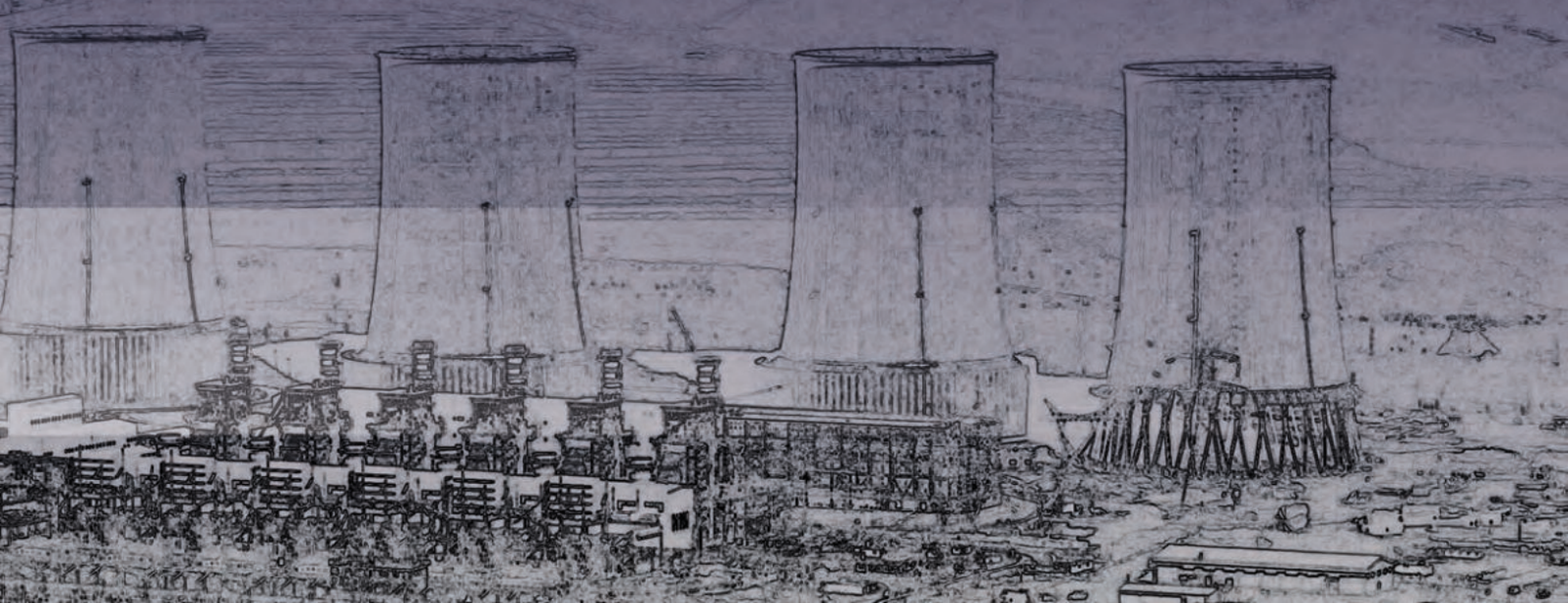
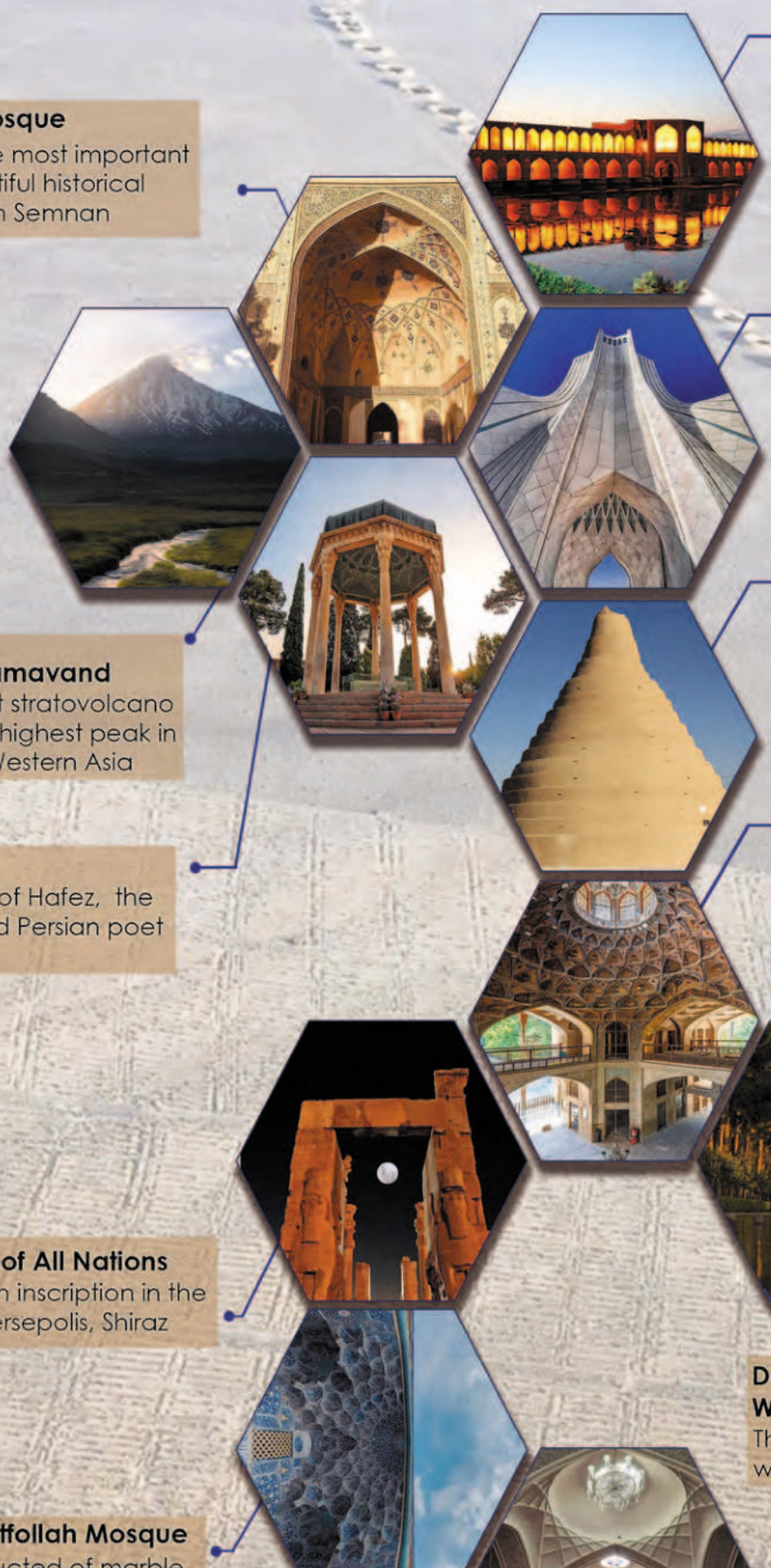
Monenco Iran

2023 Annual Report





Khaju Bridge
One of the historical bridges on the Zayanderud, Serving as both a bridge and a weir.

Sultan Mosque
One of the most important and beautiful historical buildings in Semnan

Azadi Tower
An iconic symbol of rich history of Iran and architectural grandeur

Abarkooh Ice House
The clay conical glacier building with a round and circular plan

Mount Damavand
A dormant stratovolcano and is the highest peak in Iran and Western Asia

Hasht Behesht Palace
The 17th-century pavilion in Isfahan

Hāfezieh
The Tomb of Hafez, the celebrated Persian poet Hafez

The Gate of All Nations
It is from an inscription in the gate, in Persepolis, Shiraz

Dowlatabad Garden Windcatcher
The tallest adobe-made windcatcher in the world

Sheikh Lotfollah Mosque
It is constructed of marble, while the haft-rangi tiles decorate the upper parts of the structure.

Shahid Motahhari Mosque
The distinctive landmark of Tehran with its eight minarets

The Qanats of Ghasabeh, also called Kariz e Kay Khosrow, is one of the world's oldest and largest networks of qanats (underground aqueducts). Built between 700 and 500 BCE by the Achaemenid Empire in what is now Gonabad, Razavi Khorasan Province, Iran, the complex contains 427 water wells with a total length of 33,113 metres.

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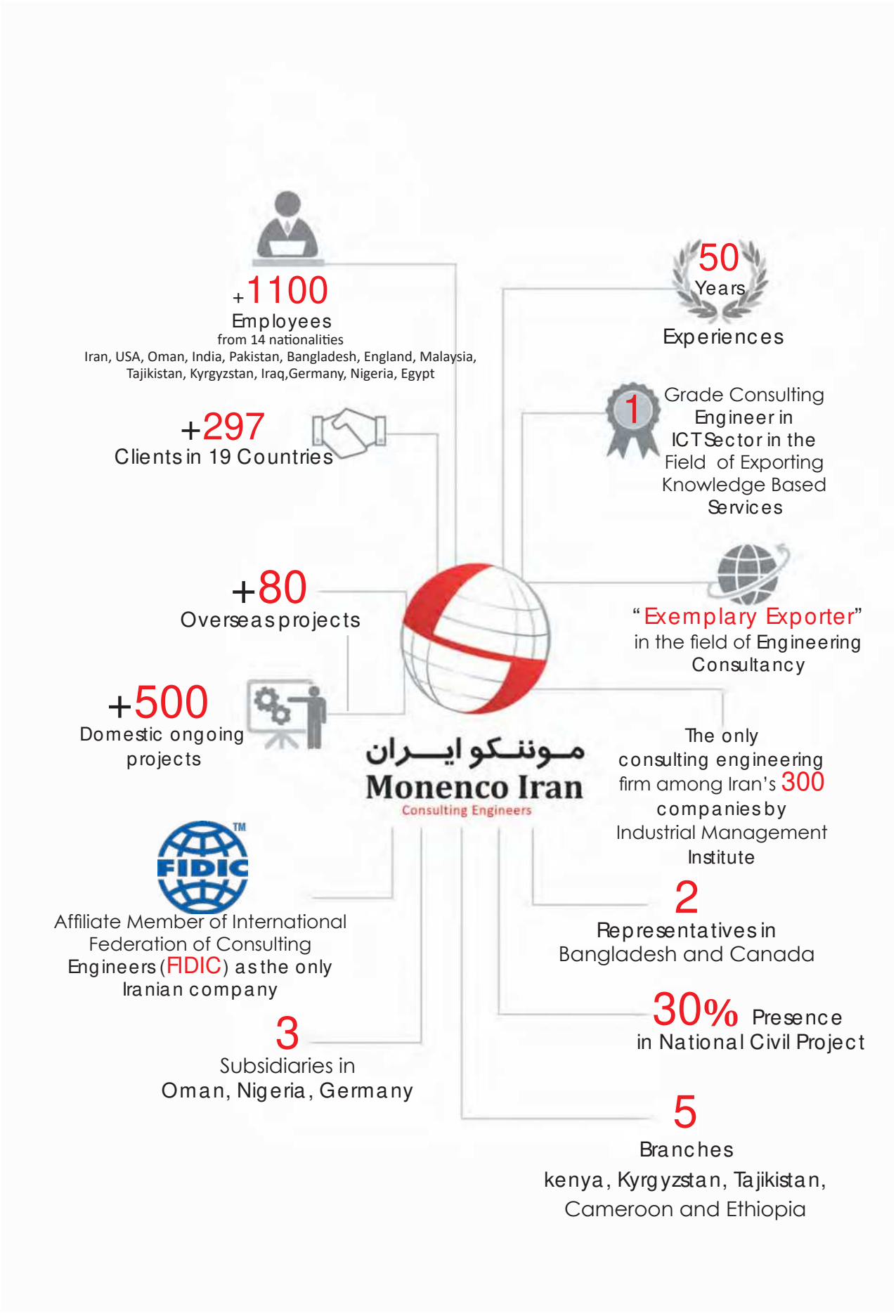
MONENCO


+1100
Employees
from 14 nationalities
Iran, USA, Oman, India, Pakistan, Bangladesh, England, Malaysia, Tajikistan, Kyrgyzstan, Iraq,Germany, Nigeria, Egypt
+297
Clients in 19 Countries
+80
Overseas projects
+500
Domestic ongoing projects
Affiliate Member of International Federation of Consulting Engineers (FIDIC) as the only Iranian company
3
Subsidiaries in Oman, Nigeria, Germany
مـوننـکو ایـــران
Monenco Iran
Consulting Engineers
50
Years
Experiences
1
Grade Consulting Engineer in ICT Sector in the Field of Exporting Knowledge Based Services
"Exemplary Exporter" in the field of Engineering Consultancy
The only consulting engineering firm among Iran's 300 companies by Industrial Management Institute
2
Representatives in Bangladesh and Canada
30% Presence in National Civil Project
5
Branches
kenya, Kyrgyzstan, Tajikistan, Cameroon and Ethiopia

Monenco Global Networking and Project Foot Prints

Monenco Subsidiaries, branches and Representatives Internationally

Monenco International Presence

Business Areas

Power Transmission Lines & Distribution Networks

Oil, Gas and Petrochemical

ICT

High Voltage Substations

Water and Wastewater

Management Consultancy

Smart Solutions

Traffic & Transportation

SCADA & Dispatching Centers

System and Energy Studies

Airports

Metro and Railways

Power Generation

Mining and Metal industries

Civil Engineering & Urbanism

Faramarz Ghelichi
Ghelichi.Faramarz@monencogroup.com

Obtained his B.Sc. in Electrical Engineering from Ferdowsi University and DBA from University of Tehran, Faculty of Management. 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 in 2012 was appointed as Managing Director of Monenco Consulting Engineers (MCE) in Oman. In 2015, he was appointed as the Transmission and Distribution Director. In 2023, he was appointed as the Managing Director of Monenco Iran.

Year of 2023,

As we conclude another year of remarkable progress and resilience, I am pleased to present the 2023 Annual Report for Monenco. This year has been marked by significant achievements and continued growth, reinforcing our position as a leading international consulting engineer and provider of comprehensive engineering services across various infrastructure industries.

Monenco has always been at the forefront of innovation and excellence, and 2023 was no exception. Our expertise spans a wide range of sectors, including Power Generation, Renewable Energy, Power Transmission Lines, Power Substations, Railways, Metro Systems, Oil and Gas, Petrochemicals and Refineries, Mining, Water, Energy Studies, Information Technology, , Intelligentization, and Energy Efficiency, etc.

Our ability to deliver integrated and sustainable solutions in these areas is a testament to our dedication and proficiency.

In the year 2023, we achieved several milestones that underscore our commitment to innovation and sustainability:

Sustainable Development

Commitment to sustainable development is at the heart of our initiatives. We have integrated sustainable practices across all our projects, ensuring that our solutions contribute to the long-term health and stability of the environments and

communities we serve. Our efforts in renewable energy projects and eco-friendly engineering solutions have significantly advanced our sustainability goals.

Energy Efficiency

With the aim of improving energy efficiency and reducing carbon emissions across all our projects, initiatives were prioritized by implementing advanced energy management systems and sustainable practices, we are playing a crucial role in mitigating the impact of climate change and promoting a greener future.

Digital Transformation and Technological Advancement

We continued to leverage cutting-edge technologies such as Augmented Reality (AR), Mixed Reality (MR), Virtual Reality (VR), and artificial intelligence (AI) to enhance our service delivery. These technologies have been not only improved our operational efficiency but also enriched our clients' experiences by providing innovative solutions to complex challenges.

Smart Cities

Our initiatives in smart city development and sustainable infrastructure have gained significant traction. By integrating intelligent systems and sustainable practices, we are contributing to the creation of resilient and future-ready urban environments.

Smart Grid & Electric Vehicles

We have made significant progress in the development and implementation of smart grid technologies and electric vehicle (EV) infrastructure. By integrating smart grid solutions, we are enhancing the efficiency and reliability of power distribution. Our work in EV infrastructure is contributing to the global shift towards sustainable transportation.

Strategic Growth and Global Expansion

In line with our strategic plan, we have expanded our global footprint and forged new partnerships that enhance our ability to deliver high-quality engineering services worldwide. Our focus remains on sustainable growth and fostering international collaboration to address global infrastructure needs.

Core Values and Corporate Responsibility

Our core values of pro-business ethics, social responsibility, teamwork, knowledge sharing, and environmental stewardship have been the bedrock of our success. We are committed to upholding these values as we navigate the complexities of the modern world, ensuring that our operations are aligned with the highest standards of integrity and sustainability.

Human Capital and Team Excellence

Our talented specialists, dedicated senior managers, and motivated human resources have been instrumental in driving our success. Their expertise, dedication, and collaborative spirit have created a positive organizational atmosphere, resulting in high levels of stakeholder and client satisfaction.

Looking ahead, we are excited about the opportunities that lie before us. As we prepare to launch the next phase of our strategic plan, we remain focused on delivering innovative and sustainable solutions that meet the evolving needs of our clients and contribute to the betterment of society.

I extend my deepest gratitude to our employees, partners, stakeholders, and clients for their unwavering support and trust in Monenco. Together, we will continue to reach new heights and make a meaningful impact in the infrastructure industry.

Thank you for being part of our journey.

Faramarz Ghelichi

Top Management

Farrokh Amini

Amini.Farrokh@monencogroup.com

Obtained his B.Sc. in electrical engineering from Isfahan University of Technology at 1988 and M.Sc. in electrical engineering from Amirkabir University of Technology at 1991. From 1991 till 2018, he worked in different companies, which are Ahwaz Steel Complex as Senior Design Engineer, Matn company as Energy Department Director, Niroo Research Institute in different positions including Manager of Energy and Load Management Department, Director of Energy and Environment Research Center and Vice president for Research, Gharbniroo Consulting Engineers Company as Managing Director, Ghodsniroo Engineering Company as Managing Director, Shasta Energy Holding as Manager of Photovoltaic and Wind power plants, Peymabargh Contractor Company as Managing Director. From 2018, he joined Monenco Iran as Director of Metro and Railway Department and from October 2023 appointed as Director of Infrastructure Division.

Hojat Dezfuli

Dezfuli.Hojat@monencogroup.com

Obtained his B.Sc. in Electrical Engineering in 2004 from Mashhad Ferdowsi University. After acquiring experience by supervising on electrical installations in other firms, he joined Monenco Iran in 2007. Since then, he has been assigned for several positions in Monenco Iran as following:

- Project manager of design and supervision of high voltage substation projects from 63 kV up to 400 kV
- Project manager of design and supervision of communication infrastructural projects.
- Manager of Esfahan subsidiary of Monenco Iran.
- high voltage substation department Manager.
- Director of Planning and System Deputy (current role)

Furthermore, he is in charge of secretary of “study committee B3- Cigre Iran” as an individual member of Cigre France from 2018.

Mohammad Kazemi

Kazemi.Mohammad@monencogroup.com

Obtained his B.Ed. degree in Management and Educational Planning from Payame Noor University of Gilan, Iran in 1997. He then earned Master of Educational Management from Tehran University in 2007. Subsequently, he studied his PhD of Educational Management in Islamic Azad University Science and Research Branch, in 2016. From 1993 to 1999, he worked as the Deputy CEO at the Namakdar Wood Industries. Then from 2004 to 2009, he worked as a consultant and instructor at the Advanced Assessment Center. In 2004, he joined Bahman Motor as a training specialist. Concurrently, in 2006 he joined the Training and Human Resources Development team of the Mapna Group, and worked as the manager of this department until 2016. From 2017 to 2021, he worked as a consultant to the CEO and as the Senior Manager of Human Resources and Support at the Alborz Turbine Engineering and Support Company of Mapna. He then joined the Pasargad Energy Development Holding as the Human Capital Manager from 2021 to 2022. In 2022, he joined Monenco as the Human Resources Director.

Siamak Khalaj

Khalaj.Siamak@monencogroup.com

Obtained his B.Sc. in Electrical Engineering in 1997 from Iran University of Science and Technology and MBA from University of Tehran, Faculty of Management. Since then he joined Monenco and has been working for the company for 21 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 ICT and Dispatching Director in Monenco Iran.

Pouneh Dadgar

Dadgar.Pouneh@monencogroup.com

Obtained her B.Sc. from Sharif University of Tenchnology in Fluid Mechanics Engineering. She Joined Monenco Iran immediately after her graduation in 1997. Since then she has been experiencing a variety of professional position. She worked as a BoP designer for 4 years in Monenco. Then she worked in Nargan Consulting Engineers as fixed equipment designer for one year. After that she came back to Monenco and worked as plant layout and piping designer for 4 years. She joined Power Generation Division as Mapna Standard Combined Cycle Power Plant project manager for 3 years. For 4 years she was power plant consultant in different types of projects. From 2016 she was prompted as “head of 3D Integrated and Plan and Proposal Discipline”. Finally, in May 2020 she has been appointed as the Director of Power Generation Division.

Nazila Majidi

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Obtained both her B.Sc. and M.Sc. from Amirkabir University of Technology (Tehran Polytechnic) in Polymer Engineering. She joined Monenco Iran immediately after her graduation in 2003. Since then she has been experiencing a variety of professional positions. After spending the first two years as a process engineer, she joined the Power Generation Division of the company and worked there for 12 years as the project engineer and project manager. Acquiring both technical and managerial background, she eventually came back to Engineering Division as the manager of Process and Environmental Engineering Department and since Sep 2019 she has been appointed as the Director of Engineering Division.

Top Management

Ali Talkhabi

Talkhabi.Ali@monencogroup.com

Obtained his B.Sc in Mechanical Engineering from Shahid Beheshti University in 1999. He started his professional activities by joining Azarab industries Company for 8 years, held different positions, which latest was Project Manager for Tehran Refinery Project, then started working in Doris Engineering LTDA Company as Technical expert in south pars gas field development Phases 6, 7 & 8 for 1 year. He joined Monenco in 2009 as Mechanical Manager and in 2019 was appointed as the deputy to Oil & Gas director. Finally, in 2020 he was appointed as the Oil & Gas Director.

Mahdi Abhari

Abhari.Mahdi@monencogroup.com

Obtained his B.Sc. degree in Electronic Engineering from Azad University of Arak, Iran. He then earned Master of Business Administration from Université Côte d'Azur in France. Subsequently, he completed his Doctorate of Business Administration in strategy, also from Université Côte d'Azur, in 2013. After 7 years in management roles for power transmission construction projects in Iran, Senegal, and Bangladesh, he joined the MAPNA Group's Marketing and Sales team, where he worked for over 11 years. In this capacity for MAPNA Group's target markets in the Middle East, Africa, and Asia, he collaborated with key functions within the company's strategic planning to provide advice to decision-makers regarding market entry and to conduct related negotiations with project stakeholders. He has accumulated a wealth of experience in marketing and sales, utilizing tools and systems in the power generation and transmission sectors to increase the company's revenue through best practices and data analyses as a Marketing Manager. In 2022, he joined Monenco, and in 2023 he was appointed as the Business Development Director for Monenco Iran.

Rahim Zeinali

Zeinali.Rahim@monencogroup.com

Obtained his B.Sc. in Electrical Engineering from Tehran South University in 2005 and his M.Sc. in Electrical Engineering (Power Systems) from Sharif University of Technology in 2008. 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.

Mehdi Haji Javad

Javad.Mehdi@monencogroup.com

Obtained his B.Sc. in 1972 from Faculty of Chemical Engineering of Karlsruhe University of Germany, his M.Sc. in 1975 & his PhD in 1978. From 1978 to 1990 Dr. Haji Javad worked as project manager at Fichtner Consulting Engineers in Germany. In 1990 he joined AF-Consult Switzerland. From 1995 to 2012 he was Head of the Thermal Energy Plants Department. During 2012-2013 he was as Vice President of AF Thermal Energy Department. He is recognized by the Chamber of Industry and Commerce in Stuttgart, Germany, as a Sworn Expert for flue gas cleaning of firing systems and production plants. In 2016 he was appointed to be the Managing Director of Monenco Germany in Stuttgart.

Saeed Tamadon

Tamadon.Saeed@monencogroup.com

Obtained Obtained his B.Sc. in Electrical Engineering in 2003 from Power & Water University of Technology-Tehran. From 2006 he joined Monenco Iran as Electrical Designer in Gas Power Plants Section. Then in 2008 he was appointed as head of Electrical & Mechanical Installation Section in Gas Power Plants as well as Transmission and Distribution Substations Department up to March 2012. In April 2012 he joined Monenco Oman and for 9 years he worked in different positions started from Sr. Electrical Engineer at 750MVA Power Plants then Site Manager in 33/11kV Primary Substations, Project Manager on 132/33 kV Grid Stations and finally 400/132/33 Grid Stations and associated OHLs as Senior Project Manager from design stage up to energization phase in various locations of Country till August 2021. In September 2021, he was appointed as the Managing Director of Monenco Consulting Engineers LLC (MCE) in Sultanate of Oman.

Hassan Shahabadi

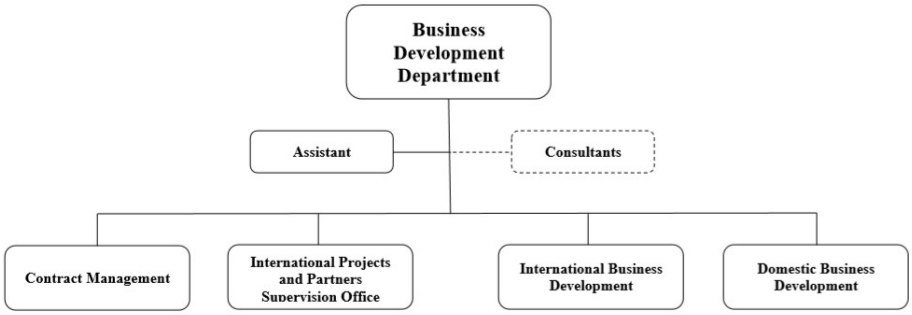
Shahabadi.Hassan@monencogroup.com

Obtained his B.Sc. in Industrial Economics in 2004 from University of Tehran and MS degree of Energy Economics and Marketing in 2006 from University of Shahid Beheshti. He worked in Ministry of Economics and Finance Affairs as Financial & Economical Expert. Since 2009 he joined Monenco Iran and has been working for the company for 15 years. His first position was Domestic Business Development's Manager and later in 2015 he got into position of Financial Manager. In 2023 he was appointed as the Managing Director of MIR.

Introduction

In the competitive landscape of consultancy services, Monenco Iran's strong commitment to expanding its knowledge base has propelled the exploration of innovative methods to enhance customer satisfaction and deliver superior value efficiently, distinguishing us from our competitors. To further strengthen our positioning as a leading consulting engineering company and to strategically expand our international presence, the Business Development Department was established in 2022. This strategic move was aimed at aligning with new corporate strategies, focusing on the growth and diversification of our services on a global scale.

Figure 1- Business Development Department's Organizational Chart



Global Expertise in Diverse Engineering Domains

The Business Development Department has significantly enhanced the engineering supervision and consultancy services across a broad spectrum of fields at Monenco Iran. We are now actively involved in sectors such as Electricity, Oil and Gas, and Petrochemicals; Metro and Railways; Airports; ICT, including SCADA Systems and Dispatching; Water and Wastewater Management; Traffic and Transportation; Smart Solutions; Civil Engineering and Urbanism; Power Grid Stations; Mining and Metal Industries; Architecture; and Management Consultancy. These initiatives leverage our international experience, propelling our commitment to deliver comprehensive and innovative solutions that meet global standards and client expectations.

Consultancy Services Portfolio

At Monenco Iran, we pride ourselves on a diverse and comprehensive portfolio of consultancy services that cater to a wide range of industries. Our services are designed to meet the highest standards of technical excellence, ensuring sustainable and effective solutions for our clients.

Our services include:

- Feasibility Studies (technical, economic, environmental, and social)
- Conceptual, Basic & Detailed Design Conceptual, Basic & Detailed Design
- Overall & Interface Engineering
- Design Review and Endorsement
- Tender & Material Requisition Preparation & Bid Evaluation
- Management of Execution and Implementation of the Projects/Plans
- Construction, Operation, and Maintenance Supervision
- Factory & Site Test Supervision
- Retrofitting, Rehabilitation & Repowering Investigations
- Energy Systems & Integrated Networks Studies
- Master Plans Development
- Providing Technical Standards and Guidelines Definition
- Engineering Processes Control and Optimization
- Technical Training and Knowledge Transfer
- Investment Consultancy Services

Business Development Strategy

Monenco Iran's Business Development Department is dedicated to shaping the future of engineering consultancy through strategic growth and innovation. Our strategy is built on a foundation of meticulously reviewing our objectives and aligning our actions with the evolving needs of the industries we serve. We aim to strategically expand our service offerings and strengthen our market presence, both domestically and internationally.

To achieve this, we prioritize:

- Market Development: We explore new markets and deepen our penetration in existing ones by tailoring our services to meet specific local and international needs. Our strategic focus extends to sectors such as electricity, oil and gas, transportation, and urban development, ensuring we remain at the forefront of industry demands.
- Service Diversification: We continuously expand our expertise in emerging technologies and sectors, including smart solutions and environmental sustainability. By adapting to and incorporating the latest technological advancements, we enhance our service portfolio to include comprehensive, cutting-edge solutions.
- Brand Enhancement: Through concerted efforts in marketing and customer engagement, we enhance Monenco Iran's brand visibility and reputation. Our goal is to be recognized as a leader in innovative engineering solutions, renowned for our commitment to quality and sustainability.
- Strategic Partnerships and Alliances: We form strategic partnerships and alliances with local and international firms to extend our reach and capabilities. These collaborations allow us to offer more comprehensive services and gain a competitive edge in the global market.
- Continuous Improvement and Innovation: We foster a culture of continuous improvement and innovation within our team. By encouraging the adoption of best practices and promoting a culture of learning and adaptation, we ensure that our team is equipped to handle complex challenges and deliver exceptional value to our clients.

Through these strategic initiatives, Monenco Iran's Business Development Department not only drives growth but also reinforces our commitment to excellence, ethical practices, and social responsibilities.

Global Reach and Local Impact

Monenco Iran's strategic operations span both domestic and international markets, allowing us to deliver specialized engineering consultancy services tailored to the unique needs of each region. By maintaining a strong local presence within Iran and extending our expertise globally, we ensure that our services are both culturally aligned and internationally competitive. In 2023, we have successfully entered numerous local and international bids and tenders across various areas of expertise, which we will detail in the sections on Domestic Projects and International Services. This highlights our proactive approach in leveraging our extensive knowledge and capabilities to secure significant projects and expand our market footprint.

Domestic Projects: Driving Development Within Iran

In our pursuit of enhancing national infrastructure and contributing to the economic development of Iran, Monenco Iran has shown a robust presence in the domestic market. Through strategic bidding and a deep understanding of local industry requirements, we have actively participated in local tenders, reflecting our commitment to growth and excellence within our home country.

In 2023, we engaged in a total of 139 local tenders, successfully securing 24 of these. This success rate not only highlights our competitive edge but also our capability to meet the complex needs of various sectors across the country. Additionally, our expertise and reliability have been further recognized through 22 prequalification, which position us favorably for future opportunities and underline our standing as a trusted partner in the nation's development.

This proactive approach in local markets showcases Monenco Iran's dedication to leveraging our extensive expertise to drive significant projects that contribute to the development and modernization of Iran's infrastructure and industrial capabilities.

Figure 2- Monenco Iran's Local Clients

International Services: Expanding Our Horizons

Focusing on Monenco Iran's expansion beyond Iranian borders, this section outlines the regions where we operate and the types of projects we handle internationally. Our strategic approach includes participation in 44 EOIs (Expressions of Interest), 18 tenders, and three RFQs (Request for Quotations). These efforts highlight our active engagement and competitive stance in the global market.

In 2023, we achieved notable success in Ethiopia, securing two significant projects. The project, "Construction Supervision of Distribution Network Strengthening for Improved Reliability of Power Supply in Addis Ababa," was awarded through a tender process. This project, cliented by the Ethiopian Electric Utility (EEU), aims to enhance the power distribution infrastructure to ensure more reliable electricity supply in the capital. The other project, which was also cliented by EEU, is titled "Distribution System Expansion and Improvement Master Plan Study". Both projects are crucial for Ethiopia's infrastructure development and are funded by the World Bank.

Figure 3- Notification of award for the" Distribution System Expansion and Improvement Master Plan Study" and the "Construction Supervision of Distribution Network Strengthening for Improved Reliability of Power Supply in Addis Ababa" Projects in Ethiopia

Distribution System Expansion and Improvement Master Plan Study Project

A power distribution network master plan is essential for Ethiopia Electricity Utility (EEU) to achieve its electrification access plan, which aims to provide reliable and affordable electricity to all Ethiopian citizens. The Ethiopian Electric Power (EEP) has a power system master plan that includes generation up to substation facilities, while the Power Distribution Master Plan project is concerned about power distribution network. The coordination between EEP and EEU is essential to ensure that the universal electrification access plan is effectively implemented with a coordinated generation, transmission, and distribution expansion to ensure that all proposed capital investments are not ad hoc and are instead part of a long-term structured plan.

The main goal of the power distribution master plan will cover the next 25 years and will include the following aspects:

- Improve, upgrade and extend the power distribution systems in the country
- Prepares distribution short and long-term improvement plan in line with the Distribution Master Plan Program
- Use the least cost analysis to compare different options for developing the distribution systems - Identify and implement the technologies that will support, modernize and expand the distribution system for short- to long-term
- Assess the existing distribution network, dispatching operation, monitoring, controlling practices, system tools, requirements, ongoing projects (e.g., SCADA, AMI), and other ICT infrastructures
- Study the digitalization of distribution networks.

Construction Supervision of Distribution Network Strengthening for Improved Reliability of Power Supply in Addis Ababa Project

Ethiopia's plan to achieve universal access to energy by 2025 through a combination of grid and off-grid electrification programs (65 percent through grid, and 35 percent through off-grid) by public and private efforts, leveraging technical and analytical inputs recently made available. For this purpose, the Government of the Federal Democratic Republic of Ethiopia has applied for financing from the World Bank in the form of a loan towards the cost of Access to Distributed Electricity and Lighting in Ethiopia (ADELE).

ADELE has five project components. Component 1 of ADELE will improve the reliability of supply in Addis Ababa and 10 other regional capitals and key zonal towns, where deficiencies in availability, quality, and reliability of supply remain a challenge.

This project is designed as one package and allocated into two lots:

I. Lot 1 Distribution Network Strengthening Project in South and East Addis Ababa City

II. Lot 2 Distribution Network Strengthening Project in North and West Addis Ababa City

The network strengthening will include infrastructure investments in EEU's jurisdiction, including MV and low-voltage (LV) equipment. Activities under this contract will focus on rehabilitation and expansion of more than 674 km of Overhead and Underground 15kv MV lines in Addis Ababa. It will also cover installing 2000 new distribution transformers and rehabilitating 2000 existing distribution transformers.

Additionally, our commitment to extending our reach in other parts of Africa and Asia is reflected in our being shortlisted for projects in Bangladesh, Angola, Tanzania, Nigeria, and Zambia, as well as our active participation in tenders across a broader array of countries, including Oman, Mozambique, Kenya, Burundi, Congo, Lebanon, Mauritania, Namibia, South Africa, Tajikistan, and Uganda. This expansive list demonstrates our capabilities and commitment to engaging in diverse markets around the globe.

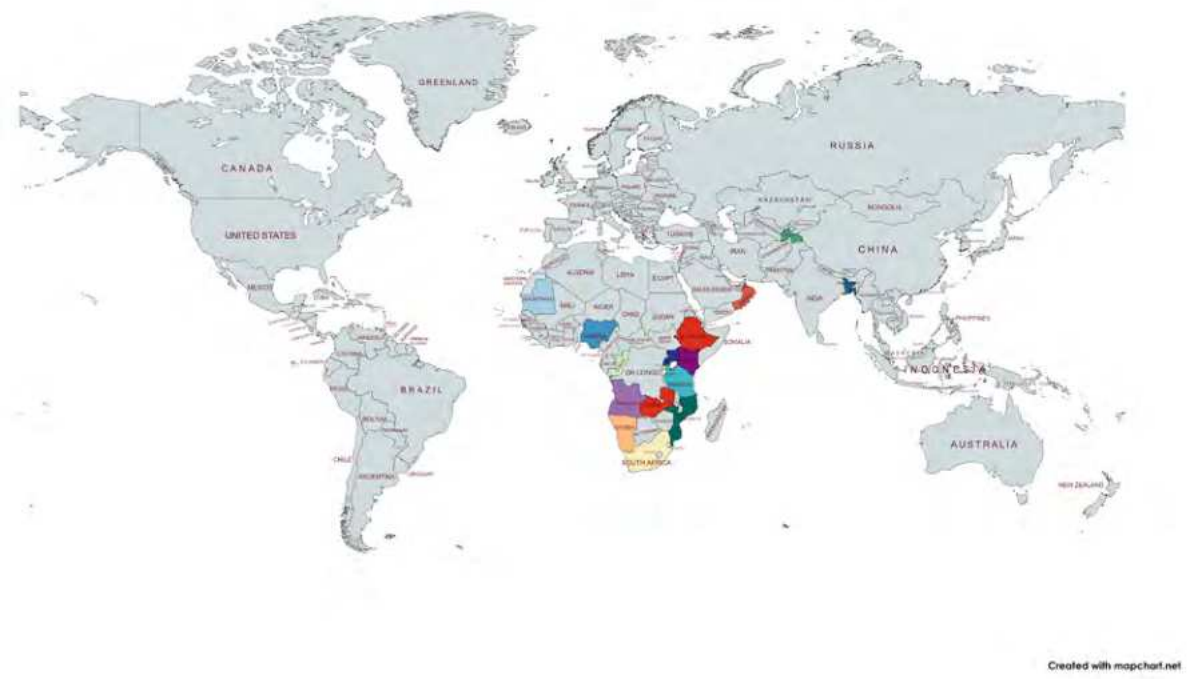
These achievements and engagements in multiple countries are part of our broader strategy to deliver engineering solutions that meet global standards and contribute to the development of local communities. Our presence in these projects demonstrates our capability to manage and execute complex international assignments, fostering local development and enhancing our reputation as a trusted global partner.

