sirjan Company representative of Gol Gohar Complex
Capacity: 1*492 MW (2 GTG* 166MW (MAP2+V94.2) + 1 STG* 160 MW (E30-16-1))

Scope of work: Monenco provides Basic Design, Detail Design, Interfacing review, 3D Modeling of Plant, Site Technical Office Coordination

Description: The plant is located at 70Km far away from Sirjan City and close to Gol Gohar Ironstone Complex. 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 Hormozan Combined Cycle Power Plant

Project Type: Combined Cycle power plant Start Date: 2015 Finished Date: 2018
Location: Bandar Abbas City - Almahdi Complex Owner: Almahdi 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 15Km far away from Bandar abbas City and inside of Almahdi 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 Sabalan Combined Cycle Power Plant

Project Type: Combined Cycle Power Plant Start Date: 2014 Finished Date: 2017
Location: Ardbil City Owner: Bargh-e- Omid Sabalan Co.
Capacity: 480 MW (3 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 Ardbil City. 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 demand. This plant is consisting of 3 steam portions of combined cycle power plant each consisting of two (2) HRSGs and one steam turbine generator set & main and auxiliary cooling system including 400 AIS substation for the existing simple cycle V94.2 gas turbine power plant including 5 GTG units, version 1 & 3 GTG unit, version MAP+2 to be converted to the combined cycle power plant in "1+2" configuration for the Sabalan site In addition, the system of cooling type is Heller.

Design of West Karon Combined Cycle Power Plant

Project Type: Combined Cycle power plant Start Date: 2014 Finished Date: 2017
Location: Azadegan Oil Field Development Owner: National Iranian Oil Co.
Capacity: 484 MW (2 GTG *162 MW + 1 STG * 160 MW)

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

Description: The plant is located in Azadegan Oil Field Development, 55km far from ahwaz City. This power plant is implemented by investment of Mapna IP Consortium. Produced power will be sold to the national Iranian Oil Company via electricity grid for urban and industrial demand. At This Stage of project 2 GTG and 1 STG with common utilities will be installed and the second phase which includes 2 GTG and 1 STG will be developed in future. In addition, the system of cooling type is Air Cooled Condenser (ACC).

Consultancy Services of Bandar-Abbas Polishing Plant

Project Type: Polishing Plant of BandarAbbas Power Plant

Start Date: 2014 Finished Date: 2015

Owner: Hormozgan Power Production Management Company

Scope of work: Scope of this project includes technical Consultancy Service for reconstruction of BandarAbbas Power plant polishing Plant units

Description: In this project, Monenco will review drawings and documents of EPS Contractor and will perform Supervision on quality of reconstruction through issuing necessary advise to client to improve the quality of work.

Design of PARAND Combined Cycle Power Plant

Project Type: Combined Cycle Power Plant Start Date: 2014

Location: Parand (Tehran), Iran

Owner: MAPNA PARAND power generation Company

Capacity: 480 MW (3 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 near PARAND city in TEHRAN province and is consisting of 3 steam portions of combined cycle power plant each consisting of two (2) HRSGs and one steam turbine generator set & main and auxiliary cooling system including 400ks AIS substation for the existing simple cycle V94.2 gas turbine power plant including 5 GTG units, version 3 & 1 GTG unit, version MAP2+ to be converted to the combined cycle power plant in “2+1” configuration for the parand site.

Consulting and Optimization for Preparation of two units of Sea Water Purifier (MED) OF Bandar-Abbas Steam Power Plant

Project Type: Case study of two in-use 2400M3/day MED units
Start Date: 2014 Finished Date: 2015
Client: Bandar Abbas Steam Power Plant

Description: As announced by owner, the efficiency of these two units dropped to 55% of their designed ones. Therefore, the units need to be analyzed in order to detect the reasons of the deficiency and report the result to the owner to solve the problem.

Energy Conversion Management of Rudshoor Power Plant

Project Type: Energy Conversion Management Start Date: 2014 Finished Date: 2015
Client: Hormozgan Power Generation

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

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

- ► 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

Energy Conversion Management of Aliabad Power Plant

Project Type: Energy Conversion Management Start Date: 2014 Finished Date: 2015
Client: Mazandaran & Golestan Power Generation Company - Iran

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

Description: In this project, Monenco is responsible for two main duties as a supervisor and financial expert which some of them are as follow:

- ► 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, Wind Resource Assessment for the Development of 50 MW Wind Farm in 3 sites in Iran

Project Type: Wind Power Plant Start Date: 2014 Finished Date: 2016
Location: Iran Client: Dana Energy Services

Scope of work: Scope of this project includes wind resource assessment, micro-sitting, environmental impact assessment and layout optimization of wind farm.

Description: The main objectives of this project were the feasibility study and wind resource assessment of the 3 sites among the 5 sites that have been investigated in order to obtain the best location for installation of 50 MW wind farm. In this stage, the sites were evaluated based on accessibility to roads, grid connection, topography of the sites, environmental impacts, soil condition, wind energy potential etc. Then, in order to measure the wind speed and wind direction in four heights (10, 30, 60, 80m) a metrological masts were installed in each site. Based on the measured data that have been collected in at least one year, the best locations for wind farm construction were defined. Finally, the economical study of the project and wind farm detail design was performed. Achievements of this project are as follow:

- ► Define the best location for 50 MW wind turbines installation in 3 sites among 5 sites
- ► Civil works (preliminary design of roads, location and transport procedures of turbine)
- ► Electrical work(preliminary grid connection and internal design of wind farm)
- ► Economical analyses of the project (COMFAR III)

Bandar-Abbas Refinery Electric Power Studies

Project Type: Electric Power Studies Start Date: 2014 Finished Date: 2017

Location: Bandarabbas

Client: NEYR PERS

Scope of work: Electric power studies for Bandarabbas Refinery network as load flow, short circuit, motor starting, transient stability and reliability

Description: Bandarabbas Refinery is located in west of Bandarabbas city in south of Iran. Due to increase in total load of refinery to more than 102 MW (after completion and operation of Gasoline Production Increase Project), also short circuit constraint for existing equipments, there should be a modification in refinery production and distribution power grid. Bandarabbas Refinery Co. and previous consultant of National Iranian Oil Engineering and Construction Co. (NIOEC) had studied the power network although they could not reach to an agreement. Therefore power grid study, finding the best way to cope with aforesaid constraints and finally submit optimum technical suggestion devolved on Monenco Iran as he is pioneer and innovative consulting company in power and energy sectors. Monenco is responsible to perform power grid study consist of Load flow, Short Circuit, Motor Starting, Transient Stability, Relay Coordination, and to overcome the probable weak points of the power grid by simulation the complicated power grid in ETAP and PSCAD comprise of production (5GTG and one STG), distribution (including high power electric motors-4.8MW) and network connection.

