The quarterly corporate magazine of KPC and its subsidiaries
8th Issue 2019
At Q8Oils, we have perfected the art of developing high quality greases, which is why we name them after the greatest artists. Manufactured in the UK, our extensive range covers all automotive and industrial applications.

Q8 greases also come in a wide range of pack sizes and our Q8Oils application engineers will help you select the perfect grease for your equipment, to ensure total protection and reliability of your machine.

www.Q8Oils.co.uk | marketing@Q8Oils.com
The 8th issue of ‘K-Pulse’ for January 2019 is issued coincidently with three important occasions in Kuwait’s history; the 13th anniversary of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah’s ascension to the throne on January 29th, as well as the National Day and Liberation Day on February 25th and 26th respectively. All Kuwaitis hold those three occasions very dearly to their hearts for their effect in promoting the sense of national belonging, and boosting unity and cooperation amongst all members of the society.

In this issue, ‘K-Pulse’ highlights the contributions of Kuwait Petroleum Corporation (KPC) and its subsidiaries towards implementing the ‘New Kuwait 2035’ strategy, which the oil sector plays a major role in its execution through its strategy for 2040, which focuses among its goals on developing the oil wealth, and that falls in line with the ‘New Kuwait 2035’ vision.

Furthermore, this issue discusses the oil sector’s strategy in promoting and developing its performance in production and exploration, developing gas resources and improving its tankers’ fleet. In addition, it highlights efforts to promote partnership with the private sector in some oil activities, as well as the launch of mega projects in renewable energy, namely the Debdebah Renewable Energy Project which is considered the largest solar power project in the world.

Moreover, this issue sheds light on the great efforts that KPC and its subsidiaries have made and continue to make in human development and raising the level of training and qualification in line with the goals of the ‘New Kuwait 2035’ vision.

Editor-in-Chief
Sheikh Faisal Al-Jaber Al-Sabah
Deputy Managing Director for Relations
Interview of the Issue
Al-Shamali: KOTC’s Balanced Fleet Achieves KPC’s Marketing, Development Requirements

Strategic Projects
KNPC Launches 2040 Strategy

Eosin Line 12"
Evaluation Project...
Saved KD 17 million
KOC's Expert System for Safe, More Efficient Drilling

Renewable Energy
Al-Toura: Al-Debdebah Project Protects the Environment from Carbon Dioxide Emissions

Generating 100 Megawatts of Thermal Energy.
South Ratqa Project to Produce Steam from Solar Power

KOC Establishing a Distinguished Center to Train Engineers under Development

Partnership with the Private Sector
Consolidated Partnership Advisory Council Supports ‘New Kuwait 2035’ Vision in Private Sector Development
Signed a $167.6 million contract to build 4 petroleum products tankers…
Last contract in 4th and final stage

Al-Shamali: KOTC’s Balanced Fleet Achieves KPC’s Marketing, Development Requirements

As part of the fourth stage of its fleet upgrade program, Kuwait Oil Tankers Company (KOTC) recently signed a $167.6 million contract with South Korea’s Hyundai Mipo Dockyard to build and deliver 4 petroleum products tankers, with an average cost of $41.9 million per tanker.

KOTC CEO Sheikh Talal Al-Khalid Al-Ahmad Al-Sabah signed the deal on the company’s behalf, while Hyundai Mipo Dockyard President Ka Sam-hyun signed it on behalf of his company. South Korea’s Ambassador to Kuwait Yu Yun Chol and officials from both companies attended the contract signing ceremony.

To learn more about the contract and new tankers’ specifications, ‘K-Pulse’ interviewed KOTC Fleet Projects Superintendent Mr. Abdullah Al-Shamali, who stressed that the contract is compliant with the latest international specifications in petroleum products shipment, as well as the global environment protection standards, and requirements and specifications related to limiting emissions resulting from operations and maintaining safety and security.
The following are excerpts from the interview:

• **First of all, can you brief us on the new tankers’ specifications?**

The contract signed recently to build four new tankers is considered the last in the fourth stage of the fleet’s upgrade. They are medium range petroleum product tankers with identical specifications. Each tanker is around 183 meters long and 32.2 meters wide, sails at minimum speed of 15 knots with an estimated tonnage of 48,000 tons.

• **When will building commence, and what is the expected date to deliver the four tankers?**

The actual start date for building the four tankers will be in 2019; the first in February, followed by the second and third in April, and finally the fourth in May.

KOTC is expected to receive the first tanker in February 2020, the second and third in March and April 2020, and the fourth in May 2020.

• **How compliant are the new tankers with global environment protection requirements, as well as the technical specifications and modern technology according to the international maritime laws?**

KOTC is committed to making sure that all of its new tankers are built according to the latest global standards.

• **Fourth stage stipulates building 8 tankers, including 3 LNG tankers, 1 giant crude tanker and 4 petroleum products tankers**

• **KOTC makes sure that its new tankers are compliant with the latest global environment protection requirements and standards**
standards and specifications for environment protection, limiting pollution and reducing harmful emissions.

The new tankers are compliant with the latest technical specifications and modern technology according to the International Maritime Organization (IMO) laws, as well as the standards and requirements of oil majors and Classification Society. Furthermore, tankers already built and those to be built in the future are designed and equipped with special monitoring equipment to limit emissions of main and secondary engines, as well as carbon dioxide and volatile organic compounds emissions. In addition, each tanker is equipped with a ballast water treatment unit.

• What are the safety and security protection as well as anti-piracy means that the tankers contain?

KOTC is highly committed to applying global standards and specifications related to safety and security procedures according to international maritime law and Classification Society standards. All new tankers are compliant with the latest international maritime laws in safety and security and protecting crew members’ lives, and they are
all equipped with the latest anti-piracy devices and equipment, in parallel with diverse and advance defense mechanisms that they have.

**What is the total number of tankers targeted in the fourth stage? And what are their types?**

The fourth fleet upgrade stage includes building 8 various tankers, including a deal with South Korea’s Hyundai Heavy Industries to build 3 LNG tankers with a capacity of 84,000 square meters each, a deal with China’s Bohai Shipbuilding Company to build a giant crude tanker with an estimated capacity of 318,000 tons, and the four medium range petroleum products tankers mentioned above.

**Once completed, will the upgrade plan achieve balance that KOTC seeks to fulfill KPC’s marketing needs?**

KOTC’s fleet upgrade was done in four stages to provide a strategic, balanced and multipurpose fleet that meets KPC’s marketing requirements, and at the same time provides a strategic cover for Kuwait.

There is no doubt that upgrading the fleet gives KOTC a major push forward in the oil, gas and derivatives shipment industry.