Figure 4- Monenco Iran's International Clients

Global Expansion and Strategic Partnerships

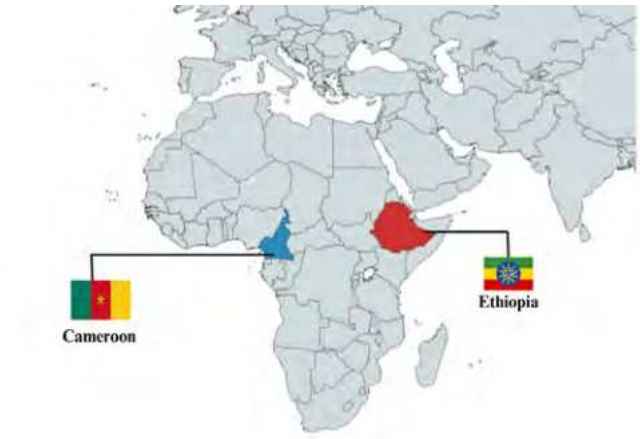
Monenco Iran has strategically expanded its global presence by establishing offices and forming partnerships worldwide. Noteworthy accomplishments include establishing a significant presence in Nigeria, Oman, Germany, Kyrgyzstan, and Kenya; forming strategic partnerships in the fields of electricity, oil and gas, ICT consultancy, technical training, and renewable energies; and registering impactful offices in CIS countries and various African nations.

Figure 5- Countries where Monenco Iran participated in bids during 2023



In 2023, we continued to build on this foundation by opening new offices in Cameroon and Ethiopia. These new establishments are part of our strategic initiative to enhance our capabilities and reach in key emerging markets, furthering our commitment to delivering global consultancy services that adhere to the highest standards of quality and efficiency.

Figure 6- Location of Monenco Iran's newly established offices



This proactive global expansion supports our goal of developing and diversifying our service portfolio and enhancing Monenco Iran's brand in domestic and international markets. Our strategic partnerships are also instrumental in this effort, enabling us to leverage local expertise and integrate it with our broad experience to offer solutions that are both innovative and sustainable.

Figure 7- Contract Signing Session of Distribution System Expansion and Improvement Master Plan Study Project in Ethiopia

Figure 8- Kick-off meeting of Supervision of Distribution Network Strengthening to Improve Reliability of Power Supply in Addis Ababa Project in Ethiopia

Commitment to Quality: Monenco Iran's ISO Certifications

Monenco Iran demonstrates its unwavering commitment to excellence and quality through various ISO Certificates. Each certification underscores Monenco Iran's dedication to maintaining high standards across its operations, ensuring that all processes are efficient. Environmentally sustainable, and safe for the employees. Theses internationally recognized standards not only enhance our credibility but also reinforce our promise to deliver superior value to our clients and stakeholders, aligning with global best practices. Below is the list of our ISO Certifications:

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 29001:2020
- ISO 10002:2018
- ISO 10004:2018
- HSE-MS (OGP)

Key Events and Exhibitions of 2023

In 2023, Monenco Iran actively engaged in various prestigious events and exhibitions, enhancing our market presence and fostering strategic relationships. Our participation in these events underscores our commitment to staying at the forefront of industry developments and networking with key stakeholders. The notable events and exhibitions we participated in include:

- The 4th Expo of Iran Smart City
- The 2nd Digital Mining Conference & Expo
- The 24th International Exhibition of Telecommunications, Information Technology and Digital Economy
- The 9th Joint Economic Commission of Iran and Qatar and related Ministry of Energy Exhibition
- The 19th Iran International Water and Wastewater Exhibition
- The 13th Renewable Energy & Energy Efficiency Exhibition
- The 23rd International Exhibition of Iran Electricity Industry
- The 26th International Oil, Gas, Refining & Petrochemical Exhibition
- Top 100 National Brands with CSR Approach 2023

The 2nd Digital Mining Conference & Expo

The 24th International Exhibition of Telecommunications, Information Technology and Digital Economy

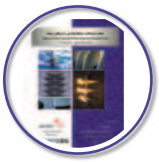
Corporate Social Responsibility

As an international consulting engineering firm, Monenco is invested in, and committed to, the social responsibility of business. We believe in the benefits of corporate social responsibility and in building sustainable communities which helps us to create long-term shareholder value. In 2019, Monenco was successfully active in pursuing CSR opportunities based on Monenco corporate social responsibility strategies as described below;

Compilation and publication of books

Collaboration with employers in the hope of using foreign financial resources such as Green Climate Fund (GCF)

Launch of Monenco Insights application includes technical reports



Preparation of technical reports and national and international articles

Cooperation with organizations and NGOs; for instance blood donation and blood pressure campaign

Submitting the idea of changing Iran to the regional energy hub (negotiation with Oman, Tajikistan and Iraq as well as study and investigate the plan of connection between AIR countries)

Submitting an insurance guarantee plan (Surety Bond) to the Ministry of Economic Affairs and the Planning and Budget Organization

Presenting the national idea of the hidden economy plan to the Ministry of Economic Affairs and Finance

Protection and cooperation with charities

Awarding scholarships to top students of University of Tehran

Awarding scholarships to top students of Sharif University of Technology

Focus on research and development

Responsible of all Cigre Iran activities

Focus on renewable energy sources projects

Recruitment

In the process of finding and hiring the best qualified candidates for available jobs in Monenco, we have focused on placing the right people to the right roles and we are investing in people who are capable of responding to the modern technologies and are revising the competency model of Monenco in order to find the most competent candidates.

In 2023, out of 1399 people applied for open positions of Monenco through our website. Accordingly, 230 interviews were conducted and among interviewees, 111 people were chosen to work at the headquarters and 149 were chosen as supervising engineers to work at worksites.

Attracting high quality applicants and high potentials is one of the most important concerns in which every employer is faced with.

Dedicating Feedback Is An Art

In this talent-scarce and competitive market having satisfied employees is a big challenge for companies. Monenco as a consulting engineering company has a tendency to hire top talents outside its organization, or emphasize on look after employees within the organization, precisely those identified as performers within its elite pool. To reach aforesaid targets preparing employees with development programs is essential.

Having survey on employees shows that feedback has vital impact on fostering their performance and learning. To be an effective manager, it is needed to be skilled at giving out both praise and criticism. Yet the practice of management requires to occasionally show employees where they need to improve. Thus, it is vital for managers to learn how and when to give feedback.

When employee feedback is shared in a meaningful and constructive manner, it's easier to motivate workers because they become more confident in certain aspects of their performance and are more committed to addressing their shortcomings. Through the power of self-awareness, you motivate your employees to do better and be better every day.

Another reason why employee feedback is so crucial, is because it helps you plot career goals and paths for your most promising performers. This not only motivates hard-working employees but also sets a long-term retention plan in place for your company or organization. With this, you can actually time your recruitment cycles and plan well in advance for changes to your team and changes in job roles and duties.

last year in Monenco consulting engineering company performance evaluation was held about five times (every 2 months) and giving feedback through the process was experienced. So, accordingly it is anticipated that professional identity is nearly to achieved.

There are various points to consider in giving feedback to employees; personality and mentality. Introvert employees are hard to accept feedback but are good learners in every moment of feedback interaction. But extrovert employees are easy to convince in desired performance with their managers and need continuous support to reach the targets.

As giving feedback is mutual relation, employees need to be active follower in receiving feedback. Remember that professional identity is made through the connection between the motivation and promise of manager to give feedback and employees who ask for feedback, in fact this is the deep learning loop.

Performance Management is a process that enables employees to perform their roles to the best of their abilities with the aim of achieving targets that are directly linked to Monenco's strategies.

In Monenco, the HR Department is in charge of deploying this model properly and providing related reports. Due to manage employee performance regularly and understand employees' strengths and weaknesses, since 2021 HR department is equipped with the performance management software. This software can help managers and employees to understand exactly the expectations, goals and attitudes. The most important goal of providing software is to simplify the HR team tasks i.e., analyzing the data to provide more constructive employee feedback and development opportunities.

Talent Management

One of the cutting edge topics in Human Resource (HR) is Talent Management. In respect of that, in 2017, Talent Management was planned in Monenco Iran . The approach was a key business strategy which is considered as an investment to promote employees' capabilities. Also, since employees are the most valuable assets in Monenco, Talent Management is considered as one of the most effective tools in the staff retention.

Strategic Talent Management in Monenco Iran

As a strategic process it was aimed to apply a model which keeps errors and bias to the minimum. Accordingly, searching through the best practices started by benchmarking international companies and the best ranked universities, and finally a 9-box (GE) Matrix was chosen because of its simplicity and measurable properties. The aim is to choose talents for a succession planning. Due to the model, following tasks have been carried out in Monenco Iran:

- Identifying key positions
- Identifying potential indicators for every single position
- Evaluating employees base on potentials and performance indicators
- Applying 9-box calibrated matrix to prioritize them in boxes (mathematical methods were applied)
- Matching the employees' scores in matrix's axis to find out employee's positions in talent pool.

To get the most effective outcome from the talent management potential indicators, they have been chosen:

- As clearly defined
- As consistent across the business
- Differentiated by function, role and level
- By updated intervals

The Outcome of Talent Management

Four boxes are critical in the Matrix, so we have deeply focused on them. As mentioned before, we assessed and situated employees in the boxes according to the assessment results, to organize a talent pool which consists of employees in number 5, 7, 8 and 9 boxes, therefore they are chosen as stars.

Phase 2 involves designing chosen talent's career and development path (formal and informal). One of the main goals of the talent management is employee's satisfaction and retention.

Based on different surveys and trouble analysis, it was found that career development is one of the main disappointing facts in most organizations. As vertical promotion is not possible to advance thoroughly for all, horizontal promotion is a perfect way to solve the problem.

Based on this theory, planning stars' development is in progress. Precise recognition about needed training and detecting deficiencies to grow is our major principle.

The benefit of the talent pool at the moment is to train suitable employees for empty positions; trainings planned by human resources department for individuals that increase efficiency and avoid wasting expenses.

All the while, highlighting the role of the Human Resources Department as a business partner. Considering the importance of reviewing the Talent Bank and evaluating the staff, this process is carried out biennially.

Training and Development

As an international consulting firm, Monenco's strategy is to be modern and up-to-date in terms of knowledge and science. Therefore, training is considered as one of the most critical functions of HR in Monenco. Due to the Covid-19 pandemic in 2019, the number of training courses held in our organization were lessened at first but eventually, online courses were programmed and elevated and back on the track. The purpose is to foresee the needs of employees and design the required courses in line with Monenco's strategies, competency model and ISO 10015.

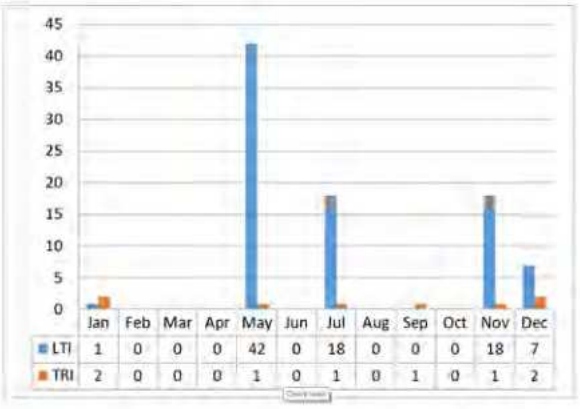
Health, Safety & Environment

In 2011, Monenco established HSE Management system and got certified according to ISO 14001:2004 and OHSAS 18001:2007 in order to maintain and enhance employees' health and safety and meet environmental requirements. According to the last edition of ISO 14001, Monenco upgraded its certificate from 2004 to 2015 edition to be in compliance with new environmental management system's requirements in 2020, Monenco Migrated from OHSAS 18001:2007 to ISO 45001:2018. HSE-MS certificate for engineering consultancy and supervision services was gained in 2015. The main achievements of HSE management system in 2023 are as follows:

- E-learning courses and exams were implemented for site supervisors and newcomer employees at office
- HSE training for supervisors and new employees (Total Man-Hours: 1722)
- Measuring environmental factors was done according to the regulations of "DOE" Department of Environment".
- Employee participation rates in occupational safety and health survey added
- Corrective and preventive actions were followed effectively
- Emergency Response Plans (ERP) were prepared.
- Monitoring employees' medical status were done.

	LTI	TRI		Vehicle Crashes
		Near Miss	Accident	
2023	86	8	1	6

Month's 2023	LTI	TRI
Jan	1	2
Feb	0	0
Mar	0	0
Apr	0	0
May	42	1
Jun	0	0
Jul	18	1
Aug	0	0
Sep	0	1
Oct	0	0
Nov	18	1
Dec	7	2
SUM	86	8



Cultural events

The 14th Monenco Book Fair

In Monenco 14th book fair which was held simultaneously with the book week of Iran in November, with the aim of preparing cultural environment and satisfying employees with conditions in which about four thousand books and intellectual games were presented, there was some differences in contrast to last ones. for-example, reading club meeting was planned and held and also book fair family day which all were very well received. further more, more than twelve thousand books were offered on website to apply by all colleagues.

Book Reading Clubs

During the year 2023, eight book reading club was held and many employees were eager to attend. The purpose of forming this club:

- Helping the growth and development of employees in their personal life and career path
- Creating a common language for dialogue and negotiation
- Creating effective communication and strengthening the bond of team work by creating friendship and companionship environment
- Strengthening soft skills such as negotiation techniques, communication and leadership
- Streamlining the culture of reading and reading
- Publication of the library's quarterly electronic magazine

HR Key Activities in 2023

Human resources, or HR for short, encompasses various critical functions contributing to the success and well-being of employees and organizations. These objectives are instrumental in shaping the HR function and guiding HR professionals in their operations. HR also strives to foster employee engagement and satisfaction. This objective encompasses creating a positive work environment, promoting effective communication, offering work-life balance initiatives and recognizing employee contributions. Proper HR drives productivity, retention, and a positive organizational culture by prioritizing employee well-being and job satisfaction. Accordingly, some important functions were held by MONENCO HR Division which could be classified in five groups:

Developmental programs, training programs, hygiene and safety programs, entertainment, leisure and welfare.

Every group consists of plenty of activities that can be counted as 32 cases. Some important points are as below;

- Measuring employee satisfaction according to HAY Group Model.
- Transparency meetings about strategies and surveys results.
- Behavioral competences evaluation
- Employees resignation analysis
- Providing virtual reading club meetings
- Upgrading training equipment such as computers
- Skills development through microlearning
- Soft skills development training courses
- Charity committee
- Reorganizing restaurant internal designing
- Insurance facilities improvement
- Monenco book fair
- Increase Travel, sport and restaurant subsidiary per employee
- Celebrating employees Birthday

Sometimes some tiny efforts are the secret sauce that can fuel your organization's success. So it is needed to consider the incredible power of your employees!

Employees are the backbone, the heart and the driving force behind every thriving organization. So how can you take good care of them? Employing the proper HR functions ensures happy, growing and productive employees.

Research and Development

The outlined vision and mission of the Monenco in promoting as a leading expert company on international scale, can be realized through hiring outstanding and elite researchers and specialists, as well as utilizing AI-based data-driven solutions and novel and intelligent frameworks and approaches in handling complex challenges and requirements in different industries.

In this regard, in the last year, the R&D department, as the Monenco's driving force, has been taken important steps in aligning different departments with the rapid grow of emerging technologies and new technical knowledge, especially artificial intelligence (AI), considering its tangible impact on different markets in recent years. Hence, initial efforts in organizing an emerging technologies/AI committee with a focus on realizing AI-based and data-driven processes on internal scale, further to identifying cutting-edge transformative technologies that align with the organization's strategies, as the technology management framework, can be referred to as the most important actions. Furthermore, different efforts in organizing internal seminars/webinars and participating in external academic conferences aim to promote knowledge at the level of employed specialists and keep them up-to-date in technological and technical aspects.

On the other hand, the R&D department focuses on continuously research, exploration and analysis, which yields specialized reports for employers, along with the Monenco's mission in developing cooperation with industry and expanding its target markets. In this context, the R&D department focuses on solving the current requirements and challenges of the industry as well as predicting their future requirements regarding employing emerging technologies that facilitate reducing investments, operation and maintenance costs, improving energy efficiency, increasing productivity, quality and agility, and reducing the harmful effects of carbon emissions.

Further, establishing multiple connections and communicating with industry and university experts, research labs, research centers and institutes, can be useful in taking advantage of their potential in consultancy supervision/advisement, as well as employing top university graduate students, which significantly contributes to the advancement and development of Monenco, considering its outlined vision and mission as a leading expert company in the consulting industry.

Information Technology

2022 and 2023 were years of renovation for Monenco's IT department. In 2022 we implemented a 100% paperless office system and in 2023 we started designing a new infrastructure and datacenter to improve our storage capacity and processing power. Using this new computing power, we are implementing new services for our employees and clients.

With this new infrastructure, we are going 100% virtual. There will not be any more physical servers in our datacenter.

Our infrastructure will be upgraded to 10Gb rather than the current 1Gb; this means faster, smoother and more reliable communication.

Furthermore, we are not just upgrading hardware, we are also training our IT staff to deal with new technologies. Our software department is training to master the latest versions of SharePoint, Power BI, .NET and Bitnami BPM. In addition, our network and infrastructure are being trained to deal with all the new equipment including the latest Cisco switches, SAN storages, WAF and firewalls.

Our goal is to ensure the highest quality along with safety and security to our respected clients and contractors and we plan to achieve that with the help of the latest technology.

Strategic Planning

The first phase of strategic planning was implemented from 2007 to 2012 with the aim of creating a transformation in the company's performance and entering in new markets.

The Second phase was from 2013 to 2021 for implementing Parent company strategies in order to align our strategies with other companies in the holding. In this period balanced score card approach was used. The Third phase was started in 2017, considering the necessity of revising and changing the internal and external environment of the organization.

The Fourth phase was started in 2021 by implementing an agile approach to assess weaknesses and strengths of last method, using benchmarks and insight of top managers and workshops. In order to determine the goals, we considered some reports such as the performance analysis reports of Monenco for the last ten years, Plan and Budget Organization of Iran, De Itek and ENR reports. Then we identified the stakeholders and their requirements and expectations, and prioritized them. In addition, by analyzing the market and competitors and PESTEL method, we identified our threats, opportunities, strengths and weaknesses. Then, we extracted strategies from the SWOT matrix and prioritized them, using the AHP method, and finally determined 7 strategies.

In 2023, the organization's strategy map was provided according to the organization's strategies, the view's points of the executive management, as well as the strategies of Mapna as the parent company.

Also, in order to clarify the basics of strategy for the body of the organization, workshops were presented for employees.

Budgeting Process

According to Monenco business lines, the main expenses of the company are related to salary and outsourcing expenses. In the budgeting process, first the total expenses of the company are forecasted based on assumptions such as annual salary increase rate, inflation rate, monthly personnel welfare expenses according to the number of employees forecast in the office and site. Then, by quantifying the goal of "increasing profit" in strategic planning, the company's total income is calculated. In 2023, according to the strategy of "developing, influencing and promoting the brand in the international market", fluctuations in the exchange rate and for improving the planning process, external, internal and foreign offices' budget were compiled separately.

Knowledge Management

We have implemented our knowledge management system and sharing instruction by establishing several knowledge domains' expert pools to validate and verify all the created knowledge. We also have reviewed the knowledge management process based on ISO 30401:2018 and all relevant instructions and forms were reviewed accordingly.

This year, we integrated the knowledge management process with strategic management, development plan, technology management and change management processes.

In 2023, in order to improve this category, the knowledge management division was established in the strategic planning department as the responsible of knowledge affairs.

By improving the knowledge management process, it is planned to create a knowledge management dashboard in the organization and create a knowledge report for employees.

This process has been done in the knowledge management and document center and we plan to connect the database to our management dashboard.

Business Process Management

At Monenco, the most focuses are on organizational processes rather than the organization as a combination of several units. All processes of the organization have been identified and formulated and classified in 12 categories based on APQC model. These categories have been divided into 67 process groups and 278 processes and activities; Also, we have prepared analysis documents and process certificates for 54 processes.

In the following, we have developed process models by BPMN2 and finally we automated 30 processes in process maker software.

System Improvements

This year, we were able to obtain a set of new projects in infrastructure deputy in order to expand EDMS to the whole organization. Furthermore, we developed our EDMS with two new modules to improve our detailed design process and the quality of our services. also, we tried to enhance the security of EDMS. Moreover, we linked our EDMS to some of our clients EDMS, so we can use these types of communications more efficiently in the future and for the clients who asked us to develop an EDMS system in their organization. we have provided the infrastructure and then installed the EDMS system for them.

Also, we developed a management dashboard based on Power BI software to present all important and efficient KPIs in a single place and empower our high-level stakeholders including CEO and executive managers to make fast and data-driven decisions based on the latest information. This dashboard supports the organization's data and KPIs in 4 dimensions including human resource, finance, projects and IT services.

Risk Management

Organizational risk management has been developed based on ISO 31000:2018 standard and all relevant instructions and forms were reviewed accordingly. In 2023, the format of the document risk management and evaluation and analyze the risks were revised. Also, we designed dashboards for organizational risk management that show the status of the organizational risks. In 2023, we tried to introduce risk management as a new business to our clients.

Digital Transformation

We developed, measured and analyze Monenco Digital Transformation Maturity (DTM) Model. According to the result of DTM measurement, we developed a roadmap to guide the organization to its digital transformation objectives by benchmarking lots of well-known companies.

In 2023, the digital transformation committee of MAPNA electricity sector was established and Monenco is cooperating with this committee.

Also, business model canvases of electricity sector for design services were prepared in this committee and the proposed projects are prioritized and are being implemented.

Project Control & Monitoring

PMO is a regulatory commission that seeks to standardize the execution of projects in order to maintain productivity.

One of the most important things the PMO does is set and keep track of standards and procedures for project management. These rules and procedures help make sure that projects are done the same way and as efficiently as possible across the whole organization specially in Monenco with wide variety of business units. The PMO also helps project managers and the rest of the project team succeed by giving them training and support.

Another important thing that the PMO does, is keep an eye on and manage projects. This includes keeping an eye on how the project is going, finding problems and figuring out how to fix them, and making sure that the projects fit in with the organization's overall strategy. The PMO also works to find and deal with project risks, making sure that potential problems are found and fixed on time.

In addition to these tasks, the PMO is also a key part of managing resources. The PMO is in charge of finding and allocating common resources of organization to make sure that all projects have what they need to succeed.

The PMO is also in charge of reporting to key stakeholders and getting information to them. This includes giving regular consolidated projects report. The PMO also makes sure that stakeholders are kept up to date on the progress of the critical and crucial projects and that any problems or concerns are dealt with quickly.

In 2023, Monenco delegated the responsibilities of day-to-day control and monitoring of each project to its busines units and sets up a PMO to enhance the quality of its project executions, to achieve better alignment of the organization's overall strategy and to obtain key stakeholder's satisfaction.

Quality Assurance

In 2007 Monenco established and implemented Quality Management System (QMS) and got certified according to the International Standard ISO 9001:2000 in order to improve the quality of its engineering services to enhance the customer satisfaction. In 2011, Monenco improved from the third edition of ISO 9001:2000 to fourth edition (ISO 9001:2008), also received ISO/TS 29001:2010 certificate for petroleum, petrochemical and natural gas projects. Furthermore, change of Certification Body BV to IMQ was accomplished in 2014. According to the last edition (ISO 9001:2015), Monenco upgraded its certificate from fourth edition (ISO 9001:2008) to fifth edition (ISO 9001:2015) to be in compliance with new standard's requirements. In 2021, Monenco improved from the third edition of ISO TS 29001:2010 to second edition (ISO 29001:2020). Moreover, Monenco managed to deploy ISO 10002:2018 and ISO 10004:2018 in 2023.

In order to add a new insight to our Integrated Management System, Monenco changed its certification body from IMQ to SGS in 2023.

The main achievements of QMS in 2023 are as follow:

- Improving procedures to control actual and potential non-confirming products and services to define and eliminate root causes,
- Improving the customer management process by monitoring the satisfaction assessment of all inside and outside organization customers,
- Implementing risk management through identifying and evaluating risks of strategies, processes and interested parties,
- Obtained the client's letter of appreciation for 23 projects,
- Achieved the highest customer satisfaction (This item was 84.81% which shows an increase of 0.65% during 2023).

Integrated Management System

Monenco's Integrated Management System (IMS) is in compliance with ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, 150/TS 27001:2013, ISO 29001:2020, ISO 10002:2018, ISO 10004:2018 standards and HSE-MS Guideline (Below Figure), that was implemented with the aim of:

- Enhancing interested parties' satisfaction,
- 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 and energy,
- Reduction of LTI, TRIR & vehicle crashes,
- Preserving privacy of all interested parties,
- Providing information confidentiality and accuracy.

In 2018, Monenco got certified according to International Standard ISO 27001:2013 and in 2023, implemented ISO 10002:2018 & ISO 10004:2018 and was audited successfully by SGS.

Development Plans

Based on IMS policy & Monenco strategies, development plans of each department are determined annually by "Monenco Enhancement Work-Group" and monitored by "Strategic Planning Office".

Each department is responsible for performing the plans and reporting the relevant progress monthly. Strategic Planning Office is responsible for controlling progress plans and defining appropriate corrective actions to achieve objectives. In 2022, 69.9% of company's development plan objectives have been met which shows an increase of 12% during this year.

Customer Satisfaction

To ensure meeting customer requirements and perform preventive and corrective actions in appropriate time and efficient manner, QM section independently communicates with customers according to Monenco's CRM method through semi-structured meetings, phone calls and customer satisfaction questionnaires.

In order to improve the process of evaluating customer satisfaction, Monenco has evaluated customer satisfaction by benefiting from EFQM methods and ISO 10004 standard which resulted a significant improvement in customer satisfaction measures as follows, NVS (68.54), CES (4.25), NPS (15.38), CSAT (4.03). Moreover, by analyzing customer value based on RFM model including three dimensions (purchase time, purchase amount, and number of purchases), Monenco has clustered customers in 11 categories and reviewed its customer relationship strategies accordingly.

Productivity Management Method

Productivity is the issue that creates competitive advantages in organizations by using resources effectively and efficiently. Productivity indexes including Labor and Capital which the total productivity have been measured for more than 5 years in Monenco. However, the more important point is productivity improvement. Monenco, therefore, designed a 4-phase Productivity Cycle Model (measurement, analysis & evaluation, planning and improvement, implementation) in 2018 to improve the effectiveness of productivity measurement. According to the mentioned model, the productivity elements, significantly contribute to the productivity results, have been analyzed using relevant tools such as goal seek and scenario for the most effective initiatives of company's productivity in practice. As per the sensitivity analysis results, an action plan for both the company and divisions has been presented in order to focus on increasing/ decreasing the productivity indexes' elements in the direction of Monenco's strategic goals.

Excellence Model

In order to provide sustainable excellence and achieve balanced results in all sectors of the organization, Monenco's performance was assessed based on EFQM excellence model and "Committed to excellence" level award was received in 2009. In 2011, Monenco has been awarded "Recognized for Excellence 2-Star" based on EFQM model (2010 version). Improvement projects based on self-assessments were planned and deployed continuously. In 2019, Monenco implemented Mapna Group Excellency Model and received a "Recognized for Excellence 3-Star" award. Comprehensive self-assessments were conducted with the aim of identifying key strengths and potential gaps in relation to Monenco's stated Vision and Mission in the following years. Also, in line with the realization of its strategic goals in 2023, Monenco participated in MAPNA Group Excellence Award and has succeeded to improve its rank by obtaining a "Recognized for Excellence 4-Star" award.

Continuous Improvement

Monenco implements different systems and methods such as Integrated Management Systems and Excellence model to make sure that processes, methods, and practices are as efficient, accurate, and effective as possible. The effectiveness of implemented models & systems and their compatibility with organization's vision and mission are managed and improved yearly based on PDCA cycle and RADAR logic.

Publications and Presence in the Conferences

We believe that sharing the new knowledge is essential to the survival of our business.
Following our commitment to publish our knowledge constantly, we published 15 accepted international and 49 national papers and researches in 2023.
Furthermore, 88 technical reports were prepared to support our actual and potential clients of the latest technologies and services.
In addition, in 2023 we held 126 internal/external seminars and training courses to improve the technical and managerial knowledge of our experts and managers.

Infrastructure Division

+28,500 km

Transmission Lines up to 765 kV, +/-500 kV HVDC & OPGW

+60,000 MVA

Substations up to 500 kV AC and +/- 500 kV HVDC Systems

+50,000 m^2

Industrial, Commercial, Control Centers, & Training Buildings

+100

Master Plan & and Loss Reduction Studies of Distribution Systems in Major Provinces and Cities

+215 km

Electrical Railway & Subway Projects

+450 Km

Railway Electrification

1

International Airport Terminal

+34 Km

Highways

+30

Subway Station

Power Transmission Lines

Power Transmission Lines Department offers consultancy, engineering and supervision services in all stages of Transmission Lines projects including overhead lines up to 765 kV, underground cables up to 400 kV, OPGW, ADSS and Detail Design with economic studies. In addition, using the latest version of software such as PLS-CADD, PLS-Tower and PLS-Pole, also latest methods such as intelligent GIS system for selecting the best routes and surveying via (LiDAR) system enable us to reach the optimum design in our projects

Power Distribution Networks

Distribution Networks Department is in charge of offering consultancy, engineering and supervision services in all field of power distribution industry including comprehensive and master plans of electrification, resilience assessment and enhancement, losses reduction, network system studies, reliability and power quality improvement, protection coordination and street lighting planning base on international standards and latest versions of software such as CYMDIST, CYMTCC, DIgSILENT, CALCULUX, DIALux, ETAP and GIS base applications.

Civil Engineering & Urbanism

This department providing basic and conceptual studies and detailed design of feasibility studies, comprehensive urban plan and special economic zones, urban planning, construction and industry based on the latest national and international regulations performs consultancy services, engineering, superior and site supervision. Civil engineering & urbanism department also serves as a specialist and engineering arm in the field of construction activities and required by other deputy groups, mainly in the field of providing engineering services related to transmission lines, high voltage substations, distribution networks, dispatching centers and telecommunication towers.

On the other hand, by providing consulting and engineering services, basic and detailed design, site and superior supervision services and consultancy in urban, industrial, office, commercial, residential projects, airport infrastructure studies, peak hour traffic studies, Landside design, including Accessibility and Terminal Passenger, Airside design including Runways, Apron and Taxiway, passive defense studies and other conventional and unconventional structures, development plans and buildings renovation using new technologies as well as providing engineering services in the field of Geo-Radar, building ergonomics For the operation of systems, building energy management in the phases of design, implementation and operation, flood risk assessment in the project site, green buildings, Seismic Retrofitting of Reinforced Concrete Buildings etc. has a significant role in the infrastructure deputy.

Power Grid Stations

Our Grid Stations Department is equipped to deal with all necessary aspects of engineering and construction supervision of HV & MV substations owned by different local and international clients such as regional electricity companies and different industries as well as asset management and PM (Preventive Maintenance) of HV substations. Substation engineering covers conceptual and basic design, techno-economic feasibility studies, environmental and social impact assessment studies, detail design of the LV and HV equipment and systems up to 500 kV, as well as control systems, auxiliary services, civil & structural design and mechanical installations; The designs are fully accomplished based on 30 design software and can also be visualized using Augmented Reality (AR) & Virtual Reality (VR) techniques. Consultancy of the projects' scope, time, cost, quality, resource and risk also falls within our area of expertise. We also deal with control systems for equipment designed for power generation plants (thermal, hydroelectric and renewable energy plants), steel and mining, refinery and petrochemical plants. Consultancy, engineering and supervision services in power distribution systems including master plans of electrification, losses reduction, reliability and power quality improvement, Power system studies, relay coordination (including protection setting calculation and relays' configuration implementation), design and engineering services for ±500 kV HVDC Systems, Design Services for AIS & GIS and Compact Hybrid Substations and Compact Multi-Floor Substations in dense urban areas, type design services for AIS & GIS Substations, consultancy for asset management, owner advisory services to project management unit according to PMBOK guidelines, contract services and claim management according to FIDIC guidelines, conducting steady state and transient state studies through certified international software, providing as-built drawing via Ground Laser Scan technology in power substations, designing Digital and Unmanned substations, and preparing standard checklists for design, construction, erection, installation, commissioning, operation and periodical maintenance of equipment, Improving engineering quality control procedures and design guidelines, conducting professional training courses, preparation of master plan for electrification, losses reduction, reliability and power quality improvement are other services delivered by this department.

Railways & Subways

By developing technical knowledge in new fields and in order to be in line with the needs By developing technical knowledge in new fields and in order to be in line with the needs of infrastructure projects in the field of Subways, Urban Railways and Subway 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 caused it to be able to render high quality consulting and engineering services in different projects in mega cities and capital of Iran. According to the above, Railways & Subways Department, based on its experiences in mechanical, electrical, civil, structure, SCADA & telecommunication fields has been involved in railway electrification projects, high way projects and long tunnels as such was capable to render consultancy services for Intelligent Traffic System (ITS) of high ways.

Major Ongoing Projects

Power Transmission Lines and Substations Projects

Consultancy services for Engineering Design, and Contract Documentation, Soil Investigation and Engineering Survey for Transmission Lines and Substations (570 km transmission line and 26 substations)

Start Date: 2019

Finish Date: 2025

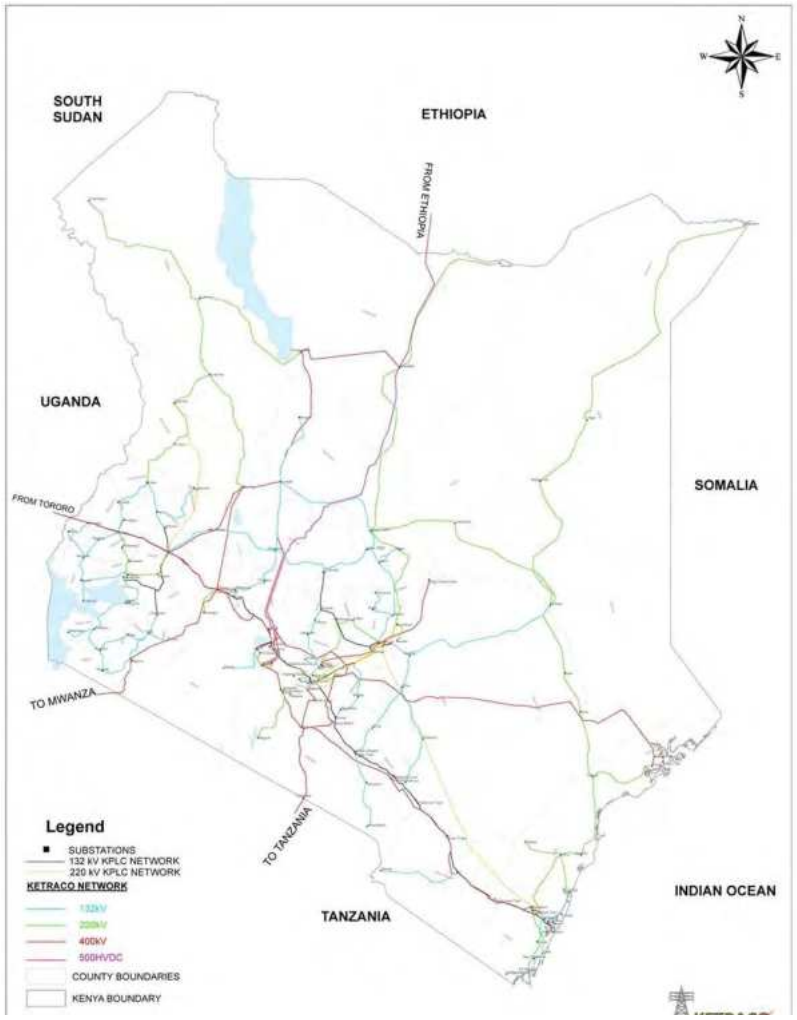
Location: Kenya

Client: Kenya Electricity Transmission Company (KETRACO)

Scope of work:

- Data collection
- Feasibility study (technical and economic)
- ESIA report
- RAP
- Route selection and surveying
- Geology study
- Basic design for civil, electrical, protection/control and communication (Preliminary design and Conceptual Design)
- Tower spotting
- Preparing tendering documents and tendering process
- Design review
- Contract Management, project progress and cost control
- Site supervision on project implementation in foundation construction, tower erection and stringing
- Witnessing factory acceptance test
- Witnessing HSE considerations
- Controlling delivery of site material, machinery and equipment to site
- Reviewing As-Built documents submitted by contractor
- Training
- Assisting client in provisional project handover
- Assisting client in permanent Project handover

Description: Kenya Electricity Transmission Company is implementing network development including 132 kV and 220 kV transmission lines and substations, in order to align the electricity sub-sector plans with the 2030 vision targets by network upgrades and expansions. The transmission projects will provide reliability, enhance security of supply to the existing demand hubs in the country; expand transmission capacity necessary to enhance electrification initiatives and reduce technical losses in areas currently served by long medium voltage. Network expansion includes 570 km 220 kV and 132 kV transmission lines associated 400/220/66 kV, 220/132 kV, 220/33 kV and 132/33 kV substations.



Consultancy & Site Supervision Services for Transmission Line Variant of Crossed CHABAHAR - ZAHEDAN Railway

Start Date: 2019

Finish Date: 2024

Location: Sistan and Baluchestan Province, Iran

Client: Hexa Consulting Engineers

Scope of work:

- Transmission line routing and surveying
- Engineering services, detail design and carrying out spotting
- To prepare technical specification for project equipment purchase
- To prepare technical specification for construction activities
- To prepare tender documents
- To conduct bidding and tendering procedures
- To evaluate technical and financial bidders, proposals and prepare contracts to be awarded to contractors
- Witnessing FAT test Workshop supervision services
- Workshop Supervision services

Description: The purpose of this project is transmission line variant which is crossed over Chabahar-Zahedan Railway (Part 1, 2, 7 & 8).