Design of HVAC for one of Educational Building at Shiraz University of Technology (SUTECH) by Low Grade Geothermal Energy

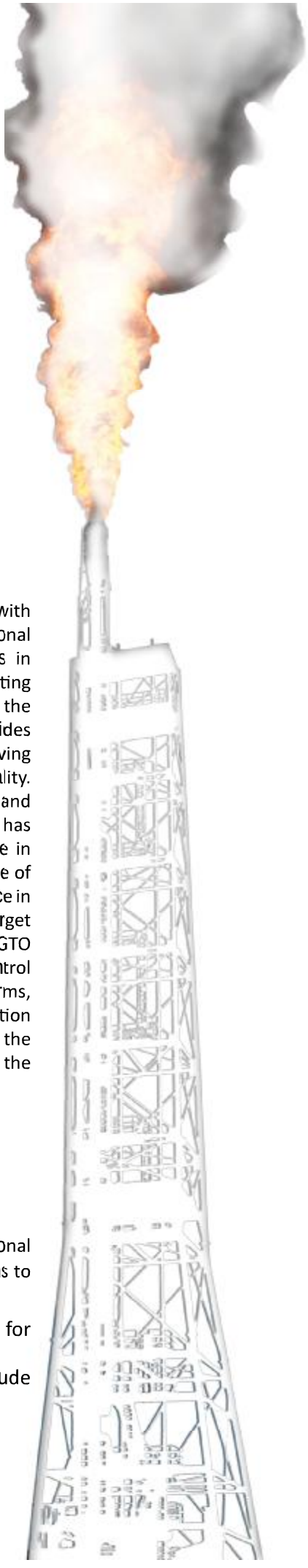
Project Type: Low Grade Geothermal Start Date: 2015 Finished Date: 2015

Location: Shiraz

Client: Shiraz University of Technology

Scope of work: Design of HVAC for one of educational building at Shiraz University of Technology (SUTECH) by low grade geothermal energy plant.

Description: Low grade geothermal as renewable energy is defined as “Energy from the internal heat of the Earth near the surface of the Earth”. Geothermal heat energy can be recovered & Exploited for human use and it is available anywhere on the Earth’s surfaces. This ground source energy is an advanced renewable earth energy system that delivers an sustainable, clean and reliable source of energy for commercial, industrial and residential heating & cooling requirement. In this project this kind of energy will be used for design of HVAC of an educational building (it’s area is nearly 2800 m2) at SUTECH.



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 metering, GTP, GTO in Petrochemical Plants, vapor control & recovery in refineries & tank farms, Bio-ethanol and Technical Inspection and Know How Transfer have been the most remarkable achievements for the department in 2014.

Articles and Technical Reports

Oil & Gas Division has published 2 technical reports, 1 international and 1 national articles and papers in 2014 in order to introduce new technologies and systems to its clients. Below is the list of mentioned reports;

- Project's Experience of 110 off shore Platforms, 3D Model Preparation for Iranian Offshore Oil Company in PDMS with Laser Scan Technology
- Investigation of Methods for Removing the Asphaltenes of Heavy Crude Oil

Furnishing Import & Export Stations of Iran Ministry of Petroleum with Custody Metering System

Start Date: 2014 Location: Iran

Client: Iran Ministry of Petroleum

Scope of work:

- Contributing PMC services including Review, endorsement, modification, Completion and approval of basic design
- Sites Visits and Sites Data Gathering
- Detail Design
- Procurement Engineering Services (including providing budgetary and final material take off)
- Tender Bid Evaluation, Vendor Review
- Pre-commissioning, Commissioning and Construction Services
- Technical Office and Sites Supervision Services

Description: In this project the production transaction points (export & import) of the ministry of petroleum will be equipped with custody meters (to measure crude oil & condensate production for 52 points across the country) and data transferring equipments to send on line information to central office in Tehran (16 points across the country). At the first stage of this project 10 points including of 8 points for national Iranian south oil company and 2 points for Iranian offshore oil company will be equipped with Custody Metering System.

Contributing Engineering Services for Transfer of Technology, Procurement, Installation, Commissioning of four Vapor Recovery Units at Ahvaz, Mashhad, Arak Gasoline Storage Tanks

Start date: 2014 Location: Ahvaz, Mashhad, Arak - Iran

Client: National Iranian Oil Refinery and Distribution Company

Scope of work:

Monenco is responsible to render engineering services for transfer of technology, procurement, installation, commissioning of four vapor recovery units.

Description: NIORDC intends to install four vapor recovery units at its gasoline storage tanks at AHVAZ, MASHHAD, ARAK areas. The purpose of this project is to control and recover of the released volatile organic compound at storage tanks to avoid the emission of harmful substances due to strict emission limits have been defined in country.

Comprehensive Technical & Financial Feasibility Study, Business Plan for GTP (Gas TO Propylene), GTO (Gas to Olefin) plant

Start Date: 2014 Locatin: South Pars Gas Fields, Iran

Client: Iran Industries Development and Renovation Organization (IDRO)

Scope of Works:

- Marketing study report
- Technical study report
- Economical study report
- Business plan report

Description: Market saturation due to excess production of methanol in recent years on one hand, and the importance of olefin production as a feed which is required as substantial material for petrochemical productions chain so low price of natural gas in the country on the other hand, and in order to increase the added value ,have been caused the direction of Iranian petrochemical industries to be changed to installation of, GTO, GTP, MTP, MTO, plants.
As the first step, a comprehensive feasibility study has been defined by IDRO to start the basic works in this regard.

Extension of Contract for Consulting Services, Engineering Document Review, and Site Technical Services for Unit No. 106 of Phase 19

Start Date: 2014 Locatin: South Pars Gas Fields Developments, Iran

Client: Petropars Iran Company

Scope of work:

- Engineering consulting services, contractors design review and vendors print check
- Preparing technical reports
- Field engineering in site technical office Construction Supervision

Description: Phase 19 onshore complex is located on the Iranian coast of Persian Gulf in TOMBAK. The total capacity of phase 19 onshore facilities is 2000 MMSCFD of dry reservoir fluid. The lean gas from Ethane recovery unit (105) serves compression and export gas unit (106) to recompression. Unit 106 includes six centrifugal compressors in parallel plus two spare, each compression section includes one suction drum, one compressor and associated gas turbine and one after cooler. Compressed Export gas in unit 106 is delivered at 90.8 bars via metering system to connect to IGAT9.

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

Start Date: 2014 Location: Mahshahr Free Zone, Iran

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)

Description: Shahid Rasouli Petrochemical Company (SRPC) is being established for producing Formaldehyde, Acetaldehyde and Pentaerythritol in Mahshahr Free Zone. The required raw materials for this complex are methanol, ethanol and caustic soda. This plant includes three process units; one unit for production of formaldehyde from methanol with 64,000 TPD capacity, one unit for production of acetaldehyde from ethanol with 5000 TPD capacity and one unit for production of pentaerythritol from acetaldehyde, formalin and caustic with 10500 TPD capacity.