**What is the average age of KOTC’s fleet after the end of the upgrade phases? And is it a good average?**

After upgrade’s completion, the fleet’s average age will drop to 6-8 years, which is considered a very good average that indicates that KOTC has a new oil, gas and petroleum products shipment fleet. This will help improve the company’s international position, benefit the future of Kuwait’s oil industry and contribute in achieving sustainable development for Kuwait.

• New tankers built based on the latest international specifications for the petroleum products shipment industry
  • Each tanker is 183 meters long with an estimated tonnage of 48,000 tons, and sails at minimum speed of 15 knots
  • Building of first tanker starts in February 2019… and for second and third tankers in April of the same year
  • First tanker to be received in February 2020… fourth and last in May of the same year
  • All new tankers are compliant with the latest international maritime laws in safety and security

• Any last words?

In conclusion, I would like to thank the higher management for their efforts in the fleet upgrade project, and each person who contributed to completing this project in order to achieve KOTC’s strategic goals and improve Kuwait’s global position in the shipment field.
KNPC Launches 2040 Strategy

In a speech on this occasion, CEO Mohammad Ghazi Al-Mutairi said that launching the 2040 strategy is a remarkable achievement in the company’s history which started in 1960, adding that the strategy embodies the company’s directions, goals and initiatives for a better future thanks to the efforts of all of its staff at all sites.

Race Against Times

Al-Mutairi further stressed that the strategic plans’ importance lies in the deep understanding of the nature of internal and external changes, in addition to having enough flexibility to keep up with those changes through careful and realistic planning that guarantees staying competitive among those who take the initiative and have the ability to comprehend the demands of development, achievement and excellence.

Furthermore, he noted the increasing global competitiveness witnessed in the oil industry in general, and the downstream industry in specific, and also to the strict conditions and specifications that increase day after day and are no longer restricted to the product’s quality, but also expand to include environmental, social and other factors.

Facing Challenges

“We have to race against time in order to prove that we are really prepared to face future challenges through this strategy.
that derives its general framework from the vision of Kuwait Petroleum Corporation (KPC), which strives to meet the oil sector’s internal and external commitments,” he added. “Our consolidated efforts seek to achieve the New Kuwait 2035 vision that draws the state’s future position and influence in a way deemed fitting to the volume of its economic and humanitarian role.”

Manufacturing Capacity
Al-Mutairi also noted that the 2040 strategy seeks to achieve the highest level of manufacturing capacity in local refineries, bearing in mind the availability of alternative fuel resources to meet the local demand on energy, provide petroleum products matching local and international specifications, achieve integration between refinement and petrochemical operations locally, and adopt the highest international standards for excellence in operation, while maintaining those standards to attain leadership and sustainability in the oil and gas industry.

He added that the company’s new strategy includes continuous review of the operational portfolio and optimizing it through taking advantage of available opportunities while eliminating non-profitable assets that do not fall under KPC’s operations and activities, in addition to meeting Kuwait’s current and future energy needs.

Global Technologies
Al-Mutairi concluded by noting that this new stage which KNPC is taking the first steps of is not an easy one, but requires a lot of hard work and utilization of the latest advanced technologies, which will help the company improve its capabilities to face the future demands.

He further pointed out the importance of focusing efforts and encouraging employees to face those challenges, and help them understand the level of global competition that the downstream industry is witnessing, expressing his confidence in their capabilities and loyalty to their country and company, describing them as the basis for the company’s success and progress.

Strategy Ambassadors
And in an initiative that embodies the company’s commitment to enhancing young people’s role and supporting them, KNPC has enrolled a number of young employees from various departments to work side by side with their more experienced colleagues among the team responsible of preparing and implementing the strategy, giving them the title ‘Strategy Ambassador’.

The 2040 Strategy of Kuwait National Petroleum Company
The 2040 strategy includes comprehensive perceptions of the visions and means by which KNPC can best achieve its goals and meet its ambitions and aspirations in line with KPC’s future directions.

The strategy targets achieving four main goals: expanding the local refinement capacity, increasing gas production from the upstream industry, achieving operational performance with the highest international standards of excellence, and meeting the growing local and international demand on high quality fuel. The strategy includes KNPC’s vision, message and goals, in addition to the basics and principles of achieving leadership
and sustainability in the oil and gas industry, and meeting KPC’s obligations towards the global markets, thus actively contributing to the development of the Kuwaiti economy.

There were several aspects taken into account while preparing the KNPC 2040 strategy, including the future oil and gas production plans, the local and international markets’ needs of world-standard oil products, opportunities of integration with petrochemicals, and diversification of energy resources.

**KNPC: Our Strategy is Derived from KPC**
- Refinement capacity of two million barrels a day by 2035.
- Meeting Kuwait’s current and future energy demand.
- Constant coordination with Kuwait Oil Company (KOC) and the energy team at KPC to determine the disparity in production level of oil and gas.

KNPC derived its strategy from the strategic directions of KPC, which instructed its subsidiaries to improve their own strategic plans in order to implement those directions.

**Strategic Plan**
In accordance with KPC’s strategy, KNPC prepared its 2040 long-term strategic plan in line with KPC’s strategic directions. The 2040 strategic directions for the downstream sector can be summarized as follows:

- Expanding the state’s refinement capacity at the highest level while taking into account increasing the discharge of Kuwaiti heavy oils in local refineries in order to meet the local energy demand, and that as follows:
  - 1.4 million barrels a day by 2020.
  - 1.7 million barrels a day by 2025.
  - 2.0 million barrels a day by 2035.

- Achieving the highest level of manufacturing capacity at local refineries while taking into account providing alternative resources for fuel in order to meet the local energy demand.
• Providing petroleum products that match local and international standards.

• Achieving integration between refinement and petrochemicals locally.

• Adopting the highest international standards of excellence in operation, and maintaining them to achieve leadership and sustainability in the oil and gas industry.

• Constant review of the operational portfolio and optimizing it by taking advantage of available opportunities, and eliminating non-profitable assets that do not fall under KPC’s operations and activities.

• Meeting Kuwait’s current and future energy needs through a mix of different types of fuel that are economically and environmentally optimal, while providing strategic alternatives for them.

• Utilizing alternative and renewable energy resources as long as they provide an added value to KPC’s activities and operations.

Strategic Initiatives

The implementation of the 2040 KNPC Strategy starts with a series of initiatives with the ultimate objective of achieving the company’s targets for 2040. Those initiatives are:

■ Expanding the refinement capacity locally

• Increasing the refinement capacity by 300,000 barrels a day by 2025.

• Increasing the refinement capacity by 300,000 barrels a day by 2035, until the capacity reaches 2.0 million barrels a day.