Supplementary Studies of Power Supply for Persian Gulf Mining & Metal Industrial Special Economic Zone Co

Start Date: 2019

Finish Date: 2024

Location: Hormozgan Province, Iran

Client: Persian Gulf Mining & Metal Industrial Special Economic Zone Company (PGMISEZ)

Scope of work:

- Data collection
- System studies
- Bid evaluation & cooperation with client for signing contract

Description: The main purpose of this project is to develop the light and distribution network in new area as well as updating the system studies in PGMISEZ zone. Therefore, Persian Gulf Mining & Metal Industrial Special Economic Zone Company (PGMISEZ) intended to carry out the supplementary studies for this zone

Consultancy Services for Adding FCL in the 132kV System at Muscat Governorate

Start Date: 2022

Finish Date: 2025

Location: Muscat, Oman

Client: Oman Electricity Transmission Company (OETC)

Scope of work:

Engineering services for adding Twelve Fault Current Limiter Reactors (for each phase of A'SALAM-SEEB Main and GHALA HEIGHTS-BOUSHER Double Circuits OHLs) at SEEB Main GS end and GHALA HEIGHTS GS end including:

- Data Identification and Data gathering
- Network studies
- Sizing of FCLR and preparation of its technical specification
- Preparation of tender documents and Bids evaluation
- Design review of Contractor's works
- Construction supervision

Description: The project includes engineering design, tendering services, contractor design review services and construction supervision services for Adding Fault Current Limiter (FCL) in the GHALA HEIGHTS and SEEB Main 132kV Grid Stations on double circuit GHALA HEIGHTS-BUSHEHR and A'SALAM-SEEB Main transmission lines.

The required engineering services for project accomplishment include project's data review, network studies, preliminary design, preparing tender documents to select EPC contractor, assist the client in the process of tender floating, tender evaluation and making EPC contract, contractor's design review and supervising the project execution.

During the execution of above-mentioned items, the consultant will contribute in project control and management by providing related periodical reports and deliverables.

Consultancy Services for Design and Supervision of 132/33 kV Grid Stations at MUDHAI, AL MAZYUNAH, and SHABA ASAIB along with Associated 132kV OHL's

Start Date: 2022

Finish Date: 2025

Location: Muscat, Oman

Client: Oman Electricity Transmission Company

Scope of work:

Engineering services for Design and Supervision of 132/33 kV new Grid Stations at MUDHAI, AL MAZYUNAH, and SHABA ASAIB along with associated 132kV OH Ls including:

- Preparation of Conceptual Studies and Preliminary Drawings;
- Preparation of tender documents and Bids evaluation;
- Construction Supervision of 132/33 kV Grid Stations at MUDHAI & THUMRAIT (extension) along with associated 132kV OHL from MUDHAI TO THUMRAIT;
- Construction Supervision of 132/33 kV Grid Station at AL MAZYUNAH along with associated 132kV OHL from AL MAZYUNAH to MUDHAI; and
- Construction Supervision of 132/33 kV Grid Station at SHABA ASAIB along with associated 132kV OHL from MUDHAI to SHABA ASAIB.

Description: The project includes engineering design, tendering services, contractor design review services and construction supervision services for new connection of MUDHAI, AL MAZYUNAH, and SHABA ASAIB to the OETC transmission system at 132 kV.

The required engineering services for project accomplishment include project's data review, preliminary design, preparing tender documents to select EPC Contractor, assist the Client in the process of tender floating, tender evaluation and making EPC contract, Contractor's design review, and supervising the project execution.

During the execution of above-mentioned items, the consultant will contribute in project control and management by providing related periodical reports and deliverables.

Owner's Engineer Services for Implementation of Electrical Distribution Projects for the TANWEER Transferred Assets Year 2022 to 2025

Start Date: 2012

Finish Date: 2025

Location: Sultanate of Oman

Client: Nama Dhofar Services Company (NDS)

Scope of work:

- Part-A: 33kV

Stage-1: Detailed design/engineering and Tender Documentation Preparation
Stage-2: Bid Evaluation
Stage-3: Project Management and Supervision of Implementation
Stage-4: Post Completion Activities

- Part-B: 33kV

Stage-1: Detailed survey/obtaining Initial Approvals and Tender Documentation Preparation
Stage-2: Bid Evaluation
Stage-3: Supervision of Implementation
Stage-4: Post Completion Activities

- Part-C: 33kV Load related & Non-Load Related Investments projects

Stage-1: Detailed survey/obtaining Initial Approvals and Tender Documentation Preparation
Stage-2: Bid Evaluation
Stage-3: Supervision of Implementation
Stage-4: Post Completion Activities

- Part-D: 11 kV and LT Load-Related & Non-Load Related Investments projects

Stage-1: Detailed survey/obtaining Initial Approvals and Tender Documentation Preparation
Stage-2: Bid Evaluation
Stage-3: Supervision of Implementation

- Part-E: 11 kV and LT Network Extension Works (UNE) & Asset Shifting Works (only site supervision services)

Stage-1: Supervision of Implementation

- Part-F: Private projects for HV & LV Network Extension Including Testing and commissioning of HV Indoor Switchgear (Document review & site supervision)

Stage-1: Supervision of Implementation

- Part-G: System study

Description: NAMA Dhofar Services Company serves the people of entire Dhofar governorate, covering electricity, water, and wastewater. The company aims to raise the quality of these services and make them more efficient, reliable, and accessible through investing in its infrastructures. It is expanding the service network by adopting strategies that reduce wastage, improve access, and achieve customer satisfaction. In this regard, in order to provide sustainable energy, Monenco Iran has been selected for the engineering and consulting services of this project due to its valuable experiences.

NAMA Dhofar Services Company plans the developmental need of the Distribution and Supply business of the Dhofar region and implements such of those plans approved by the Authority for Public Services Regulation, Oman (APSR).

Company now intends to avail the services of a consultant ("Owner's Engineer" or "OE") to provide certain services for implementation of 33kV Investments, Load-Related Investments in 11 kV and LT networks and Non-Load Related Investments in 11 kV and LT networks which are approved by APSR for the years 2022 to 2025 ("Works") in the Salalah Power System.

Site Supervision Services for Construction of Dedicated 132 kV Substation in LAMERD Special Economic Zone

Start Date: 2023

Finish Date: 2025

Location: Lamerd, Fars Province, Iran

Client: Iranian Mines and Mining Industries Development and Renovation Organization

Scope of work:

Services given by Monenco in this project:

- Planning, Determining the Method of Performance & Project Progression Control Services
- Engineering Services
- Command Services
- Coordination & Provisional Hand Over Performance Services
- Quality Control Services
- Evaluation the Control of Payment & Expenses, Legal Affairs of Contract Services
- Review As-Built Documents Submitted by Contractor
- Instruction on Duration Services Related to Operational and Final Take-Over

Description: With the purpose of completing the infrastructure of LAMERD Special Economic Zone, also dealing with the predicted load growth in this region, the construction of a new substation and transmission line is on the IMIDRO's plan.

Consultancy and Site Supervision Services for Construction of Power Substations & Transmission Lines at West of Karun Power Plant Project

Start Date: 2020

Finish Date: 2024

Location: West Karun oil fields, Khuzestan, Iran

Client: Petroleum Engineering & Development Co. (PEDEC)

Scope of work:

- Data collection
- Project planning and Control, legal and financial services
- Bid evaluation, assisting in selection of contractor and contracting
- Factory testing and ordering to deliver equipment
- Coordination & Provisional Hand over Performance Services
- Training employer services
- Engineering Services
- Site Supervision Services
- Instruction on Duration Services Related to Operational and Final Take-Over
- Quality Control Services

Description: The Due to the power demand in southern Iran, the Petroleum Engineering and Development Company (PEDE) decided to build an independent power plant, as well as its utilities in West Karun with a rated capacity of SOOMW by Mapna Company with method of "Build-Own-Operate". So, there is an urgent need for the construction of 400 & 230 kV substations and transmission lines in West Karun oil fields in order to transferring power to consumers in this Zone.

These Projects are:

- Construction of 100 km of 230 kV transmission line
- Construction of 50 km of 230 and 400 kV transmission lines
- Construction of 33 kV transmission line from CTEP South AZADEGAN substation to JOFIR exploitation center
- Construction of 33 kV power transmission line from SGOSP South AZAD EGAN substation to South YARAN cluster
- Contract for design, purchase and execution of 5 additional feeders for 230 kV substation of West Karun power plant
- Construction of dispatching center
- Construction of 400 kV SHAHEED BAQAEI substation
- Construction of 400/230 kV MATN substation
- Construction of 230/11 kV YADAVARAN substation
- Construction of 230/11 kV Substation in NORTH AZADEGAN
- Construction of 230/33 kV SGOSP substation
- Construction of 150 km of 230 kV transmission line -West Ka run power plant to CHESHMEH-KHOSH Purchase and installation of CCTV system for all substation
- Gas supply and water supply project to the power plant

Engineering, Supervisory and manufacturing Supervision services of 400/63 kV ESHTEHARD Substation

Start Date: 2023

Finish Date: 2026

Location: Eshtehard, Alborz Province, Iran

Client: Tehran Regional Electricity Company (TREC)

Scope of work:

- Project basic studies
- Site selection, basic design
- Complementary studies and Briefing report
- Basic estimation and work schedule
- Technical specification, and executive plans preparation including drawings and technical calculations and Final estimation
- Tender document and reports preparation in two separate formats. Tender execution and contract with contractors/ manufacturers Supervisory (Design matching and review)
- Manufacturing and test supervision

Description: Considering the increasing demand, and in order to improve the Alborz Province network parameters along with improving supply of ESHTEHARD and BOOYIN-ZAHRA regions, the construction ESHTEHARD 400/63 kV substations was placed on TREC (Tehran Regional Electricity Company) agenda.

Engineering, Supervisory and manufacturing Supervision Services of 5 Sub transmission Substations Using Contractor's Financing

Start Date: 2023

Finish Date: 2025

Location: Tehran Province, Iran

Client: Tehran Regional Electricity Company (TREC)

Scope of work:

- Project basic studies
- Site selection, basic design
- Complementary studies and Briefing report
- Basic estimation and work schedule
- Technical specification, and executive plans preparation including drawings and technical calculations and Final estimation
- Tender document and reports preparation in two separate formats. Tender execution and contract with contractors/ manufacturers
- Supervisory (Design matching and review)
- Manufacturing and test supervision

Description: Considering the increasing demand, and in order to improve the network parameters, the construction of 5 sub-transmission substations based on financing was placed on TREC (Tehran Regional Electricity Company) agenda

Consultancy Services for Procurement of Transmission Transformers of KAMAL ABAD, KARIM KHAN and Sub-Transmission Transformers by Seller Financed Method

Start Date: 2023

Finish Date: 2025

Location: Tehran Province, Iran , Iran

Client: Tehran Regional Electricity Company (TREC)

Scope of work:

- Identification and preliminary design
- Basic design and preparation of tender documents
- Assisting on tendering
- Bid evaluation and contracting with the selected supplier/manufacturer Design review
- Inspection and test

Description: Power transformers play a crucial role in power systems, reducing power losses, optimizing conductor cross section and ensuring proper voltage regulation. Creating technical specifications for procurement is essential in acquiring the appropriate equipment. Despite being viewed as equally important as the purchasing process, the creation of technical specifications is frequently overlooked in the construction of substations. TREC recognizes the need to improve its Grid performance, making the procurement of power transformers a top priority.

Consultancy services and Detail Design for the Construction of 230/20 kV Miyandaran (Hamoon)

Start Date: 2022

Finish Date: 2025

Location: Kerman Province, Iran

Client: Kerman Regional Electricity Company

Scope of work:

- Services given by Monenco in this project:
- Data Gathering and Basic design
- Basic Design of Electrical documents and Detail Design of all Civil Documents
- Tendering in order to select civil contractor
- Tendering in order to select Installation and testing contractor
- Bid evaluation, and contracting
- Design review and checking of related invoices
- Inspection, factory test and ordering to deliver equipment

Description: According to IGMC (Iran Grid Management) instruction regarding to necessity of Industrial customers in south of Kerman province to improve stability of network in Kerman Province, construction of 230kV Substation is necessary for this area. In this regard, construction of 230/20 kV Miyandaran (Hamoon) 230/20 kV substations as one of important substations in Kashan Regional Electricity Company (KREC) territory was planned.

In the other hand, Implementation of this project causes better reliability as well as supplying new industrial customer, independently.

Consultancy Services for Extension 230kV & Implementation of 63KV Substation in KASHAN Power Plant Substation

Start Date: 2024

Finish Date: 2025

Location: Isfahan, Iran

Client: Isfahan Regional Electrical Company (IRE)

Scope of work:

- Identification, Data gathering and preliminary design
- Basic Design
- Detail Design and Providing Technical Specifications and Data Sheets
- Providing Evaluation and Tender Documents
- Tendering, bid evaluation, Assisting in selection of contractor

Description: According to IGMC instruction regarding to necessity of Industrial customers in Kashan area to improve stability of network in Isfahan Province, Extension of 230 kV Substation is necessary. In this regard, Extension of 230 KV & Implementation of 63 KV substations related to Kashan power plant as more important and suitable substations in Isfahan Regional Electricity Company (IRE) territory was planned. In the other hand, Implementation of this project lead to better reliability as well as supplying new industrial customer, independently.

Consultancy & Site Supervision Services for Power Supply Projects of the DER-ALO Copper Complex

Start Date: 2018

Finish Date: 2024

Location: Kerman Province Iran

Client: National Iranian Copper Industries Co.

Scope of work:

- Feasibility studies, selection, complication
- Provide documentation and take the necessary steps to purchase power and energy demands and monitors
- Basic and detail design
- Preparation of tender documents for the selection of contractors Design review
- Supervision
- Assist client in provisional project handover

Description: The National Iranian Copper Industries Company, as the main Middle East copper company, has done the plans for construction of comprehensive electricity projects such as developing two 230 kV line feeders in BARDSIR substation, the construction of 230/20 kV substation of BARDSIR-DER-ALO, Construction of 20 kV distribution center for power supply projects in DER-ALO mine.

Consulting and Site Supervision Services for Construction of Comprehensive Electricity Projects at Copper Complex SHAHRE-BABAK and CHAH-FIROUZE

Start Date: 2018

Finish Date: 2024

Location: Kerman Province, Iran

Client: National Iranian Copper Industries Co.

Scope of work:

- Feasibility studies, Determine the options, Project Risks,
- Preparing and arranging the documents for making contracts with Regional Electrical Company to supply demands of electricity and energy at projects and carrying out the necessary actions in this regard,
- Basic and detail design
- Technical and Tender documents,
- Tendering, evaluating the Bidders and awarding contracts,
- Design review
- Witnessing factory acceptance test,
- Contract Management, project progress and cost control,
- Design review
- Supervision
- Witnessing HSE considerations,
- Controlling delivery of Site material, machinery and equipment to site, Review As-Built documents submitted by contractor,
- Assist client in provisional project handover

Description: The National Iranian Copper Industries Company, as the biggest Middle East copper company, has done the plans for construction of comprehensive electricity projects such as construction of 132/20 kV substation in MIDUK copper complex, construction of a 132/20 kV substation of CHAH-FIROUZE, Construction of 20 kV distribution center in CHAH-FIROUZE and IJOO, construction of 20 kV distribution center and communication centers of the MIDUK copper complex, construction of 132 kV switching substation at the MIDUK copper Complex.

Consultancy Services for Extension of Modular 230/63 kV Power Substation and Construction of Mobile 63/20 kV Power Station at 600-hectare Site

Start Date: 2021

Finish Date: 2024

Location: Bandar Abbas- Persian Gulf Special Economic Zone

Client: Persian Gulf Special Economic Zone Company (P.G.S.E.Z)

Scope of work:

- Identification, Data gathering and preliminary design
- Basic Design
- Providing Technical Specifications and Data Sheets
- Tendering, bid evaluation, assisting in selection of contractor and Contracting
- Design review, Inspection, Factory testing and ordering to deliver equipment

Description: The energy demands have been increased in Persian Gulf Special Economic Zone. Therefore, there is an urgent need for the construction of 230 & 63 kV power substation in this Zone. LASHKARY 230/63 kV Modular Power Substation is one of the most important substations in Persian Gulf Special Economic Zone Company territory because of reinforcing the Power Grid and supplying power to other sub-transmission substations such as Mobile 63/20 kV Power Station at 600-hectare Site.

Engineering, and Supervision Services for Manufacturing of Transmission and Sub Transmission Transformers

Start Date: 2022

Finish Date: 2025

Location: Tehran Province, Iran

Client: Tehran Regional Electricity Company (TREC)

Scope of work:

- Identification and preliminary design
- Basic design and preparation of tender documents
- Assisting on tendering
- Bid evaluation and contracting with the selected supplier/manufacturer
- Design review
- Inspection and test

Description: According to the vital role of power transformers in power systems, especially on reduction of power losses, reduction of conductor cross section and voltage regulation, preparation of technical specifications for purchasing the transformers are so important. In view of operators, the importance of issue goes as far as transformer purchasing process and investigation of related technical specifications sometimes are detached from that of construction of substation.

Consultancy Services for Procurement of Fourteen (Two Sets of Twenty) 132/33 kV Power Transformers and Fourteen (Two Sets of Twenty) 33/0.4 kV Compact Transformers

Start Date: 2023

Finish Date: 2026

Location: Khuzestan province, Iran

Client: Khuzestan Regional Electric Company (KZREC)

Scope of work:

- Identification and preliminary design
- Basic design and preparation of tender documents
- Assisting on tendering
- Bid evaluation and contracting with the selected supplier/manufacturer
- Design review
- Inspection and test

Description: According to the vital role of power transformers in power systems, especially on reduction of power losses, reduction of conductor cross section and voltage regulation, preparation of technical specifications for purchasing a transformer is so important. In view of operators, the importance of issue goes as far as transformer purchasing process and investigation of related technical specifications sometimes are detached from that of construction of substation. According to KZREC necessity to improve the performance of its Grid and need to purchase power transformers.

Consultancy Services for Construction of Extension of 400kV/132kV and 132kV FAJR Power Substations

Start Date: 2023

Finish Date: 2024

Location: Mahshahr port, Khuzestan Province, Iran

Client: Persian Gulf Fajr Energy co. (PGFEC)

Scope of work:

- Basic Design
- Providing Technical Specifications and Data Sheets
- Providing tender documents for purchasing “Power Transformers 400 and 132 kV cable & cable sealing end and joints” and “GIS equipment” for each substation
- Providing tender documents for selection of EPC contractor

Description: The energy demands have increased at Persian Gulf Fajr Energy company and there is an urgent need for construction the Extension at 400 kV substations in this area. One of the most important Power substations in PGFEC is 400/132 kV FAJR Substation because of supplying power to other petrochemical companies. Therefore, Persian Gulf Fajr Energy co. decided to construction and Extension of 1.5 breaker scheme of 400kV Switchyard for connection of FAJR power substation to 400kV Grid.

Consultancy Services for Construction Mobile 63/20 kV Power Substation at Garmsar Especial Economic Zone

Start Date: 2021

Finish Date: 2024

Location: Garmsar, Semnan Province, Iran

Client: Garmsar Especial Economic Zone Company

Scope of work:

- Identification, Data gathering and preliminary design
- Basic Design
- Providing Technical Specifications and Data Sheets
- Providing tender documents

Description: With the purpose of expedition in completing the infrastructure for operation of Garmsar Especial Economic Zone projects, supply and implementation of mobile substation in parallel with main substation is on the Client's plan.

Engineering, Supervisory and manufacturing Supervision services of 400/63 kV Kamal Abad Substation

Start Date: 2023

Finish Date: 2024

Location: Kamal Shahr, Alborz Province

Client: Tehran Regional Electricity Company (TREC)

Scope of work:

- Project basic studies
- Site selection, basic design
- Complementary studies and Briefing report.
- Basic estimation and work schedule
- Technical specification, and executive plans preparation including drawings and technical calculations and Final estimation
- Tender document and reports preparation.
- Tender execution and contract with contractors/ manufacturers
- Supervisory (Design matching and review)
- Manufacturing and test supervision

Description: Considering the increasing demand, and in order to improve the Alborz Province network parameters along with improving supply of Kamal Shahr region, the construction Kamal Abad 400/63 kV substation was placed on TREC (Tehran Regional Electricity Company) agenda.

Conducting technical-economic studies, basic design and preparation of EPC documents for the establishment of integrated electricity and dispatching system in South Pars region - Substation part

Start Date: 2023

Finish Date: 2025

Location: Asaluyeh, Bushehr, Iran

Client: South Pars Gas Complex Company (SPGC)

Scope of work:

The services requested by the employer in this project include the following:

Providing basic design engineering services and preparing tender documents for the EPC contractor within the scope of South Pars Gas Complex servicing in the following headings:

- Construction of 400 kV Naft-2 Substation
- Development of 400 kV in Existing Gale-dar Substation
- Purchase document of 400/132 kV Transformers

The scope of the aforementioned engineering and design services includes the following::

- identification and preliminary design,
- Basic design and preparation of technical specifications of the equipment,
- Preparation of equipment purchase packages,
- Payment of budget and preparation of tender documents,
- Cooperating with the employer in conducting tender procedures and qualitative, technical and financial evaluation of bidders.

Description: South Pars Gas Complex Company is one of the subsidiary companies of National Gas Company of Iran, which is responsible for the operation of multi-phase dry facilities of South Pars gas field. The South Pars Gas Complex Company previously defined a project with the title “studies for the creation of a unified electricity dispatching network in the South Pars region”. In this project, the feasibility of establishing an integrated electricity system was studied by examining the current network structure of South Pars by the selected consultant, and the result was that it is possible to establish an integrated electricity network in the region. In order to achieve one of the goals of the employer in achieving the island operation of its operational areas, it was seen the need to connect the petrochemical power network of the region with the refinery power network of the region.

The current project is defined to determine the best type of connection between these two networks from a technical and economic point of view. In these studies, the number and type of electrical substations are specified. Then, substation maps are designed for construction.

Engineering, consultancy and site supervision services for electricity master plan projects

Start Date: 2024

Finish Date: 2027

Location: Kerman Province, Iran

Client: National Iranian Copper Industries Co.

Scope of work:

- Design Review,
- Contract Management, project progress and cost control,
- Supervising the details of the project's implementation operations, including tower installation and wiring
- Witnessing HSE considerations,
- Controlling delivery of Site material, machinery and equipment to site,
- Pursuing the resolution of the defects announced during the temporary handover in the expected time

Description: The Iran's National Copper Industries Company is considered as one of the important copper mining companies in the country, which has a high demand for electricity and load growth. Hence, Considering the annual production increase in NICICO (National Iranian Copper Industries Co) the following projects were defined:

1. Renovation of protection systems and creation of automation, dispatching and electric SCADA systems of Sarcheshmeh copper complex.
2. Implementation of Medium voltage overhead power line in different areas (Sarcheshmeh complex and mine - Darrehzar - water supply projects)
3. Reconstruction and replacement of switchgears, fuse switches and RMUs of Sarcheshmeh copper complex factories.
4. Carrying out short circuit and load distribution studies, transient and stability studies for the implementation of the UFLS system, updating documents, calculation, protective relay settings and preparing protective relay test instructions for Sarcheshmeh copper complex.

The abovementioned projects are supposed to serve the clients need of continuous supply of electricity, the increase in production capacity of the factory and supply of new industrial within the Special zone.

Engineering, consulting, and Site supervision services for renewable power plant projects of National Iranian Copper Industries Company

Start Date: 2022

Finish Date: 2024

Location: Kerman Province, Iran

Client: National Iranian Copper Industries Co.

Scope of work:

- Design Identification, receiving information, justification and basic studies, preliminary design
- Mapping, preliminary design and preparation of technical specifications of equipment
- Basic design and preparation of tender documents
- Tendering and contract formalities
- Design review
- Supervision Services

Description: The National Iranian Copper Industries Company, considering the importance of providing sustainable electricity for the use of mines and factories in operation and development plans, decided to build three units of large-scale solar power plants with a capacity of 720 megawatts, and 2 units of small-scale solar power plants with a total capacity of 30 MW (5+25 MW) in the form of renewable energy projects. Therefore, in order to connect renewable power plants in Azerbaijan, Rafsanjan and Shahrbabak regions to the national electricity network, it is necessary to build Generator station (GS), develop upstream substations and build related lines. Therefore, according to the number and capacity of each of the mentioned power plants that will be built in different areas, Generator stations and communication transmission lines have been planned to connect these lines to the upstream substations and develop the upstream substations.

Engineering and supervisory services for the Construction of 400kv switching station, 400/33 kV substation and transmission line of GOHARZAMIN Iron Ore

Start Date: 2023

Finish Date: 2025

Location: BARDSIR, Kerman, Iran

Client: GOHARZAMIN Iron Ore Company

Scope of work:

Services given by MONENCO in this project:

- Data Gathering and Basic design
- Basic Design of Electrical documents and preparing of technical data
- Preparing of purchasing document for equipment's
- Tendering in order to select procurement, Installation, testing and civil contractor
- Bid evaluation, and contracting
- Design review, Inspection, factory test and ordering to deliver equipment
- Supervisory and supervision

Description: Today, iron and steel are used in large parts of the construction and infrastructure industry all over the world due to their high resistance and recycling several times without changing their characteristics. Therefore, investing in the construction of steel and iron factories can significantly contribute to the economic development of countries. So, due to the existence of iron ore mines in the Kerman region, GOHARZAMIN Iron Ore Company has invested in the production of iron and steel in the town of Bardsir, one of the cities of Kerman province. In this regard, and because of the expertise and technical experience of Monenco Iran, the project of engineering and supervisory services of construction of 400kv switching station, 400/33 kV substation and transmission line of GOHARZAMIN Iron Ore has awarded to this company, which can promote brand and valuable experience for Monenco company in the national and international levels.

ENGINEERING SERVICES AND DESIGN OF AFTAB SHARGH 600MW PV POWER PLANT SUBSTATION

Start Date: 2023

Finish Date: 2025

Location: Kouhpayeh Region, Isfahan Province, Iran

Client: MAPNA GROUP – MD3

Scope of work:

- Identification, Data gathering and preliminary design
- Basic Design
- Detail Design and Providing Technical Specifications and Data Sheets
- Providing Evaluation and Tender Documents
- Tendering, Bid evaluation, Assisting in selection of contractor

Description: SANAP Company as OWNER intend to establish the 600 MW Solar Farm. This 600MW solar farm project was planned to be constructed in around 1200 hectares of lands in vicinity of Kouhpayeh Town, Isfahan Province. This farm is planned to be executed in five 120 MW zones and will be connected to the grid via 63 KV and 400 KV substations.

Through a tender, construction of this solar farm was awarded to MAPNA company and MONENCO was selected as the engineering consultant of MAPNA.

Consultancy Services for Improvement and Development Plans of Khuzestan Steel Company

Start Date: 2019

Finish Date: 2026

Location: Ahvaz, Khuzestan Province, Iran

Client: Khuzestan Steel Company (KSC)

Scope of work:

- Identification, data gathering and preliminary design
- Basic design
- Detail design
- Providing technical specifications and data sheets
- Tendering, bid evaluation, assisting in selection of contractor and contracting
- Ensure overall efficiency, improved communication and successful project execution
- Design review, inspection, factory testing and ordering to deliver equipment
- Quality control services
- Coordination & provisional hand over performance services
- Instruction and duration services related to operational and final take-over

Description: Due to high demand of energy and growth rates of Khuzestan Steel Company as one of the top steel manufacturers in the country and considering that electricity as an infrastructural industry is one of the utmost importance in the steel industry.

Construction Supervision Services for design supply and installation of HVAC transmission lines and associated substations in Kyrgyz Republic

Start Date: 2016

Finish Date: 2024

Location: Kyrgyzstan

Client: National Electrical Grid of Kyrgyzstan

Scope of work:

- Pre construction phase:
  - Mobilization
  - Kick off Meeting
  - Providing Communication Plan
  - Providing Quality Management Plan
  - Site Visit
  - Assist in Finalizing Technical and Financial Condition of the EPC Contractor
  - Monitoring Contractor's Mobilization
  - Reviewing Transmission Line Route
  - Providing Inputs for Preparation of ESMP
  - Design Review
- Construction phase:
  - Contract Management and PIU Support
  - Witnessing Factory Acceptance Test
  - Site Supervision
  - Reports

Description: The project envisages a transmission interconnection between the Central Asia and South Asia Regions that would be used to export surplus electricity in the summer from existing generation capacity in Kyrgyz Republic and Tajikistan to energy-deficient Afghanistan and Pakistan. The feasibility study confirmed the soundness of the considerations that: (i) sufficient quantities of surplus electricity are available in the Central Asian countries (the Kyrgyz Republic and Tajikistan), even under conservative estimates of no new generation project; (ii) a significant need for electricity imports exists in South Asia (particularly)

Construction Supervision Services for design supply and installation of HVAC transmission lines and associated substations in Tajikistan

Start Date: 2016

Finish Date: 2024

Location: Tajikistan

Client: Barki Tojik , Republic Of Tajikistan

Scope of work:

- Pre construction phase:
  - Mobilization
  - Kick off Meeting
  - Providing Communication Plan
  - Providing Quality Management Plan
  - Site Visit
  - Assist in Finalizing Technical and Financial Condition of the EPC Contractor
  - Monitoring Contractor's Mobilization

- Reviewing Transmission Line Route
- Providing Inputs for Preparation of ESMP
- Design Review

- Construction phase:
  - Contract Management and PIU Support
  - Witnessing Factory Acceptance Test
  - Site Supervision
  - Reports

Description: The project envisages a transmission interconnection between the Central Asia and South Asia Regions that would be used to export surplus electricity in the summer from existing generation capacity in Kyrgyz Republic and Tajikistan to energy-deficient Afghanistan and Pakistan. The feasibility study confirmed the soundness of the considerations that: (i) sufficient quantities of surplus electricity are available in the Central Asian countries (the Kyrgyz Republic and Tajikistan), even under conservative estimates of no new generation project; (ii) a significant need for electricity imports exists in South Asia (particularly).

Consultancy and Site Supervision for Construction of 400kV Nachtigal - Bafoussam Transmission Line and Related Works

Start Date: 2023

Finish Date: 2026

Location: Cameroon

Client: The Water and Energy's Ministry of the Government of Cameroon

Scope of work:

- Inception,
- Data Collection,
- Design Review,
- Contract/Project Management,
- Project Progress Control,
- Project Time and Cost control,
- Supervision on construction and project implementation,
- Witnessing factory acceptance test,
- Witnessing HSE considerations,
- Controlling delivery of Site material, machinery and equipment to site,
- Reviewing As-Built documents submitted by contractor,
- Regular Training and On-Job Training,
- Assist client in provisional project handover,
- Assist contractors to provide As-Built documents,
- Assist client/contractors in defect liability period, and
- Assist client in permanent Project handover.

Description: The Water and Energy's Ministry of the Government of the Republic of Cameroon is implementing network development including 400 kV transmission line and both end substations, in order to align the electricity sub-sector plans with the 2030 Vision targets by network upgrades and expansions. The power transmission projects will provide reliability, enhance security of supply to the existing demand hubs in the country; expand transmission capacity necessary to enhance electrification initiatives and reduce technical losses in areas currently served by long medium voltage lines. Therefore, in order to achieve the specified goal, the project of constructing a 400 kV line between the Nachtigal hydropower station and the Bafoussam power sub-station and other related works have been defined. Network expansion in this project, includes 400 kV transmission lines and associated substations.

Site Supervision Services for Construction of 230 kV North Dezful Transmission Line

Start Date: 2023

Finish Date: 2024

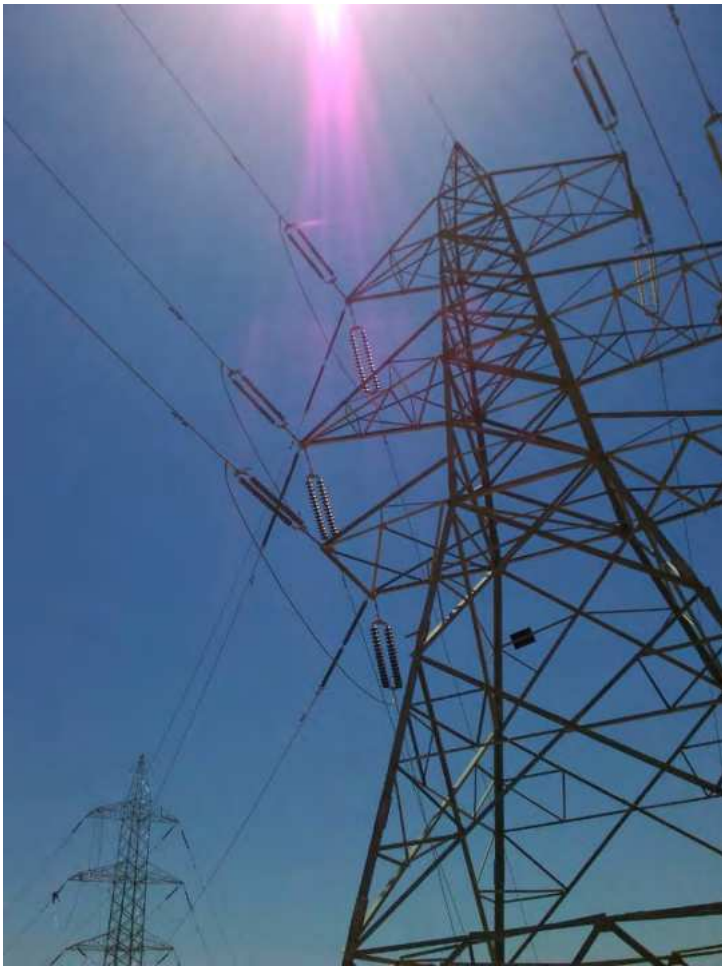
Location: Khuzestan and Ilam Provinces, Iran

Client: Petroleum Engineering & Development Co.(PEDEC)

Scope of work:

- Design Review,
- Contract Management, project progress report and cost control,
- Site Supervision on project constructional implementation,
- Witnessing HSE concerns,
- Controlling delivery of Site material, machinery and equipment to site,
- Review As-Built documents and drawings,
- Assist client in provisional project handover, and Assist client in permanent Project handover.

Description: Petroleum Engineering and Development Company (PEDEC) has purchased 500 MW of electricity for its oil field development projects in the West of Karun. Therefore, the construction of transmission and distribution lines in the western region of Karun to transfer electricity generated by power plant to the Cheshmeh-Khosh's oil fields is considered.



Distribution Networks Projects

Distribution System Expansion & Improvement Master Plan Study of Ethiopia

Start Date: 2023

Finish Date: 2025

Location: Ethiopia

Client: Ethiopian Electric Utility (EEU)

Scope of work:

- Formulate the distribution system network master plan for the coming 25 years, which Includes:
  - Refurbishment, upgrade and expansion plan of power distribution systems in the Ethiopia country,
  - Recommendations for improving power distribution networks,
  - Business management, technical efficiencies and financial viability,
  - Coordinate generation, transmission and distribution expansion plans,
  - Provide a realistic framework for customer service improvement and loss reduction,
  - Using the least cost analysis to compare various options available for development of distribution systems.
- Carryout a data/information gathering excise from EEU and other relevant agencies of the government,
- Conduct technical transfer and capacity building through on-the-job trainings, seminars, and technical workshops,
- Preparation of load forecast and annual growth rate by customer's category for the coming 25 years,
- Prepare standards for distribution system operation and maintenance,
- Compare the existing and advanced metering solutions with a view to enhancing metering efficiency,
- Conduct ESIA study and associated resettlement and compensation costs,
- Carryout a demand side management study and evaluating the opportunities for use of renewable energy sources and application of smart grid technology,
- Assess the existing distribution network, dispatching operation, monitoring, controlling practices, system tools, requirements, ongoing projects (e.g. SCADA, AMI), and other ICT infrastructures,
- Conduct a cost-benefit analysis and develop a detailed plan for implementing identified upgrades.

Description: A power distribution network master plan is essential for Ethiopia Electricity Utility (EEU) to achieve its electrification access plan, which aims to provide reliable and affordable electricity to all Ethiopian citizens. The coordination among different studies is essential to ensure that the universal electrification access plan is effectively implemented with coordinated generation, transmission, and distribution expansion. Therefore, this project will be carried out in coordination with other previous master plans such as the generation and transmission master plan of EEP Company.

This project covers all the country's boundaries and comprises a review of various documents, including vast data and information gathering from existing networks and other agencies as input for analysis purposes. This project includes load estimation for Ethiopia for a 25-year horizon. The network development plans will be presented taking into account all the technical and financial aspects governing the distribution networks. In designing distribution networks, the possibility of benefiting from the advantages of smart networks and renewable generation will be investigated to increase efficiency and improve access to electric energy.

Consultancy Services for 63/20 kV Substations and 20kV Feeders Development for East of Hormozgan Province

Start Date: 2023

Finish Date: 2024

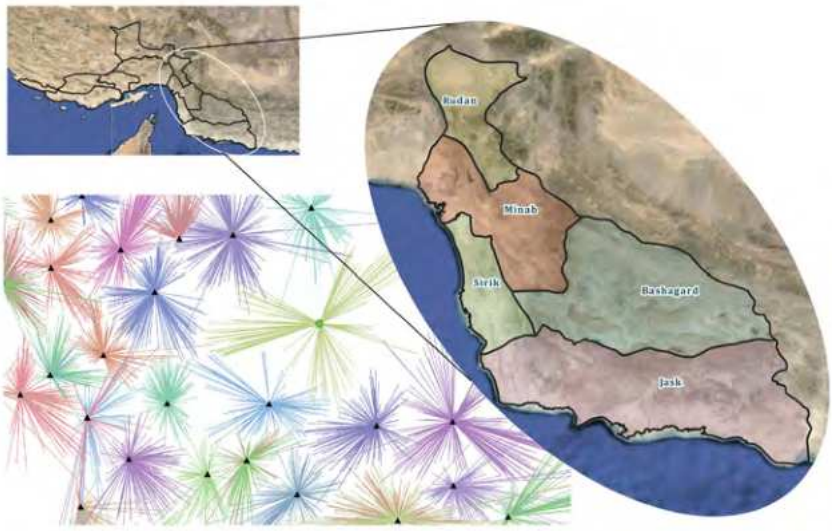
Location: Bandar Abbas, Iran

Client: Hormozgan Province Electricity Distribution Company

Scope of work:

- Initial data validation and verification, ensuring the accuracy and completeness of information from the existing network,
- Proposing solutions to address gaps and missing data,
- Assessing the current state of the existing network, identifying its strengths and weaknesses,
- Creating a comprehensive simulation model for the existing network and conducting load flow studies in both normal and emergency modes. This involves assessing the need for new substations and identifying any network bottlenecks and load-feeding issues,
- Evaluating the feasibility of meeting electricity demand through existing infrastructure or by expanding the electricity distribution network,
- Identifying specific areas where the construction of new 63/20 kV substations is necessary to optimize the network,
- Presenting multiple scenarios and conducting technical and economic evaluations for each, offering a range of solutions,
- Conducting detailed studies on losses, short circuits, and load distribution within the network to ensure efficiency and reliability.