Extension of contract for conceptual, Basic Design and Detailed Design of Heat recovery from Olefin and VC units in Abadan Petrochemical Company

Start Date: 2014 Location: Abadan, Iran

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.

Extension of Rendering Preliminary Feasibility Study for Increasing of Capacity of Abadan Petrochemical Plant based on Receivable Feed from Abadan Refinery

Start Date: 2014 Locatin: Abadan, Iran

Client: Abadan Petrochemical Co.

Scope of work:

- Updating cost estimation for performing of the project
- Cost – Revenue analysis of performing the plan and priorities
- Sensitivity analysis of the plant versus price changes and product quantities
- Extraction of all data regarding capital investment of the plant, fixed – variable cost, production parameter and analysis by comfar software
- Final report, acceptable for credit & financial organizations

Description: Abadan petrochemical company intends to perform feasibility study based on two scenarios:

1. To indicate feed price with consideration rate of 25% IRR
2. To indicate rate of interest based on feed price at present

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.

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
- Detail 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.

Mining & Geology

Monenco is committed to provide high quality services in the field of Geology, Exploration and Mining through its experienced staff also to establish cooperation with international well-known firms in the mentioned field. However, the services include; 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.
In addition, Monenco is equipped with sophisticated professional software such as Gemcom Surpac, Downhole Explorer, dataminestudio, FLAC, Gems, UDEC, GEO matica and prepared to provide consultancy services in exploration and extraction of mineral deposits while partnering with highly skilled international companies by using modern equipments and machineries.

Introduction of New Technologies

Monenco as an consultancy company takes this responsibility to continuously update its knowledge. Therefore, several studies in related to the following fields were conducted and in the form of seminars, white papers etc. presented to the clients, competitors etc.

Directional Core Drilling

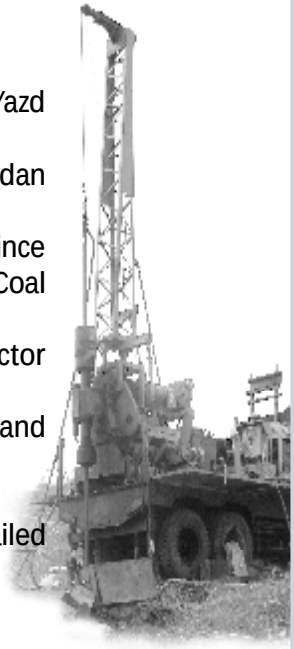
Exploration drilling is one of the most important steps in Geometry identification and estimation of reserves. Drilling is considered one of the most expensive mining activities.
Geology and Mining Department with the introduction of new method of drilling as “Directional Core Drilling” to Iranian Clients 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. 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.

Significant Completed 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

Duration: 24 Months Location: Mazandaran, Iran

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 Location: Kerman, Iran

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.

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

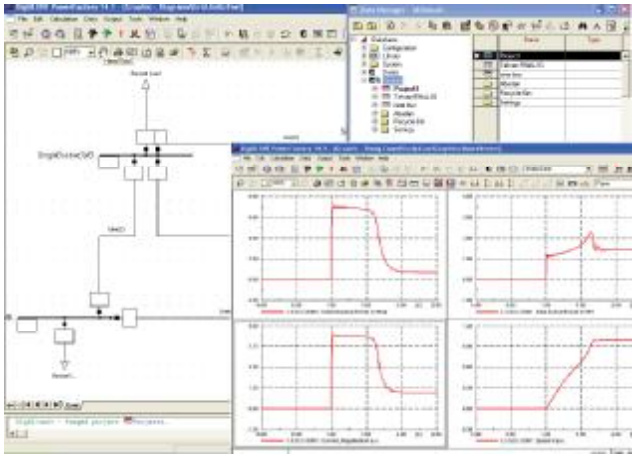
Energy System Planning Group has been responsible for comprehensive study of energy (electricity, Oil and Gas, etc.), studying the effect of economical, environmental, and social aspects of using new technologies to optimize and reduce energy consumption, establishment of energy management system, providing 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 Group 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 Group as one of the main part in ESSC offers services and activities related to the generation, transmission, and distribution grid. This group 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 Group studies cover all consulting services in the areas of economical feasibility and market studies. These services are not limited to electricity industry but cover all industrial projects. Some of major tasks of this section are; 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 public-private-partnership and tried gaining experiences in the field of energy exchange, electricity market design, market policy and authority, market monitoring, etc.

Articles and Technical Reports

System and Energy Studies Center has published 3 international and 2 national articles in 2014 in order to introduce new technologies and systems to its clients. Below is the list of mentioned reports;

- A Multi-Objective Model for Allocation of Magnetically Controlled Shunt Reactors, 8th IEEC GCC - 2015
- Privatization of Electricity Distribution Sector in Iran (A Model based on Review of Global Experiences), 8th IEEC GCC - 2015
- Main criteria in interconnection of Generating Units to Islanded grids, Salalah IPP2 Case Study, 8th IEEC GCC - 2015
- Static voltage stability studies in Khuzestan Regional Electricity Grid With the aim of reactive power compensation
- Select target markets for export of electricity using multiple criteria decision making

Under Frequency Load Shedding and Islanding Scheme in Dhofar System

Start Date: 2014 Location: Oman
Client: Oman Electricity Transmission Company (OETC)

Description: Dhofar Power System Transmission is operated by Oman Electricity Transmission Company (OETC). Connection of Dhofar Power System to Main Interconnected System could shape dynamic behavior of the network especially from frequency control perspective. In fact, different control areas with specific characteristics might require different under frequency settings approach. Therefore, it is needed to harmonize and coordinate under frequency settings approaches in Dhofar Power System. The goal of this project is to develop and coordinate Automatic under Frequency detection and appropriate load shedding and Islanding scheme to protect the network from collapse in case of any severe disturbances such as loss of a total power station or main tie-lines.