• Achieving integration between KNPC and the petrochemical sector as long as it is economically feasible and depending on the availability of feedstock.

■ Increasing gas production in the upstream sector

• In order to achieve the strategic goal of increasing gas production in the upstream sector, KNPC will study the need to build a sixth liquefied petroleum gas production unit by 2025.

When this unit is built, the total manufacturing capacity for gas processing would reach 3.8 billion cubic feet per day. And in case KOC increases production, this will raise the need to build a seventh unit, bringing the manufacturing capacity up to around 4.6 billion cubic feet a day.

■ Achieving operational performance with the highest international standards of excellence:

• Working to achieve standard
levels according to the benchmarks of ‘Solomon Associates’ (energy consumption indicator, operational preparedness, optimization of manufacturing units for all assets and cash margin).

- Working on behalf of the oil sector on building a new solar power plant at Al-Debeebah to cover its electricity needs, and that as part of the renewable energy strategy that goes in line with the vision of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah of producing 15 percent of power using renewable energy by 2030.

**Meeting the growing demand on high level fuel locally and internationally**

- KNPC will build 143 new gas stations to meet future demand by 2040.

- KNPC will update the study of local demand on petroleum products to meet future demand by 2040, and determine the need to build a depot for petroleum products to cover the local demand on petroleum products and guarantee a strategic reserve of it.

- Commitment to the requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) which will go in effect in 2020, while transforming the surplus in fuel oil that contains 1 percent of sulfur to products with added value.

**Cooperation and Coordination**

As part of efforts to push forward the implementation of the 2040 strategic plan and overcome its obstacles, KNPC coordinates continuously with KOC and the energy team at KPC to determine the disparity in production level of oil and gas and compare it with the future energy requirements of power plants. Furthermore, KNPC coordinates with KPC’s International Marketing Department to identify new demands for products’ specifications and quantities.

To achieve that strategy, KNPC carries out the following:

- Supporting the local content principles including outsourcing and private sector partnership.

- Providing enough lands to execute future projects.

- Providing distinguished training for staff to develop their skills and capabilities.

- Commitment to continuation of the efficiency of operations.

- Regular and accurate assessment to local fuel and low-sulfur fuel oil demand, based on advancement in gas exploration and production operations, as well as the Ministry of Electricity and Water’s energy consumption predictions.

- Completing current and future projects on schedule and according to the allocated budget.

- Improving the contractors’ level of commitment to health, safety, security and environment standards.

**KNPC’s Values According to the 2040 Strategy**

- **Integrity**: Dealing with trust, while committing to the highest levels of work ethics, respect and honesty.

- **Innovation**: Adopting and developing innovative concepts and work methods to face challenges and create added value.

- **Excellence**: Encouraging high performance, constant development and attention to meeting clients’ needs.

- **Working as a Team**: Commitment to serving the best interest of the corporation as a whole, and achieving harmony to reach the goals of the corporation and state.

- **Partnership**: Building relationships that lead to supporting growth and operational excellence.

- **Taking Care of the Human Element**: Creating a work environment that guarantees staff development and growth, while encouraging employ-
ees positively to contribute to achieving joint success.

- **Commitment to Health, Safety, Security and Environment:** Protecting the environment, safety and security, while providing a healthy working environment at work sites.

- **Pride:** Creating job satisfaction and enhancing employees’ sense of loyalty and belonging.

**Follow-up Mechanisms to Monitor Progress in Implementing Strategic Initiatives.**

It’s important to note that among the most important follow-up mechanisms to monitor progress in implementing strategic initiatives and achieving the company’s desired goals is the quarterly report on following up with strategic initiatives, which is released by the steering committee team and strategic programs department office at KPC’s petrochemicals, manufacturing and refinement sector to follow up with the implementation of the 2040 KPC Strategic Plan for this specific sector. The team is led by KNPC and includes members from the Kuwait Aviation Fuelling Company (KAFCO), Kuwait Integrated Petroleum Industries Company (KIPIC), Kuwait Petroleum International (KPI) and the Petrochemical Industries Company (PIC).

**Priorities of the Upcoming Phase**

- Continuing the human development, considering that they are the true wealth of the company and main pillar for performance efficiency improvement.

- Further enhancement of health, safety and environment performance in order to prevent accidents that cause injuries or losses.

- Striving to develop performance to optimize the performance of the company’s operations, increase production capacity and maximize financial returns.

- Focusing specifically on the company’s mega projects, and executing them according to plan and schedule.

---

**KNPC Vision**

“Assuming a prestigious global position in the downstream industry through distinguished operational and financial performance.”

**KNPC Message**

“Maximizing the added value of Kuwait’s hydrocarbon resources by producing high quality fuel that meets the local and international markets’ needs.”
Kuwait Gulf Oil Company (KGOC) is currently working on a number of main projects to maximize added value to its services, and cement its regional position as a producer of hydrocarbon resources. This goes in line with the ‘New Kuwait 2035 Vision’ and the 2040 Strategy of the oil sector, which seek to establish a group of projects and initiatives that serve its goals and create a local environment that supports sustainability and future expansion for all current industries and activities.

**Buildings Safety**

The project comes as part of KGOC’s commitment to maintaining the safety of its employees and buildings, in addition to the environment. Therefore, the relevant department at KGOC carried out a direct evaluation for external corrosion at its Eosin Line 12”, which extends from the Mina Abdullah Refinery to the Mina Al-Ahmadi Refinery. This evaluation resulted in saving large funds estimated at KD 12 million, which is the estimated value of replacing the pipeline.

The company further noted that a pipeline network to transport hydrocarbons extends from Al-Wafra Joint Operations to Kuwait Oil Company (KOC) via 12”/16” pipes. The ‘Wafra’ projects and facilities team, which is affiliated to the ‘Wafra’ assets management group, monitors the pipeline network and manages all activities pertaining with the pipelines including scheduled cleaning, inspection, smart check to verify the pipeline’s safety and direct corrosion evaluation of the network’s pipelines.

**External Corrosion**

Direct evaluation for external corrosion is considered one of the most important inspection tools to verify the pipelines’ safety through external measurements, which is done through four stages: pre-evaluation, indirect inspection, direct check, and post-evaluation.
The projects and facilities (Wafra) team at KGOC carried out the direct evaluation of external corrosion project for the Eosin pipeline 12” in cooperation with Kuwait National Petroleum Company’s (KNPC) ‘Center of Excellence’ for drilling and exploration companies, upon KGOC’s request to KOC to carry out direct evaluation of external corrosion at the Eosin pipeline 12” to verify its safety.