Description: The study project centers on enhancing the electrical infrastructure in the eastern region of Hormozgan province. The primary objective is to assess the existing distribution network's strengths and weaknesses and enhance it by either upgrading existing 63/20 kV substations or establishing new ones. The initiative aims to ensure a reliable power supply over a 5-year planning horizon, meeting the increasing demand for electricity.



The project's initial phase involves data collection and analysis, gathering essential information and verifying existing data to inform subsequent studies. DIgSILENT software is then employed to model the existing network, assessing its capacity to meet load demands. Furthermore, a 5-year load forecast is considered to evaluate if the current infrastructure can fulfill the projected needs or if enhancements are necessary. Various options are explored to delay network development, such as network configuration adjustments, capacitor installations, or implementing small-scale distributed generation.

Additionally, alternative solutions at the distribution network level, including changes in network layout and the development of medium voltage feeders, are assessed. After thorough analysis, collaboration with the client results in the presentation of optimal recommendations. If the need arises for new substations, optimal capacity and location are carefully determined, along with the most cost-effective construction options. Ultimately, the findings and analyses are compiled into a comprehensive report for presentation to the client.

Designing and Site Supervising Services for Construction of Capital Projects, Distributed Generation, and Also Site Supervising on Customer Services and GIS Updates in Fars Province Power Distribution Network

Start Date: 2021

Finish Date: 2022

Location: Fars Province, Iran

Client: Fars Electrical Distribution Company

Scope of work:

- In the design section:
  - Preparation of projects plan based on the executive method of Fars Province Electricity Distribution Company and according to the standards of the Ministry of Energy in the distribution sector.
  - Reviewing and approving the grid connection plans of distributed generation and preparing technical documents in accordance with desired format of client.
- In the Supervision section:
  - Technical, quantitative and financial supervision on the implementation of power distribution projects and supervision on the performance of contractors, including network modification and improvement projects in accordance with Tavanir's instructions.
  - Supervising on implementation of photovoltaic systems and implementation of the grid connection.
  - Supervising the implementation of all manuals and standards approved by the Ministry of Energy and the client.
  - Ensuring the implementation of all projects under continuous supervision.
- In the GIS section:
  - Tracking, receiving and monitoring the accuracy of the received information, including GPS points, completed descriptive forms and prepared photos and entering information in GIS.
  - Monitoring the accuracy of GIS data collection in all development, construction, modification and optimization projects.
- In Customer service monitoring section:
  - Technical, quantitative and financial supervision on the implementation of customer services and monitoring the performance of contractors.
- In Review and approval of contract modification invoices section:
  - Reviewing the letters issued by the competent authorities (Management and Planning Organization, Ministry of Energy and Tavanir) regarding the modification of price units in accordance with the relevant instructions for compensating the effects of changing exchange rate, metal price, etc.
  - Monitoring the performance of contractors and suppliers of goods and control of fulfillment of obligations within the contract period.
  - Approving invoices submitted by the executive contractors or sellers and suppliers of goods and submit it in writing to the client.

Description: In this project, engineering and site supervision services for construction of capital projects, distributed generation and also supervision on customer services and GIS updates, as well as approving contract modification invoices of contractors and purchase of electric power distribution materials in different regions and cities of Fars province, are provided by employing highly skilled and committed designers, supervisors and experts. Preparation of projects plan based on the executive method of Fars Power Distribution Company and the standards of the Ministry of Energy, as well as technical, quantitative and financial supervision on projects and also monitoring the adequacy and accuracy of GIS information in all development projects of construction, improvement and optimization are the most important tasks of Monenco Iran.

Supervision Services for Construction of Development & Optimization Projects and Operation & Customer Services in Kermanshah Power Distribution Networks

Start Date: 2023

Finish Date: 2024

Location: Kermanshah, Iran

Client: Kermanshah Electricity Distribution Company

Scope of work:

- Compliance of the plan with the implementation, control of equipment in terms of technical specifications, preparation of project identification, review and control of the contractors, submission of progress reports and control of project schedule,
- Preparing the five-year development plan, preparing a plan for the development and optimization of substations, MV & LV lines and street lighting, setting a plan for power selling, controlling the implementation of programs and submitting reports monthly,
- Controlling and supervising the implementation of repairs by contractors and analyzing the problems, visiting and supervising the implementation of peak load and earthing measurement, monitoring inspections of street lighting, unallowable customers and loose network connections and submitting reports, analysis Important network faults,
- Supervising and controlling the accuracy of meter readings, the accuracy of bill distribution and correct application of tariffs, the accuracy of requests and registration of new requests, installation of standard meters and cooperation in consumption management plans.

Description: In this project, Supervision Services for Construction of Development and Optimization Projects, Planning and Engineering Activities, Operation and Customer Services in Kermanshah Power Distribution Network will be provided by employing highly skilled and committed supervisors and experts.

Consultancy & Engineering Services for Techno - Economical Analysis and Design & Supervision Services for Construction Power Distribution Projects in Golestan Province

Start Date: 2023

Finish Date: 2024

Location: Golestan Province, Iran

Client: Golestan Province Electrical Distribution Company

Scope of work:

- Technical & economic analysis,
- Design of power distribution projects comprising:
  - MV & LV Networks (Overhead and Underground Lines)
  - Distribution transformers and posts
  - Street lighting
  - Replacement utilities
- Providing Tender Documents for project implementation by Contractors,
- Supervising on equipment quality used by contractors
- Conducting Site supervision on implementation of network development/modification/optimization projects and adapting based on standards and contract technical specification including:
  - Low Voltage and Medium Voltage Overhead and Underground Networks
  - Overhead Distribution Transformers and Ground Mounted Distribution Substations
  - Street Lighting
  - Resolving the Clearance issues and equipment replacement
- Project monitoring and evaluation using checklists and providing reports routinely.
- Process invoices submitted by the contractor in accordance with project progress
- Project financial monitoring regarding issued invoices and contract value
- Evaluate and approve As-Built drawings

Description: Regarding the large amount of engineering projects while adopting the policy of utilizing the top-level technical knowledge in its on-going projects, Golestan Power Distribution Company intends to hire progressive engineering consulting companies for conducting the site supervision for its on-going electrification, network modification and optimization projects and improve Network technical parameters such as technical loss, demand side management, peak shaving, network stability and reliability. In this project, Monenco is responsible to design and supervision of operational distribution networks projects in Golestan Province based on modern technologies.

Consulting engineering services for mechanization inspection of facilities, study of substations loading, analysis of insulating performance of transformers oil, study of grounding resistance of distribution substations and quality control of performed repairs in Fars Province

Start Date: 2021

Finish Date: 2022

Location: Fars Province Iran

Client: Fars Electrical Distribution Company

Scope of work:

- In the Mechanization inspection of facilities:
  - Inspection of equipment and completion of relevant forms, record equipment failure, determining the priority of repairs and required items based on the Fars Province Electricity Distribution Company procedures.
- In the Study substations loading:
  - Measuring the current output of transformers and feeders in public substations, as well as recording/ analyzing the transformers performance at the peak loading periods.
- In the Study and analysis of the insulating performance of transformer oil:
  - Measuring the insulating performance of the transformers oil and classifying them according to the Fars Province Electricity Distribution Company procedures.
- In Studying the ground resistance of distribution substations:
  - Measuring the protective and electrical grounding resistance of distribution substations and classifying them based on the method of Fars Province Electricity Distribution Company procedures.
- In the Quality control of performed repairs:
  - Technical and quantitative supervision of the maintenance and repair operations carried out in the operational area of the Fars Province Electricity Distribution Company.

Description: Regarding the importance of periodic inspection in the maintenance of network's equipment and facilities and preventive repairs, Fars Power Distribution Company intends to hire progressive engineering consulting company for operations projects of Network maintenance.in this regard and based on the valuable experiences of Monenco Iran in these fields and also the continuous successful presence in the design and supervision projects of Fars Province Electric Power Distribution Company, this project was awarded to Monenco Iran for the first year with the highest technical score.

Civil Engineering & Urbanism Projects

Consulting Services for Design and Supervision of Industrial Refrigerator of Tehran General Warehousing and Customs Services Company

Start Date: 2021

Finish Date: 2023

Location: Tehran, Iran

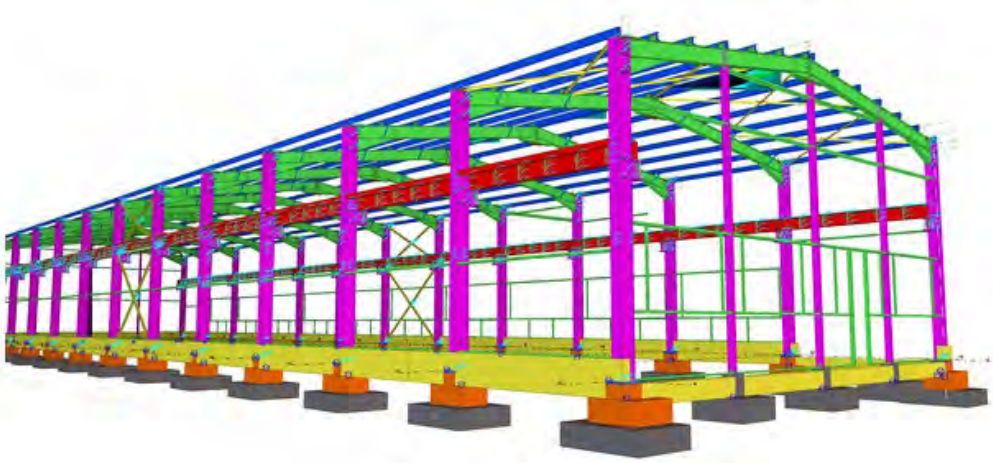
Client: Tehran General Warehouses and Customs Services Company

Scope of work:

- Basic design
- Detail design
- Estimation
- Tendering and contract awarding
- Planning and project control
- Supervision, review and approve the contractor invoices

Description: Today, due to the increasing population growth and Foodstuffs consumption on the one hand and the importance of reducing the rate of waste of Food and pharmaceutical products on the other hand, the use of industrial refrigerator (cold storage) has become a major need of processing and food industries. Rising prices and declining natural resources are other factors that have made the use of standard cold storage an inescapable necessity. One type of refrigerator that is used for the purpose of storing in the short term and temporarily is the customs cold storage.

The industrial refrigerator with an area of 1300 square meters is one of the largest industrial refrigerators in the company of public warehouses and customs services and the maintenance of goods with the highest standards is of special importance.



Consultancy & Engineering Services for Construction of "Shahre Darya"

Start Date: 2021

Finish Date: 2026

Location: Golestan province, Iran

Client: Mapna Group- Tose"e 1

Scope of work:

- Identify, receive and summarize information
- Technical standards of the project
- Planning and operation system - User access and design ergonomics
- Layout of the project area
- Basic Design - Preliminary studies and conceptual design of the structure, Infrastructure, Site
- Transportation Planning and Traffic Engineering
- BOQ
- Preparation of technical specifications
- Modeling in Revit software
- Design Smart city infrastructure
- The process of construction and operation of buildings / complexes
- Preparation of tender documents
- Tender and contractor selection procedures
- Supervision and implementation of the plan with technical specifications
- Site supervision

Description: The project is located in Golestan province and on beside Caspian Sea. The project is a luxury project with the latest technologies and natural attractions in the region. The project is an urban complex including villas, parks, shopping centers, recreation centers, residential towers, commercial-administrative complexes, health and medical complexes, etc.

Consultancy & Engineering Services for Construction of Airplane Test Engine Cell

Start Date: 2018

Finish Date: 2020

Location: Alborz, Iran

Client: Turbine Engineering and Manufacturing Company (TUGA)

Scope of work:

- Identification, data gathering and preliminary design
- Design review, technical data sheet for engine test cell
- Preliminary and detail design for mechanical installation fuel storage
- Tender document procedure

Description: Nowadays, due to the growth of air transport and importance of flight safety, testing the different parts of the aircraft is very critical. In this regard, as the aircraft turbo engine is the most important part, they have to be tested to ensure their proper operation. In this regard, consultancy and engineering services for construction of CFM56 Engine Test Cell and Tender Document Preparation was awarded to Monenco Iran.

Engineering Services for Improvement the Function of Structure in the Earthquake & Civil, Architecture, Electrical & Mechanical Design of NIL Building

Start Date: 2022

Finish Date: 2023

Location: Tehran- Iran

Client: MAPNA Group Company

Scope of work:

- Design services of the Phase I & report the quality of damage potential of the building
- Preparation and presentation of detailed and descriptive reports
- Design technical documents, structural, architectural, civil, electrical and mechanical drawings
- Preparation of tender documents for executive contractors

Description: According to Mapna Group policy and planning, construction of four more stories on the top of existing NIL Building, two stories for parking usage and two stories for sport usage has been decided. The importance of earthquake function of building, makes it necessary to study Engineering methods to improve the resistance of building elements, considering internal and external regulation, engineering analysis, "detail evaluation of building need to improvement" and "preparation the existent building upgrading method" for ongoing revision procedures. After this stage and preparation, the existent building upgrading method, execution specifications including preparation of designs calculations and drawings of building expansion will be produced.

Consultancy & Supervision Services for Design of Industrial Steel Frame Building, Administrative Buildings, Facilities & Infrastructures of Development Plan 4 in PARTO Company

Start Date: 2022

Finish Date: 2024

Location: Fardis-Karaj- Iran

Client: MAPNA Turbine Blade Engineering & Manufacturing Company (PARTO)

Scope of work:

- Architectural, Civil, Mechanical & Electrical Detail Design of Industrial Saloons & three-story office building for total area of 11400 m2
- Preparation and presentation of detailed and descriptive reports
- Software calculation models and calculation reports
- Planning & determining the Method of Performance & Project Progression Control Services Coordination & Provisional Handover Performance Services
- Quality Control Services
- Evaluation the Control of Payment & Expenses, Legal Affairs of Contract Services
- Superior and field supervision on implementation of civil works, electrical works & mechanical works

Description: According to the need of PARTO company for construction of industrial and special ancillary units for the development plan 4, which was decided due to the abilities of these consulting engineers in the industrial fields and due to previous valuable experiences and records, The engineering and design services of phase I and II of this industrial plant, along with the preparation of tender documents and also superior and field supervision of construction should be handed over to Monenco Iran Company.

Consultancy & Engineering Services for Construction of Mapna Service Center in Iraq

Start Date: 2022

Finish Date: 2024

Location: Baqhdad-Iraq

Client: Mapna Group Company

Scope of work:

- Detailed design of the mechanical and electrical infrastructure facilities of the site including mechanical & Electrical cable route channels, fire extinguishing system, lighting system, CCTV, sewage collection and treatment systems
- Detailed design of access roads, Boundary walls, Entrance gate
- Detailed design of site buildings including the structure, architecture, mechanical and electrical design of Substation building, Utility building, Pump house, Guard house and HSE building
- Detailed design of the mechanical and electrical facilities of existing saloons based on their usage. (Seven saloons with a total area of 7000 square meters)
- Interior architectural design and foundation of existing saloons based on their usage. (Seven saloons with a total area of 7000 square meters)
- Architectural, structural, mechanical and electrical detail design of the new saloon with an area of 1500 square meters
- Architectural, structural, mechanical and electrical detail design of the administrative building, educational building and restaurant building with a total area of 5000 square meters Technical specifications
- Preparation of tender documents for executive contracts
-

Description: According to the establishment of almost 30% of Iraq power plants within 100 kilometers of Baghdad, Mapna Service Company, “In the form of a 20-year contract with the Iraq Ministry of Electricity”, intend to construct an industrial area called Service Center in AL MUSAYIB in the south of Baghdad for providing repair and maintenance services for the equipment related to the power plants in Iraq.

The total allocated area to the project is about 91,000 square meters, of which around 68,000 square meters is related to the industrial sector and about 23,000 square meters is the non-industrial area.

Railways & Subways Projects

Consultancy & Engineering Services for AFC, Communication, Signaling, BMS, Scada, Fire alarm and Firefighting Systems of Shiraz Urban Railway, Line 2

Start Date: 2020

Finish Date: 2024

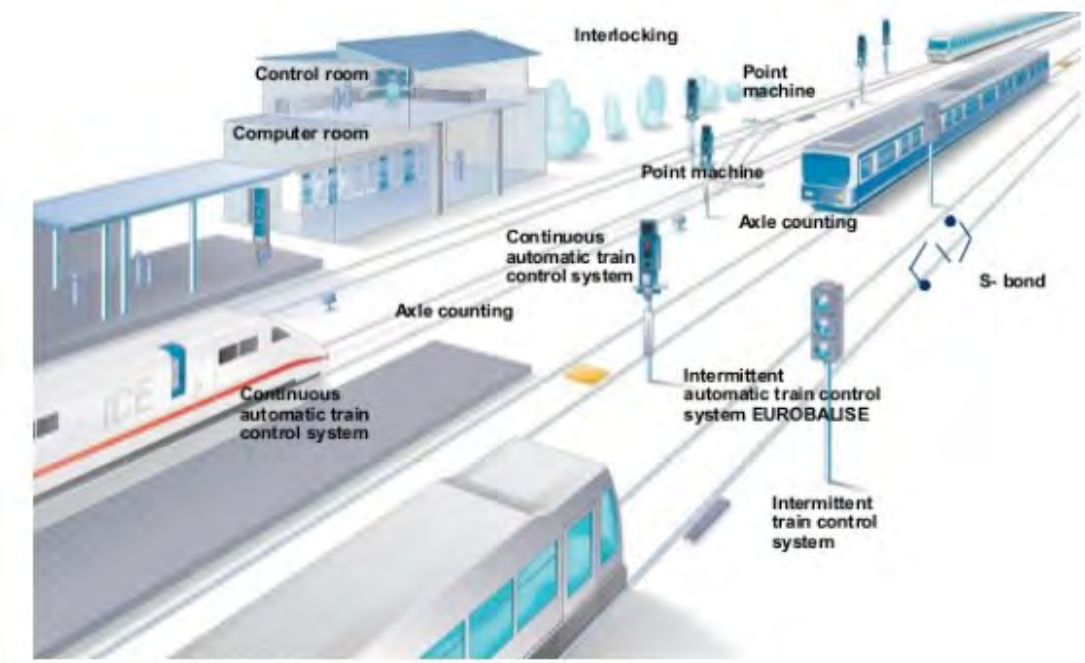
Location: Fars province, Iran

Client: Shiraz Urban Railway Organization

Scope of work:

- AFC system basic design
- AFC system basic design
- AFC system detail design review
- Communication system basic design
- Communication system detail design review
- Signaling system basic design
- Signaling system detail design review
- BMS and SCADA basic design
- BMS and SCADA detail design review
- Fire alarm and firefighting system design
- Cost estimation
- Tender documentation

Description: For completion of Shiraz 2nd metro line metro system design, consultancy and engineering services for AFC, communication, signaling, BMS, Scada, fire alarm and firefighting systems have been awarded to Monenco Iran. According to previous awarded project which consisted of power supply, air conditioning and smoke disposal in tunnel and stations and initial radio system, almost all sub systems of 2nd line metro system is under Monenco Iran design.



Electrification studies of Tehran – Hamadan – Sanandaj railway

Start Date: 2020

Finish Date: 2022

Location: Tehran, Markazi and Hamadan provinces, Iran

Client: Construction and Development of Transportation Infrastructures Company

Scope of work:

- Technical and economic analysis of electrification of the route
- Checking the required modifications of pavement, earthwork, tunnels and bridges in case of route electrification
- Checking the required modifications of stations in case of route electrification
- Etrax Simulation, power supply design including medium voltage substations, switching substations, station substations, traction substations and overhead catenary system
- SCADA system design
- Required fleet specifications
- Preparing investment packages for financing
- Preparing tender documents for selecting the contractors

Description: According to the advantages of electrified railways, the Railway Company of Islamic Republic of Iran decides to study the electrification of railways. Until now, the only electrified country railway is Azarshahr – Tabriz – Jolfa which designed and came into operation by Russian engineers many years ago.

Following the Tehran – Hamadan – Sanandaj electrification tender results, the project awarded to Monenco as its highest technical score. This plan consists of two parts, Tehran – Hamadan part with 260 Km length is constructed and Hamadan – Sanandaj part which is 150 Km is under construction. The project is of high importance because is the first in the country which its power supply system is going to be designed by Iranian Company and local experts.

Detail design of G3 metro station, along with the gallery from G3 to K2, 3rd line of Tehran Urban and Suburban Railway Company

Start Date: 2020

Finish Date: 2023

Location: Tehran province, Iran

Client: Tehran Urban and Suburban Railway Company

Scope of work:

- Architecture design
- Retaining structure design
- Central core design
- Mechanical installation design
- Electrical installation design
- Fire alarm design
- Telecommunication and signaling design
- AFC design
- Cost estimation
- Tender documentation

Description: About 15 years ago, studies have been carried out for design of G3 station in line 3, Tehran metro. Concerning different matters, construction of the station did not start. Now according to the requirement of the station to be constructed, the client held a tender for re-design of G3 station along with the access gallery to K2 station, line 2, Monenco Iran has been awarded. The subway station design should include construction management in such a way without stop or disturbancein train movement in lines 2 and 3. It means the design should be very specific, tailored to the client constraints regarding normal operation of both lines.

As far as is known, there is not a similar experience in the country subway industry to construct a station in a live line. This means the project is of high, better to say very high, importance and the designer should manage the construction procedure as well.

Site Supervision Services for Construction of X3 Station at Line 3 in Mashhad Urban Railway Corporation

Start Date: 2020

Finish Date: 2022

Location: Khorasan Razavi province, Iran

Client: Mashhad Urban Railway Corporation

Scope of work:

- Site supervision services in the pre-implementation period
- Monthly Site supervision services during implementation
- Site Supervision services for non-predictable matters during implementation
- Site Supervision services for the post-implementation period
- Technical support services

Description: The purpose of this contract is to provide consultancy & supervision services for the construction operations of Shahrak-e-Abouzar station (X3), Mashhad Urban Railway Corporation, Line 3.
As the design of X3 station is in progress by Monenco Iran, the client awarded the supervision services to Monenco Iran for the complete coordination between the designer and the site supervision team.

Consultancy and Site Supervision Services for Construction & Installation of Metro System Equipment at Shiraz 2nd Metro Line

Start Date: 2021

Finish Date: 2022

Location: Fars province, Iran

Client: Shiraz Urban Railway Organization

Scope of work:

- Planning, determining the method of performance & project progress control services
- Engineering services
- Command services
- Coordination & provisional hand over services
- Quality control services
- Evaluation the control of payment & expenses, legal affairs of contract services
- Maintenance and operation manuals, final hand over services

Description: After operation of Shiraz 1st metro line, the client concentrated on increasing the progress of the 2nd line with 15 Km length and 13 stations. Parallel to civil works, the metro system detail design has been awarded to Monenco Iran company which is going to be completed. As for the first time, the design of metro system has been carried out by an Iranian company, Monenco Iran, the client concluded to award the consultancy and supervision services to Monenco Iran so as to complete the cycle from design to build and install and operate.

Consultancy Services for Simulation of Ventilation and Smoke Disposal System of Shiraz Subway, 3rd Line

Start Date: 2022

Finish Date: 2024

Location: Shiraz, Fars province, Iran

Client: Shiraz Railway Transportation Organization

Scope of work:

- 1-D simulation of the whole line
- 3-D simulation for 3 nodes
- Sizing and layout of the system equipment Preparing the canals drawings

Description: Safety of metro passengers is one of the most important indices of metro system design for a metro line. As fire is probable in metro stations and tunnels, the mechanical system designer should pay special attention to ventilation and smoke disposal system design for the passenger safety in case of fire.

Consultancy & Design Services for Implementation Power Supply System at Line A in Qom Metro

Start Date: 2021

Finish Date: 2022

Location: Qom province, Iran

Client: Abtaban Engineering Company

Scope of work:

Engineering and design services consisting:

- Third rail
- LPS and TPS transformers
- Power rectifiers
- DC switchgears
- 20 KV switchgears
- UPS and charger
- MV cables
- DC cables
- Switching substation
- Station substation
- Traction substation
- PSCADA
- Stray current monitoring
- Stinger system

Description: Line A Qom metro has 14 Km length and 14 stations. The first phase of this line is going to be operated by Sep. 2021. So, Qom Urban Railway Organization expects the involved EPC contractors to be on time to meet that aim. According to Monenco Iran expertise, the EPC contractor for the line power supply system awards the design part of his covenants to Monenco Iran.

Value Engineering Studies of BAM- JIROFT, DARAB- ZAD MOHMOUD, LAR-ZAD MAHMOUD and Dogharon Connection to The National Railway Network, Railway Routes

Start Date: 2022

Finish Date: 2024

Location: Kerman, Fars and Khorasan Razavi provinces, Iran

Client: Construction and Development of Transportation Infrastructures Company

Scope of work:

- Data gathering for each route
- Studying the plan and profile of each route
- Investigation the existing basic studies of each route
- Preparation of pre-workshop report
- Hold pre-workshop for each route
- Site visit of each route
- Hold workshop for each route
- Providing a point of view to improve the value of the project by the experts brain storming Preparation of workshop report
- Hold development meeting for each route
- Preparation of development meeting report
- Presenting the results to the client

Description: Currently, the basic studies of Bam-Jiroft railway route with an approximate length of 117 km, DARAB-ZAD MAHMOUD with an approximate length of 260 km and LAR-ZAD MAHMOUD with an approximate length of 100 km have been carried out by the project's consultants. Connecting DOGHARON to the national railway network with an approximate length of 202 km is currently in the detail design studies. According to value engineering disciplines, a value index should be defined for each project. By the expert's brain storming, the value index would be optimized which lead to increase the quality of the routes design.

As a project value consultant, Monenco Iran will evaluate the value index of the final proposals by applying value engineering steps on the aforementioned routes, using analysis and presenting documentation, ideas and plans and synergizing the railway experts. In this way, by increasing functionality and quality of the project and at the same time minimizing the costs, the value of the projects will be improved for the client of the project.

Consultancy and Design Services for Construction of Stations N10, O10, P10, Q10 and R10 at Line 10 in Tehran Subway

Start Date: 2023

Finish Date: 2024

Location: Tehran Province, Iran

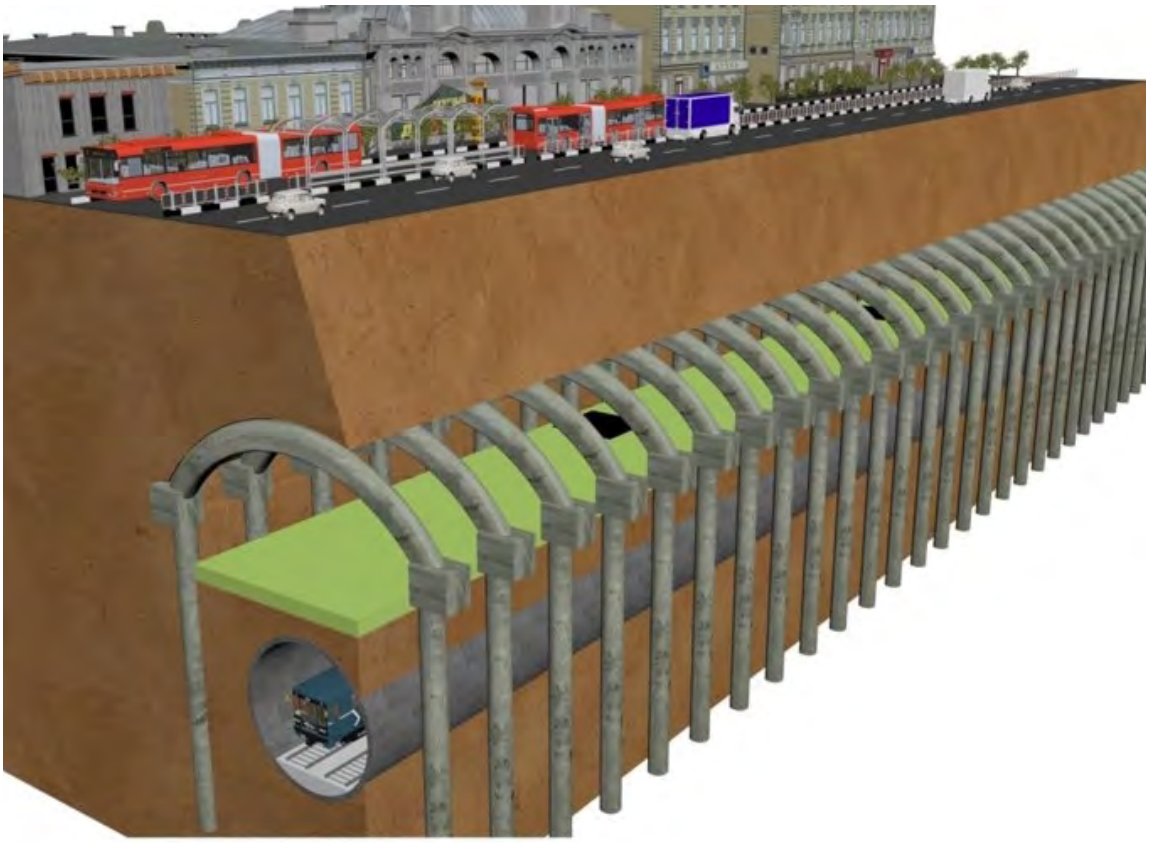
Client: Tehran Urban & Suburban Railway Company (TUSRC)

Scope of work:

- Initial survey and studies
- Structural studies and construction method
- Architectural studies
- Electrical studies
- Mechanical studies
- LOM, MTO and estimation
- Time schedule for construction

Description: According to high traffic jam in Tehran as Megacity, the citizens have serious challenges such as time waste in traffic, accidents and their financial impacts and deaths, pollution of air because of pollutant gases and suspended particles. The construction and extension of subway network is a way to reduce traffic jam and its improper consequences.

So, Tehran Urban & Suburban Railway Company (TUSRC) intended to construct line 10 with 33 stations and in this regard TUSRC use Monenco company for engineering and detail design services at Tehran subway line 10 and its stations.



Consultancy and supervision services for the construction of Kaj Square, Farhang Square, Atisaz, International Exhibition and Parkway stations in Tehran Metro Line 10

Start Date: 2023

Finish Date: 2026

Location: Tehran Province, Iran

Client: Tehran Urban & Suburban Railway Company (TUSRC)

Scope of work:

- Planning, determining the method of performance & project progress control services
- Engineering services
- Command services
- Coordination & provisional hand over services
- Quality control services
- Evaluation the control of payment & expenses, legal affairs of contract services
- Maintenance and operation manuals, final hand over services

Description: Tehran subway line 10, which connects Vardavard in west to Tehranpars in east has 43 Km length and consists of 33 stations. The line would be operative in different phases. The consultancy and supervision services for the construction phase (5 stations) awarded to Monenco Iran.

Communication, Information Technology & Smart Solutions Division

Communication, Information Technology & Smart Solutions Division was established in 1994 to provide engineering and consultancy services to energy industries. Today, after more than two decades, we provide A-Z engineering and consultancy services to a wide range of industries such as power, telecommunication, oil and gas, water and wastewater, ports, steel as well as health and transportation. It is one of the most important and fastest growing divisions in Monenco as a result of dealing with inter-disciplinary and high-tech businesses (responding to the needs of the country for advanced ICT utilizing activities). Having technical teams dedicated to SCADA and telemetry, dispatching and monitoring, AMI and smart solutions, mobile and fixed telecommunication networks, IT systems (IT Governance, IT Strategic Planning, Enterprise Architecture, BPR, Big Data, Data Centers, Data models ...), telecommunication master planning and telecommunication business and strategic planning has made us a reliable and unique consultant for our clients in providing total solutions. Benefiting from highly qualified engineers, software, hardware infrastructures, and the valuable experiences of the company, the success of our clients in their plans and portfolios is guaranteed.

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National, Area operating, Regional and Distribution Dispatching centers

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Telecommunication Systems & Networks and Master Plans

20

Smart Grid, Smart Metering, Smart Cities & Smart Solutions for Industries and Organizations

ICT

The ICT Department of Monenco has an extensive presence in different industries, namely Power, Transportation, Oil and gas, Ports, etc. Having technical teams dedicated to mobile and fixed telecommunication networks, IT systems (IT Governance, IT Strategic Planning, Enterprise Architecture, BPR, Big Data, Data Centers, Data Models, e-government, Data Mining, etc.), telecommunication master planning and telecommunication business and strategic planning have made us a reliable and unique consultant for our clients in providing total solutions to them.

Also, developing ICT Master Plans, Enterprise Architecture, IT Business Models, ICT Governance and Business Process Reengineering are the other main expertise areas of the department. Considering our professional team, the ICT Department of Monenco is able to play the role of a high-level consultant company to fulfill industries' needs. In the following ICT Department capabilities, proficiencies, and lesson learned in 2020 has been described.

The ICT industry never stands still. This rapid, ever-changing stream is full of technologies, tools, software frameworks, and endless ideas. Some of the newest issues, such as Block chain, Data Mining, Smart Contracts, etc. were our main research topics which concluded in papers and technical reports in recent years.

Also, e-governance is one of the most exciting and innovative fields out there, and to stay ahead of the competition, we need to keep our finger on the pulse and our eyes on the trends, so we focused on the target and succeed in designing the first ESB (Enterprise Service Bus) platform for Energy Industry of Iran which would be able to connect GSB (Government Service Bus) in the future.

On the other hand, according to technology development, one of the most important issues for making the infrastructures up to date is new technological equipment installation which needs new design and special implementation methods. In 2020, the ICT department succeeded in gaining new experiences in this regard.

Due to TDM-based voice call switching network restrictions, a new IP switching network based on different technologies is identified. So, we have suggested IMS technology as a new IP-based network to transport voice calls and Data all over Iran for Telecommunication Infrastructure Company (TIC) and other industrial plants. To this need, the ICT department provides multi-discipline consultancy services consisting of the legal, technical, and economic feasibility study for TIC.

While Traditional Electric Power Utilities (EPUs) relied on TDM-based telecom infrastructures like PDH/SDH and SONET, SDH networks might not be able to handle IP-based services in an efficient and effective way. To better address telecom needs in EPUs we started migration projects in Iran EPUs. We have planned hybrid solutions with the deployment of layer 3 IP/ MPLS infrastructure alongside the current SDH by adopting WDM (wavelength division multiplexing) technology to satisfy future needs and maintain legacy services that are still required for the communication network. This approach guarantees soft migration toward a fully IP network for EPUs which can constitute a modern infrastructure in order to cover all future needs of the EPU and play as an enabler for EPU digital transformation. We presented this idea as telecommunication master plans for some large EPUs in Iran. In continuation and for deepening the usage of IP Technology in Electric Utilities, we have performed an IP-MPLS with TP capability for telecom migration of an eastern Asian Transmission Utility in 2022. Based on our experts' knowledge, experiences, and all lessons learned and best practices and recommendations of International Technical references as a we published a valuable ICT Book for all interested Iranian technical audiences.

Dispatching & Automation

The dispatching department offers consulting services for a variety of utilities, including SCADA, EMS/OMS/OMS, and automation plans for the power sector, including generation, transmission, and distribution, water and waste water utilities, copper and steel productions, metro, railway, and petroleum industries, etc. Regarding this, our department has a wealth of knowledge and experience in the engineering of SCADA and telemetry systems, as well as dispatching, transmission, and distribution automation within the power industry, considering industrial control system cybersecurity.

Strong observability is one of the most crucial aspects in the management of a big electric transmission network, and this may be done by having an effective dispatching and automation system. Monenco dispatching department has been given the duty of carrying out all engineering and supervisory activities of the Iranian National Power Grid Dispatching Project, including the design and supervision of main and backup control centers, due to our extensive experience in designing such projects.

Another similar significant national project is the Iranian National Gas Project, for which our department is in charge of supervising the telecommunications and SCADA portions. Additionally, the Oil Monitoring Center is another major national project, and this department is in charge of all engineering and supervision work

Deep knowledge and experiences regarding digital transformation, smart grids, and industrial control system security make us a unique consultant in designing new smart SCADA/EMS for transmission utilities and SCADA/DMS/OMS systems for distribution utilities, considering state-of-the-art artificial intelligence, modern digital technologies, cybersecurity, and smart systems, empowering utilities for future smart grid operations

The Iranian Ministry of Energy awarded Monenco first-class expertise in SCADA and cyber security in 2016. Monenco got smart distribution automation projects in the province of Bushehr, the city of lsfahan, and the DCMC (Distribution Management and Control Center) in the province of Fars, mainly because of the significance of projects given by our clients in this area.

Additionally, we were also awarded supervision services for the implementation and replacement of the SCADA/DMS Master System and Cyber Security at Majan Electricity Company in Oman.

Disseminating studies of integrated electricity networks in the South Pars Region was another important project in the oil and gas field in 2020. This year, this department also succeeded in renewing the transmission dispatching project for Fars Province's regional electric utilities. This department also provides consulting services for the design of various dispatching buildings and other crucial facilities, taking ergonomics, security, and architectural factors into account.

Smart Solutions

Smart Solutions Department starts its engineering and consultancy services from 2009 in different fields regarding digitalization and intelligence of systems, functions, and equipment in real world (Smart Grids, Smart Cities, Industry 4, Al, Block chain and Smart Contracts) with better and faster than any other solutions on the market. We provide consultancy services for Municipalities, Organizations, Factories, and within the Power system (G& T&D), Oil & Gas, Water and Waste water and other major industries.

From 2009 our engineering and consultancy services for Iran National Smart Metering Project (FAHAM) is ongoing. In this project, developing interoperability specifications among different layers of Advanced Metering Infrastructure (AMI) based on international standards and securing the measuring layer, communication media, and the Meter Data Management (MDM) considering detailed risk assessment based on ISO standards, ICT architecture with security protocols, operation directives for AMI component (functional and non-functional requirements), and Business Continuity Plan (BCP) document are the main achievements. Also, technical specifications for different types of single and three phase smart meters (CT, CT/PT, and DC) as well as ICT architecture and functional/ non-functional requirements for MDM/AHE systems were prepared by our department.