Operating Reserve Management in MIS and Dhofar Systems of OETC

Start Date: 2014 Location: Oman
Client: Oman Electricity Transmission Company (OETC)

Description: Oman Electrical Transmission Company (OETC) is comprised of MIS and Dhofar networks which are connected through 132 kV Petroleum Development Oman (PDO) network. Moreover, MIS network has an international interconnection to GCCIA system through Transco of Abdu Dhabi 220 kV. MIS and Dhofar systems must at all times have sufficient operating reserve in order to maintain the security and reliability of power system while achieving economic operation. The goal of this project is to determine appropriate operating reserve for both MIS and Dhofar systems under following conditions:

- Operating isolated from PDO.(for MIS and Dhofar separately)
- Operating synchronously with MIS through PDO connection
- Operating synchronously with MIS through PDO connection in parallel with Transco

Consultancy Services for Connection of Abadan Refinery to National Power Grid

Start Date: 2014 Location: Iran
Client: Abadan Refinery

Description: In order to increase the reliability of electricity supply in Abadan Refinery, the power grid of this company would be connected to national grid. Currently, the power grid of Abadan Refinery operated in isolated mode. The connection of this power grid to national grid could affect both Abadan Refinery and national grids. Therefore, comprehensive power system studies are needed to evaluate the effects of such interconnection and propose an appropriate connection scheme. The required technical and financial studies for connection of Abadan Refinery to national grid are:

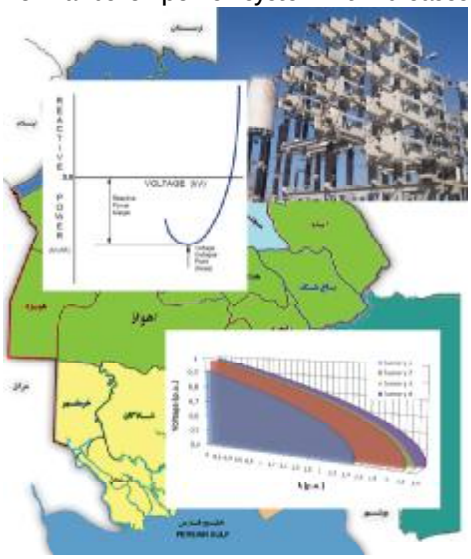
- Abadan Refinery modeling in DIgSILENT software:
  - Power equipments (generators, transformers, motors, loads, etc.)
  - Control equipments (AVR, Governor, etc.)
  - Protection relays (over current, differential, frequency, etc)
- Static and dynamic studies:
  - Load flow
  - Short circuit
  - Transient stability
  - Motor starting
  - Load shedding
- Financial evaluation

Studies on Static Voltage Stability Improvement and Reactive Power Compensators Placement in Khuzestan Power Grid

Start Date: 2014 Location: Iran

Client: Khuzestan Regional Electric Company (KZREC)

Description: Reactive power compensation improves the performance of power system. It increases voltage profile, power factor, release capacity, and reduce power losses in transmission and distribution grids. Regarding abovementioned factors, Khuzestan Regional Electric Company (KZREC) which owns and operates one of the biggest regional electric grids of Iran intends to have a comprehensive study about voltage stability and allocation of reactive power compensators.



The horizon years of this study are 2014 (operational) and 2016 (planning) in transmission and sub-transmission grid of Khuzestan grid. The main steps of the project are:

- Data gathering and system modeling for horizon years of the study (2014 and 2016)
- Identifying critical points by PV, QV and modal analyses
- Placement of reactive power resources
- Transient over voltage studies
- Holding seminars

Significant Completed Projects

- Feasibility Studies and Engineering Services for Super Grid (765 kV Transmission Lines and Associated Substations) in Nigeria
- 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
- Economical, Technical, and Market Studies for Stock Valuation of Power Distribution Companies
- Feasibility Studies of 750 MW Wind Farm in Iran
- Island simulator design and manufacturing
- Feasibility studies of constructing new power plants in Iran
- Supervision of SVC Designing & Manufacturing of Looshan Project
- Feasibility Study for Allocation of PST in Iran power System
- Assessment of Using Magnetically Controlled Shunt Reactor in Iran Grid
- Detailed design of rules and tools for day-ahead spot market pricing
- Iran Power Industry Restructuring

Significant Ongoing Projects

- Synchronous Interconnection of Iran-Iraq Grids
- Studies on Static Voltage Stability Improvement and Reactive Power Compensators Placement in Khuzestan Power Grid
- 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
- Under Frequency Load Shedding and Islanding Scheme in Dhofar System
- Operating Reserve Management in MIS and Dhofar systems of Oman Electricity Transmission Company (OETC)
- Consultancy Services for Connection of Abadan Refinery to National Power Grid

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

Articles and Technical Reports

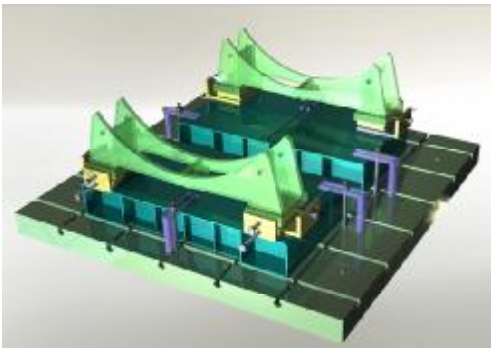
Research and Development Division has published 13 technical reports, 3 international and 10 national articles and papers in 2014 in order to introduce new technologies and systems to its clients as follow;

- Optimization Of Rifled Tubes Critical Heat Flux Using Genetic Algorithm And Study Of Using Them In Steam Boilers Water Wall
- Modeling Of CO2 Capture And Storage (CCS) System In Paresar Combined Cycle
- Techno-Economical Investigation On Using PAT System For Energy Recovery In Oil Pipelines
- Techno-Economical Comparison Between Concrete And Steel Cooling Towers
- Techno-Economical Investigation On Flare Gas Recovery In South Pars Gas Refinery
- CFD Modeling Of Wind Effect On Air Cooled Condenser Performance
- Techno-Economical Investigation On Methane Collection During Gas Pipeline's Maintenance In Bushehr
- Developing A Code For Design And Modeling Of CSP Solar Power Plants
- Techno-Economical Investigation On Using Photovoltaic System To Supply Karuji Village Electricity
- Investigation On Rifle Height Effect On Rifled Tubes Thermal Performance
- Technical Study Of Thermal-Membrane Hybrid Desalination Configurations
- Effect Of Recirculation Of Concentrated Water On Reverse Osmosis System Performance For Persian Gulf And Caspian Seawater
- A New Aspect To Conventional And Un-Conventional Water Resources In Iran

Significant Ongoing 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 (Ukraine). 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 (Ukraine) compressor according to the latest international standards. The test bench was commissioned in October 2014.

Study of Desalination Opportunities in South Coast (Persian Gulf and Oman Sea) of Iran

Client: MAPNA (Investment Projects Division)

This project concentrates on a complete study in order to choose the best desalination technology for each site in Iran according to different site conditions, water demand, intake water properties etc. The project consists of four phases. First phase consists of literature survey, water and desalination statistical study (especially in MENA and Iran), governmental studies in water and desalination, activities of other companies in the region and the history of desalination in MAPNA. Second phase consists of evaluating the sea water and brackish water resources in Iran and choosing critical regions considering water demand.