17 Million

The results of the direct evaluation for the Eosin pipeline 12” showed that there was no need to replace the entire pipeline, thus helping save around KD 17 million, which is the estimated cost for replacing the pipeline entirely. This accomplishment was the fruit of collaborated efforts of all parties involved in the direct evaluation process, including the inspection and corrosion team at KOC, members of the security team, Mina Abdullah and Mina Al-Ahmadi refineries of KNPC, the Interior Ministry and the Public Authority of Industry.

Evaluators

Those parties spared no efforts during the evaluation process of the pipeline network, and managed to overcome all challenges that faced them, including constant coordination and issuing entrance permits for the work team members from the relevant authorities led by KGOC, in addition to technical challenges related to the pipelines such as analyzing the evaluation’s accurate data, handling the cathode safety test stations, accessing pipelines that extend through several electrical fences used for refineries’ security, and other challenges that were overcome successfully, culminating with finalizing the evaluation successfully and exceptionally.
The Reservoirs Research and Technology Team at Kuwait Oil Company (KOC) completed the development of the ‘Expert System’ for drilling risk prediction at high pressure locations in Kuwait’s northern fields. The project aims at achieving integration between the pore pressure mechanism, geomechanics, and drilling enhancement methodology in order to develop a system that helps in decision making. The ‘Expert System’ also combines different data and specialties in an integrated process, including drilling, geology, petrophysics, and reservoir engineering.

KOC is distinguished by its unique innovations and keeping up with the latest technology in all specialties, which gives it leadership status among national and regional oil companies, and makes it a leader in utilizing technology to achieve the best results and desired goals.

Among those innovations that the company is proud of is developing a specialized system to predict drilling risks before, during and after the operation. The system, which was applied at some fields north of Kuwait, was named the ‘Expert System’ due to its ability to predict, detect and sort risks before happening, thus greatly benefiting the company and adding to its list of innovations.

The following is an overview of the system that was developed by the Reservoirs Research and Technology Team.

The Reservoirs Research and Technology Team at KOC completed the development of the ‘Expert System’ for risk prediction at high pressure locations in fields located in the North Kuwait Operations Zone. This process was done in cooperation with other KOC teams including the field development (gas studies), deep drilling and exploration, and in cooperation with ‘IFP’ and ‘GMI’ companies.

Drilling in the deep layer (deposits of the Anhydrous Sulfate) in North Kuwait is a risky operation due to high pressure and temperature between the thick deposits of Anhydride and limestone. These high pore pressure calcareous deposits present a tough challenge for drilling operations, risking flows or losses if not controlled or predicted.

There have been several reports from drilled fields in that area, in which unexpected flows happened due to the small space resulting from drilling (the difference between cracks’ pressure and pores’ pressure), which makes well control extremely difficult and complicated, as it would
require in that case a lot of time to manage and control it. This operation is sensitive and complicated, increases non-productive time and escalates risks related to health, safety and the environment.

Therefore, it is very important to understand the main risks resulting from drilling operations in those Jurassic layers, and apply the best geomechanical solutions to achieve the best results and limit losses.

Main Goals
The project aims at achieving integration between the pore pressure mechanism, geomechanics, and drilling enhancement methodology in order to develop a system that helps in decision making and is capable of drawing clear and smooth work plans for drilling engineers.

The following are some detailed geomechanic analyses that were carried out to understand what happens in different Jurassic layers:

1. Pores pressure in “Qutniya” layer: Pores and cracks’ pressure is considered among the greatest challenges for a successful drilling operation, due to the limited space.

2. Conducting one-dimensional and three-dimensional geomechanical studies and analyses, and modeling between the layers located between the “Najma” and the lower “Marat” layers, and using the optimal mud weights to avoid failure or mechanical collapse.

3. Understanding risks surrounding the drilling suspension at the middle “Marat” layer, and that due to high depletion at the reservoir, which makes drilling difficult.
Integrating Between Different Specialties

The ‘Expert System’ combines different data and specialties in an integrated process, including drilling, geology, petrophysics and reservoir engineering. All that data would be integrated in a geomechanical modeling platform (one and three dimensional geomechanic models), in order to verify answers to main drilling risks. Based on that, the ‘Expert System’ delivers the main questions raised by the drilling engineering team.

Finally, merging all related data from various specialties (geology, geomechanics, drilling) has already been made in the ‘Expert System’, which has developed to detect extra pressure and main drilling risks such as explosions, pipe suspensions, side tracks and non-productive time. Engineers monitor those risks during drilling in order to prevent them in the “Makhool”, “Hath – Qutniya”, “Najma Sargello”, and “Marat” layers in the deep wells of high temperature and high pressure.

Integrating between high pressure and geological structure helps planning to drill new wells in a better way, and optimize the mud weight program to guarantee a safer and more effective drilling operation.

Developing the ‘Expert System’

The ‘Expert System’ consists of a three-dimensional geomechanic model that includes data pertaining with pores pressure, in-sit pressures, and rock properties in Al-Roudhatain and Al-Saaberiya fields.

In any new drilling operation at a specific well, different geomechanic standards must be taken from this three-dimensional geomechanic model. The results include data about pores pressure in the “Qutniya” layer, optimal mud weight designs for the “Najma” and lower “Marat” layers, and that based on the one-dimensional mechanic modeling standards. The ‘Expert System’ also includes the differential risks lying in the middle of the “Marat” layer.

‘Expert System’ Benefits

• Predicts drilling risks and provides operational solutions. It can also predict risks before the start of the drilling operation.
• Mechanical modeling before drilling, using optimal mud weights in a specific track in the well, and providing a specific design for drilling liquids.
• Uncertainty management by logging while drilling, in addition to detection and modeling in real time of drilling.
• Proposing safe mud weights.
• Predicting pressures to prevent collapse.
• Showing warnings on pipes’ suspension.
• Red alert when risks happen during drilling.
• Reducing the non-productive time during drilling, in addition to optimum chemicals and liquids use, thus reducing the overall drilling cost.
**System’s Prominent Feature**

The ‘Expert System’ is the first expert system in geomechanics of its kind. The system analyzed 110 wells, offered detailed drilling data, and scheduled everything that was faced at those wells in Al-Roudhatain and Al-Saaberiya fields.

A ranking system by risks’ types was also developed using the ‘Expert System’. Meanwhile, the predictions that the system offered helped carry out a successful drilling operation at the “Hath – Qutniya” and “Najma Sargello” layers in Al-Roudhatain field – 0645 smoothly, without complication and with zero non-productive time.