In 2015, our department has expanded its engineering services to comprehensive design of other smart grid domains such as micro-grids and remote monitoring of power plants and transmission networks. From 2018, Smart Solution Department developed its consultancy services to present broad solutions in Smart City with focus on:

- Smart City architecture
- Municipal asset management
- IT road map
- Business and Strategic planning
- Urban resource management and
- Preparing RFIs & RFPs
- Preparing investment packages for clients

Due to the development of advanced data analytics algorithms in recent years, Smart Solutions Department developed an Al platform that is capable of several types of data mining tasks. This platform is the outcome of “Online Predictive Maintenance & Predictive Anomaly Detection of Turbine-Generator Dependent Parameters based on Artificial Intelligence (Al) Platform” contract, used for predictive maintenance of gas turbines in a power plant. However, it could be used for predictive maintenance of other critical assets in different industries such as reciprocating compressors, centrifugal compressors, pumps, etc., and also for various data mining tasks. It consists of three main parts including communication, core and UI.

- The communication part could connect to servers, databases and data warehouses via different protocols (such as Modbus)
- The core part is a machine learning algorithm which is configurable and could be customized for every different problem.
- And the UI part can be customized according to the client’s request.

Recently, this department is improving its new services in centralized Power Plants/Industrial Plants Monitoring System in which client’s desired parameters are gathered by different tools and infrastructures and monitored in a unique dashboard and also Providing consultancy services in gas smart metering project as a national mega project including preparing technical specification for smart meter, telecommunication, data center, security and meter data management and IoT solution layers.

Major Ongoing Projects

Consultancy Services for Control and Monitoring Navigable Waterways

Start Date: 2020

Finish Date: 2023

Location: Tehran, Iran

Client: Ports and Maritime Organization

Scope of work: **Supervision services during and after the project are as follow:**

- Data gathering and gap analyzing of current navigation systems
- Studying the maritime-related standards (IMO, IALA, and ITU-R)
- Risk assessment of each geographical area and determining the suitable communication equipment in order to reduce risk value to an acceptable level.
- Preparing conceptual design for monitoring Iran's waterways
- Upgrading current VTS systems in Anzali, Imam & Rajaee ports
- Preparing technical specifications, LOM, MTO & tender documents

Description: This project aims to monitor the vessel traffic in Iran's navigable waterways for vessel traffic services (VTS), maritime rescue coordination centers (MRCC), and maritime pollution monitoring and response systems. Studying the existing aid to navigation systems such as VTS, upgrading the current VTS systems with modern equipment, and determining suitable and state of the art equipment and services for monitoring vessels in each specific area by considering the critical factors such as wind, sea state, waterway condition, and traffic conditions which are some of the important considerations of this project. It should be mentioned, all suitable aid to navigation systems is selected according to risk assessment output.

Consulting Services in Cooperation and Supervision of "Purchasing, Implementation, Deployment and Support of Data Exchange Platform and Services of Electricity Industry (Tavanir)"

Start Date: 2022

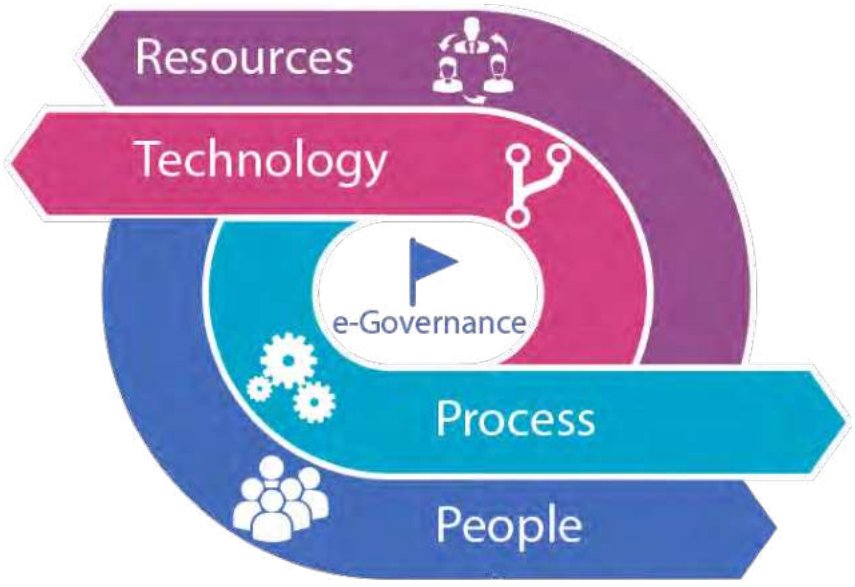
Finish Date: 2025

Location: Tehran Province, Iran

Client: Information and Communication Technology and Statistics Office of Tavanir Company

Scope of work:

- The main goal of the project is to purchase, implement, deploy, develop and support the data exchange platform and services of the electricity industry (Tavanir). This project has the following achievements: Helps the existing systems and software of Tavanir Company and other subsidiaries to be able to access each other's information simultaneously and instantly.
- Increases the efficiency and effectiveness of the organization by simplifying business processes. Provides the possibility of information integration due to the variety of systems available in Tavanir Company and other subsidiaries, including customer service systems, non-subscribers and public Facilitates the development and maintenance of systems.
- Improves communication with subscribers.
- Improves supply chain and contractor relationships.
- Keeps old applications, previously developed by domestic or foreign companies, alive and operational.
- Improves business processes and thus reduces the waiting time to receive a response to services.
- Supports to some extent changes at the process or organizational level.
- Standardizes the existing software in Tavanir Company and other subsidiaries.
- Improves return on investment: Reduces the total cost of IT and professional services in two ways. The first is by eliminating the costs between software and proprietary technologies and replacing it with standard technologies such as web services, and the second is by combining professional functions in the form of services that can be used by different units.



Description: Consulting services in the bidding process and evaluation of documents, including the preparation of the tender, cooperation in holding a call for quality evaluation, cooperation in evaluating quality proposals, cooperation in holding a call for technical and financial evaluation, participation in technical council meetings; Consulting in the field of monitoring projects for the purchase, investment, deployment and support of the data exchange platform and services of the electricity industry, including general supervision such as: consulting in planning and supervising the employer project, consulting and supervising the good performance of contractors. Cooperation with the employer in ensuring optimal project management for the success of the project, including time, cost and quality management and reporting to the employer, interviews and comments on the documents provided by the contractor and reporting to the employer, cooperation in the investigation to work. Possible claims of the contractor and presentation to the employer, etc. Supervision services corresponding to the project stages, such as: Cooperation in project implementation planning, Cooperation in monitoring the recognition of the current situation, Cooperation in monitoring the initial deployment of the product and maintaining the classified services in the contract, Cooperation in monitoring development and final design, Cooperation in monitoring. On product deployment, cooperation in monitoring the deployment of residual services, supervision of leadership training, cooperation in monitoring control, control and performance status, cooperation in monitoring user training, submission of documents and final product delivery, cooperation in monitoring support. Free after final delivery, cooperation in overseeing the maintenance, support and development of the ESB.

Engineering Services for Supervision Operation and Maintenance of Electronic & Telecommunication Equipment of Bushehr Ports and Maritime Authority

Start Date: 2012

Finish Date: 2024

Location: Bushehr, Iran

Client: Bushehr Ports and Maritime Authority

Scope of work:

The accomplishment of technical consultation about performing the third phase (Engineering service and site supervision) regarding supervising repair and maintenance of electronic devices, wireless mobile and control towers and electronic devices installed on them, wired telecom and telephone center switches, CCTV, traffic control system equipment of controlling goods and passengers, personal shuttle gates, Smart fire alarm, and PM implementation in Bushehr port.

Description: Engineering Service and Site Supervision for Marine Telecommunication Equipment consist of:

- Land mobile equipment
- Marine telecommunication systems
- PABX and cable communication systems
- VTS & microwave systems

Information and Communication Technology (ICT) Specialized Consultancy Services

Start Date: 2022

Finish Date: 2023

Location: Tehran City, Iran

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

Scope of work:

According to Tavanir Co. as the leading company in managing the supply and demand of efficient, reliable, sustainable, and inclusive electricity, the client with the aim of integrating all ICT topics in one manageable format, selected Monenco's Information and Communication Technology (ICT) department as its consulting partner in all ICT-related domains. This contract follows the frame contract type in order to cover all ICT topics with complete flexibility which could be continued in the future.

Description: This contract has been concluded for specialized ICT consulting services which include but are not limited to telecommunication network design, ICT strategy, technology trends, data center design, technical & financial feasibility study, participating in specialized meetings, and evaluation of ICT networks. These services will be conducted for Tavanir, Regional, and Distribution Electric Companies.

Consulting Services to Redesign the Fiber Optic Network of the Country's Electricity Industry Pilot

Start Date: 2022

Finish Date: In Progress

Location: Zanjan Province, Iran

Client: Plan & Development Deputy

Scope of work:

- Basic design
- Conceptual design of active WAN optical network
- WDM design & optical engineering
- Detailed design of active WAN optical network

Description: This project aims to upgrade the current telecommunication master plan for Zanjan Regional Electric Company (ZREC). Utilizing the latest technologies like IP/MPLS technology for WAN design in this project, makes it distinctive from other REC telecommunication master plans which usually have been designed based on TOM-based technologies. By accomplishing this project, ZREC will access high-speed IP/MPLS WAN infrastructure which could satisfy its current and future telecommunication demands for next 15 years.

Engineering Services to Approve Telecom Towers Design of MTN Irancell

Start Date: 2020

Finish Date: In Progress

Location: Tehran, Iran

Client: MTN Irancell

Scope of work: :

- Engineering services are as follow:
- Check all parts of the tower by Risa/ TNX tower software.
- Check and control all calculation books such as: connection bolt and plate, anchor bolts, accessories and man load.
- Check and control all foundation calculations based on the speech and agreed national and international standards.
- Review all drawings such as (foundation, erections, installation) and make it compatible for installation.

Description: For each required tower by Irancell, the design documents should be sent to the consultant and Monenco should check all of the documents in terms of software analysis, foundation drawings, assembly drawings and connections based on the latest spec. If all documents be approved by Monenco, approval certificate will be issued.

Bangladesh Power System Reliability and Efficiency Improvement Project of the World Bank

Start Date: 2021

Finish Date: In Progress

Location: PGCB Shaban, Avenue-3, Jahurul Islam City, Aftabnagar, Badda. Dhaka-1212

Client: Power Grid Company of Bangladesh Limited

Scope of work:

- Site Survey
- Feasibility Study
- Basic Design
- Detail Design
- Preparation of Technical specification and tender document
- Bid evaluation
- Contractors and proposals evaluation
- Design review
- Preparing Telecom/SCADA /EMS documents, including: Operating & Maintenance Manuals, Testing & Commissioning documents, SCADA Backup Plan etc
- Site Supervision

Description: The Power Grid Company of Bangladesh (PGCB), has established a National Load Dispatch Centre NLDC at Aftabnagar, Dhaka and a Back-up Center at Biddyut Shaban which have become functional on September 2010.

PGCB intends to upgrade its existing SCADA/EMS to be ready to operate its future network.

The scope of work comprises:

The objective is to provide necessary supports for operation and maintenance of Telecom & RTU equipment which stands out as indispensable component affecting quality & reliability of power system operation and reliability management. The scope of the project is whole of Power Grid Company of Bangladesh.

National Load Dispatch Centre NLDC at Aftabnagar with related equipment, SCADA System Hardware and Software; Back-up Centre at Biddyut Shaban with related equipment, SCADA System Hardware and Software; SCADA systems in Area Load Dispatch Centers (ALDC); Substations and Power Plants with current facilities for SCADA System Interfaces and related equipment (including Remote Terminal Units, battery/ Chargers, High Voltage Interface, Marshalling Panels, etc); Transmission Telecommunication links between "NLDC and Back-up Center", between "Area Load Dispatch Centers, specified grid substations and NLDC and Back-up Center", and between "stations and Control Centers", etc.

At present, the IP/MPLS network design has been completed, and it is in the Site Supervision phase."

Supervision Services for Implementation Project of Replacement SCADA/DMS Master System and Cyber Security

Start Date: 2019

Finish Date: 2023

Location: Sohar, Oman

Client: Majan Electricity Company

Scope of work:

- Supervise implementation and commissioning, submit approvals, find solutions for all challenges and problems, and hand over the project.
- Responsible for coordination between contractor and client for all the work and activities Approve all the drawings and inform us if any modifications are required.
- Approve SCADA FAT and SAT documents.
- Attend SCADA System FAT and SAT. Approve the test reports submitted by the contractor or comment Issue the final comments prior to commissioning. After commissioning, if there are any SCADA-related problems with the master system, cyber system, or integration with the field (existing RTU) during the one-year defect liability period from the date of taking over by the client, the manager shall provide a detailed root cause analysis report.
- Coordination and submission of documents and drawings review and reply to and from the contractor Supervision and clearance of snags and ensuring project closure in all respects, including as built submittal, handing over, and snag clearance

- Reply to contractors' technical queries
- Ensure implementation as per tender requirements documents.
- Review the proposed system architecture, design, S/W packages, network communication, and raise relevant comments.
- Responsible for controlling the cyber security system regarding this project based on related policies and procedures to ensure the security of the SCADA system network.
- Responsible to ensure a secure SCADA system when other systems are required to connect with the SCADA system regarding the approved contractor design.
- Ensuring that correct and accurate policies and procedures are in place for the new SCADA system
- Supervise the execution project as per MJEC requirements.
- Providing solutions for SCADA/DMS software problems
- Support the MJEC SCADA team in regard to configuration, integration of SS's in SCADA, and troubleshooting.
- system errors/failures H/W, S/W
- Reviewing the quality, templates, and mechanism of the generated report and giving comments to ensure compliance with MJEC requirements
- Testing all signals with RTU for all integrated or migrated SS's in the new SCADA system

Description: The main key to ensuring the reliability of the MJEC power grid is to upgrade the dispatch center with the SCADA/DMS system conforming to Cyber Security standards, which provides full monitoring of the system (network and all controlling tools installed in the network) and enables controlling the system (directly or indirectly per element).

The Challenges:

As a consultant, we were supposed to do a study and review of the design documents of the contractor in both telemetering and cyber security to ensure all the things were going on the right track, and as per tender documents and AER requirements, we were expected to supervise the implementation of all those approved design documents. However, the task of studying and reviewing MJEC's existing cyber security policies and revising and implementing them had a different nature and was beyond our scope of work, so we deployed additional teams for the following procedures to complete the job. Regarded activities were: studying MJEC existing procedures; studying AER issued regarding comments; modifying and preparing new procedures; submitting them; collecting the client's comments; and finalizing each of those documents.

Supervision Services for Management and Operation of SCADA Projects in Tehran Province Gas Network

Start Date: 223

Finish Date: Ongoing project

Location: Tehran, Iran

Client: Iran Gas National company, Tehran Gas Co.

Scope of work:

- Supervision on EPC project
- Responsible for coordination between contractor and client for all the works and activities
- Approve all the drawings and inform if any modification required
- Approve SCADA FAT and SAT documents
- Attend SCADA System FAT and SAT. Approve the test reports submitted by contractor or comment Issue the final comments prior to commissioning after commissioning, if any SCADA related problems master system, cyber system and integration with the field (Exist RTU) during the one-year defects liability period from the date of taking over by client, manager shall provide the root cause analysis detailed report Co-ordination and submittal of documents and drawings review and reply to and from the contractor Supervision and clearance of snags and ensuring project closure in all respect, including as built submittal, handing over and snag clearance
- Reply on contractor's technical queries
- Ensure implementation as per tender requirements documents
- Review proposed system architecture, design, S/W packages, network communication and raising relevant comments
- Responsible of controlling the Cyber Security System regarding this project based on related policy and procedure to insure secure of SCADA system network
- Responsible to ensure secure SCADA system when other systems required to connect with SCADA system regarding the approved contractor design
- Ensuring that correct and accurate policies and procedures are in place for the new SCADA system Providing solutions for SCADA/DMS software problems
- Support client SCADA team in regard of configuration, integration SSs in SCADA, troubleshooting system errors/failures H/W, S/W

Description: One of the most important projects in the field of oil & gas is implementing SCADA system. In this national project, supervisory services for management and operation of Tehran Province Gas Network during natural disasters like earthquake will be executed.

Engineering and Supervision on Azarbayjan AOC & RDC Control Centers (Tabriz) Start

Start Date: 2020

Finish Date: In progress

Location: Tabriz City, Iran

Client: AREC (Azerbaijan Regional Electric Company)

Scope of work:

- Preparation of Technical specification and tender document
- Bid evaluation
- Contractors and proposals evaluation
- Cooperation with client for signing contract
- Detail design
- Design review
- Preparing SCADA documents, including: Operating & Maintenance Manuals, Testing & Commissioning documents
- Office & Site Supervision

Description: Due to factors like high sensitivity to power outage, an electrical network geographically distributed in a wide area, extensive cable system and rapid extension ... operation of the network is challenging and complex, so that operation and maintenance (O&M) teams, in order to reach substations have to pass through a apart from necessary coordination, which will extend operation and maneuver duration and consequently, in cases of fault occurrence, results in more power-outage duration. Therefore, it has been deemed as necessary to construct a modern SCADA system to assist O&M staff.

Engineering on Gilan AOC Control Center

Start Date: 2021

Finish Date: 2023

Location: Rasht City, Iran

Client: GILREC (Gilan Regional Electric Company)

Scope of work:

- Survey
- basic design
- Preparation of Technical specification and tender document
- Bid evaluation
- budget estimation

Description:

- Designing the structure of new Dispatching Control Center for Gilan AOC and considering the requirements for inter control center communication with other SCADA Control centers.
- Bidding Documents for procurement, Installation and Commissioning of Gilan Dispatching Control Center
- Cooperation in bidding, review and evaluation of technical, financial documents and preparation of relevant reports.
- Preparation of contract documents in the required number in order to contract with the winning contractor

Engineering and Supervision on SEAOC & Kerman RDC Control Centers

Start Date: 2020

Finish Date: In progress

Location: Kerman City, Iran

Client: KREC (Kerman Regional Electric Company)

Scope of work:

- Preparation of Technical specification and tender document
- Bid evaluation
- Contractors and proposals evaluation
- Cooperation with client for signing contract
- Detail design
- Design review
- Preparing SCADA documents, including: Operating & Maintenance Manuals, Testing & Commissioning documents
- Office & Site Supervision

Description: Due to factors like high sensitivity to power outage, an electrical network geographically distributed in a wide area, extensive cable system and rapid extension ... operation of the network is challenging and complex, so that operation and maintenance (O&M) teams, in order to reach substations have to pass through a apart from necessary coordination, which will extend operation and maneuver duration and consequently, in cases of fault occurrence, results in more power-outage duration. Therefore, it has been deemed as necessary to construct a modern SCADA system to assist O&M staff.

High Supervision Services and Workshop Supervision of the Construction of the Dispatching Building of Kerman Regional Electricity Company

Start Date: 2021

Finish Date: In progress

Location: Kerman City, Iran

Client: KREC (Kerman Regional Electric Company)

Scope of work:

- Excellent supervision
- Workshop supervision
- Detailed design review

Description: After performing engineering services for the design of the Kerman Regional Dispatching Building, the tender documents are sent to the employer to select the contractor, the high-level and workshop supervision activities include pre-implementation monitoring, monitoring during implementation, detailed plan review and contract termination. In order to start the contract, the consulting engineer company must send the names and resumes of its proposed employees to the employer. The duty of the people approved by the employer is to supervise the implementation of executive operations in accordance with the relevant laws, regulations and standards. The task of high supervision is the responsibility of the central office of the consulting engineer company, whose main tasks are reviewing the contractor's blueprints, verifying the correct performance of workshop supervision, etc.

Excellent Supervision Services and Workshop Supervision on the Construction of the Regional Dispatching Building in the East of the Country

Start Date: 2022

Finish Date: In progress

Location: Zahedan City, Iran

Client: Sistan and Baluchistan Regional Electricity Company

Scope of work: Engineering services such as:

- Excellent supervision
- Workshop supervision
- Detailed design review

Description: After performing engineering services for the design of the Kerman Regional Dispatching Building, the tender documents are sent to the employer to select the contractor. The high-level and workshop supervision activities include pre-implementation monitoring, monitoring during implementation, detailed plan review, and contract termination. In order to start the contract, the consulting engineering company must send the names and resumes of its proposed employees to the employer. The duty of the people approved by the employer is to supervise the implementation of executive operations in accordanc

with the relevant laws, regulations, and standards. The task of high supervision is the responsibility of the central office of the consulting engineer company, whose main tasks are reviewing the contractor's blueprints, verifying the correct performance of workshop supervision, etc.

Engineering Consultancy Services for RDC Optimization, AOC Upgrade and Establish an AOC Backup Center in Tehran Regional Electric Company

Start Date: 2022

Finish Date: In progress

Location: Tehran, Iran

Client: Tehran Regional Electric Company

Scope of work: Engineering services such as:

- Site Surveying for existing 7 RDC Centers and preparing Current Situation report
- Conceptual Design for merging 7 RDC Center to a smaller number
- Designing Migration Plan for fewer RDCs and Optimization on RDCs centers
- Estimation and preparing for List of Changes on Hardwires.
- Preparing Technical Specification for RDCs Software
- Considering Upgrading issues for Main AOC center with Software and hardware upgrading View point. Conceptual and Basic Design for Emergency AOC Backup Center
- Preparing Technical Document
- Budget Estimation.
- Participate in the Qualification process for Contractor

Description: Due to the fact that the metropolitan Tehran is strongly developing and under construction, the infrastructure of the electricity network also needs to be developed, and the control and monitoring of this network should also be updated for RDCs Centers and AOC center. The current project is carried out with the aim of optimizing RDC and AOC centers.

Consultancy Services for Establish a Comprehensive SCADA System in Urban and Suburb Areas in Zanjan Province Water and Waste Water Company

Start Date: 2020

Finish Date: In progress

Location: Zanjan City, Iran

Client: Zanjan water and waste water company

Scope of work:

- Engineering consulting for Implementation of a smart SCADA system on Zanjan Providence includes 68 water wells, 39 PRVs site ,12 Reservoirs and One SCADA center,17 Radio Communication Sites, 9 Pumps Station,40 Data logger sites
- Preparing plan for contractor to Data gathering
- Water Network Hydraulic Analysis and for Smart device placement among the network
- Reviewing of existing Radio Communication Network in UHF band
- Preparing and Updating Tender Document
- Upgrading protection and security considerations in tender documents
- Considering Financing Issues and including Financing model and parameters in Tender Documents
- Preparing Tender Documents
- Attending in contractors Qualification process

Description: The main purpose of this project is to prepare Tender documents for establish a Smart System in combination of SCADA System and Analytic system to make a comprehensive smart system to achieve a optimize water network Operation.in this project Financing with Seller credit is another target.

Consultancy Services for the Establishment of Integrated Electricity and Dispatching System in South Pars region

Start Date: 2022

Finish Date: In progress

Location: Asaluyeh City, Iran

Client: South Pars Gas Company

Scope of work:

- Power System Analysis for Developing network with a high stability in Integrated to National Network and islanding condition
- Modeling the electric network in Dig Silent Power Factory for system Analyzing
- Preparing decision making report for multi scenarios of integration or islanding network system Solution
- Designing SCADA/EMS/PMS system for South Pars Region.
- Designing for a new Transmission Line and Switching substation base on the best solution
- Preparing tender document for all disciplines to achieve to high performance and Stability of electric network
- Attending in contractors Qualification process

Description: Due to the sensitivity of stability in gas production in South Pars region, which supplies about 70% of gas in the country, it is necessary for this economic region to have uninterrupted Electricity production so that the refineries and petrochemical plants located in the region can provide the country's needs.

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Finish Date: In progress

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Scope of work:

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- Modeling the electric network in Dig Silent Power Factory for system Analyzing
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- Designing for a new Transmission Line and Switching substation base on the best solution
- Preparing tender document for all disciplines to achieve to high performance and Stability of electric network
- Attending in contractors Qualification process

Description: Due to the sensitivity of stability in gas production in South Pars region, which supplies about 70% of gas in the country, it is necessary for this economic region to have uninterrupted electricity production so that the refineries and petrochemical plants located in the region can provide the country's needs. Reliability should be achieved by independent control system or control system considering connection to national power grid.

Ethiopia Power Distribution System Expansion & Improvement Master Plan Study Project

Start Date: 2023

Finish Date: In Progress

Location: Ethiopia

Client: Ethiopian Electric Utility

Description: The main goal of this project is to develop a robust network infrastructure for EEU, addressing Ethiopia's rapid growth and electricity demand. MONENCO Iran is conducting a comprehensive Distribution Master Plan Study for all regional states, focusing on short-, medium-, and long-term periods until 2046. The incorporation of Advanced Technologies is central to the plan. This includes a detailed comparison of Metering solutions with a view to enhance Metering and Billing efficiency, analysis of Demand Side Management to optimize rehabilitation investments and grid reliability, and designing the distribution system for Smart Grid technology and Renewable Energy Integration including at Customer connection point level. Assessments of existing distribution network operations, monitoring practices, and ICT infrastructures (e.g., SCADA, AMI, Telecom) are integral to ensuring technological efficiency. Prepare detailed cost estimates and produce bankable feasibility study report for grid modernization.

MONENCO's activities involve data collection, as-is analysis, to-be analysis, gap analysis, AMI, SCADA, Telecommunication conceptual design, Smart Grid RoadMap and short-, medium-, and long-term plans for EEU.

Online Predictive Maintenance & Predictive Anomaly Detection of Turbine-, Generator Dependent Parameters based on Artificial Intelligence (AI) Platform

Start Date: 2020

Finish Date: 2022

Location: Qom Combined Cycle Power Plant, Iran

Client: SABA Power & Energy Group

Scope of work: Shuge amounts of raw and semi-raw data arising from automated DCS systems in thermal plants make a unique opportunity to use data analytics algorithms in order to generate useful, non-trivial, implicit, and previously unknown information and knowledge as Industry 4.0 domain. Predictive maintenance is one of the most important applications of data mining tools in digital industry. In this project, anomaly or outlier detection techniques were proposed for predictive maintenance and failure prognosis. In this project, it is planned to use innovative unsupervised machine learning algorithms to detect any abnormal conditions in Generator-Turbine units. Our platform will be connected to power plant control system to use real-time field's data such as vibration signals. This platform leads to reduced maintenance costs and also increases MTBF.

Description: Different failures and inefficient O&M procedures in thermal power plants can lead to high system down and increased maintenance costs. Earlier detection of failures in power plants using novel data driven approaches is considered as a new entry concept and known as predictive maintenance or failure prognosis. In this project, a data analytics software will be developed and then connected to DCS gate to use received data to detect any outlier occurrence probability.

Consultancy and Supervision Services for Smart Metering Projects in Mashhad, Tehran, Boushehr and Zanjan Electric Distribution Companies

Start Date: 2018

Finish Date: In Progress

Location: Mashhad, Tehran, Boushehr and Zanjan (four main distribution companies as representative for more than 39 EDCs), Iran

Client: Mashhad, Tehran, Boushehr, and Zanjan EDCs

Scope of work:

This project consists of 4 separate projects that include engineering and supervisory services for 5 main distribution power companies and their subsidiaries (In total 39 Distribution Power Companies). The scope of services are as follow; Supervision on installation, commissioning and activation of all smart meters in 39 EDCs, supervision on operation of data centers, supervision on the performance of application systems, supervision on operation of the telecommunication network and IT system, supervision on the process of supplying, delivering and installing smart meters, supervision on the process of producing smart meters at the factory, verifying the contractors' invoices, supervision on create Asset Management System, supervision on create smart home and etc.

Description: Due to electrical energy consumption increase in Iran, TAVANIR Company and Iran Ministry of Energy decided to implement FAHAM (IRAN Smart Metering) Project in order to optimize energy consumption. Accordingly, electric distribution companies have a key role in achieving the defined goals by implementing smart metering, electronic technologies, advanced telecommunications equipment and consumer awareness and collaboration. Smart meters are a clear demonstration of the new ICT infrastructure that has been developed to improve energy efficiency. Smart metering enables consumers to play a vital role in the performance of the electricity market. FAHAM has a great role in creating the necessary platform for the future implementation of the smart grid and provides the basis for the forward movement of the power supply such as creating an intelligent system for management of Electric Distribution Network or other legacy system such as OMS, CIS, GIS and etc.

Developing Strategic Plan for Smart Metering Infrastructure of Gas System Network

Start Date: 2021

Finish Date: 2023

Location: Tehran, Iran

Client: National Iranian Gas Company

Scope of work:

By finalizing the project and achieving all the pre-determined goals, National Gas Company will be able to identify important parts of the national gas network that lack intelligence and implement the smart metering

infrastructure efficiently. The following is a description of the services of Monenco Company, which has been determined in 4 phases during 12 months.

- Phase 1- Comprehensive Study of the Current Situation and Extracting Requirements of Different Units Phase 2- Reviewing the Required Reports of National Gas Company Based on the Agreements of Various Contracts with Companies and Affiliated Organizations, Including Refineries, Transmission Companies and Gas Supply Companies
- Phase 3- Gap Analysis and Determining the Requirements of an Integrated Management System
- Phase 4- Preparing Tender Documents

Description: The values of clear knowledge regarding production, consumption, equipment at pressure gauges and gas stations, and also uncounted gag are known for everyone. These useful data will lead to online monitoring and efficient management and planning.

Therefore, in line with the agreement between National Iranian Gas Company and Monenco Iran Company, Smart Solutions Department of Monenco has started its studies for defining the necessary requirements for various gas stations to increase the visibility of the gas network and transfer field data to the gas monitoring center. The purpose of this project is to develop the necessary strategies for stablishing the smart metering infrastructure of Iranian National Gas Company and transfer metering data to the center in order to optimal management of the energy network implementation of smart monitoring and measurement system in National Gas Company will play an effective role to increase the visibility of the gas network, standardize measurement in clicators (such as gas analysis) in accordance with international standards, increasing measurement accuracy, reducing the likelihood of human error, and enabling integrated monitoring and management.

Providing Consultancy services for Development of Technology and Infrastructure in Iran's Smart Metering Project

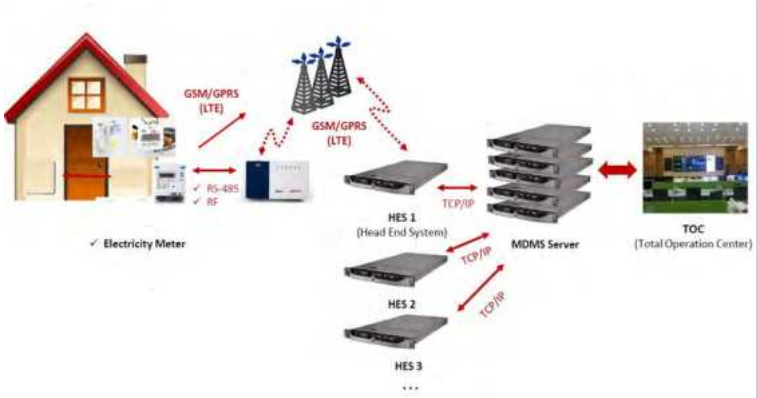
Start Date: 2022

Finish Date: In Progress

Location: Iran

Client: TAVANIR Co.

Scope of work:



Developing Iran's AMI System for residential and low consumption sector, the mentioned contract with following tasks was awarded. Development of roadmap for measuring and monitoring of low consumption customers, engineering services for increasing the visibility of distribution substations, engineering services for defining low cost Metering Solutions, engineering services for FAHAM 2 solution (RS485 based AMI solution including total scope of MDM software, meters, communication modems), Providing engineering services in development and implementation of PLC based AMI solution and other new telecommunication solutions, engineering services in development of web services and data exchange considerations for legacy application systems and management dashboards, engineering services for developing Infrastructure of FAHAM data centers, developing new ICT architecture to cover all necessary requirements of Iran's Smart Metering, cooperating in preparing the security annex of the FAHAM project and preparing technical and management reports of the Project.

Description: Considering the first phase of the FAHAM Project in order to complete the project, Developing the AMI System and achieve all pre-defined benefits and objectives, the mentioned project was awarded. In this project by implementing FAHAM new ICT architecture and various smart metering solutions, the Client will achieve wonderful results which will ultimately increase the ability of electricity distribution companies to manage customer consumption, reduce non-technical losses and fulfil demand response programs.

Providing Consultancy Services for Development of Smart Gas Distribution Network Model (AMI Project)

Start Date: 2022

Finish Date: 2024

Location: Iran

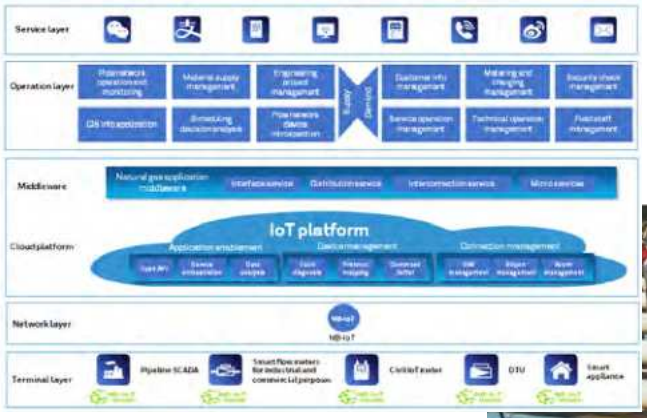
Client: National Iranian Gas

Scope of work:

Providing engineering and Consultancy services for Development of advance metering infrastructure in gas distribution network by installation smart meters for 27 million consumers. MONENCO will responsible for Developing engineering documents in field of security, RTU and smart metering specification. Communication layer. Interoperability specification, loT platform ant etc.

Description:

- Basic studies: Basic studies are conducted in order to know the existing infrastructures and guidelines in the National Gas Company of Iran and its subsidiaries with the aim of using the existing infrastructures as much as possible.
- Technological pilot project: In order to represent the solutions of the contractors and evaluating their capabilities in the field of implementation of the new technologies, a pilot project will be implemented in different regions of the country, and the evaluation of the participants will be the responsibility of the consultant.
- Feasibility studies of using new technologies such as blockchain: The possibility of using blockchain in smart networks based on loT, database design, security issues regarding the use of blockchain, and examining the possibility of gas tokenization are some of the issues raised in this section.
- Design of technical infrastructures for the implementation of smart gas distribution: Technical specifications of remote reading equipment, including smart meters, remote terminal units, gateways and other equipment, ICT architecture plan, telecommunications media specifications, loT-based software platform design, data center design, UI/UX user interfaces, interoperability design in different layers, are the most important tasks of Monenco in this section.
- Security plan and security requirements: In order to protect data, security and privacy and implement the requirements and regulations of relevant security institutions, identifying assets, identifying risks and analyzing risks and presenting a security plan are also included in this project.



- Providing a business model: In order to present the business model, first, benchmarking has been done in leading countries and indicators such as value proposition, target market, revenue stream, key partnerships, cost structure, key activities and finally the financing mechanisms will be examined. Factors affecting business, regulations and their requirements, the interactive model of forming a consortium of contractors, examining financing methods, determining the value chain model, and finally presenting the business model for smartening Iran's gas distribution network will be done in this section.
- Preparation of tender documents: Preparation of tender documents and evaluation of contractors

Smart Factories and mines (Industry 4.0)

This department was established with the aim of focusing on intelligentization in the field of industries and mines and seeks to provide services to the customers of this field based on the 4th generation industry techniques. Since traditional production methods support limited speed and quality and cannot fully meet all the needs of industries, therefore, for companies that are looking for high efficiency, optimal management of processes, better profit and gaining a competitive advantage in the market, implementation of the concepts of smart factory/smart mine based on the fourth industrial revolution is considered a necessity.

The use of valuable data and their analysis along with the integration of IT and OT platforms makes it possible to provide complete services to the stakeholders in a unified and connected platform.

Using industy4.0 technologies, including Internet of Things, artificial intelligence, image processing, 5G telecommunication systems, blockchain, cloud computing, cyber security, etc., this department offers its services in the following fields:

- Consulting services on the definition of the national projects and digital transformation of industries and mines
- Consulting services on the creation of an ecosystem for the development of technologies for the digital transformation of business and commerce
- Creating the necessary platform for international cooperation and market development related digital transformation of industry and mining
- Compilation of road map and supporting documents and necessary policies for the development of digital transformation of industries and mines
- Assessing the digital maturity of industries to enter the world of digital transformation
- Preparation of industrial and mining smart plans based on the needs and use cases of each individual industry
- Advising on the development of intelligent platforms for the chain financing system of industries and mines
- Consultancy services regarding the design of infrastructures for production, collection, transmission and analysis of data based on the Internet of Things.
- Process optimization plans with the help of artificial intelligence algorithms
- Predictive maintenance platform based on artificial intelligence algorithms
- Digital twin design
- Systems integration plan
- Smart supply chain
- Smart asset management
- Smart fleet management
- Smart energy management
- Smart human resources management

Power Generation Division

MONENCO Consulting Engineering Company, a multi-disciplinary engineering consultancy entity, providing and operating services to the international energy sectors in all aspects of the electricity value chain, starting from initial market and feasibility studies, up to the final consultancy operational design services in the all various and diversified power generation assets.