Third phase concentrates on techno-economical analysis of various desalination plants with emphases on variation of power block output, desalination technologies and water demand. Finally the fourth phase focuses on developing a business plan for MAPNA based on the last three phases of the study. The first phase was finished in August 2014 and three other phases are planned to be finished in August 2015.

Feasibility Study of Methane Collecting System

Client: BUSHEHR Gas Company

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, 12 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 advices, thereafter, are to be proposed for the selected units while the energy and exergy analysis would prove the energy and exergy efficiencies. 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. Project was finished in February 2015.

Energy Audit and Standard Compilation in Desalting units

Client: Iranian Fuel Conservation Company (IFCO)

The main activities of this project 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 was finished in November 2014.

Engineering Capability

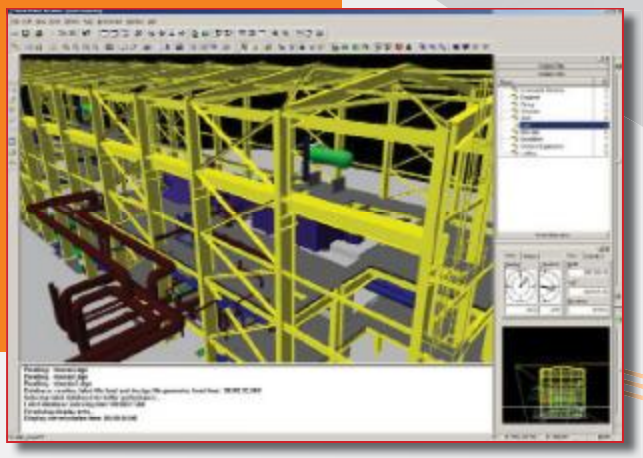
Engineering Division is the most significant division in Monenco that provides engineering services for a wide range of projects carried out in this company. Seeking for the latest science and technologies keeps this division up to date in its tasks, providing services to the other divisions in a matrix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

Articles and Technical Reports

Engineering Division has published 4 technical reports, 1 international and 3 national articles and papers in 2014 in order to introduce new technologies and systems to its clients as follow;

- Fault Detection of Industrial in LV94.2 Gas Turbines Using Neural Networks
- In-Line pressure balance expansion joint design to use in steam turbine exhaust duct toward Air Cooled Condenser
- Supporting optimization for Chadormalou Air Cooled Condenser Duct (First direct Acc in Iran) with respect to Gimabl expansion joints location
- Design optimization for steam turbine exhaust duct toward Air Cooled Condenser system

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, Mechanical, 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 Monenco contractual scope of work, project specification and client technical requirements.



In 2014, this division besides giving services for all projects of the company, it was successful to extend its knowledge to the following fields and subjects:

- 3D Design of Pentaerythritol & Acetaldehyde Petrochemical Plant
- Basic and Detail Design of F&G and Fire Fighting System of Plants (Oil & Gas Field)
- Preparation of Specifications for Rotary Equipment, Evaluation and Purchase in Oil & Gas Field
- Entering to Rewamping and Rehabilitation of Old Power Plants
- Entering to Rewamping and Rehabilitation of Old MED Typ Desalination Units

Design Engineering Software Tools

Monenco, by relying on its experienced personnel and valuable experiences in the field of three-dimensional design software, has launched a number of engineering software of AVEVA Company while upgrading the PDMS 11.5 to PDMS 12.1. Using this software causes integration among engineering data plus reduces the time and cost of the projects. Also, Monenco has recently installed AMETANK and AMPREVA software.
Below is the description of the mentioned software:

- PDMS Global: global provides automatic project synchronization and sharing work processes between monenco office locations while retaining project and system control
- Aveva P&Id: a P&Id design system which stores intelligent engineering data onto graphical entities in an autocad drawing while the designer draws and annotates the P&Ids
- Aveva Instrumentation: instrument and systems engineering, design, documentation and management for the entire asset lifecycle
- Aveva Electrical: electrical engineering and design system, documentation and management for the entire lifecycle
- Aveva Engineering: creates schematics, diagram, datasheets, engineering lists and indexes
- Aveva Bocad: powerful structural steelwork design and detailing for different plants
- Ametank:
  - Storage Tank Automation
  - Tank Design Calculations
  - 3D Production Detailed Models
  - Layout and Fabrication Drawings
  - Production List and Bill of Materials
  - Fabrication Details for Cost Reports
- Ampreva:
  - Pressure Vessel Automation
  - 3D Production Detailed Models
  - Layout and Fabrication Drawings
  - Production List and Bill of Materials
  - Detailed Cost Estimation

Information Technology Management

When we look back to 2014, we could describe it as one of the most innovative years in Monenco's Information Technology history. Through our innovative strategy for integration of AVEVA software's and PDMS, we implemented global version of PDMS.
From a cost control perspective, our team developed software which provides "Summarized cumulative and monthly reports for financial status of the projects".
We started a network infrastructure between our head quarter and other offices nationwide. Vulnerability and risk has been controlled by installing a strong UTM device.
Also Domain Controller and Active Directory servers have been updated.

Strategic Management

In 2014 we republished and imparted the Strategic Plan which defines Mission and Vision statement of our company, Core values, Strategic map and targets, and Initiatives for the next 8 years, up to 2022.
This document compilation which is based on Balanced Score Card model has been designed to achieve our targets in 4 perspectives; Financial, Customer, Internal business processes, and Learning and growth. Also this plan is correspondent to the strategic plan of our parent company Mapna Group.

Project Control & Monitoring Department

Productivity is never an Accident

Monenco Control & Monitoring Group proudly honors to have more than 25 high standing experts in project planning and controlling field, incorporating updated methodologies like PMBOK, ISO 21500 etc. Our great passion is to increase projects efficiency and effectiveness in terms of cost, time and quality with intelligent planning and running monitor and control activities.

In 2014, specifically the main concerns of our team were cost management and techniques such as earned value for projects. A structured format for cost analysis reporting was the output of this process which helped the team to report projects cost status to the CEO in an analytic manner. Claim management was the other focused area of our group during this year. Due to the nature of engineering consultancy services, we encounter to conflict of interests with projects stakeholders which force us to run claim management tools and techniques. 9% of whole company income gained from claim management efforts in 2014. Moreover, in terms of training, all members of the team were certified with the basics of PMBOK 5th edition standard which gave the capability of using project management standards towards the projects.

The main goals of our team for 2015 can be summarized as:

- Obtaining the required knowledge regarding risk management area and incorporating it into company main projects
- Developing the claim management skills to cover all company projects concerns
- Running cost control activities much more intensively to efficiently use the company resources

Global Presence

Monenco comprehensive geographic presence enables us to provide our clients with a unique combination of extensive global resources, world recognized technical expertise and deep local knowledge.