**The System’s Effect on the Industry**

The ‘Expert System’ adds value to a project’s life cycle, including drilling efficiency, optimal production and enhanced oil extraction to help project engineers better understand and preempt challenges to guarantee safe operations that are compatible with health, safety and the environment standards. Furthermore, the integrated risk management methodology offers unique and complete modeling for geomechanical predictions, and a platform to diagnose risks in order to improve drilling’s efficiency and success with optimal cost.

The system also increases the chances of reaching the desired goals without resorting to side tracks, which helps achieve high quality drilling operation for wells, thus making evaluation and examination easier.

In addition, the system reduces capital spending for projects by improving drilling performance, and also cuts emergency costs by helping better understand risks before drilling. Finally, the system plays a great role in reducing exposure to health and safety risks before, during and after drilling.

**Future Plan**

The team is looking to launch the ‘Expert System’ to guarantee drilling operations in all high pressure and high temperature wells in Kuwait, which would offer an added value in limiting drilling risks, and save funds. Furthermore, the system can continuously be improved and upgraded to manage all risks of drilling in all fields in Kuwait.
The Petrochemical Industries Company (PIC) exemplifies one of the main pillars of the oil sector’s 2040 Strategy in terms of developing the petrochemical industry with a global vision with the goal of transforming into an international company, while committing to achieving the New Kuwait Vision 2035, bearing in mind that it is one of the most important component for oil wealth’s development inside and outside Kuwait.

PIC seeks in the coming period to implement the Olefins-4 Project, which embodies Kuwait’s developmental vision and creates 1,000 job opportunities for Kuwaiti youth in various fields.

The following report highlights PIC’s strategy and goals which fall within the oil sector’s 2040 Strategy. PIC’s strategy for 2040 includes plans to grow the petrochemical industry by expanding in olefins and aromatics projects, and entering in the specialized petrochemicals business.

**Vision and Message**

This Strategy is summarized as follows:

- **Vision**: To become an international petrochemicals company committed to creating an added value to Kuwait’s national resources.

- **Message**: PIC develops, operates and enhances assets to market projects that cover clients’ needs through five main factors:
  - Investing in its staff.
  - To be a committed and reliable partner in our societies and markets.
  - Keeping up with innovation,
and adopting the highest standards of operational excellence.

- Protecting the environment, and committing to health and safety.
- Committing to the economic sustainability concept.

**Expansion and Investment**

PIC’s 2040 Strategy focuses on the following two factors:

- Expanding the petrochemical activities inside and outside Kuwait by building or expanding assets, and purchasing existing assets to cement its leading position in the petrochemical industry, and reach 16 million tons a year of the total petrochemical products by 2030.
- Entering downstream and specialized petrochemical industries through partnerships and alliances related to the main intermediate products.

**Strategic Directions**

From that standpoint, PIC launched a strategy that goes in line with its strategic directions, as it studies several investment opportunities in various places around the world, including the United States of America, Canada, South Korea and China.

**Olefins Project**

As for projects inside Kuwait, PIC is currently carrying out a detailed feasibility study for the Olefins-4 project, which is considered the first project in Kuwait to produce specialized petrochemicals.

The project stipulates building a petrochemicals complex to produce 900,000 tons a year of polyethylene, 550,000 tons a year of ethylene glycol, and 100,000 tons a year of specialized petrochemicals. Furthermore, PIC is expected to obtain necessary approvals on the results of the project’s feasibility study, in order to move forward with the Front End Engineering and Design (FEED) phase during the first quarter of 2019. Operation is expected to begin in 2025.

**Major Project**

This major national project is a priority for PIC and Kuwait Petroleum Corporation, due to its great role in supporting Kuwait’s development plan and improving local economy by achieving profitable returns and creating nearly 1,000 direct and indirect job opportunities for Kuwaiti youth. In addition, the project enhances the private sector’s partnership in oil activities by maximizing the utilization of locally-produced material and services offered by national companies, as well as creating industrial opportunities for additional downstream activities, and encouraging new industries and services.
Kuwait Integrated Petrochemical Industries Company (KIPIC) was established in 2016 as the newest oil sector firm and subsidiary of Kuwait Petroleum Corporation (KPC), achieving a quantum leap in the history of Kuwait’s oil industry since it began in the 1960s, and going through the modernization stage in the 1980s and the rebuilding stage that followed in the 1990s.

October 18, 2016 is considered an important date in Kuwait’s history, since it saw the announcement of establishing KIPIC with an estimated capital of KD 1.8 billion, signifying the birth of the first Kuwaiti integrated subsidiary of KPC with a wide scope of capabilities that cover the works of other companies and acts as KPC’s arm in the projects of refinement, petrochemicals and liquefied natural gas (LNG); also known as ‘downstream’.

**KIPIC’s Tasks**

KIPIC handles the responsibility of owning, managing and operating Al-Zour integrated oil complex; one of the most important strategic and development projects in Kuwait. One of the largest in the region, the oil complex includes the following mega projects:

1. Al-Zour Refinery Project.
2. LNG Import Terminal Project.
3. Petrochemicals Complex Project.
Cementing its Role

KIPIC seeks to cement its role in stimulating growth, development and prosperity in Kuwait, based on fundamental pillars that include maximizing the added value to Kuwait, achieving operational excellence through integration, optimum investment in human resources and providing a platform to launch the potentials of its young national manpower who are in reality the company’s backbone and future leaders.

Consequently, KIPIC offers as much opportunities as possible to Kuwaiti manpower by attracting and hiring promising cadres amongst newly graduates, while actively and continuously investing in their empowerment, qualification and development, enabling them to operate the company’s assets and elevate them to the highest global standards. In its first year, KIPIC finalized hiring for almost all vacancies by transfer from inside the oil sector and hiring both experienced and newly graduated staff. This policy helped increase efforts of ‘Kuwaitization’ of jobs at KIPIC, where more than 90% of staff are Kuwaiti.

Operational Excellence

KIPIC realizes that achieving operational excellence requires first and foremost building capabilities and expertise, and therefore it hosted last year several training programs for staff in various company projects, focusing mainly on newly graduates.

At Al-Zour Refinery project, the first batch of newly graduated Kuwaiti students’ training was completed, featuring 43 engineers. Meanwhile, preparations are ongoing to select nominees for the second batch who are set to be nominated in the first quarter of the current fiscal year.

Engineers’ Training

In the LNG Import Terminal project, the second batch featuring 10 newly graduated Kuwaiti engineers is being completed as part of the project’s engineering works.

As for the Petrochemicals Complex Project, 30 newly graduated and under development engineers were enrolled in a special training program for six months.

And as part of efforts to improve the capabilities of employees in general and encourage them to fully utilize their potentials, the human resources and vocational development group at KIPIC organized a first-of-its-kind training program with the goal of unleashing the hidden potentials of future leaders and developing their leadership skills.