2,400 MW	1,100 MW	35,500 MW	+3000 MW	19,500 MW
Thermal Power Plants	Wind Power Plants	Combined Cycle Power Plants	Thermal Power Plants Feasibility Studies	Gas Turbine

Major Experiences:

- Gas Turbine: 21000 MV
- Combined Cycle Power Plant: 37000 MV
- Thermal Power Plant Studies: 5000 MV
- Solar Power Plant: 1450 MV
- Wind Powe Plant: 2100 MV
- Thermal Power Plant: 2100 MV

Expansion of Services:

- Powerplant engineering for electricity generation (Gas Turbine and Combined Cycle Power Plants)
- Desalination, Water and Wastewater Consultancy engineering
- Distributed generation and renewable projects engineering Consultancy
- Engineering, design, and supervision consultancy services
- Performing engineering services for industrial utilities
- Main cooling system modification engineering consultancy
- Information Integration Management of Projects

Power plant engineering for electricity generation (Gas Turbine & Combined Cycle Power Plants)

Pro-expertise in the design and development of power plants, particularly combined cycle, gas turbine plants, namely as follows:

- Design of CCGT, OCGT, SCGT and CHP power, rehabilitation, repowering and energy recovery plants
- Power plant management consultancy services
- Feasibility Studies for different Types of plants
- Design of main cooling systems (Heller, ACC, once through)
- Design of the balance of plant systems (BOP) which includes diesel generators, transformers, and switchgears as well as associated mechanical/electrical subsystems.
- Design of pre-treatment and demineralization plant, waste collection, treatment system facility, and condensate polishing plant
- Design of Auxiliary boiler system
- Design fuel gas supply and regulating station fuel tanks, unloading, metering, fuel treatment systems, gas handling facilities, and fuel feeding system
- Design of Batteries and UPS system
- Design of Ventilation and air conditioning systems (HVAC)
- Design of Plant distributed control system (DCS)
- Rendering engineering services in repowering projects
- Operation and maintenance services
- provide following services in field of asset management

Desalination , Water and Wastewater Consultancy engineering

- Concerning global water crisis; therefore, efficient distribution would be the most significant topnotch key element for any water utility in terms of continuity of supply. In this regard, the role of an integrated, centralized, and modern control system to enhance the safe water supply networks and water supply reliability, in an extensive water network with vast number of stations would be definitely inevitable.
- MONENCO IRAN, as one of the leading companies in engineering science and technology, has expanded its vision and target markets to water projects such as desalination, distribution of drinking water, industrial and urban wastewater treatment plants, wastewater streams recovery and reuse, water distribution and wastewater transfer network.

Distributed Generation and renewable projects Consultancy engineering

MONENCO is a consulting engineering company which participates actively in eco-friendly and clean energy projects such as renewable energy-based generation (wind power plants, PV power plant, waste to energy, etc.), and distributed generation with the use of combined cooling, heating, power generation (CHP/CCHP), and diesel generators so as to decrease the dramatic generating costs, adapt scalability, promote green and clean energy.

Services include:

- Conceptual, basic, detail, and overall designs engineering, interface engineering, procurement engineering, technical consultancy, supply service, and site technical support in all fields
- Feasibility studies, site location study, geotechnic and pull-out study, hydrology and flood control study, topography survey, EIA study, grid connection study, tender document preparation including solar and wind, transmission line and substation, in addition to tender process cooperation, site supervision, design review, and owner engineering

Consultancy Services of engineering, design and Supervision

Consultancy services of engineering, supervision, and site supervision for construction consisting:

- Design Review, making comments, and approving all studies and reports issued by EPC contractor or any other contractors of the projects
- Review and approving of all technical and engineering documents; furthermore, providing all engineering, consultancy, and supervision services such as preparation of technical specifications, tender documents, reviewing contractors' proposals, and approve the contractor
- Providing project control services and reviewing contractors' proformas for opening the L/C
- Reviewing and study the WBS, CBS, MDL issued by contractors to have final approvals.
- Review, study, make comments, and approve all the technical documents, instruction manuals, site temporary office, transportation, packing, HSE, and etc.
- Site supervision on power plant units' construction and related substation in addition to installation of all equipment
- Consultancy services for design of all types of buildings
- Geotechnical services and soil retrofitting

Performing engineering services for industrial utility

Services providing for industrial utilities include:

- Feasibility studies for construction
- Supervision on operation and maintenance services
- Performing internal electricity network improvement services
- Presenting the development plan of the electrical network to increase the level of production capacity
- Engineering services, strategy determination, and technical-economic feasibility study

Main Cooling System Modification Consultancy Engineering

According to the recent research, the Middle East and North Africa regions are the most water-stressed areas in the world; while by 2050, nations in these regions would experience extreme water scarcity. Considering the latest years' trend, Iran is also approaching physical water scarcity; therefore, the necessary solutions have been taken into MONENCO serious account. For instance, power plants with approximately 128 million m3 annual water consumption are (could be) one of the major water consumers in Iran. Therefore, it is significant to manage saving and water consumption especially for wet cooling systems. Having the high-technical knowledge for designing all cooling types, Monenco Iran is providing engineering services for the enhancement and empowering of cooling systems, specifically, wet cooling types, for various industries.

The range of engineering services include:

- Feasibility study for decreasing water consumption of wet cooling systems
- Feasibility study for transforming wet cooling systems to hybrid/dry types
- Sizing and basic design for hybrid/dry cooling
- Detail design for hybrid/dry cooling

Information Integration Management of Projects

By using AVEVA Global software, a two-way communication is established between a Hub and several satellite networks, where information could be exchanged and updated online. In MAPNA GROUP, MONENCO, as the main administrator, has the hub system, while the satellites are located in other companies. Designing and modeling are being done in a common intimate atmosphere among all groups involved in the design. In this virtual space, all the design information of a power plant would be available and each of the designers has its own prerequisites without any intermediaries and time lags. Supervision, coordination, and administration for integration of the BIM (Building Information Modeling) in MAPNA GROUP is performed by MONENCO IRAN.

Major Ongoing Projects

35000 m3/day Boushehr Sea Water Reverse Osmosis (SWRO) Desalination

Project Type: Design Review, Superior and Site Supervision

Start Date: 2018

Finish Date: 2021

Location: Boushehr, Iran

Capacity: 35000 m3/day drinking water

Client: Mapna Group (as the investor)

Owner: Boushehr Water and Wastewater Company

Scope of work: Engineering design review, endorsement of the engineering documents, supervision, and site supervision services of EPC contractor.

Description: This project intends to desalinate and transfer 35,000 cubic meters of fresh water per day to the Bushehr Water and Wastewater Company, as the owner. The project includes intake basin, pre-treatment unit, desalination plant, post-treatment unit, pumping station and all the electrical equipment, instruments and control and is being implemented as a BOO project by MAPNA Group Company. Sea Water Reverse Osmosis (SWRO) is the main treatment unit of this plant. Since the product is for drinking water, the RO permeate (product) is treated in the post-treatment unit and finally is pumped to be delivered to the owner.

Consultancy Services for Design of IRAN LNG Combined Cycle Power Plant

Project Type: Combined Cycle Power Plant

Start Date: 2006

Finish Date: 2022

Location: KANGAN, BOUSHEHR PROVINCE, Iran

Capacity: 6 GTG (183MW) + 3 STG (180MW)

Client: Iran Liquefied Natural Gas Co.

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

- Basic and detail design for all civil works
- Basic and detail design (mechanical, electrical & instrument) for all BOP systems and cooling system
- Site technical office and supervision on erection and commissioning:
- Design review and overall engineering

Description: The system of main cooling type is ONCE THROUGH and substation is 400 KV AIS.

Consultancy Services for Design of MOKRAN POWER AND STEAM GENERATION POWER PLANT.

Project Type: Gas Turbine Power Plant

Start Date: 2021

Finish Date: 2023

Location: Mokran Petrochemical Complex Site, Chabahar city in Sistan & Baluchestan, IRAN

Capacity: 1 MGT 70 About 183 MW

Client: AB NIROO MOKRAN Company

Scope of work: One single fuel (natural gas) Gas turbine simple cycle operation, four (4) Package boilers, Auxiliary cooling, Electrical equipment, Instrumentation and control equipment as well as relevant auxiliary systems.

Monenco provides Basic Design, Detail Design and 3D Modeling of Plant including:

- Design of all WTP Building, and all remined foundation and civil works from phase I.
- Design of all Mechanical BOP System including Compressed Air and Distribution System, Firefighting, HVAC, Collection of all waste water (oily, sewage, chemical…) and transfer to terminal point of client, gas, Demin Water Transfer System.
- Design of All Electrical BOP Systems including MV, LV Panels, DC& UPS, Cable &Support, Lighting, Socket, Earthing & Lightning.

Consultancy Services for Design of Ardakan Combined Cycle Power Plant

Project Type: Combined Cycle Power Plant

Start Date: 2022

Finish Date: 2024

Location: Ardakan, Iran

Capacity: 546 MW (2 GTG *183 MW + 1 STG*180 MW)

Client: Chadormalou Mining & Industrial Company

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

- Architectural, Structural Design of all buildings
- Design of all Mechanical BOP System, HVAC and Firefighting System of all Building
- Design of collecting waste water including
- Design of Electrical BOP system of Plant and all Building
- Design of main ACC Cooling System and main Auxiliary Cooling System

Description: The plant is located the existing Chadormalu power plant near ardakan city.

Engineering service agreement of Thar and ThalNova coal-fired Power Plant

Project Type: Power purchase agreement (2*330 MW (gross) coal-fired power plant)

Start Date: 2021

Finish Date: 2022

Location: Near the Village of Bitra, District Tharparkar, Sindh, Pakistan

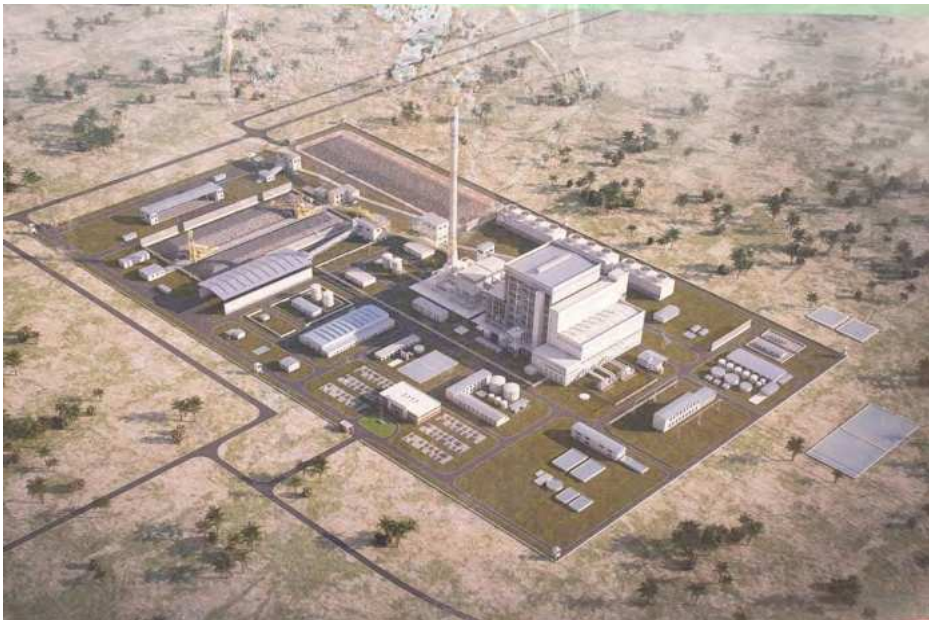
Capacity: 330 MW

Client: HUBCO

Scope of work: Monenco provides all the following services as an Independent Engineer in the Power Purchase Agreement (PPA):

- Review the detailed requirements under PPA
- Prepare, review and approve tests and commissioning procedures and schedules as required
- Notification to the Power Purchaser, regarding the schedule as required
- Witness Commissioning Tests as required under PPA
- Issue all the certificates as required to the Company and the Power Purchaser as required in the PPA, including but not limited to the Certificate of Readiness for Energization, Certificate of Readiness, Certificate of Readiness for Synchronization, Capacity Test Certificate, and so on
- Certify successful completion of Plant's Construction and Commissioning to the Power Purchaser and the Company
- Certify compliance of the Complex with the provisions of this Agreement and the Environmental Standards
- Copies of all results of the Commissioning Tests, including tests of major equipment included in the Complex, and tests of related electricity metering equipment.

Description: Due to the low level of electricity generation in Pakistan, the government has invested in the THAR ENGRO coal mine and aims to supply 5,000 MW of fuel to the coal-fired power plant. Therefore, to provide part of the electricity shortage, the second phase of the project with a capacity of 660 MW (two units of 330 MW) in the form of a guaranteed purchase contract (POWER PURCHASE AGREEMENT) Has been assigned to HUBCO company as the investor of this project



Investigation on ACC System Vibration

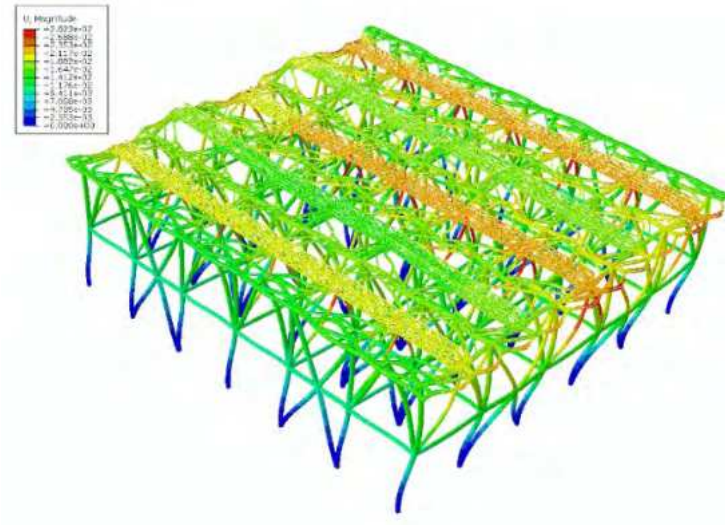
Start Date: 2020

Finish Date: Ongoing

Location: Mapna MD1

Scope of work:

- DCS data collection and analysis
- Measurement of vibration parameters at sites
- Structure modeling and vibration analysis
- CFD modeling of fan and fan bell
- Analysis of different parameters effect and conclusion



Description: According to problems related to ACC system vibration in installed power plants and its effect on cooling system performance, this project was defined for investigating and analysis of ACC vibration. Based on past experiences, Chadormalu, Behbahan and Parand power plants were selected for data collection from DCS system. Vibration parameters have been also measured for fans at different fan speeds at three mentioned plants. Besides, structure modeling and numerical vibration analysis have been done in different scenarios for ACC structure material and different joint types. CFD modeling of fan and fan bell are currently undertaken. After completion of last phase, a comprehensive analysis of different parameters effect will be done and a conclusion report will be finalized.

Consultancy services and site supervision of Zagros Kowsar 5 MW PV project

Scope of work:

Consultancy service including:

- Supervision and approval of tender documents prepared by the company to identify the contractor for the construction of the solar power plant

Consultancy service including:

- Holding project control meetings with the presence of contractor and employer representatives
- Monitor work progress according to schedule
- Supervise the correct performance of the contractor and observe the contractual, standard and engineering requirements
- Reminders of contractual and future plans of the project
- Review, approval and report on the status of the invoices provided by the contractor
- Supervise the purchase, construction and transportation of the site, insurance and submission of compliance reports related to in-site construction equipment
- Performing project control services and financial and technical documentation of the project.

Consultancy Services for Design of South 2(Foulad Mobarakeh) Combined Cycle Power Plant

Project Type: 2 F-Class (MGT80) Gas Turbine+1 Steam Turbine Power Plant

Start Date: 2022

Finish Date: 2024

Location: Foulad Mobarakeh Complex, Isfahan, IRAN

Capacity: 2MGT 80(2*307) MW Gas Turbine+ 1*300 MW Steam Turbine

Client: Iran Liquefied Natural Gas co

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

- Architectural, Structural & Equipment Foundation Design of all buildings
- Design of all Mechanical BOP System, HVAC and Firefighting System of all Building, Compressed Air, Fuel System, Auxiliary steam
- Design of collecting waste water
- Design of Electrical BOP system of Plant including MV, LV Panels, DC& UPS, Cable &Support, LIGHTING, Socket, Earthing & Lightning
- Design of ACC Cooling System and Auxiliary Cooling System

Description: Steam portion of plant is first unit of F-class series that will be constructed in Iran.

Consultancy Services for Design of Zahedan Simple Cycle Power Plant (BOP & Power Block)

Project Type: 3 MGT40 Gas Turbine

Start Date: 2022

Finish Date: 2022

Location: Zahedan City, Sistan & Baluchistan province, IRAN

Capacity: 3MGT 40(3*42) MW Gas Turbine (GE)

Client: MD1

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

- Architectural, Structural & Equipment Foundation Design of all buildings
- Design of all Mechanical BOP System, HVAC and Firefighting System of all Building, Fuel System, Auxiliary steam
- Design of collecting waste water
- Design of Electrical BOP system of Plant including MV, LV Panels, DC& UPS, Cable &Support, LIGHTING, Socket, Earthing & Lightning

Description: The units have been manufactured by GE that is supposed will be reproduced by Tuga in 4 next plant.

Consultancy Services for COOLING SYATEM MODIFICATION OF ISFAHAN (Eslam Abad) STEAM POWER PLANT UNIT 5

Project Type: COOLING SYATEM MODIFICATION

Start Date: 2022

Finish Date: 2024

Location: Isfahan City, Iran

Client: AB NIROO MOKRAN Company

Scope of work: Engineering Service includes engineering and detail design of main and auxiliary cooling system unit No. 5 of Isfahan Islamabad Power Plant in order to conversion of wet cooling tower to hybrid dry cooling tower with mechanical forced draft system, the design will be included all parts such as mechanical, Electrical, civil, instrumentation and control system so that all detail drawings and documents of the project for cooling island and BOP system will be designed by Monenco , for the civil system monenco is also responsible for basic design; all abovementioned works will be performed based on latest international standards and with applying the best software in order to achieve the best quality and be easy to work by users, design will be based on the principle of optimization based on specialized and the latest editing standards at the time of contract exchange in a way the design is the best option economically, qualitatively and environmentally, 3D software (PDMS) will be apply for design in this project , all technical documentation and engineering evidences will be delivered to client based on contractual agreement.

Description: The plant is located in Isfahan City in Isfahan Province and is consisting of 5 units thermal power plants , modification will be made to Converting Main Cooling system of unit No. 5 with 320 MW capacity from existing wet type to hybrid system with mechanical forced draft dry cooling tower, required modification will be made on auxiliary cooling system as well in order to work with modified situation, the necessary buildings and facilities, piping, Electrical equipment, Instrumentation and etc… will be designed

for the scope of work of cooling island, The importance of this design is that the project is new and is being carried out for the first time in the country and promotes the Company's experience and expertise, and in addition to reducing water consumption in the area, and so the goal is to get new similar projects in the company.

Consultancy Services for JASK POWER PLANT (1 x MGT40) SIMPLE CYCLE POWER PLANT

Project Type: GAS TURBINE SIMPLE CYCLE POWER PLANT (MEDIUM SIZE)

Start Date: 2022

Finish Date: 2023

Location: Hormozgan province, Jask City

Capacity: 40 Mw

Client: Mapna(MD1)

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

- Design of all Buildings (Industrial and non-industrial) Including Architectural, Structural and Foundation Drawings and Calculation notes
- Design of all Mechanical BOP System including Fire Fighting of plant, Gas Oil and Natural Gas System Distribution
- Design of Water Distribution including Raw, Potable, Service and
- Design of collecting waste water including (Sewage, oily, clean, chemical and surface drainage)
- Design of HVAC and Firefighting System of all Building
- Design of Electrical BOP system of Plant and all Building

Description: Basic and detail design of Power Block and BOP systems and accessories for Gas turbine the project includes all drawings to be prepare according to design based on engineering calculation and all engineering evaluation of the system by Monenco Iran and providing all engineering and consultancy services for the client.

Consultancy Services for Design of GOLGOHAR Combined Cycle Power Plant (2th block)

Project Type: Combined Cycle Power Plant

Start Date: 2022

Finish Date: 2024

Location: Sirjan, southwest of Kerman province, Iran

Capacity: 546 MW (2 GTG *183 MW + 1 STG *180 MW)

Client: Mapna Group

Scope of work:

Monenco provides Basic Design, Detail Design and 3D Modeling of Plant including:

- Preparing Energy Conversion Agreement Documents (Including Instruction to Bidders, Agreement with Schedules, Technical Specification, Technical Data Sheets and Performance Data of Main Equipment)
- Design of all Buildings (Industrial and non-industrial) Including Architectural, Structural and Foundation Drawings and Calculation notes
- Design of all Mechanical BOP System including Fire Fighting of plant, Gas Oil and Natural Gas System Distribution, Compressed Air Distribution System and Auxiliary Steam Distribution System
- Design of Water Distribution including Raw, Potable, Service and Demined Water
- Design of collecting waste water including (Sewage, oily, clean, chemical and surface drainage)
- Design of HVAC and Firefighting System of all Building
- Design of Electrical BOP system of Plant and all Building
- Design of main ACC Cooling System

Description: The plant is located near Sirjan city in Kerman Province which is consisting of one full block combined cycle power plant including 2 gas turbine portion and one steam portions of combined cycle power plant each consisting of two (2) HRSGs and one steam turbine generator set & main and auxiliary cooling system, the system of main cooling type is ACC.

Consultancy Services for Design of gas portion of NEKA combined cycle power plant

Project Type: Gas Power plant

Start Date: 2022

Finish Date: 2023

Location: Neka, Iran

Capacity: 366 MW (2*183 MV)

Client: Mapna Group

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

- Preparing Energy Conversion Agreement Documents (Including Instruction to Bidders, Agreement with Schedules, Technical Specification, Technical Data Sheets and Performance Data of Main Equipment)
- Design of all Buildings (Industrial and non-industrial) Including Architectural, Structural and Foundation Drawings and Calculation notes
- Design of all Mechanical BOP System including Fire Fighting of plant, Gas Oil and Natural Gas System Distribution, Compressed Air Distribution System and Auxiliary Steam Distribution System
- Design of Water Distribution including Raw, Potable, Service Water
- Design of collecting waste water including (Sewage, oily, clean, chemical and surface drainage)
- Design of HVAC and Firefighting System of all Building
- Design of Electrical BOP system of Plant and all Building

Description: The plant is located near Neka city in Mazandaran province and is consisting of the two simple cycle V94.2 gas turbines.

Engineering Services of Khaf 100 MW Wind Farm

Project Type: Wind Power Plant

Start Date: 2023

Finish Date: 2023

Location: Khaf Region, South Khorasan Province

Capacity: 100 MW

Client: Nasb Niroo Company

Scope of work:

- Visiting the area, gathering information and negotiation with local authorities.
- Compiling technical specification, calculation and preparing basic and conceptual maps.
- Design review of Geological Study of the Wind Farm area;
- Design review of Hydrology report
- Design review of sites topography study

Description: Fanavaran Company intends to construct a 100MW wind farm in Khaf region, South Khorasan province. Nasb Niroo Company has been chosen to be the EPC contractor and has asked Monenco to design the Engineering parts of the Project consist of wind farm design, transmission lines, earthing system, and etc.

Installation of Wet Compression System for Mah-Shahr Power Plant

Project Type: Power Plant

Start Date: 2022

Finish Date: 2022

Location: Mah-Shahr, Khuzestan, Iran

Capacity: 546 MW (2 GTG *183 MW + 1 STG *180 MW)

Client: Mapna Group

Scope of work:

- One demin water treatment system
- Demin water tank
- Demin water transfer pump station
- Demin water transfer line
- Two cartridge filter
- Two wet compression skids
- High pressure water transfer lines from WCS skids to vertical duct of compressors
- Installation of lances in vertical duct of compressors
- Coating of first stage blades of compressors

Description: Wet Compression System (WCS) is one of the Turbine Inlet Air Cooling (TIAC) systems. Wet compression system consists of injecting atomized demin water droplets directly into the vertical duct of compressor to increase output. Wet Compression is largely independent of the ambient relative humidity. While somewhat higher performance improvement can be available in a very hot dry climate, Wet Compression can also be very effective at times of high humidity. Monenco Iran was the general engineer of this project, supplying engineering services such as designing piping systems, designing foundation of equipment, interface engineering, providing site supervision, etc.

Consultancy Services for Design of AL-MAHDI Combined Cycle Power Plant

Project Type: Combined Cycle Power Plant

Start Date: 2022

Finish Date: 2024

Location: Bandar Abbas, Iran

Capacity: 546 MW (2 GTG *183 MW + 1 STG *180 MW)

Client: AL-MAHDI ALUMINIUM Company

Scope of work:

Monenco provides Basic Design, Detail Design and 3D Modeling of Plant including:

- Design of all buildings (Industrial and non-industrial) including Architectural, Structural and Foundation Drawings and Calculation notes
- Design of all Mechanical BoP System including Fire Fighting of plant, Gas Oil and Natural Gas System Distribution, Compressed Air Production and Distribution System and Auxiliary Steam Production and Distribution System
- Design of Water Distribution including Raw, Potable, Service and Demined Water
- Design of collecting waste water including (Sewage, oily, clean, chemical and surface drainage)
- Design of HVAC and Firefighting System of all Building
- Design of Electrical,I&C BoP system of common systems and all Building
- Design of main ACC Cooling System

Description: The plant is located Bndar abbas city in Hormozgan Province which is consisting of one full block combined cycle power plant including 2 gas turbine portion and one steam portions of combined cycle power plant each consisting of two (2) HRSGs and one steam turbine generator set & main and auxiliary cooling system. In addition, the system of main cooling type is ACC.

In addition, Site supervision and Technical office with separate contract is scope of work.

Engineering services, consulting, supervision and workshop of renewable power plant projects of NICICO

Project Type: Feasibility study, engineering, design review, owner engineer, site supervision

Start Date: 2022

Finish Date: 2024

Location: Kerman Province and East Azerbayejan Province, Iran

Capacity: 320 MW + 250 MW + 150 MW + (5+25 MW) PV Solar Power Plant, 3*50 MW Wind Power Plant

Client: NATION IRANIAN COPPER INDUSTRIES COMPANY (NICICO)

Scope of work:

Solar Power Plant:

Feasibility studies, site location study, Geotechnic and pull-out study, Hydrology and flood control study, Topography survey, EIA study, Grid connection study, tender document preparation including solar, transmission line and substation, tender process cooperation, site supervision, design review, and owner engineering.

Wind power plant:

Feasibility studies, site location study, Hydrology and flood control study, Topography survey, EIA study, Grid connection study, tender document preparation for MET Mast, Review of Wind data, site wind Data analysis, Wind Resource assessment, Economical Study, Tender Document including wind power plant, transmission line and substation, tender process cooperation, site supervision, design review, and owner engineering.

Description: NATION IRANIAN COPPER INDUSTRIES COMPANY (NICICO), considering the importance of providing sustainable electricity needed by mines and factories in operation and development plans, taking into account technical parameters such as network studies, efficiency, height above sea level, capacity of lines and substations, proximity to consumption centers, fuel supply limitations, the undeniable potential of electricity supply from renewable sources, international obligations to reduce greenhouse gases, the increasing growth of investment in the development of alternative sources of energy supply, etc. in line with the agreement between the Ministries of Samt and Energy on the commitment to build 800 megawatts of new power plant capacity in the country, decides to build three large-scale solar power plants with a total capacity of 720 megawatts, to build two small-scale solar power plants with a total capacity of 30 megawatts, and to build a total of 150 megawatts of wind power plants with help of qualified engineering and contractor companies.

Oil, Gas & Mine Division

Oil & Gas, Petrochemical and chemical production plants consultants across the globe are looking for timely solutions to help them address the current challenges of a global economic challenge, decline the overall margins and increased emphasis in process safety compliance and environmental problem. Monenco Iran 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 and chemicals industry insights and vast experience in our core competencies. We are, and will continue to be, second to none in understanding our clients' needs and the worthiest steward of their resources.

Monenco Iran benefits from participation and cooperation with prominent international and regional engineering consultancy companies in joint ventures to render consultancy and engineering services abroad in the field of Oil & Gas. At the same time, this partnership provides broader opportunities for serving domestic and international clients with higher quality. Monenco, by having the major oil and gas and chemical 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 GTP, GTO and GTA in petrochemical plants, feasibility study for Bio-ethanol plants, upstream oil projects, pipe line, mineral projects and know how transfer have been the most remarkable achievements for the division in 2023.

Engineering and consultancy of new petrochemical complexes with gas as their feed and renovation and optimization of existing refineries are the targets of Oil and Gas Division. Challenging with our international competitors all around the world in the fields of oil and gas transportation, LNG storage and regasification terminals and small-scale refineries-mini refineries-are extended global services in this division.

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Oil & Gas Complexes

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Mining & Geology Projects

Major Experiences:

- CFP (Condensate Fractionation Plant)
- CRU (Catalytic Reforming Unit)
- Land Based and FSRU LNG Re-gasification Terminals Central Processing Facilities
- Utility and offsite in Oil and Gas and Petrochemical Plant
- Custody Metering Projects
- Vapor Control & Recovery in Refineries & Tank Farms
- GTP, GTO in Petrochemical Plants
- PDH and PP in Petrochemical Plants
- Bio-ethanol
- Fire protection and Alarm System for Gas Condensate & Crude Oil Tanks in Refineries and Oil Terminals
- Control & Monitoring System of Oil Fields (offshore/onshore)
- Consultancy Services and Supervision in Oil & Gas Pipeline
- SCADA Systems
- Call of Engineering Services
- Technical Inspection
- Know How Transfer

Major Ongoing Projects

MC Services and site supervision of Propylene and Polypropylene Production Plants (PDH and PP)

Start Date: 2023

Finish Date: 2028

Location: Assalouyeh -Pars Special Economic Energy Zone - Iran

Client: Mehr Petro Kimia Company

Scope of work:

- Contributing PMC services and engineering activities
- Supervision of Detail Design & Procurement engineering Services
- Supervision & Consultancy Services for Construction phase in site
- Supervision of Commissioning & operation phase in site

Description: Mehr Petro Kimia Company plans to build a Propane Dehydrogenation(PDH) Facility and a Polypropylene (PP) Plant as a first executive Company in Iran in the Pars Special Economic Energy Zone in the Assalouye .PDH Plant with 450.000 tones/year of Propylene use STAR technology under the Licence of Uhde company. The PP Plant with 450.000 tones/year capacity produces different grades of Poly-propylene by HYPOL-II process under the licence of MITSUI company .

GAS STORAGE DEVELOPMENT PROJECT IN KHANGIRAN FIELD, SHURIJEH "D" RESORVOIR

Start Date: 2022

Finish Date: 2025

Location: North Khorasan Province, Iran

Client: Iran Central Oil Fields Company/Oil and Energy Industries Development Qeshm Co.

Scope of work:

- Detail Design of Surface Facilities including Wellheads, Manifolds, Flow Lines, Separation Unit, Compression Unit and Dehydration Unit
- Field Engineering Services

Description: Shurijeh-D reservoir of Khangiran Gas field which located in north east of Iran, near Sarakhs city was nominated as underground gas storage (UGS) in 2009 and all required facilities for gas injection and withdrawal were constructed in year 2014 at Shurijeh UGS plant Phase-I. During the operation of the Phase-I, capability of the reservoir for additional gas storage has been confirmed. HOST COMPANY is responsible for all underground gas storage in the country including Shurijeh-D.

Upon successful implementation of Phase-I the potential of additional storage capacity has been confirmed and the phase-II of the development of the reservoir planned by HOST COMPANY to increase the storage amount to 4.5 billion cubic meters.

After tender completion, the selected INVESTOR shall take over the operation of all existing Shurijeh-D UGS and upstream facilities for commercial period along with the complete reservoir study/monitoring to perform the second phase of development of these UGS facilities.

The main activities of this new project are the development plan preparation, engineering, procurement, drilling, construction and commissioning of phase-II, integrated operation and maintenance of whole system (phase I and II), and gas feeding from/to HOST COMPANY based on defined contract.

Contributing Engineering Services for Danan Oil Field Development Central Processing Facility

Start Date: 2019

Finish Date: 2023

Location: Dehloran, Iran

Client: Iranian Central Oil Field Company (ICOFC)

Scope of work:

- Providing site data gathering Endorsement of existing documents
- Feed design
- Detail design
- Procurement services
- Site support services

Description: Danan Oil Field is located in 80 Km northwest of Andimeshk and 30 Km south of Dehloran cities in Dezful. Dehloran field is located at 180 km western north of Ahwaz and has 58 km distance from Cheshmeh-Khosh production unit. The scope of this project consists of engineering, procurement, drilling and related activities, construction, pre-commissioning, commissioning, start-up and performance test and geo-physics of Danan Oil Field.

Wellhead facilities for 11 new wells in Danan Field includes 2 skid mounted Chemical Injection Packages for each well, totally 22 Nos. 6" crude flow lines connect the 11 new wellheads in Danan field to the existing Danan Manifold (total 55 km). Power overhead line from Danan Manifold to the new well heads is also in the scope of Work. Dehloran new equipment includes one complete crude oil desalting unit with Capacity of 10000 STBD and a water bath heather (WBH) to heat the crude for desalter in the existing Dehloran desalting plant.

Contributing Managing Contracting Services (MC) for infrastructure Plans in Pars Economic Special Zone (ASSALOYEH) and Mahshahr Economic Special Zone in south of Iran

Start Date: 2021

Finish Date: 2024

Location: Mahshahr & Assaluyeh, Iran

Client: National Petrochemical Company (NPC)

Scope of work:

- MC services
- Supervision services
- Consultancy services for reviewing basic engineering documents in fields of:
  - Process
  - Plant and piping
  - Electrical
  - Instrumentation
  - Civil and structure
  - Mechanical
  - Health, safety and environment (HSE)

Description: Contributing Technical Engineering Services and Managing contracting services (Technical office in sites and Tehran Central office) for infrastructure plans including:

- Pars Economic Special Zone (Assaloyeh):

Civil works, Roads, Break water, Control Barrier, water Barrier, Surface Drainage, Lighting, etc. Infrastructure investment in Mahshahr:

- Rehabilitation of petrochemical Ports.

Development works on Storage Tanks and ports. Pile coating, structure vibration reinforcement, Structure Pedestal fire Proofing, utilities corrosion Protection, Loading & Unloading Arms Installation, Pipeline & Storage Tanks & structure coloring, Crane Purchasing and repairing PVM Conceptual Design with capacity of 470,000 Tones/year.

MC Services and site supervision of Kermanshah Bioethanol Production Plant (200,000 Lit/day)

Start Date: 2013

Finish Date: 2023

Location: Kermanshah - Iran

Client: Zagros Green Fuel Development Company (GSZ)

Scope of work:

- Contributing PMC services such as:
- Providing RFP & Process Engineering Licensor Company
- Providing Tender Documents for Selection EPC Contractor
- Supervision of Basic & Detail Design & Procurement engineering Services
- Supervision & Consultancy Services for Construction phase in site
- Supervision of Commissioning & operation phase in site

Description: The main purpose of this project is to build a green field facility for Bioethanol production. (200,000 liter/day at 99 .8% volume) located in Kermanshah Province in I ran. Kermanshah Bio ethanol production project is considered as the first project in Iran. As the bio-fuel will be used as a supplement/ improver of gasoline in the future, gasoline consumption or gasoline petrochemical supplements elimination (especially MTBE) will be reduced. Reduction of pollution is one of the most important benefits and advantages for the environment and public health.

470 KTA *PVM Plant

Start Date: 2022

Finish Date: 2023

Location: Tehran, Iran

Client: National Petrochemical Company (NPC- RT)

Scope of work: Review of Basic Engineering Documents

Description: Methanol is produced widely in our country. It can be used in several chemical and petrochemical industries, production of propylene being one of them. Recently National Petrochemical Company (NPC) has shown great interest in evaluation and construction of PVM plants in different areas. It can be an effective way of producing propylene since it is commonly used to supply poly propylene, propylene glycol, ... In this stage, Basic Design Documents are being provided by National Petrochemical Company-Research and Technology (NPC-RT) and reviewed by Monenco Iran Consulting Engineers. In this project the licensor is NPC-RT and the know-how has been developed in Iran which is considered a bonus.

Tehran Lube Oil Refinery Utility (Power & Steam generation)

Start Date: 2022

Finish Date: 2023

Location: South of Tehran, Iran

Client: Iranol Oil Refinery

Scope of work: Endorsement of Existing Condition, Conceptual, Basic and Detail Design, Procurement Engineering Services, Providing Tender Documents for selection EPC contractor

Description: Tehran Lube Oil Refinery is located next to the Tehran Oil Refinery and has been designed by LUMMUS CO. Iranol CO. is supplied its steam requirements from Tehran Oil Refinery and power requirements via electricity network as well as Tehran Refinery as Back up. This Company intends to Design and Install Steam and Power Generation Units to produce its requirements.

In this Project, Monenco is responsible to endorsement existing condition, engineering and design of steam and power units and relevant utilities.

Geology, Mine and Mining Industries

Monenco Iran is committed to provide high-quality services in the field of Geology, Exploration and Mining Industries through its experienced staff also to establish cooperation with international well-known firms in the mentioned field. The services include: Geology, Prospecting, 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, Data mine studio, FLAC, Gems, and UDEC and prepared to provide consultancy services in exploration and extraction of mineral deposits while partnering with highly skilled international companies by using modern equipment and machineries.

Introduction of New Technologies

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

Phosphoric Acid

Phosphoric Acid is an essential intermediate chemical product. It is mainly used for the manufacturing of fertilizers. The aim of this service is the development of a new commercially competitive process for the production of concentrated phosphoric acid and fertilizer from phosphate rock. Following are the targets of project:

- A high-grade the phosphoric acid
- Producing high-grade byproducts like phosphogypsum that will be suitable for building purposes
- Mineral processing

Laser Scanning System for Mining Survey

In mining operations, measuring block extraction in a different period, geometry changes in place of extraction, the volume of the mineral depot, the volume of the waste depot, the volume of the waste depot are basis of mine design and planning. These works were performed by manually surveying by this method with human and system tolerance.

Major Ongoing Projects

Engineering and Supervision Services for Phosphoric Acid Plant in Bandar Abbas (Special Economic for the Mining and Metal Industries of the Persian Gulf)

Start Date: 2023

Finish Date: 2026

Location: Bandar Abbas-Special Economic for the Mining and Metal Industries of the Persian Gulf, Iran

Client: National Iranian Copper Industries Company (NICICO)

Scope of work:

- Engineering and supervision services on contractors' operations Prepare prescription of work circulation between contractor and client Checking and commenting basic engineering documents
- Engineering procumbent services
- Test certificate in relation to test design parameters
- Supervision & consultancy services for the construction phase Provisional operation period services
- Providing engineering services
- Site supervision services (during construction, testing and commissioning)

Description: Sulfuric Acid is an unwanted product in the copper industry. Due to the existence of copper production plants in Iran, the amount of production of this material in the country is high. Su If uric Acid is one of the feed materials in the process of producing Phosphoric Acid. Therefore, the construction of a Phosphoric Acid Plant, will cover some of the country's need for fertilizer production. To the best use of Sulfuric Acid produced, NICICO decided to establish a Phosphoric Acid Plant with the capacity of 360,000 tones P205/ year. In this project, Monenco Iran is responsible for rendering design, engineering and supervision services for the construction of the plant.