We remain committed to the ongoing growth of this global capability through international focus and expanding of our worldwide presence to be an ideal partner for developing the know-how.

Monenco approach to global market means meeting the highly competitive and continues evolving demands of the worldwide market by supplying localized Solutions wherever they are required. Networks are in place and nurtured, to ensure that the required expertise is available even at short notice, accordingly prominence success was achieved in Africa, Middle East, South East Asia and successful networking were formed with well-known International and local firms. Monenco in Oman and Nigeria reached great success by creating powerful networks in Middle East and Africa and our valuable partners have supported us to better serve our clients worldwide.

Bangladesh is becoming an important operation hub in South East Asia region and Monenco competing seriously on infrastructure projects which will be led to a shining achievement soon.

Developing Systems and Methods

We believe that upgrading the designed systems and processes is the basis of improvement. So "Reviewing the organization chart", "Accomplishment of the electronic document control system" and "Upgrading the library software" were some of the improvements in the last year. As the organization chart changed, the Transmission and Dispatching deputy divided to "Transmission & distribution" and "Dispatching & Telecommunication" department for more efficient management of the numerous numbers of projects in these departments as well as comply with the market changes.

Quality Assurance

In 2007 Monenco established and implemented a Quality Management System (QMS) and got 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 upgraded ISO 9001 standard from 2000 edition to 2008 edition and got certified in accordance with ISO/TS 29001:2010 for petroleum, petrochemical and natural gas projects. Also, change of Certification Body BV to IMQ was done in 2014. The main achievements of QMS in 2014 are as follow:

- Improving procedures to control actual and potential non-confirm products to define and eliminate routing causes,
- Ranked first technical score in 27.14% of tenders in all fields including new businesses.
- Obtaining the clients' letter of appreciation for 16 projects,
- Decreasing the Revisions of issued drawings and technical documents by 0.02% on documents which have been approved this year,
- Documenting procedures, work instructions & quality plan for new types of projects,
- Performing 39 important corrective & preventive actions according to personal observations, audits, stakeholder's 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

In 2011, Monenco established HSE Management system and got certified according to ISO 14001:2004 and OHSAS 18001:2007, in order to maintain and increase personnel health and safety and environmental requirements. Change of Certification Body from BV to IMQ was done in 2014. The main achievements of HSE management system in 2014 are as follow:

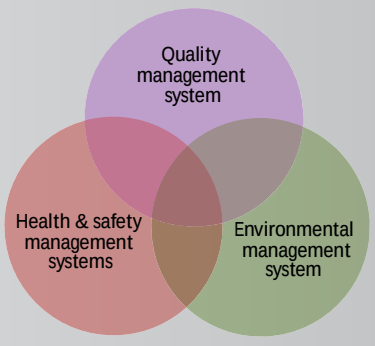
- Gaining HSE-MS certificate for supervision,
- Obtaining the DPCs' letter of appreciation, for 4.5 million safe man hours without LTI,
- Sites HSE auditing,
- Environment risk evaluation review was done in office and sites,
- Strive providing safe & healthy workplace continually,
- Measuring workplace harmful factors considering threshold limit values and performing corrective or preventive actions,
- Monitoring musculoskeletal disorders questionnaire and analysis of results

Integrated Management System

In 2014, Integrated Management System (IMS) in Monenco was implemented in order to achieve:

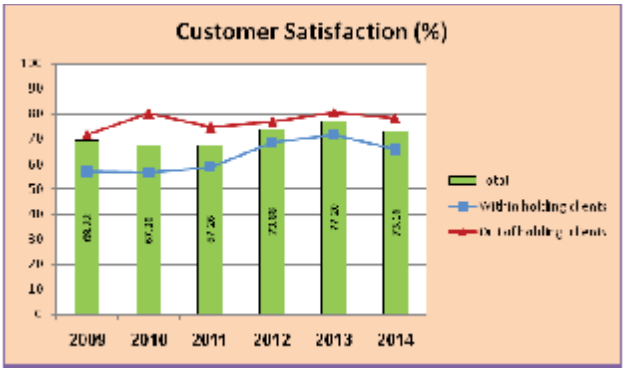
- Reduction of planning cost, establishing and maintaining QHSE management systems
- Increasing the productivity and efficiency of the systems
- Avoiding repeated tasks and omitting reworks
- Optimum usage of resources
- Increasing the confidence of clients and customers

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



Customer Satisfaction

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



Objectives & Development plans

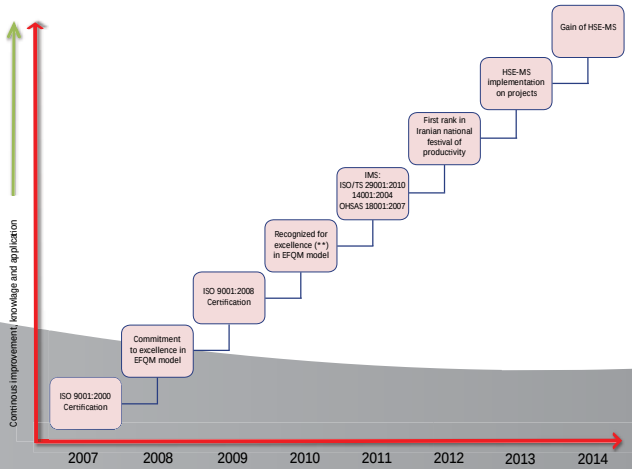
Based on IMS policy & Monenco strategies, objectives and development plans of each department are determined yearly by "Monenco Enhancement Work-Group" performing by "QHSE & Productivity Office". Each department is responsible for performing the relevant plans & reporting the progress monthly. QHSE & Productivity Office is responsible to control progress plans and define appropriate corrective & preventive actions to achieve objectives. In 2014, 64.73% of company's objectives and 76% of quality, HSE and productivity's objectives have been met.

Excellence Model

In order to provide sustainable excellence and achieve balanced results in all sectors 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", based on EFQM model (2010 version). Improvement of projects has been continousely defined and developed in Monenco based on EFQM framework.
Self-Evaluation of the sites and office was performed based on "EFQM model" in 2014 and in 2015 plan, external evaluation by declaration is considered.

Continuous Improvement

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

We served clients globally across the energy and power sectors and provide local services in our core markets. In past year Monenco has been very active in Oman as one of leading companies in that region, our focus sectors were power generation, transmission & distribution. Across several successful bidding in last year we won new three years contract with OETC providing various engineering services right across the Sultanate.