Rooted Culture

KIPIC acknowledges the fact that in addition to building capabilities and skills, operational and performance excellence requires providing a positive and productive business environment. Therefore, the company’s higher management has worked since its establishment on cementing and rooting a corporate business culture based on transparency, active communication and encouraging employees to have the initiative, while improving their passion for operational excellence, achievement and working in harmony and as a

• Newest company achieving a quantum leap in Kuwait's oil industry
• KIPIC handles the responsibility of owning, managing and operating Al-Zour integrated oil complex
• KPC’s subsidiary in projects of refinement, petrochemicals and LNG (downstream)
team to complete the company’s mission and make it possible to do more.

The features of this leading corporate culture model, which is the result of the best cumulative oil expertise, were manifested in various formats and on several levels, including the values system that is considered an inseparable part of KIPIC’s strategic pillars that focus on encouragement, commitment to health, safety, security and the environment, one team, integrity, pride, excellence, flexibility and partnership. The features also include an unprecedented initiative in setting up a ‘frequently asked questions’ section on the company’s website to provide transparent and clear answers to employees’ inquiries regarding their salaries, allowances, holidays and rights. Furthermore, the features include the commitment of CEO Hashem Sayyed Hashem on sending monthly newsletters that cover various topics of employees’ interest including work progress as well as professional and social safety, in addition to encouraging staff to commit to professional and behavioral values, and greeting them on various occasions. Moreover, he made sure to communicate directly with employees and allow them to make notes and suggestions on developing the business mechanism.

‘Diversity Makes us Stronger’

Upon its launch, KIPIC attracted an elite group of qualified Kuwaiti cadres, and the brightest minds from various sectors of Kuwait’s oil industry who have illustrious careers of cumulative expertise spanning over seven decades. KIPIC then enhanced this rich mixture of experiences with young national elements, as it hired dozens of newly graduates, thus forming a very rich and diverse staff in terms of age, qualifications, experiences, skills, knowledge and ways of thinking related to different generations.

Human Capital

As part of its commitment to sponsor this diversity in its human capital and build on it as a point of strength that allows it to achieve performance excellence, KIPIC strives to provide all kinds of support for this diversity in manpower by building its training and development infrastructure and policy, while making sure to create a rich business environment that puts this mixture of diverse national skills under one umbrella and corporate culture, and allows them to share innovation, development and competitiveness, which encourages them to fully improve their capabilities in a way that allows the company to carry out its tasks at the fullest and achieve its goals and ambitions.

• KIPIC seeks to cement its role in stimulating growth, development and prosperity

• Hosting several training programs for staff in various company projects
The ‘New Kuwait 2035’ Vision specifies the long-term developmental priorities of the state of Kuwait. It is based on five main topics or desired goals, as well as seven pillars which the plan focuses on investing in and developing. Each of the seven pillars includes several strategic programs and projects designed to leave the largest possible developmental impact on efforts to achieve the New Kuwait vision.

There are 20 main global indexes, in addition to other sub-indexes, that monitor and measure Kuwait’s development in terms of implementing the plan compared to other countries.

The global index ranks countries on a scale of 100 levels, with the first being the most developed and the 100th being the least developed. Meanwhile, Kuwait seeks to improve its position to become among the top 30 countries by 2035.

The ‘New Kuwait 2035’ website carefully analyzes development projects’ situation and implementation, and provides data regarding their ability to create job opportunities for national manpower, and realize the sustainable development concept targeted by the ‘New Kuwait 2035’ strategy.

**Amir’s Vision**

In essence, the ‘New Kuwait 2035’ vision stems from the vision of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah, which states:

“Transforming Kuwait into a financial and commercial hub that attracts investments and where the private sector leads economic activity, while at the same time encourages competitiveness, increases production efficiency under a supportive corporate state structure, instills values and protects social identity, achieves human and balanced development, and provides suitable infrastructure, advanced legislations and positive business environment.”

Kuwait seeks through the seven pillars of the ‘New Kuwait 2035’ vision to achieve its developmental goals in various economic sectors. Those pillars include: distinguished global status, advanced infrastructure, innovative human capital, active governmental administration, high quality healthcare, diverse and sustainable economy and sustainable living environment.
Renewable Energy

Meeting the Amir’s Wish of Providing 15% of Kuwait’s Energy Needs Using Renewable Energy

Al-Toura: Al-Debdebah Project Protects the Environment from Carbon Dioxide Emissions

Kuwait National Petroleum Company (KNPC) began actual steps to implement Al-Debdebah solar power project, which is considered the largest in this field and comes as part of the strategy of Kuwait Petroleum Corporation (KPC).

KNPC has finished pre-evaluation for the qualification of the project’s contractors, and the Central Agency for Public Tenders has approved this evaluation.

The project, which is expected to become the world’s largest in solar power generation, meets the wish of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah to produce 15 percent of Kuwait’s electricity using renewable energy by 2030. Considered the largest in Kuwait, the project is set to produce 1,500 megawatts and create job opportunities for young people in the renewable energy field, which is a new and promising field that has become a reality in Gulf Cooperation Council (GCC) countries that strive to have an environment clean from carbon dioxide emissions, and diversify energy resources to meet the growing demand from the expected population increase.

The following is an interview with Director of Projects (2) Department at KNPC Riyadh Al-Toura, in which he talks about the nature of the project, its goals and stages of implementation.

• First of all, what is the nature of Al-Debdebah project, and what kind of business does it include?

The oil sector is executing Al-
Debdebah solar power project in response to the Amiri wish of producing 15 percent of Kuwait’s energy needs using renewable energy by 2030. KPC launched its own initiative to carry out this vital project in order to achieve His Highness the Amir’s vision. The project’s goal is to secure a part of the oil sector’s energy needs using photovoltaic power. The project was handed over to KNPC, which executes it in coordination with Kuwait Institute for Scientific Research (KISR), which provided the lands for the project.

Al-Debdebah is a mega project that includes building a plant to produce solar power with a capacity of 1,500 megawatts. The scope of its business includes procurement and construction of the plant, substations and overhead lines, in addition to management and maintenance of the solar power plant for 25 years. The project will produce a minimum of 3,150 gigawatts per hour in the 25th year of operation, which is targeted as the project’s main goal. I would also like to point out that when it enters operation, the project is expected to become one of the largest solar power projects in the world.

Al-Shaqaya Complex

- Where is the project located? What is its area, and how much of it has been completed?