MC Services and Site Supervision of Khatunabad Copper Refining Complex

Start Date: 2022

Finish Date: 2027

Projects Related: Miduk Concentration and Mine Development Plan, Khatunabad copper smelting development plan, Copper refinery, Railway connection project, Slag Flotation, Lime Plant, Stadium, ...

Location: Khatunabad to Shahrbabak road, Shahrbabak city, Kerman province

Client: National Iranian Copper Industries Company

Scope of work: Performing technical consulting services and Management Contract

Description:

- Required services in all fields, including: technical, financial and economic, administrative, banking, legal, project planning and control, litigation management, supervision and inspection, control, evaluation, guidance, executive, processing, defects, Reporting, preparing and technical and administrative Documents, coordinating, holding meetings and distributing MOMs, following up on approvals and any other services that are related to the project.
- Checking and Review of Documentation that are prepared by consulting engineers and contractors from the beginning of the project to the end of project delivery.
- Supervision in all matters of design and engineering services in various fields (civil, structural, mechanical, electrical and instrumentation, process, project planning and control, geotechnics, surveying, laboratory, Manufacture, installation, commissioning) and project submission.
- Performing activities that are required by the employer from the beginning to the operation of the projects.
- Delivery and transformation of documents and organizational OPA from previous MC service companies in the projects of Shahre babak Copper Complex Development Deputy Targeting the five-year period and monitoring the goals of Shahre babak Copper Complex Development Deputy based on IMS system standards of National Copper Industries Company.

Design and Engineering Services for Flue Gas Desulphurization (FGD) of Pelletizing Unit No.1 of GOL GOHAR Mining & Engineering Co.

Start Date: 2022

Finish Date: 2024

Location: Sirjan, Kerman Province, Iran

Client: GOL GOHAR Mining & Engineering Co.

Scope of work: Review of Basic Design Documents, Developing Detailed Design Documents, Developing Procurement Engineering Documents, Shop Engineering (Technical Office) Services, and Developing Project's Final Book Description: This is one of a kind wet flue gas desulphurization (FGD) project in Iran with ammonia absorption which not only will prevent emission of a very harmful air pollutant gas Sox from the No. 1 Pelletizing Unit of GOL GOHAR, but also with converting it to very useful fertilizer Ammonium Sulfate ((NH3)2S04) could help flourishing the agriculture of Kerman and whole Iran.

Engineering and Supervision Services for Hydrated Calcium Carbonate Plant in Lar Mountain

Start Date: 2019

Finish Date: 2023

Location: Yasoj, Iran

Client: Iran Minerals Production and Supply Co. (IMPASCO)

Scope of work:

- Prepare technical documents of contract and scope of work
- Prepare prescription of work circulation between contractor and client checking and commenting basic and detail design
- Engineering procumbent services
- Pre-shipment surveyor
- Test certificate in relation to test design parameters
- Supervision & consultancy services for the construction phase in site Provisional operation period services

Description: Lar Mountain in Charam province has many Calcium Carbonate mines. To the best use of production of these mines, IMPASCO decided to establish a Hydrated Calcium Carbonate Plant with the capacity of 30,000 tones/year. In this project, Monenco Iran is responsible for rendering design, engineering and supervising services for the construction of the power plants.

Coal Exploration Services in the North Kuchakali, Tabas Province, South Khorasan

Start Date: 2021

Finish Date: 2023

Location: Tabas Iran

Client: Mehdiabad Mining Company

Scope of work:

- Geological and technical data gathering
- Preparing an archive of maps and project documentation
- Topographical and geological mapping at 1:5000 and 1:1000 scales
- Development of geodatabase
- Locating and monitoring trench excavation and sampling
- Geological survey of trenches and their sections
- Exploration network design
- Specify the location of drilling points, preparation of drilling logs and supervision of drilling operations Geophysical studies
- Preparation of hypsometric profiles and maps and estimate resource and preparation of three-dimensional model

Description: The project area is located in North Kuchakali, Taba's coal field. To coal extraction plan of Zone No. 2 in North Kuchakali, detailed explorations are required, for which purpose Monenco Iran, as a consultant, is responsible for performing detailed exploration engineering services.

Prospecting, general and detail exploration for copper potential of Torud- Semnan

Start Date: 2022

Finish Date: 2024

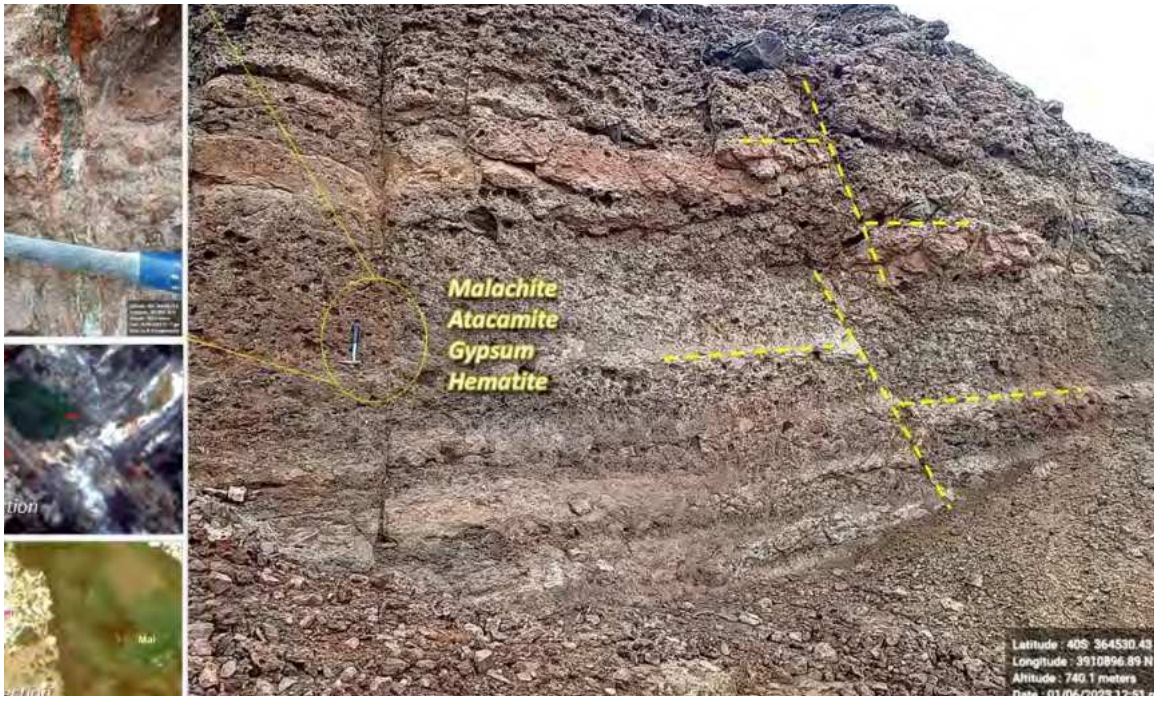
Location: Torud- Semnan, Iran

Client: Iran Minerals Production and Supply Co. (IMPASCO)

Scope of work:

- Contributing PMC services to the client including:
- Data gathering include satellite image (aster data), airborne geophysics, geochemistry study, geology map
- Compilation data for detecting promising areas
- Preparation of geological maps at scales of 1:5000 and 1:000
- Analyzing samples (ICP, XRF, and XRD)
- Lithology study (thin and Polish section of litho sample)
- Conducting geophysical operations
- Carrying out surface and deep drilling
- Operations Designing and drilling exploratory boreholes
- Carrying out reserve estimation studies and technical and economic studies of the plan
- Final report and geodatabase in GIS

Description: The area of Amalah Trud is 6238 square kilometers, located 200 kilometers south of Shahrood, and includes part of the large desert as a playa. This area has been assigned to Khor and Bia bank potash complex in the form of potash project, and so far, measures such as digging a number of exploratory boreholes and wells have been carried out in order to study of potassium, magnesium, salt, etc.



Energy and System Studies Center

Energy and System Studies Center (ESSC), established in 2008 as a specialized division within Monenco, aims to provide services tailored to the evolving business landscape and to bolster its technical expertise. Focused on advanced studies in the power and energy sector, ESSC covers a wide range of areas including planning, operation and control, energy management, economic regulations, market feasibility studies, and structural requirements within power systems. The center also offers training and consultancy services in these fields.

ESSC accomplishes its mission through its continued commitment to innovative and cutting-edge research while providing professional consultations to local and international institutions and conducting various projects in the power and energy sectors. Additionally, ESSC provides training for the specialists and professionals currently working in the related sectors. The research and study team at ESSC consists of highly-accredited and specialized experts from related fields. The team's experience is diverse and covers most areas of electric power systems, energy management, energy efficiency, renewable energy, sustainable and regenerative energy development, and the global environment as well as the economic aspect of energy.

The primary goal of ESSC is to provide solutions to challenges encountered by power producers and consumers. In this regard, ESSC has conducted various local and foreign projects that some of them are explained in the following. Devoting efforts of the talented experts in ESSC made it possible to successfully take part in different consulting areas.

Activities of ESSC can be categorized into four groups as follows:

- Power System Studies;
- Energy System Planning;
- Electricity Market and Economic Feasibility Studies;
- Electricity Sector Strategic Planning and Management.

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

Power System Studies Group

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

Energy System Planning Group

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

Electricity Market and Economic Feasibility Study Group

Economic Feasibility Study and Electricity Market Group activities cover all consulting services in the areas of economic feasibility and market studies. These services are not limited to the electricity industry and cover all industrial projects. Some of the major tasks of this section are economic feasibility study for investment projects, developing 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, exchange, studying, and predicting the behavior of other market players. Moreover, this section 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 and organizations, etc.

Electricity Sector 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 in electricity sectors. Besides, this group has experiences in management processes, operational planning, evaluating performance of 114 related companies, organizations, and etc.

Major Projects in 2023

System Studies and Technical Assistance to Improve the Reliability and Efficiency of Bangladesh Power Grid

Start Date: 2021

Finish Date: Ongoing

Location: Bangladesh

Client: Power Grid Company of Bangladesh (PGCB)

Description: Power Grid Company of Bangladesh (PGCB) through funding from the World Bank awarded a contract to Monenco Iran Consulting Engineers Company as the Consultant in order to carry out a project titled "Consultancy Services for System Studies and Technical Assistance to Improve System Reliability and Efficiency". The objectives of this project according to the scope of work can be summarized as:

Description of Actual Services Provided by Monenco:

- Establishment of primary frequency control through free governor mode operation (FGMO); Establishment of secondary frequency control and reserve management;
- Establishment of voltage regulation and stability; and
- Achievement of economic operation and dispatch.

It is hoped that by the end of this project, the grid in Bangladesh will have adequate levels of frequency control, voltage control, and system restoration which would allow the system to operate with an enhanced degree of security, reliability, and quality to support the development of Bangladesh's economy.

The project will be carried out in two phases:

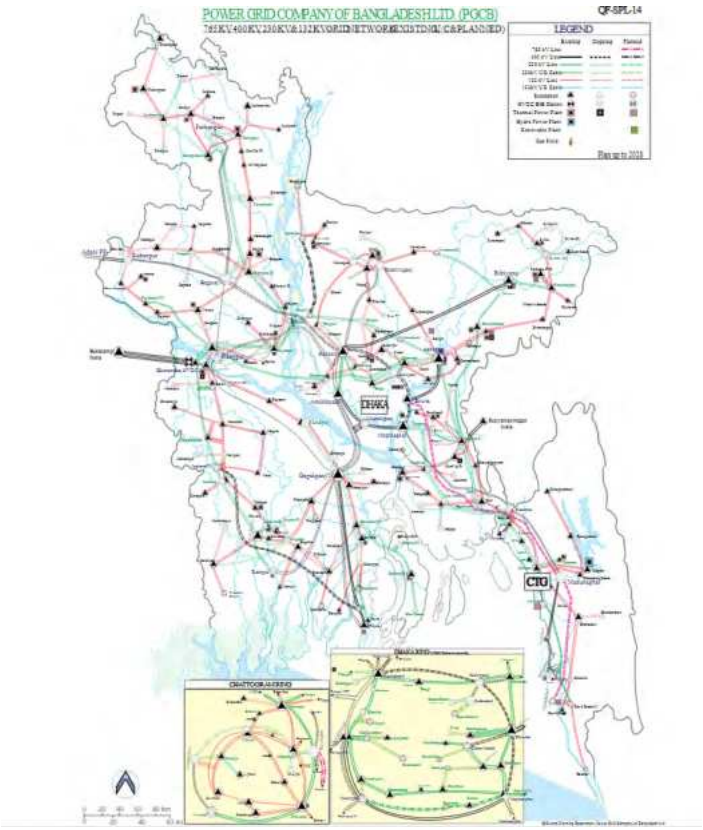
The first phase will be concerned with studies and design and the scope of services in this phase of the project will include:

- Modeling and performance of system studies on Bangladesh's grid to determine the requirements of FGMO and voltage control;
- Survey of power plants and assessment of most suitable candidates for provision of frequency control; Testing and field measurement campaigns for control systems of power plants;
- Provision of recommendations for enhancement of plant capability in participation for FGMO and voltage control;
- Carrying out preliminary frequency trials;
- Determination of procedures for procurement of ancillary services and cost allocation;
- Full upgrading of the SCADA/EMS system and the telecommunication system for enhanced secondary
- frequency control;
- Carrying out preliminary frequency trials;
- Determination of procedures for procurement of ancillary services and cost allocation;
- Full upgrading of the SCADA/EMS system and the telecommunication system for enhanced secondary
- Determination of equipment and DLRs required to allow frequency control (primary and secondary) along with their technical specification;
- Updating the grid code and the regulatory framework to ensure effective frequency and voltage control as well as system restoration through black-start of plants; and
- Tender preparation and tendering of the required equipment determined through reviews and studies.

Upon the completion of the tendering process and procurement of the equipment required for effective frequency control and voltage regulation, the project will proceed to the second phase where Monenco will be responsible for supervision and technical assistance to the client in the implementation phase. During this period which is approximated to be effective for over two years, the Consultant will be responsible for the following:

- Coordination of activities between contractors;

- Supervision and technical assistance during installation and procurement activities; Supervision of Factory and Site tests (FAT and SAT) as well as handing over of the projects; and
- Technical assistance to the client during subsequent frequency trials.



Feasibility Study for Interconnection of Power Grids of Azerbaijan, Iran and Russia

Start Date: 2021

Finish Date: Ongoing

Location: Azerbaijan, Iran and Russia

Client: Azerenerji (Azerbaijan) / Tavanir (Iran) / FGC UES (Russia)

Description: The countries of Azerbaijan, Iran, and Russia owning to their proximity and special circumstances are envisioning an interconnection between the countries to be able to facilitate the trade of electricity and sharing of resources between them. The interest stems from various reasons within the countries that results in different prices for electricity within these countries diversity which in turn creates the opportunity for countries to exploit the differing electricity prices internationally for meeting the demand within their own country. In these circumstances, the countries tend to look for neighboring countries in the nearby vicinity that require low costs for interconnection in order to profit from the non-simultaneousness of electricity demand and improve the efficiency of supply. Additionally, with countries moving towards increasing their renewable resources and sustainable development of their grids, international interconnections are able to provide an opportunity for the sharing of resources and allow the increase of penetration within those grids for renewable generation resources. Meanwhile, by providing a vessel for the sharing of reserves within the countries, the countries can take advantage by reducing the costs associated with reserve procurement while maintaining the reliability and security of their networks also counteracting the inflexibility which is a characteristic of high renewable resources penetration without needing high-cost equipment.

In such terms, Monenco was selected as the joint consultant of the clients in order to carry out a technical and economic feasibility study for establishing an interconnection between Azerbaijan, Iran, and Russia and to provide the overview of the design for such an interconnection and to provide guidelines regarding the operation of the interconnection.

Description of Actual Services Provided by Monenco:

- Data collection and network review of Azerbaijani, Iranian and Russian grids;
- Review and selection of the interconnection technology;
- Technical studies including load flow studies, short circuit studies, contingency analysis, transient stability analysis, and small signal stability;
- Definition of non-synchronous interconnection components and cost estimation; Definition of frequency regulation and reserve requirements;
- Definition of grid separation and reconnection requirements;
- Definition of protection schemes for interconnection of the networks; Definition of data exchange and monitoring requirements;
- Economic analysis and determination of expected trade.

Consultancy Services for Iran-Qatar Interconnection Feasibility Study

Start Date: 2022

Finish Date: Ongoing

Location: Iran and Qatar

Client: Qatar General Electricity and Water Corporation (KAHRAMAA)

Description: In this project, Monenco Consulting Engineers LLC and Energoprojekt Entel Ltd by means of internal and global experiences of network integration perform a feasibility study about the interconnection of Iran and Qatar electrical networks and investigate all strength and weakness points along with advantages and disadvantages of the plan through an inclusive study from technical and economical points of view. The objective of the study is to investigate and determine the technical and economic viability of the proposed electrical interconnection between Iran and Qatar and accordingly identify all possible alternative schemes to interconnect their electrical networks.

In this regard, this project evaluates the motivations for interconnecting Iran and Qatar grids including:

- Power trading opportunities between the two countries;
- Opportunities for mutual power support during emergencies;
- Operating reserve sharing opportunities;
- Load factor improvement potential.

Description of Actual Services Provided by Monenco:

- Data surveying;
- Network modeling for both the networks of Iran and Qatar;
- Model validation;
- Detailed economic studies including:
  - Assessment of value drivers for Iran and Qatar interconnection,
  - Estimation of investment costs,
  - Calculation of benefits,
  - Sensitivity analysis;
- Detailed technical studies including:
  - Power flow analysis,
  - Contingency analysis,
  - Total transfer capability determination,
  - Short circuit analysis,
  - Transient stability analysis,
  - Frequency stability analysis,
  - Determination of defense plans;
- Route survey, environmental assessment, and technology specification;
- Operational guidelines for the interconnection addressing the economic, technical, legal and ownership aspects.

Providing Consulting Services in the Field of Tavanir Export Electricity Auction

Start Date: 2020

Finish Date: 2023

Location: Iran

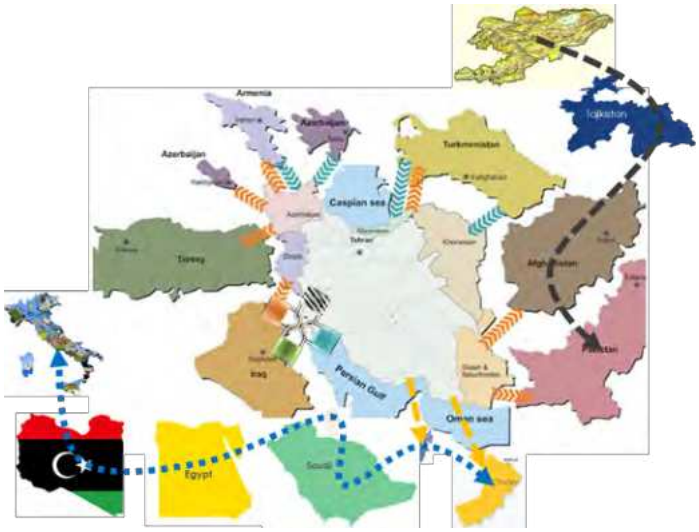
Client: Iran Power Generation, Transmission & Distribution Management Company (TAVANIR)

Description: The electricity consumption curve in Iran is quite peak-oriented, and to meet the peak of the country's electricity consumption, a lot of investment is made to build power plants that are practically operated for limited hours each year. Paying attention to the development of foreign electricity exchanges in the country and launching regional electricity markets, can greatly help increase the efficiency of the Iran electricity industry.

In this regard, Tavanir company as the main trustee of managing Iran's foreign electricity exchanges to neighboring countries, in order to make optimal use of Iran's transmission network capacity to export electricity to Turkey and increase private sector participation in electricity exports to this country, develop a plan in order to hold the company's electricity export auction to Turkey. In order to fully implement the auction process, Tavanir Company entered into a contract with Monenco Iran Consulting Engineers Company.

Description of Actual Services Provided by Monenco:

- Evaluating different models of holding electricity export auctions in several countries and identifying guidelines, regulations, and domestic laws for holding auctions;
- Development of quality evaluation criteria for bidders, preparation of quality evaluation documents, preparation of documents and auction conditions, preparation of contract;
- Quality evaluation and preparation of relevant minutes and participation in determining the base rate of electricity sales and the necessary follow-up regarding the preparation of a long/short list of bidders and preparation and sending of invitations to them;
- Participate in the financial evaluation of bids, prepare a checklist of documents, prepare minutes of the auction commission meetings, perform the general schedule of the various stages of the auction, and introduce the winner(s) of the auction;
- Partnership with Tavanir in concluding a contract with the winner of the auction.



Consultancy Services for Construction of Power Generation Plant for Hormozgan Steel Company

Start Date: 2022

Finish Date: 2023

Location: Iran

Client: Hormozgan Steel Company

Description: Energy supply of large industries is one of the main concerns of the owners and investors of this field. Energy supply methods in the construction site of the desired industry have always been considered as one of the important parts of feasibility studies for the construction or development of that industry. This is especially important for the supply of electric energy due to the problems caused by the imbalance of production and consumption in the current conditions of the country, as well as the lack of development of investment in the power plant production and transmission network, in addition to the annual growth of consumption.

From this point of view, the creation of a power plant capacity of at least 10,000 MW was predicted by industrial and mining companies in Iran as investors in this sector. This is important, but, along with problems such as the possibility of sustainable fuel supply for these power plants, their fuel cost, and the numerous problems of the country's electricity transmission network in the construction points of these power plants, it has created uncertainties for these industries.

However, the location of South Hormozgan Steel Industrial Plant in the special area of the Persian Gulf and the location of this area from the point of view of the connections of its electricity transmission network with the national grid, it is necessary to build a dedicated power plant inside this special area

in order to develop the demand of that company.

The upcoming report is dedicated to examining the possible methods to transfer power to the developed plant of South Hormozgan Steel Company and stating the reason for the necessity of building the power plant of that company with special considerations inside the area of the Special Economic Zone of the Persian Gulf Metal and Mining Industry.

Description of Actual Services Provided by Monenco:

- Infrastructure studies of the proposed construction site;
- Technology and production method studies and power plant process review;
- Examining the status of the power plant's connection to the national electricity network and obtaining permission to connect to the Hormozgan network and the desired loads of this company;
- Financial and economic studies and calculations of the project, including evaluation of the feasibility of the construction of the power plant in the selected construction site.

Grid Impact Studies for Connection of Sanvira Carbon (FZC) LLC's ("SCL") Calcined Petroleum Coke Plant to 132kV SFZ OETC Grid Station at Sohar Free Zone

Start Date: 2023

Finish Date: Ongoing

Location: Oman

Client: Sanvira Carbon (SFZ) LLC

Description: Ensuring a stable power supply for large-scale industries remains a paramount concern for stakeholders and investors in this sector. Consequently, evaluating energy procurement within the industrial site under examination has become a critical component of feasibility studies, influencing decisions on construction or expansion projects. In particular, securing a dependable source of electricity, recognized as the primary energy form in industries, takes precedence. This evaluation is imperative in the context of Oman, where considerations of network security and power quality have emerged as pivotal factors in the energy landscape, mirroring global trends in industrial sustainability and reliability.

Sanvira Carbon (SFZ) LLC is a joint venture between Oman National Investments Development Company SAOC "TANMIA", Sanvira Industries Limited, and United Business Trading LLC. The calcined petroleum coke

plant has taken up an area of approximately 18 hectares at the Sohar Free Zone. The plant has an annual capacity of 500,000 million tons per annum (MTPA), executed in two phases: 280,000 MTPA in Phase 1 and 160,000 MTPA in Phase 2. The finished product, calcined petroleum coke (CPC), is exported to aluminum and steel industries in and around the Gulf Cooperation Council (GCC) region. The project will also see the production of raw petroleum coke as feedstock for downstream petrochemical industries.

Sanvira are currently using their own generation for their internal loads and planning to export their excess power generation to OETC. To do so, they consider to construct a substation with 132/11 kV, 31.5 MVA to interconnect their existing 11 kV bus with OETC's 132 kV grid station. As per the Client's request and due to the network connection requirements in Oman, a comprehensive technical study is carried out by the Consultant to ensure a reliable and secure integration into the grid. This study evaluates key performance indicators, while providing detailed findings and recommendations for a secure and optimal integration.

Description of Actual Services Provided by Monenco:

The objectives of this project according to the scope of work can be summarized as:

- Load flow study;
- Short circuit study;
- Transient stability study;
- Harmonics and voltage flicker study.

Grid Impact Studies for Connection of UPA Data Center to 132kV SFZ OETC Grid Station at Sohar Free Zone

Start Date: 2023

Finish Date: Ongoing

Location: Oman

Client: United Projects Achievement (UPA)

Description: Oman's Sohar Port and Freezone have signed an agreement with United Projects Achievement (UPA) to lease 25,000 sqm of land to build a cloud data center. The facility, which is expected to be operational by the end of 2024, is also the first information-technology project in the freezone. It will be home to a multi-functional server room, which will support AI, cloud computing, and big data. The Chinese firm United Projects Achievement (UPA) will set up the data center to provide cloud services across the Middle East, in line with success in its home market. These facilities are powered by energy-efficient power sources and have cooling systems to ensure that the functioning of the servers isn't hampered by overheating. Ensuring a stable power supply for this data center remains a major concern. Consequently, performing power system studies is essential to determine the effect of connecting UPA data center on the MIS network while considering network security, sustainability, reliability and power quality.

UPA will provide its demand by constructing of a 132/35 kV, 240 MVA substation and connecting to Sohar Free Zone (SFZ) 132 kV substation. As per the Client's request and due to the network connection requirements in Oman, a comprehensive technical study is carried out by the Consultant to ensure a reliable and secure integration into the grid. This study evaluates key performance indicators, while providing detailed findings and recommendations for a secure and optimal integration.

Description of Actual Services Provided by Monenco:

The objectives of this project according to the scope of work can be summarized as:

- Load flow study;
- Short circuit study;
- Motor starting study;
- Transient stability study;
- Harmonic study;
- Voltage flicker study;
- Voltage fluctuations study;
- Phase unbalance study;
- Load cycling effect study.

Identifying Current Energy Consumption Status in Administrative Buildings and Factories of MAPNA Group Subsidiaries

Start Date: 2023

Finish Date: Ongoing

Location: Iran

Client: MAPNA Group

Description: Iran, while blessed with abundant energy resources, faces a growing demand and intensifying consumption patterns, particularly in the recent years due to population growth, urban development, and rising industrial needs. This surge in energy consumption, disproportionate to the nation's GDP per capita, necessitates a shift in both policymaker and consumer approaches to optimize energy usage. Neglecting the efficient utilization of energy carriers (electricity, gas, and water) leads to imbalances and pushes the country towards imports. These imbalances in energy supply, if left unaddressed, pose a significant threat to national security. Two primary factors hinder sustainable energy supply and optimization:

- The current low energy prices discourage private investment in renovation, improvement, and production. This low return on investment hinders advancements in energy efficiency and renewable energy adoption, further exacerbated by inflation and sanctions.
- Energy subsidies, despite slight price increases, incentivize excessive consumption. The disconnect between energy prices and resource scarcity, coupled with a disregard for opportunity costs, leads to inefficient utilization despite extensive energy conservation campaigns. This behavior, characterized by a preference for increased consumption over resource preservation, drives up energy intensity and contributes to the Tragedy of the Commons.

In response to these challenges, the United Nations' 17 Sustainable Development Goals (SDGs) highlight the importance of clean energy and sustainable urban design under Goals 7 and 11. In line with these goals and the implementation of green management principles in administrative and industrial spaces, the concept of 'rational energy use' emerges. To achieve maximum energy efficiency in production processes and optimize occupant comfort in work environments, four key pillars must be addressed:

- Preventing unnecessary consumption (energy management for savings);
- Reducing useful energy intensity;
- Improving energy efficiency in processes;
- Energy recycling.

Recognizing the aforementioned challenges and the need for sustainable energy solutions, this project has been developed. This project aims to emphasize MAPNA Group's commitment to implementing energy management requirements, resource conservation, and establishing a new energy-focused business venture.

Description of Actual Services Provided by Monenco:

- Data surveying and assessment of energy carrier consumption in MAPNA Group subsidiaries;
- Identifying and assessment of energy carrier consumption in MAPNA Group subsidiaries;
- Review of domestic and international energy audit standards;
- Field trips, industrial visits and identification of energy-intensive processes;
- Analysis of energy consumption and preparation of specific reports;
- Ascertaining and presentation of recommendations, proposals, and potential for improvement.

Engineering Division

Engineering Division with a highly qualified team of engineers provides a wide range of services and engineering solutions for different types of projects carried out in Monenco. Seeking for the latest science and technologies keeps this division up to date in its tasks, while providing services to the other divisions in a matrix-based structure.

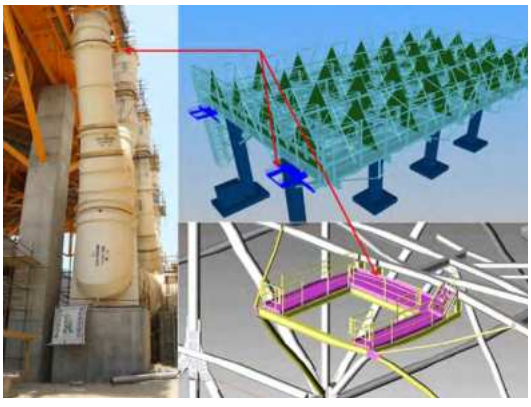
The main projects in which the Engineering Division is involved are in the fields of power generation (gas, thermal and combined cycle as well as solar and PV power plants) and oil and gas field (upstream) and petrochemical plants. This division is also active in the engineering phase of industrial desalination plants and water and waste water treatment units.

The engineering Division consists of six professional departments: Civil & Construction, Mechanical, Piping, Process & Environmental, Electrical, Instrumentation & Control (I&C) engineering and one section for Quality Control. The specialized experts of this division design, review, endorse and modify all engineering documents if needed, based on Monenco contractual scope of work, standards, project specification and client technical requirements and offer clients a variety of services including initial concept design, basic and detailed design, design review, evaluation of technical proposals, preparing tender specification and purchase specifications based on each expertise as mentioned afterwards:

Civil & Structural Engineering Department

- **Structural Engineering**

Development of basic and detailed design of major machinery and equipment foundation and industrial buildings structure as well as non-industrial buildings, reinforced concrete water storage tanks, pumping stations, using the state of the art software tools and methods are within the scope of services provided in the Construction group of this department. This sub department is specifically renowned for the foundation design of gas and steam turbine generators (E and F class) and steel or concrete structural design of huge various cooling systems such as Heller Cooling Towers and Air Cooled Condensers for power plants, Oil and Gas and Petrochemical industries.



Besides the steel complexes and pelletizing plants, structural development team investigated studies around these types of projects for design and are ready for new projects in the mentioned fields.

- **Civil Engineering**

  Development of site layouts, site grading, site mobilization of all aspects of infrastructure design including drainage, service requirements, access road and junction improvements, pavement and retaining walls, pipe racks and pipeline sleepers are designed and reviewed in a three-dimensional environment.

- **Architectural Engineering**

  Development of basic and detailed architectural design, aesthetical and facade design, exterior and interior design for industrial and non-industrial buildings as well as site landscaping are within the scope of this group's activities.

  Besides the steel complexes and pelletizing plants, structural development team investigated studies around these types of projects for design and are ready for new projects in the mentioned fields.

Civil & Structural Engineering Software Tools

SAP2000, SAFE2000, ETABS, MathCad, LimCon, PLAXIS, Aveva BOCAD, Revit Architecture, ABAQUS, OPENSEES are used as the main calculation and analysis programs as well as 30 modeling representation software tools.

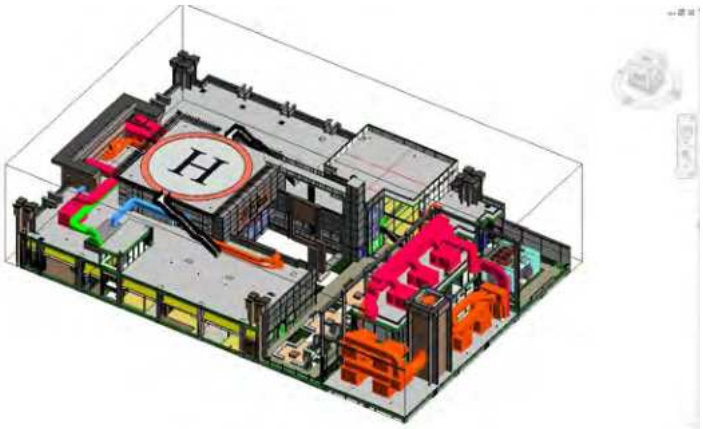
Mechanical Engineering Department

Mechanical engineering department with high experienced experts offers whole services for the following subjects:

- Conceptual/Basic/Detailed Design of Industrial Cooling Systems (Heller, ACC, Once thorough and Hybrid)
- Wet Cooling Tower Retrofit
- Concentrated Solar Power (CSP) System Design
- Evaluation end Selection of Gas and Steam Turbines
- Computerized Maintenance Management Systems (CMMS)
- Rehabilitation of Power Plants
- Mass and Energy Balance for CHP Systems
- CFD Analysis

Other services of this department are listed as the following categories and represented in a broad range of documents and drawings including P&IDs, mechanical datasheets, and mechanical shop drawings, purchase technical specifications for equipment and calculation sheets.

- Firefighting Systems (gaseous and water base)
- HVAC Systems for Industrial and non-Industrial Projects and Buildings Utility Cooling Systems
- Utility Steam Production and Distribution
- Rotary Equipment
- Fixed Equipment (Pressure Vessel/Storage Tank/Heat Exchanger)
- Compressed Air Production and Distribution Systems

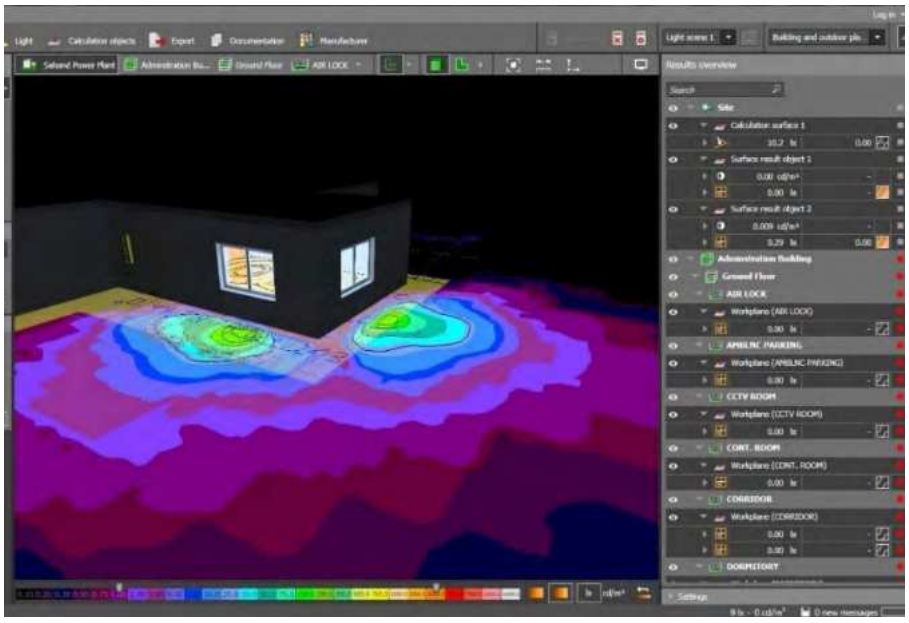


Mechanical Engineering Software Tools

PV Elite, Compress, AMETank, Fluent, Aspen Workbench, Aveva P&ID, Revit Mep, PDMS

Electrical Engineering Department

- Specialized services for cables and switchgear
  - Designing power supply network protection systems and medium and low voltage switchboards and performing calculations of all switchboard protection relays and relay coordination
  - Designing all industrial LV&MV Switchgear and motor control drive
  - Designing logic and schematic diagram of LV&MV Switchgear
  - CT&PT Calculation at all voltage levels of power plants and other industrial projects
  - Designing, sizing and arranging bus ducts at different voltage levels
  - Cable route & Cable Tray designing for inside and outside building with the considerations of other main systems of the desired industry
- Specialized services for electrical equipment:
  - Designing of electrical installations including indoor & outdoor lighting, yard, telephone & paging systems, power supply of HVAC systems, crane power supply, elevator and ...
  - Designing the main grounding system
  - Designing the secondary grounding system of power plants and other industrial projects
  - Designing of lightning protection system for power plants and other industrial projects
  - Designing and calculating of cathodic protection system for underground tanks and pipe lines
  - Designing and calculating capacitive banks and providing their complete technical specifications
  - Designing and providing complete technical specifications of Fire Stop system
  - Planning for Reduction of consumption of electrical installations
- Specialized services for electrical installations:
  - Designing and calculating of Photovoltaic solar systems
  - Sizing calculations and arrangement of transformers for power plants and other industrial projects
  - Designing and calculating Electrical Heat Tracing systems
  - Design and providing technical specifications of starting systems and motor drives
  - Designing and providing technical specifications and arrangement of diesel generators
  - Designing of essential power systems (AC-DC) including configuration and Battery sizing, AC UPS and related technical specifications



Electrical Engineering Software Tools

CYME- PSAF: (For Load Flow, Short Circuit, Motor Starting), CYME- GRID: (For Grounding System Calculation), ETAP: (For Load Flow, Short Circuit, Motor Starting), DIALUX (For Lighting Calculation, CALCULUX: (For Lighting Calculation), DEHN: (For Faraday Cage Lighting systems Calculation), PDMS: (For 3D Modeling), REVIT Electrical.