Also Monenco was able to penetrate new markets in fields of Oil and Gas and Water by serving the major clients such as Petroleum Development Company (PDO) and Public Authority for Electricity and Water (PAEW) as per our defined mission. Previously, we were awarded a prestigious Certificate of Appreciation for 4.5 Million Safe Man hour from Dhofar Power Company (DPC) and being shortlisted as one of the recognized consultant providing consultancy engineering services in field of Oil and Gas by achieving JSRS Certificate. Some of our projects in 2014 are as follow:

- Detailed Engineering Services for Construction for Upgrade Shinas 33/11kV Primary Substation from 2X20 to 3X20 MVA (Majan Electricity Company (SAOC))
- Detailed Engineering Services at MEP (Mechanical, Electrical and Piping) parts for Engineering, Procurement & Construction of 2 X 10 MVA, 33/11kV Step Down Primary Substation for Gumdah at Musandam Governorate (RAECO)
- Consultancy Services for Construction and Supervision of Water Supply Scheme to Yeti, Al Hsen and Bander Jissah in Muscat Governorate
- Detailed Engineering Services for Construction for New 3X20 MVA, 33/11kV Primary Substation at Al Khuwair South – Muscat Electricity Distribution Company (MEDC)
- Consultancy Services for Construction and Supervision of Upgrading of 33/11 kV Qairoon Hairiti PSS from 2x10 MVA to 2x20 MVA Capacity
- Consultancy Services for Design & Supervision of New 132/33 kV Jebreen Grid Stations
- Load Cycle Study of Electric Arc Furnace (EAF) for Modern Steel Mills
- Consultancy Services For Design and Tendering Services for Construction Of 3X20 MVA Primary Substation At Rusayl-08 in Knowledge OASIS Muscat
- Consultancy Services for Design & Supervision of New 132 kV Grid Stations at Dil Abdusalam (DAS) & Suwaiq
- 3 Years Framework Agreement with OETC for Power System Studies
- Comprehensive Analysis, Strategy Development, and Business Planning for Global LLC
- Consultancy Services for Construction and Supervision of Construction of 11kV Outgoing Cable feeders from Salalah Port-GCT Primary Substation

Monenco Certificates in Oman

- Oman Ministry of Commerce and Industry
- Oman Chamber of Commerce and Industry
- Professional Indemnity Policy
- Oman Tender Board
- Oman Ministry of Defense
- Muscat Municipality for Issuing Permit Building
- Oman Oil & Gas Industry's Joint Supplier Registration System (JSRS) Ministry of Oil & Gas
- Vendor Approval - Petroleum Development Oman (PDO)

Commissioned Projects:

- Construction of Madinat Nizwa 132/133 kV Grid Station and Associated Transmission Line
- Up gradation of 33/11 kV Qairoon Hairity Primary Substation from 2 x 10 MVA to 2 x 20 MVA Capacity
- 33/11kV, 20 MVA Primary Substation, designated as Salalah Port GCT PSS
- Consultancy Services for Preparation of Network Asset Maintenance Standards & Associated Asset Management Documentation

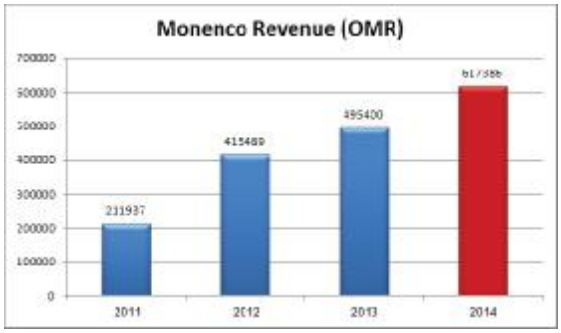
Ongoing Project:

3 Years Framework Agreement with OETC for Power System Studies
Start Date: 2015
Finish Date: 2018
Client: OETC (Oman Electricity Transmission Company)
Location: Muscat, Oman

Scope of Services:

- ► Dispatch scenario when any new power plant connect to the system
- ► Operational effects of new major loads connected to the system
- ► Economic Dispatch requirements
- ► Spinning reserve management
- ► Under frequency settings
- ► Islanding procedures
- ► Black start procedures
- ► Preparation and modification of System Operation Procedures
- ► System operation studies
- ► Study the system behavior for any new connection
- ► Study the difficulties in the international connection
- ► Study the voltage issues in winter time
- ► Study the major incidents and partial blackouts
- ► Help to prepare the contingency plan
- ► Advice for real time operation
- ► Study n-1 criteria by modeling the network system
- ► Study the PDO-MIS and PDO-Dhofar connections
  - Risks of the interconnection.
  - Risk of inter-area oscillations.
  - Specific issues linked to energization (overvoltage, resonance)
  - Tuning of system protections to face emergency conditions like loss of synchronism, evaluation of maximum power transfer

Description: As preferred consultant for all operating requirements in 3 years of OETC and wide projects in operating fields show the capabilities of Monenco in system studies.



Number of projects with each Client

Client	No. of Projects in 2014
Oman Electricity Transmission Company (OETC)	4
Muscat Electricity Distribution Company (MEDC)	3
Modern Steel Mills (MSM)	2
Majan Electricity Company (MJEC)	1
Modern Light Trading & Contracting Co. LLC (MLTC)	1
Dhofar Power Company (DPC)	4
Public Authority for Electricity & Water (PAEW)	1
Oman Power and Water Procurement Company (OPWP)	1
Rural Areas Electricity Company (RAECO)	1
Atlas International Engineering Consultants Co.	2

Monenco in Africa

In 2014 Monenco Engineering Ltd. (MEL) finished the 4th 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.

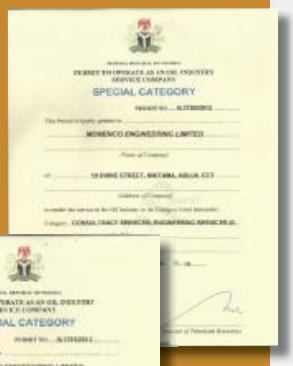
As part of MEL business development strategy also in order to extend business opportunities, MEL has entered into partnership agreement with different international and local companies and participated in several pre-qualification and bidding exercises within Nigeria.

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



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 issued by the client

MIR
Engineering Management and Technology Company

MIR Engineering Management and Technology Company

MIR Engineering Management and Technology Company was founded in 2004 as a fully owned subsidiary of Monenco Iran Consulting Engineers in response to a void in the Iranian energy market to target needs and opportunities that Monenco could not pursue on its own. Accordingly, it is vital for MIR Co. to provide Monenco's clients with the best quality of services and keep them satisfied. Overtime though, the company has evolved in a full-service solution provider rendering services to many other companies other than Monenco's clients due to expansion of its activities and capabilities. Experienced qualified personnel and using modern systems led MIR Co. to provide high quality services in the field of energy. Moreover, by having well known shareholders (such as Monenco), MIR was able to hold professional training courses and seminars which caused the company to grow widely in the field of energy.
Monenco was successful to expand its services in international market especially in Middle East, south East Asia, Africa as well as CIS countries due to its capabilities and Know How Transfer through its representatives offices in Oman (Monenco Oman) and Nigeria (Monenco Nigeria).