The project is located within KISR’s Al-Shaqaya complex for renewable energy around 100 kilometers west of Kuwait City, and built over an area of 32 square kilometers. The Central Agency for Public Tenders has already placed the project’s tender for bidding. It will be built according to the procurement, construction, operation, and maintenance (PCOM) model using photovoltaic panels to produce solar energy, without the need to store power. The project is expected to help save an estimated average of 6.2 million barrels of fuel annually, in addition to limiting carbon dioxide by 2.17 million tons a year.

New Job Opportunities

- What is the project’s goal, and what stage has it currently reached?

The goal is to produce 15 percent of the oil sector’s energy needs using photovoltaic solar power. Furthermore, it targets creating new job opportunities for national manpower in a field considered new in Kuwait. In addition, the project aims at diversifying energy resources in the country.

As for the project’s current stage, the Central Agency for Public Tenders has announced its tender, and bidding was made for three months before the tender was closed on December 16, 2018.

And recently, KNPC hosted the first preparatory meeting for representatives of the qualified companies which have already registered with the Central Agency for Public Tenders and received the project’s documents.

- What is the company’s role during the project’s execution stages?

The company will manage the project and follow up with the execution until the performance test and the photovoltaic plan operation are carried out. It will be responsible for all stages of execution.

• Mega project to build a solar power station with a capacity of 1,500 megawatts
• Creating job opportunities for national manpower in a new and promising field
• **Who are the members of the project’s team, and what is the nature of their work?**

A team of specialists was formed, sponsored by KNPC Executive Vice President for Projects Abdullah Fahhad Al-Ajmi. The team includes members from various KNPC departments concerned with following up with the project’s implementation and taking necessary decisions. Companies have already been qualified, and coordination was done with the project’s consultant to complete the feasibility study. Meanwhile, the project’s economics were completed, and the tender’s documents that include the technical, commercial and contractual specifications have been prepared.

**24 Months for Operation**

• **What are the expected dates for the project’s completion and start of operation?**

The project’s contract is expected to be signed during the first quarter of 2019, after which procurements will commence. The project is set to start operation 24 months after the contract is signed.

• **Can you give us a general idea about the plant’s production capacity?**

The project will produce nearly 23 percent of the oil sector’s electricity needs during its first year, and this percentage will drop to 15 percent in the 25th year of operation (3,150 gigawatts per hour). This reduction is attributed to the predicted increase in electricity consumption in Kuwait, in addition to the drop of power plants’ production due to degradation. Furthermore, the project will cover nearly 5.5 percent of Kuwait’s electricity needs during the first year of operation.

• **What about the project’s operation plan and how much energy it saves?**

The project will be operated in cooperation with an international contractor that KNPC has previously qualified and the Central Agency for Public Tenders has approved. An international consortium of 28 companies has been approved. The project will support efforts to diversify energy resources in Kuwait and create job opportunities in the renewable energy field.
Renewable Energy Projects …

A Dream Come True in Kuwait

The oil sector is taking steady steps towards building and implementing ambitious and developmental projects in the renewable energy field, inspired by the vision of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah of generating 15 percent of Kuwait’s total energy production using renewable resources. The New Kuwait Vision 2035 and the oil sector’s 2040 Strategy share the ambitious goal of producing clean and safe energy free from any pollutants.

There are several other parties that share with the oil sector the responsibility of implementing renewable energy projects in Kuwait, as they conduct comprehensive studies for a number of projects in order to contribute to achieving His Highness the Amir’s vision of using renewable energy to produce 15 percent of Kuwait’s total energy production by 2030.

The following report highlights the oil sector’s main renewable energy projects, and sheds light on the main studies conducted by the Kuwait Institute for Scientific Research.

The oil sector’s efforts are focused in two main projects:

- **Sedra 500**: One of the first renewable energy projects in Kuwait. It is built in ‘Um Qadair’ west of the country by Kuwait Oil Company (KOC). Its production capacity is expected to reach 10 megawatts of electricity generated using solar power; half of which will be injected into the country’s electricity grid, while the rest will be used in industrial lifting in wells inside ‘Um Qadair’. The project cuts carbon emissions by an equivalent of 500,000 trees over a period of 25 years, which is the lifespan of the KD 30 million project. The project should save millions of oil barrels over the course of 20 years.

- **Al-Debdebah**: The project lies inside the ‘Shaqaya’ complex for renewable energy, and is expected to generate around 2.450 million megawatts per hour a year. Furthermore, it is set to cut carbon dioxide emissions by 1.4 million tons a year. The plant is set to be operated in the third quarter of the fiscal year 2020-2021.

**3 Projects**

In addition to the projects that the oil sector carries out in the renewable energy field, the Kuwait Institute for Scientific Research (KISR) conducts a study to determine the effectiveness of three renewable energy applications on a small scale. Furthermore, KISR is concerned with evaluating the economic feasibility and advantages of establishing renewable energy applications on a wide scale.

The study covers three main projects, the first is a ‘wind farm’ with a capacity of 260 kilowatts to assess and measure the performance of small-size wind turbines northwest of Kuwait.

Meanwhile, the second project includes a solar or wind power plant that is provided with hydrogen using photovoltaic panels (10 kilowatts capacity) and wind turbines (6 kilowatts) to produce and store hydrogen as an energy transmitter, and using hydrogen cell fuel to save electricity.

The third project includes a water desalination plant using solar and wind power to activate a water purification tool by reverse osmosis, which pumps up brackish water from an 80-meters-deep well.
There has been a lot of talk in recent years about solar energy and how to utilize it, to the point in which many environmentalists and governments started encouraging people to use it in lighting, transportation, industry, etc.

Among the factors that distinguish solar power is the fact that it is a renewable and sustainable source of energy, can be generated using simple and uncostly means, and does not require establishing giant facilities, unlike other resources that require a lot of resources and effort. This means that solar power is a cheap energy that greatly saves electricity consumption by doing away with using fuel oil and gas in power plants.

Kuwait was not far from those developments, as it sought to possess modern technology in the solar power field, and that through the South Ratqa Project to Produce Steam from Solar Power. Research and Technology Team Leader (Surface Facilities) at Kuwait Oil Company (KOC) Hamad Al-Kandari, the team’s lead technology management engineer Ali Al-Harz, and technology management engineer at the team Ahmad Al-Syafi shed light on this project in the this report.

Driven by the vision of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah to produce 15 percent of Kuwait’s total energy production using renewable energy by 2030, Kuwait Petroleum Corporation (KPC) took preemptive steps to achieve that vision by establishing the ‘solar power applications study team,’ Al-Harz said.

The team’s goals include identifying applications related to solar power production in the oil sector, enabling KPC and its subsidiaries to play an active and important role in the renewable energy field and energy efficiency, and placing a comprehensive road map to realize His Highness the Amir’s vision to utilize renewable energy.