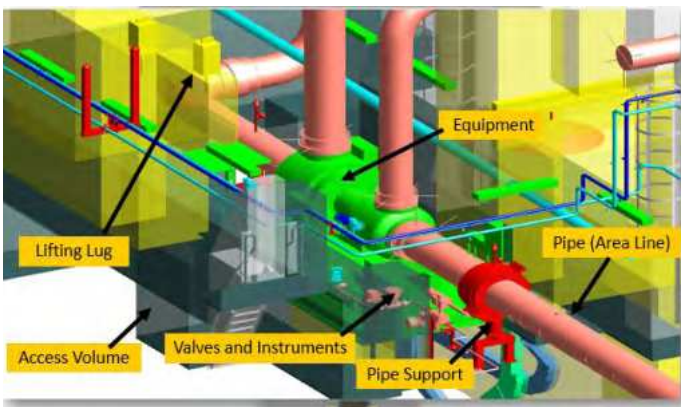
Piping Engineering Department

This department totally works under a three- dimensional environment and submits executive documents including:

- Plan, ISO and MTO for All above Ground and Underground Piping Inside and Outside the Buildings
- Stress Analysis of Piping and Pipelines Either in Yard Areas or Inside Buildings of Industrial Plants
- Pipe Routes
- Input Civil Works (ICW) and Equipment Arrangements Inside Turbine Hall and Other Building
- Cooling Systems Piping Design and Stress Analysis for Heller, ACC, Hybrid and Once Through Cooling Systems
- Steam Transferring Duct Design and Stress Analysis for Cooling Systems and Other Industrial Processes
- Piping Material Specifications (PMS) for all Services Required for Industrial Plants

Piping Software Tools

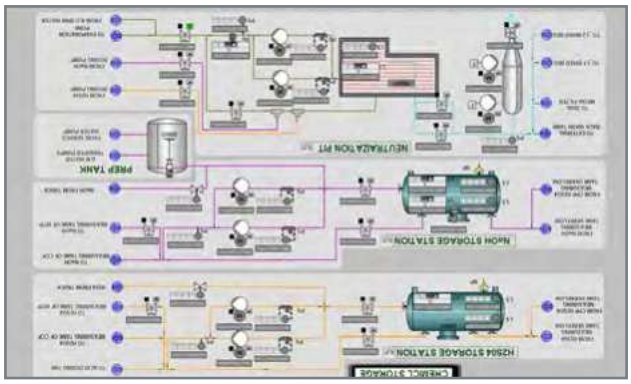
Piping department by relying on its experienced personnel and valuable experiences in the field of three-dimensional design software, has launched a number of engineering software of AVEVA Company while upgrading the PDMS 12.1 to E3D and Revit. Using this software tools causes integration among engineering data plus reduction of the time and cost of the projects. Providing a three- dimensional (3D) model for plants creates several benefits such as an integrated design as well as providing accurate purchase documents, eliminating interference, and increasing the design speed. In addition, providing links between these software tools and stress analysis and support design software such as Caesar 11, Solidworks, Abaqus and Algore are very helpful in order to prevent reworking while designing in 30 modes.



Instrumentation and Control Engineering Department

The main activities of this department in the sections of design (basic and detailed), design review and consulting, can be classified as follows:

- Fire Alarm and Explaining its Connections with Fire Extinguisher Systems and ESD
- Building Management Systems (BMS)
- Instrumentation and Control Systems (Technical Specification, Sequence Chart, Instrument List, 1/0 List, Control Philosophy, Hook-up, Cable List, Cable Route, Loop Wiring Diagram, Connection Diagram, Location Layout, M.T.O, Cause and Effect, Logic Diagram, Data Sheet, ...) for Main Cooling System (Heller, ACC, Hybrid, Once Thorough), Aux. Cooling System (ACC, Once Thorough), Water Treatment Plants, HVAC, Central Hot Water, Fire Alarm, Air Compressed Systems, Fuel (Gas, Gas Oil), and Steam
- IP-BASED CCTV System, LAN System, Telephone System, Paging System, Access System
- Design of Dimensions and Arrangement of Panels, Equipment and Tables in the Control Room Based on Process Standards and Environmental and Safety Conditions
- Designing Control System Configuration Diagram and Explaining the Philosophy of Control Systems in Local, Via Unit Control Board and CCR
- Control Systems (DCS, FCS, ESD, F&G)
- Purchase and Tender Document
- Wireless Technologies
- Re-Instrumentation, Revamping



Instrumentation and Control Engineering Software Tools

INtools, InstruCalc, Conval, Aveva Instrumentation for control valve sizing, orifice sizing and flowmeter IP Video system design tool for CCTV layout

NAVIS, PDMS, REVIT for instrument location, instrument cable tray & cable layout

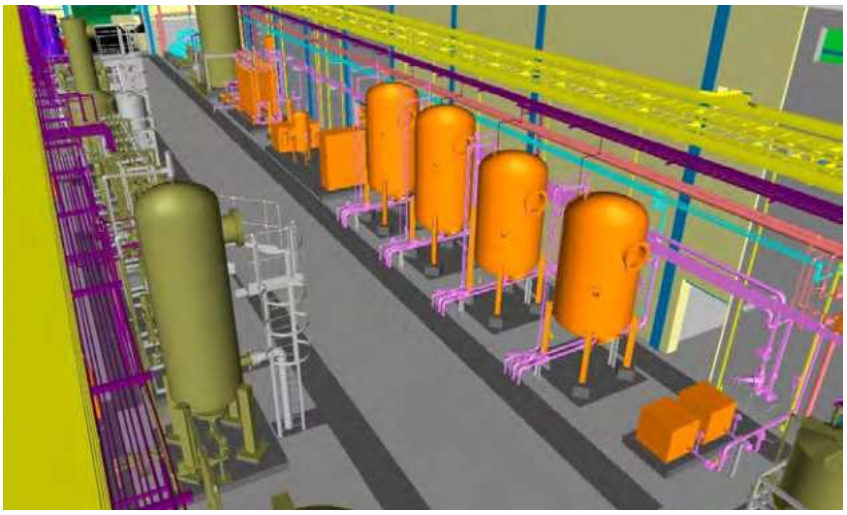
Process and Environmental Engineering Department

This department works on basic and detailed design, review of contractor documents, preparation of tender documents and selection of contractor, preparation of technical proposals and consulting in the field of water and wastewater and preparation of environmental reports considering the latest environmental standards and other specific consultancies as mentioned bellow:

- Water Pretreatment Systems
- Reverse Osmosis Systems
- Demineralizaion Plants (Ion Exchange System, CEDI Systems)
- Desalination Plants (MLD, SWRO and MLD/RO)
- Condensate Polishing Plant (CPP) (Precoat Filter, Cartridge Filter, Mixed Bed Filter)
- Industrial/Oily/Chemical Wastewater and Sewage Treatment Systems
- Potable Water Supply and Distribution Systems
- Irrigation and Service Water Systems
- Water Transfer and Distribution Systems
- Boiler Slowdown Collection and Reuse system
- Chemical Regime of the Steam & Water Cycle
- Environmental Impact assessments in Conceptual Design for Power Plants and Other Industrial Plants
- Air Pollution Modeling for Industries
- Design of Green Belt and Selection of Vegetation for Industrial Plants for both Environmental and Aesthetical Purposes

Process and Environmental Engineering Software Tools

Inge System Design, ROSA, IXCalc, WAVE, PIPENET, WATERGEMS, SEWERCAD, AERMOD, ASPEN B-JAC, HYSYS, PSV Cale.



Quality Control Department

Quality Control Department is a multi-task department responsible for quality management and project control of Engineering Division and its tasks includes the followings:

- The 3D model which is made by PDMS or other software is controlled and all of the clashes are reported to the related departments. The 3D model is also checked based on the 2D documents to confirm the accuracy of the model. .
- Another control is associated to daily IDC (Internal Discipline Check). Documents that are produced in the other departments are checked with the 3D model for conformity.
- Double checking and approval of the engineering documents based on the basic documents such as input civil works or design criteria are also performed.
- Providing the clash reports according to the percentage of project progress (25-50-75-90%) as well as system or building-wise reports on the request of project managers.

In the other section of this department, all engineering activities are controlled weekly and regularly. The related reports are provided and the departments' activities are monitored.

Finally, in addition to the mentioned functions, the other programs such as development program and knowledge program are provided and controlled.

Development Program

In order to stay up to date and innovative in the engineering services, the Engineering Division arranges an annual development plan and takes participation in several national and international conferences, seminars and webinars in diverse technical subjects as well as collaboration with R&D Department. Many technical reports with a variety of engineering subjects are also prepared according to the business plan of the company and sent to the potential customers.

Monenco Consulting Engineers LLc (Soltanate of Oman)

Monenco Consulting Engineers LLC, a leading engineering consultancy firm based in the Sultanate of Oman, continues its commitment to excellence. In 2023, we achieved significant milestones that showcase our dedication to driving progress and innovation in the energy sector.

A key achievement in 2023 was our successful entry into the Free Zone market. We secured four significant projects, three in the Sohar Free Zone and one in the Salalah Free Zone. This strategic expansion allowed us to establish strong networks and relationships with both private sector companies and government entities in Oman. Our ability to deliver high-quality engineering solutions is further solidified by these achievements, solidifying our growing influence in the region.

In 2023, Monenco Consulting Engineers are working on a groundbreaking project in the Sultanate of Oman. They are overseeing the Consultancy Services for the Design and Supervision of 132/33 kV Grid Stations at Mudhai, Al Mazyunah, and Shaba Asaib, along with associated 132kV OHL's, in collaboration with the esteemed Oman Electricity Transmission Company (OETC). The project started in the design phase and is currently in the supervision phase.

This project represents a significant milestone in Oman's power transmission infrastructure, focusing on expanding and optimizing the electrical grid in key locations. The 132/33 kV Grid Stations at Mudhai, Al Mazyunah, and Shaba Asaib are vital hubs that will facilitate the efficient transmission and distribution of electricity to meet the growing demands of these regions.

In 2023, Monenco Consulting Engineers are working the groundbreaking FCL (Fault Current Limited) project in collaboration with the Oman Electricity Transmission Company (OETC). The project is currently in the supervision phase. This project significantly advanced electrical infrastructure technology in Oman by enhancing the reliability and safety of the power transmission network. By implementing cutting-edge Fault Current Limiters, we introduced a groundbreaking solution that mitigates the impact of faults and disturbances, ensuring uninterrupted power supply to consumers.

We are working a mega project in Dhofar Governorate with NAMA Dhofar Services (NDS) in 2023 to implement the Electrical Distribution Projects for the Tanweer Transferred Assets. Spanning from 2022 to 2025, this ambitious initiative represents a significant undertaking in Oman. Our expertise in electrical system design, project management, and infrastructure planning is playing a pivotal role in modernizing the electrical distribution network across the designated areas. This project not only elevates the quality of electrical services but also contributes to the overall development and growth of Oman's infrastructure.

As we look towards the future, Monenco Consulting Engineers remains focused on expanding its presence in the Free Zone market and beyond. We are actively exploring new opportunities in renewable energy, infrastructure development, and emerging technologies.

Building upon our strong foundation, we are committed to diversifying our services beyond the oil and gas sector. This includes venturing into renewable energy projects, infrastructure development, and emerging technologies. Our recent achievements include being shortlisted as a recognized consultant for Oil & Gas consultancy services by achieving the JSRS Certificate. Additionally, we are registered with major Oil & Gas companies in Oman, such as Almaha Petroleum, Oman Oil, and OQ.

Furthermore, Monenco Consulting Engineers is expanding its expertise into water management. Our registration with Nama Water Services (NWS) allows us to offer specialized consultancy services in water infrastructure and management. This strategic move positions us as a versatile and comprehensive engineering consultancy, addressing the growing demand for sustainable water solutions.

Monenco Consulting Engineers LLC is well-positioned for continued success in 2024 and beyond. By maintaining our focus on innovation, quality, and client satisfaction, we are confident in achieving new milestones and setting new benchmarks in the engineering consultancy industry. Our journey is one of continuous improvement and relentless pursuit of excellence, and we are excited about the possibilities that lie ahead.

Some of our major ongoing and commissioned projects are as follow:

Ongoing Projects:

- Implementation of Electrical Distribution Projects for the Tanweer Transferred Assets
- Consultancy Services for Design and Supervision of 132/33 kV Grid Stations at Mudhai, Al Mazyunah, and Shaba Asaib along with associated 132kV OHL's.
- Consultancy Services for Adding Fault Current Limiter (FCL) in the 132kV Systemat Muscat Governorate
- Consultancy services and Supervision Services for Implementation Project of Replacement SCADA/ DMS Master System and Cyber Security of MAJAN Electrical Company
- Design and Supervision of Electrical Extension and Connection Projects at Duqm Wilayat in Al Wusta Govern orate
- Design Consultancy and Supervision Services for Al Duqm Electricity Infrastructure Development Projects - Al Wusta Governorate - Package 3
- Owner Engineers to Supervise and Execute Shut Down and Energization Activities for Distribution Network Extension and Improvement
- Consultancy Services of Power Supply Tie-in Plan Design of 400kv Substation for 100KTPA Poly Silicon Project
- Consultancy Services and Electrical System Study for Construction of 132/35kV Grid Station
- Power System Studies for 11 kV Bus/system for Sanvira Carbon Calcined Petroleum Coke Plant
- Consultancy Services for Design and Supervision of Extension of 132/33 kV Grid Station at Ashoor, along with associated 132kV Cable's
- Design Review Services for 33Kv Double Circuit Steel Tower

Nahadah GS Project 3D Model

Commissioned Projects:

- Consultancy Services for Jaalan Bani Bu Hassan (former AI Kamil & AI Wafi)
- Consultancy Services for new Nizwa City 132/33 kV Grid Station
- Provision of Temporary Manpower Agency for Secondment of Technical Staff
- Consultancy Services for Design & Supervision for construction of Madinat Barka & AI Khadra Grid Stations and Associated 132kV LILO Works
- Owner's Engineer for Implementation of 132kV Network Reinforcement Works, 33kV Capacity Expansion Works and Transmission & Distribution System Improvement
- OE Services for Implementation of 132kV Network Improvement, 33kV Capacity Expansion Works, T&D System Improvement Works
- Consultancy Contract for the Supervision of Implementation of the BARKA Ill & SOHAR II Independent Power Projects
- Consultancy Services for Design and Construction Supervision Services for 33kV, 2x20 MVA Airports Heights 04 Primary Substation
- Consultancy for Design and Construction Supervision for Upgrading AI-Khuwair North Primary Substation from 2x16 MV A to 3x20 MVA
- Detail Design & Engineer Services for Construction of Gumdah 33-11 kV Primary Substation from 2x20 to 3x20 MVA
- Consultancy Services for Rehabilitation and Upgrading of Saih Al-Khairat Power Station in Dhofar Governorate
- Consultancy Services for Power Evacuation System Study for Salalah IPP-2
- Detail Design & Engineering Services for Construction for Upgrade Shinas 33/11 kV Primary Substation from 2x20 to 3x20 MVA
- Owner's Engineer Services for Implementation of 33kV Capacity Expansion Works, Asset Replacement Works and Distribution System Improvement Works
- Detail Design & Engineering Services for Construction for New 3X20 MVA, 33/11 kV Primary Substation at AI Khuwair South- 08
- Consultancy Services for Const ruction Supervision of Wat er Supply Scheme to Yeti, AI Hesn and Ban dar Jissah in Muscat Governorate
- Consultancy Services for Preparation of Networks Asset Maintenance Standards & Associated Asset Management Documentation
- Consultancy Services for Design and Tendering Services for Construction of 3x20 MVA Primary Substation at Rusayl-08 in Knowledge OASIS Musca
- Addition of Third & Fourth 125MVA 132/33kV Transformers at Muladah Grid Station -Tender 54/2014
- Consultant for the Realization of a Telecommunication Architecture Study throughout the PAEW Service Area
- Consultancy Services for Design and Supervision Services for 132/33 kV at Jebreen grid station
- Consultancy services for design and supervision of new 132 kV Grid Stations at Dil Abdusalam {DAS) and Suwaiq
- Consultancy for Design and Supervision for New 132kv Double Circuit Lines Form Rustaq - AI Awabi Nakhal with a New 132/33kv Grid Station at Alawabi
- Framework Consultancy Services Level Agreement for OETC LDC Operating Reserve Management in MIS and Dhofar systems of OETC
- Consultancy Services for Design and Supervision of New 132/33kv Bousher-2 and Addition of 3 and 4 Transformer at Ghala, Amerat and Airport Heights Grid Station
- Consultancy for Design and Supervision of Upgrading of Seeb Grid Station, Adding 3rd and 4th Transformers at Mobella2& Construction of Mobella3 with Transformers
- Owner's Engineer Services for Supervising & Executing Shutdown and Energizing Activities for Distribution Network Extension and Improvement Projects
- EPC for Rehabilitation of Dhafrat Existing Power Station in AI-Wusta Governorate
- POWER QUALITY IMPROVEMENT FOR MODERN STEEL MILLS
- L&T Strategic Marketing Plan
- Consultancy Services of Oman & Iran Interconnection Feasibility Study
- Consultancy Services for Design and supervision of 400/132 kV Nahadah Grid Station along with associated OHL

- Detail Design & Supervision Engineering Services for Electrical Interconnection of Block 10 & 20 at DGC Salalah
- Consultancy for Preparation of Tender Documents and Construction Supervision for 33/11 kV Dawakah Primary Sub-Station along with associated 33kV OHL Line in Dhofar
- EXPANDING OF MUDHAI POWER STATION IN DHOFAR GOVERN ORATE
- RELOCATING OF DG N0.12 (WARTSILA 8.9 MW) FROM CLOSED KHASAB POWER STATION TO DUQM POWER STATION
- Construction of 3X20MVA Primary Substation for (IND-3) Heavy Industries Area at Duqm in Wusta Governorate
- Consultancy Service for Design and Tendering Services for Construction of new 3x20mva Mabellah South Phase 9 (P184) Primary Substation
- CONSULTANCY FOR DESIGN AND TENDERING FOR UPGRADATION OF EXISTING MAWALEH NORTH AND AL HAIL NORTH FROM 2x20MVA TO 3X20MVA PRIMARY SUBSTATION
- Salalah SWRO Desalination Plant
- "Power System Study & Relay Co-ordination Qarn Alam Power Plant Co-generation (Job No: ES00010)"
- Providing "Power System Stability" Training program for load dispatching center of Oman
- Prepaid Engineering Service for Proposed Electrical Network to Wash Hi Majaza Copper Project
- Rusayl Private OHL relocation works.

Monenco Consulting Engineers Certificates in Oman

- Oman Chamber of Commerce and Industry
- Professional Indemnity Policy
- Oman Tender Board
- Muscat Municipality
- Oman Oil & Gas Industry's Joint Supplier Registration System (JSRS) Ministry of Oil & Gas Vendor Approval – Petroleum Development Oman (PDO)
- DCRP Certificate - Distribution Code Review Panel (DCRP) - (Types 1,2,3,4,6)


JSRS
joint supplier registration system

CERTIFICATE OF APPROVAL

Awarded to

MONENCO CONSULTING ENGINEERS LLC


DISTRIBUTION CODE REVIEW PANEL

Name of Major Clients:

- Oman Electricity Transmission Company (OETC)
- Nama Dhofar Services (NDS)
- Nama Electricity Distribution Company (NEDC)
- Nama Electricity Generation Company (NEGC)
- Oman Power and Water Procurement Company (OPWP)
- Nama Water Services (NWS)

Implementation of Electrical Distribution Projects for the Tanweer Transferred Assets Year 2022 to 2025

Start Date: 2022

Finish Date: 2025

Location: Oman

Client: NAMA Dhofar Services (NDS)

Scope of work:

The project's primary objective is to revamp and enhance the electrical distribution infrastructure for the Tanweer Transferred Assets. By leveraging our expertise in electrical system design, project management, and infrastructure planning, Monenco Consulting Engineers is playing a pivotal role in modernizing the electrical distribution network across the designated areas.

Our comprehensive approach entails conducting meticulous feasibility studies, undertaking detailed design processes, and overseeing the execution and supervision of the entire project. By implementing innovative solutions and adhering to the highest industry standards, we aim to bolster the efficiency, reliability, and safety of the electrical distribution system for the Tanweer Transferred Assets.

Consultancy Services for Design and Supervision of 132/33 kV Grid Stations at Mudhai, Al Mazyunah, and Shaba Asaib along with associated 132kV OHL's

Start Date: 2022

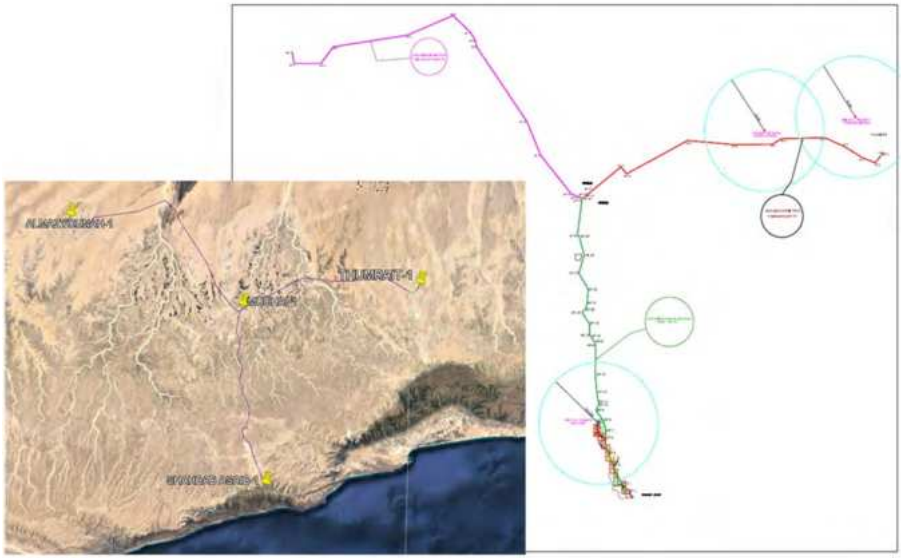
Finish Date: 2025

Location: Oman

Client: Oman Electricity Transfer Company (OETC)

Scope of work:

Data Gathering, Conceptual Design, Basic Design, Detail Design, Recommending Design, Project Management and Supervision.



Consultancy Services for Adding Fault Current Limiter (FCL) in the 132kV System at Muscat Governorate

Start Date: 2022

Finish Date: 2025

Location: Oman

Client: Oman Electricity Transfer Company (OETC)

Scope of work:

The FCL project represented a significant leap forward in electrical infrastructure technology, aiming to enhance the reliability and safety of Oman's power transmission network. By implementing cutting-edge Fault Current Limiters, we introduced a groundbreaking solution to mitigate the impact of faults and disturbances, ensuring uninterrupted power supply to consumers.

Monenco Consulting Engineers brought our extensive expertise and technical prowess to the forefront, working closely with OETC to deliver a seamless implementation process. Our comprehensive services encompassed meticulous feasibility studies, detailed design, rigorous testing, and reliable supervision, guaranteeing the successful integration of the FCL technology within the existing electrical grid.

Consultancy services and Supervision Services for Implementation Project of Replacement SCADA/DMS Master System and Cyber Security of MAJAN Electrical Company

Start Date: 2019

Finish Date: 2024

Location: Oman

Client: NEDC

Scope of work:

Monenco will be the client Consultant, project manager, design reviewer and supervisor of the project, to carry out consultancy services and supervising on the activities which will be implementing by OSI as EPC contractor of the project, Monenco main Scope of works on this project can be summarized as following:

- Consultancy Services for design review and Supervision on Implementing Project of replacing existing SCADA Master system with new SCADA/DMS system including Backup Control system for Maj an Electricity Company (MJEC)
- Consultancy services for design reviewing and Supervision on Implementation of Cyber Security requirements for Majan Electricity Company (MJEC) and NAMA Group as its holding company

Design and Supervision of Electrical Extension and Connection Projects at Duqm Wilayat in Al Wusta Governorate

Start Date: 2021

Finish Date: 2024

Location: Oman

Client: NEDC

Scope of work: Monenco has provided staff in Duqm to execute and achieve the targets of Tanweer's customer connection work, including connection design, preparing RFQ, and commissioning of customer connections.

Design Consultancy and Supervision Services for Al Duqm Electricity Infrastructure Development Projects - Al Wusta Governorate - Package 3

Start Date: 2020

Finish Date: 2024

Location: Oman

Client: NEDC

Scope of work:

Monenco has provided staff on a secondment basis to Tanweer's head office in Muscat to meet client targets.

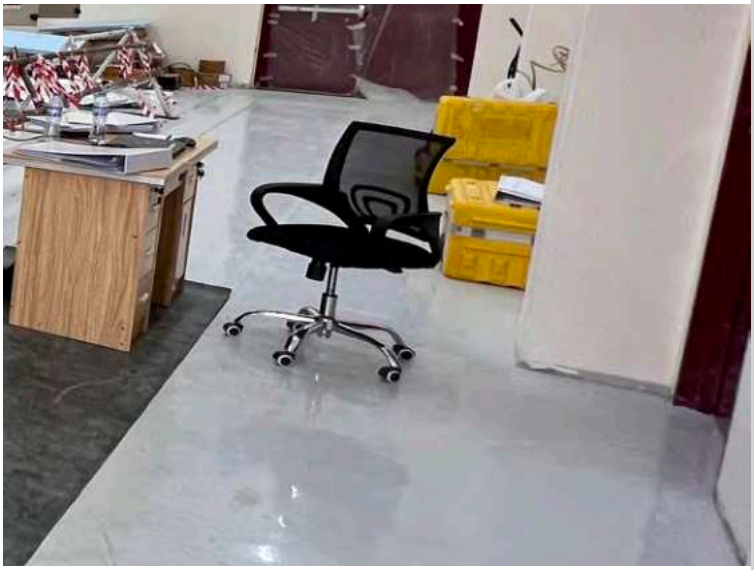
Owner Engineers to Supervise and Execute Shut Down and Energization Activities for Distribution Network Extension and Improvement

Start Date: 2018

Finish Date: 2023

Location: Oman

Client: Nama Dhofar Services Company (NDS)



Scope of work:

The main scope of work in this project is Owner Engineers to Supervise and Execute Shut Down and Energization Activities for Distribution Network Extension and Improvement of Dhofar Region (South of Oman) including providing required staff in Dhofar as Senior Authorized Persons (SAP) in order to achieve client targets on LV Improvement work at captioned area.

Consultancy Services of Power Supply Tie-in Plan Design of 400kv Substation for 100KTPA Poly Silicon Project

Start Date: 2023

Finish Date: 2024

Location: Oman

Client: United Solar Polysilicon (FZC) SPC

Scope of work:

The Projects includes System Study, Engineering Services, Tendering, Bids evaluation and Supervision of project successful Implementation.

Consultancy Services and Electrical System Study for Construction of 132/35kV Grid Station

Start Date: 2023

Finish Date: 2024

Location: Oman

Client: United Projects Achievement (FZC) L.L.C

Scope of work:

To ensure abovementioned objectives and compliance to Oman Grid Code, number of studies should be conducted by the consultant as the following:

a) Load Flow Study

b) Short Circuit Study

c) Motor Starting Study

d) Transient Stability Study

e) Harmonic Study

f) Voltage Flicker Study

g) Voltage Fluctuations Study

h) Phase Unbalance Study

i) Load Cycling Effect Study

Power System Studies for 11 kV Bus/system for Sanvira Carbon Calcined Petroleum Coke Plant

Start Date: 2023

Finish Date: 2024

Location: Oman

Client: Sanvira

Scope of work:

Monenco shall Carrying out Power System Studies for 11 kV Bus/system for Sanvira plant located at Sohar Free Zone, Sultanate of Oman as per scope mentioned below:

- Load flow study
- Short circuit study
- Transient Stability study for the proposed system.
- Harmonics and flickers study for the proposed system Input collection (such as network model... etc.) from the existing system & Oman Electricity Transmission Company (OETC) Obtaining the approval from OETC.

Consultancy Services for Design and Supervision of Extension of 132/33 kV Grid Station at Ashoor, along with associated 132kV Cable's

Start Date: 2023

Finish Date: 2024

Location: Oman

Client: Phoenix

Scope of work:

The Project, includes Engineering Services, Tendering, Bids evaluation, Design Review and Supervision of project Implementation up to successful energization

Design Review Services for 33Kv Double Circuit Steel Tower

Start Date: 2022

Finish Date: 2023

Location: Oman

Client: Scan Electromechanical Cont. CO. L.L.C

Scope of work:

Monenco shall perform the consultancy services for design review service for 33Kv double circuit steel tower.

Cigre, International Council on Large Electric Systems

Founded in 1921, CIGRE, the Council on Large Electric Systems, is an international non-profit association based in Paris for promoting collaboration with experts from all around the world by sharing knowledge and joining forces to improve electric power systems of today and tomorrow. CIGRE counts more than 3500 experts from all around the world working actively together in structured work programs coordinated by the CIGRE Study Committees. Their main objectives are to design and deploy the Power System for the future, optimize existing equipment and power systems, respect the environment and facilitate access to information.

CIGRE's Study Committees and domains of work

Group A- Equipment

- A1 Power generation and electromechanical energy conversion
- A2 Power transformers and reactors
- A3 Transmission and distribution equipment

Group B - Technologies

- B1 Insulated cables
- B2 Overhead lines
- B3 Substations and electrical installations
- B4 DC systems and power electronics
- B5 Protection and automation

Group A- Systems

- C1 Power system development and economics
- C2 Power system operation and control
- C3 Power system sustainability and environmental performance
- C4 Power system technical performance
- C5 Electricity markets and regulation
- C6 Active distribution systems and distributed energy resources

Group B - New Materials and IT

- D1 Materials and emerging test techniques
- D2 Information systems telecommunications and cybersecurity

Cigre Iran

Iranian National Committee for Electric Power Studies, CIGRE-Iran, is a branch of International Council on Large Electric Systems (CIGRE) which started its activities in 1989 and represents Iran's interest in the work of CIGRE.

At first, Moshanir Company was responsible for secretariat affairs of CIGRE-Iran, and in 2016, at the request of Mr. Falahatian, the former Deputy to Minister of Energy also former chairman of CIGRE-Iran, Monenco Iran was appointed as the Secretariat of CIGRE-Iran.

Executive Congress

- Mr. Homayoun Haeri, Deputy Minister of Energy ---- Chairman
- Mr. Faramarz GHELICHI, Managing Director of Monenco Iran ---- Executive Chairman
- Mr. Masoud NEGARPOUR ------ Secretary

Major Activities in 2023

- Renew Over 50 Iranian Membership in CIGRE
- Holding CIGRE Iran Technical Meetings
- Holding CIGRE Iran Study Committees Technical Meetings
- Participating in the 13th International Smart Grid Conference, Tehran, Iran
- 1 paper presented at the 4th SEERC Conference Istanbul- October 11-12, 2023. The title of paper is "Electrical extensive analysis of the power network in the presence of the air core reactor FCL in the phase and neutral positions".

Technical Reports

No.	Name of the Technical Report
1	Optimizing the Selection of Equipment in Low-Cost Power Substations
2	New Cable Channel - Cable Basket
3	Protection Coordination in Industrial Power Network
4	Partitioning in GIS Switchgear According to IEC 62271-203 Standard
5	Optimum location of low-cost substations
6	Tapping from High Voltage Line to Provide Electricity for the Remote Residential Consumers
7	Artificial Inteligence (AI) in Substations-Locating Substations via AI
8	Applications and Advantages of Using Virtual and Augmented Reality (VR & AR) Technologies
9	The Study of Corrosion in Power Substations and Transmission Lines
10	The Role of Energy Storage Devices (ESs) and Ancillary Services (ASs) in the Stability of the Distribution System
11	Electricity Distribution Network Preventive Maintenance
12	Development and Operation of Power-to-X Technology in Distribution Energy Network
13	Artificial Intelligence (AI) Applications in Electric Power Distribution Networks
14	Impacts of Electric Vehicles on Electricity Distribution Networks
15	Solar Home System (SHS): Structure, Applications and Challenges in Electricity Distribution Network
16	Aspects of Power-to-X Technology: A Sustainable and Environmentally Friendly Sourcey for Future
17	AI Applications in Electric Power Distribution Networks
18	Compact Overhead Power Transmission Lines
19	Different Configuration of Shield Wire in Overhead Transmission Lines
20	Benefits of Using Power Networks to Access the Internet Service
21	Studies on Failure of Transmission Line Towers in Type Tests
22	Engineering and Engineering Organization’s Role in Natural Crisis Management
23	Concrete Damage Investigation Due to Environmental Factors
24	Resource Management And Project Financing Methods
25	Progressive Collapse in Steel & Concrete Structures
26	Different Types of Equipment Structures in Power Substations (Steel Profile Sections-Concrete Sections-FRP Sections)
27	Investigating and Diagnosing the Corrosion of Rebars in Concrete Stands
28	Metaverse Architect: Building the future
29	Building Demolition Methods & Approaches
30	New Approaches to Design Railway Signaling Systems
31	Protection Coordination in The DC Network of The Metro Power Supply
32	Employment of Large Diameter TBM in Highway and Railway Tunnels Construction
33	Determination of Segmental Lining Thickness by Internal Diameter Ratio in TBM Excavated Tunnels
34	New Approaches to Design Railway and Subway Signaling Systems
35	Nano-Particles in Cable Insulation
36	Nanotechnology in Power Transmission Lines
37	OPPC Conudctors for Overhead Power Transmission Lines
38	Study on Simulation Strategies of Train Automatic Control System
39	A brighter horizon for photovoltaic power plants - bimodal solar panels
40	Field Bus control system in the control of power plant islands
41	Natural gas processing and storage in underground structures
42	Control and monitoring systems of large photovoltaic solar power plants
43	IoT in O&G Industry
44	Digital transformation is a powerful tool to improve the supply chain
45	Network Design and Location of Charging Stations for Electric Vehicles Based on Artificial Intelligence

No.	Name of the Technical Report
46	Smart Port and Its Architecture
47	Dispatching operator training simulator system (OTS)
48	The role of blockchain in solving the challenges of dispatching and renewable energy
49	Industry 4.0 Maturity Model for Operations and Supply Chain Management
50	Digital Transformation in Supply Chains
51	Intelligence in The Rail Transport Network and its Infrastructure

Articles

No.	Name of the Article	Issue Information	Authors
1	The application of solid state substation technology in the metro network	The application of solid state substation technology in the metro network	Mohammad Ahmadi, Mohammad Bigharaz
2	Analyzing Energy Efficiency Improvement in DC-Traction Systems by Using Reversible Substation	The 8th International Conference on Recent Advances in Railway Engineering (ICRARE 2023)	Soosan Ketabdar, Mohammad Bigharaz
3	Short Circuit Studies with the Presence of Fault Current Limiter Reactor Installed at the Transmission Line Terminals or at the Neutral Point of the Transformer.	Cigre Istanbul 2023	Hamed Vasheghani, Hamid Javadi, Masoud Negarpour, Majid Roustaei, Faramarz Ghelichi
4	Optimal routing to feed new subscribers in the ArcGIS software platform	The 7th National Conference on of Geospatial Information System GIS	Ali Ghadiri, Ali Shahmirzaye, Masoud Nasri
5	Medium pressure network design for large scale distribution networks	The 7th National Conference on of Geospatial Information System GIS	Ali Shahmirzaye, Sara Namdar, Faramarz Ghelichi, Ali Ghadiri
6	Applying a Deep-Learning Method to Diagnose the Capacitor VoltageTransformers with Excessive Measurement Errors	Cigre 2024	Hamidreza Mansouri, Mohammadmajid Jalali, Hojat Dezfuli
7	A review of SF6 substitute insulating gases for use in gas insulating switchgears	The 4th National Conference on New Challenges and Strategies in Electrical and Computer Engineering in Iran	Morteza Yousefian, Faramarz Ghelichi, Farrokh Amini, Hojat Dezfuli, Davod Hasanifar, Negar Naderi
8	An overview of the methods of identifying the corrosion of rebars and their protection against corrosion in reinforced concrete structures	The 9th International Congress on Civil Engineering, Architecture and Urban Development	Sina Abasian, Arash Gazarzadeh, Izad Banimostafa
9	Evaluation of Raw Water Distribution System to WTP, Potable Water System and Irrigation System in Power Plant -A Case Study	Journal NEWWA	Farid Attarchi, Maryam Bagheri
10	Infrastructure of Smart Port in Artificial Intelligence Era	The 9th International Conference on Knowledge and Technology of Mechanical, Electrical Engineering and Computer Of Iran	Amirreza Marzband, Sanaz Nouri, Siamak Hossein Khalaj
11	Designing an intelligent system for detecting and identifying faults in combined cycle power plants through convolutional self-encoder neural networks and its practical implementation	The 32nd International Conference on Electrical Engineering	Sanaz Nouri, Siamak Hossein Khalaj, Amirreza Marzband
12	Design and implementation of the intelligent system for detecting and identifying the fault of the combined cycle power plant through convolutional self-encoder neural networks	The 1st International Conference on Information Technology Engineering, Mechanics, Electricity and Engineering Sciences	Sanaz Nouri, Siamak Hossein Khalaj, Amirreza Marzband

Profit (Loss) Statement 2023

	1402	1401
income tax		
services income	5,644,573	4,677,295
services finished price	(5,022,635)	(4,170,177)
gross profit	621,938	507,118
general and administrative costs	(513,893)	(387,414)
other operating income	22,210	337,616
	(491,683)	(49,798)
operating profit	130,255	457,320
financial costs	(1,560)	(2,971)
other non-operating income	32,159	197,882
	30,599	194,911
profit befor tax	160,854	652,231
tax on income	0	(103,900)
net profit	160,854	548,331
accumulated profit		
net profit	160,854	548,331
accumulated profit in the beginning	1,247,588	706,836
annual modification	(323,051)	0
accumulated profit in the beginning modifiled	924,537	706,836
profit dividene	(54,844)	(7,579)
	869,693	699,257
profit distibution	1,030,547	1,247,588
legal reserve	0	0
accumulated profit in the final period	1,030,547	1,247,588

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The wind catchers, called badgirs in Persian, are one of the engineering marvels inhabitants have developed in central Iran (Yazd). The oldest of the city's 700 wind catchers dates back to the 14th century, but the architectural feature is believed to date back as far as 2,500 years

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