MIR Engineering Management and Technology Company renders services in the following fields:

- Information and Communication Technology
- General and Professional Training Services
- E-learning Services
- Energy Consumption Management in the Buildings
- Management Consultancy

MIR Company plays a main role in implementation of various projects in the field of software systems

Some of the clients in the consultancy and implementation fields are as follow:

- Monenco Iran Consulting Engineers
- Mapna Group
- Moj Niroo
- Tavanir
- Tehran Milad Tower
- Iran Power Development Company
- Isfahan Regional Electricity Company
- Iranian Gas Transmission Company

In addition, some of the significant ongoing projects are as follow;

- Industrial Automation training courses for I&C experts of Iranian Gas Transmission Company since 2013
- Training courses for integration of PDMS 3D software for Mapna Group
- Design and implementation of technical documents archive system for Iran Power Development Company
- Consultancy, design and engineering services in IT master plan of Faham (National Smart Metering Project) – Iran Energy Efficiency Organization
- Energy modeling professional training courses using Design Builder application

Profit(Loss) Statement at 20 March 2015

Monenco Iran

	1393 (at 20 March 2015) Rial	1392 (at 20 March 2014) Rial
Services Income	434,436,783,309	406,354,491,455
Services Finished Price	343,970,977,257	-311,545,564,251
Gross Profit	90,465,806,052	94,808,927,204
General & Administrative Costs	-65,864,838,014	-51,430,893,503
Other Operating Incom (net)	0	0
Operating Profit	24,600,968,038	43,378,033,701
Financial Costs	-25,152,966,416	-22,667,072,830
Other non-operating income	2,232,270,848	2,657,605,624
Profit from selling asset	12,728,925,549	0
	-10,191,770,019	-20,009,467,206
Profit Before Tax	14,409,198,019	23,368,566,495
Tax on Income	-202,648,029	-329,103,558
Net profit	**14,206,549,990**	**23,039,462,937**
Accumulated Profit/Loss Account Turnover		
Net profit	14,206,549,990	23,039,462,937
Accumulated Profit in the beginning	211,638,257,714	194,518,908,748
Annual Modifications	-4,984,934,645	-7,321,217,405
Accumulated Profit in the beginning-modified	206,653,323,069	187,197,691,343
Profit Distribution	220,859,873,059	210,237,154,280
Appropriation of Profit		
Legal Reserve	-710,327,500	-1,181,665,136
Dividend	-2,368,332,750	-2,402,166,075
Board Bonus	0	0
	-3,078,660,250	-3,583,831,211
Accumulated Profit in the Final Period	**217,781,212,809**	**206,653,323,069**

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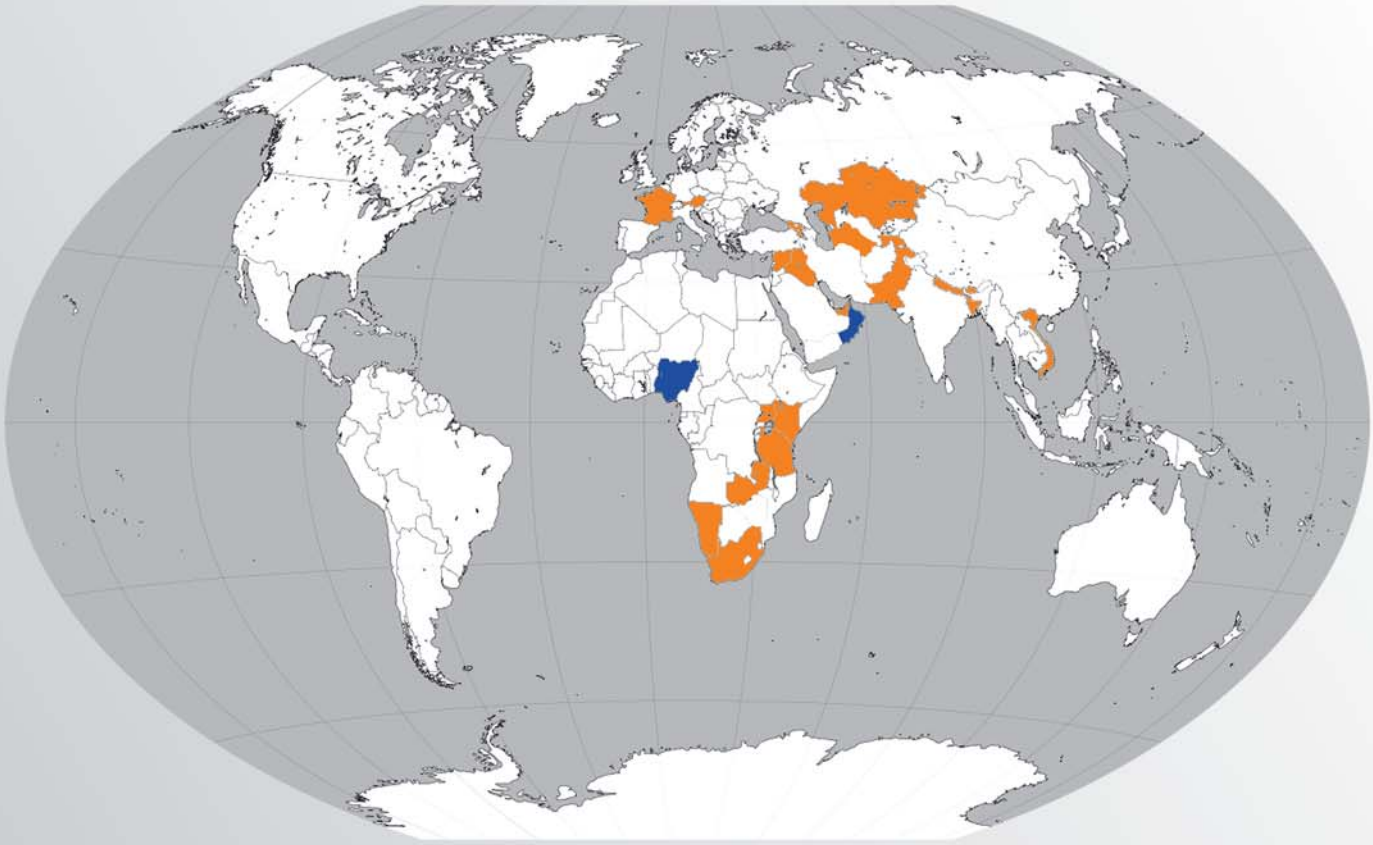
2013
Annaul
Report

2012
Annaul
Report

2011
Annaul
Report

2010
Annaul
Report

2009
Annaul
Report



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

Monenco Iran Consulting Engineers

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Designed by: Fariba Rajabpour