KOC followed on the footsteps of KPC, Al-Harz said, adding that it established the ‘renewable energy uses and energy efficiency committee’, whose goals include evaluating and unifying initiatives then implementing them optimally, in addition to raising awareness regarding knowledge of renewable energy uses at KOC and the entire oil sector.

The committee also works on enhancing cooperation with local and international institutions concerned
with alternative energy uses. Furthermore, four subcommittees were formed, which are: ‘the green buildings committee,’ ‘the gas emissions containment committee,’ ‘energy efficiency committee,’ and ‘renewable energy committee.’

**Energy Projects Reference**

It is worth noting that Research and Technology Group Director at KOC Jamal Al-Hmoud heads the renewable energy committee, while his deputy is Research and Technology Team Leader (Surface Facilities) at KOC Hamad Al-Kandari, and that since the Research and Technology Group is responsible for all renewable energy projects at KOC.

Among the projects carried out as part of the committee’s framework are the ‘Renewable Energy Dashboard,’ while work is currently ongoing to establish the project of producing steam from concentrated solar power at the South Ratqa Field.

**Renewable Energy Committee**

The renewable energy committee was given the duty to realize a number of goals, including meeting concerned teams and departments to gather information and evaluate data related to the consumption and type of energy (electric – thermal), in addition to assessing whether renewable energy initiatives (solar photovoltaic, solar thermal, wind power) can be implemented.

The committee implements renewable energy technologies that are suitable to generate electricity or thermal energy in order to cover part of the energy consumption. In addition, the committee evaluates completed and future projects in terms of economic value and technology used.

Furthermore, the committee seeks to implement wide scale renewable energy projects that cover all of the company’s facilities, exchange expertise with other oil companies, state departments and ministries, and interact with the energy efficiency committee and gas emissions containment committees.

Among its goals as well is registering renewable energy projects at the United Nations in order to obtain recognition for reducing carbon dioxide emissions.
New technologies

Buying gas to use it in oil production operations is costly, Al-Harz explained, adding that Kuwait’s gas reserves are limited, which could force Kuwait to sign several agreements with nearby countries to build gas pipes.

Furthermore, Al-Harz noted that solar thermal energy stations, also known as concentrated solar energy stations, utilize thermal energy to produce steam and using steam energy to turn turbines in order to generate electricity, or in heavy oil extraction operations through injection, unlike photovoltaic panels that utilize solar power in generating electricity.

Using solar energy cuts the cost for producing a heavy oil barrel by 20 percent, he said, adding that they hope for wider production in the future which would help cut the cost even further.

Kuwait is considered one of the richest countries in the world in exposure to direct sunlight, in addition to its relatively dry air compared to other countries that suffer from high humidity. Kuwait is expected in the future to do stop using fuel oil to generate electricity, such as Germany which reached a percentage of 40 percent in that field.

Al-Ratqa Field

Located north of Kuwait, Al-Ratqa Field is considered one of the largest heavy oil fields in the world. Production is expected to reach 60,000 barrels a day six months after the start of production by 2020. The second phase includes exploration and increasing production to 280,000 barrels a day by 2030, which should help KPC achieve its goal of increasing Kuwait’s production to 4 million barrels of oil a day.

The Research and Technology Group at KOC took the initiative to use the solar thermal energy technology by going ahead with the project to produce steam daily from the South Ratqa field in order to boost heavy oil extraction operations,
and save a large amount of fuel (natural gas) used traditionally to generate steam, while limiting greenhouse gas emissions that result from fuel burning.

A test run for the project with a 100 megawatts capacity will be done to assess the capabilities of this new technology. If proven successful, it will be expanded in the future to produce heavy oil. Meanwhile, 30 projects with the same volume will be carried out, boosting production to 3 gigawatts, knowing that KOC has plans to produce 270,000 barrels of heavy oil by 2040.

First Project

The project to produce steam using solar thermal energy is considered a strategic one and an additional step towards achieving His Highness the Amir’s vision and supporting KOC’s strategy for 2040, as well as reducing the cost of extracting heavy oil by burning fuel. Furthermore, it is considered the first project of its kind in Kuwait in terms of using solar thermal energy to produce steam.

The project is currently in the contracting stage, while the tender is expected to be placed soon. The project’s production capacity will be done under high pressure and temperature, as it will be linked to the heavy oil facility under construction and which uses natural gas to produce steam.

The water needed for the project are planned to be brought from the Sulaibiya water desalination plant using pipes. After its completion, the project will be registered at the United Nations to measure the levels of carbon dioxide that can be saved, thus putting Kuwait on the map of countries that utilize renewable energy in the world. The project will also reduce Kuwait’s carbon footprint, save consumption of 2 million barrels of oil, and reduce carbon dioxide emissions by 2 million tons, which is equal to planting 2 million trees.

Research and Technology Team Leader (Surface Facilities) at KOC Hamad Al-Kandari said that the team includes a unit concerned with renewable energy adding that the Research and Technology Group is the coordinator responsible for alternative energy projects in KOC.

Al-Kandari added that the group is currently working on a project to produce steam using solar power in order to stop using gas in oil operations, noting that the focus will be on using various alternative energy resources in producing heavy oil, including solar, wind and thermal powers.

Furthermore, he stressed that KOC looks to expand the use of alternative energy in line with the vision of His Highness the Amir of producing 15 percent of the country’s electricity needs using alternative energy, noting that there are several new projects that aim at reducing the barrel’s cost to $0 within five or 10 years.

He further noted that the ‘South Ratqa Project’ aims at produce steam from solar power to be injected in oil reservoirs to increase oil production, noting that the project’s capacity reaches 100 megawatts with the ultimate goal of producing the company’s share of the 15 percent of renewable energy.

**Al-Kandari: Ratqa project helps realize the Amir’s vision**

**Solar Thermal Energy Technology Types**

All technologies related to solar thermal energy share a joint work mechanism, which is gathering sunlight using mirrors, and concentrating it on a central tube that transports heat to heating locations to produce steam. Those technologies are:

- Solar Tower
- Linear Fresnel
- Parabolic Trough
- Enclosed Parabolic Trough
- Solar Dish
KOC: Establishing a Distinguished Center to Train Engineers under Development

KOC gives high importance to staff development, and therefore the Support Services Group “South and East of Kuwait” at the company put tougher a strategic plan to build a specialized institution to train and prepare engineers under development at all departments of the directorate, in order to allow them to independently take full responsibility over all stages of current projects at the
company’s oil and gas facilities. This idea became a strategic plan for the group, which transformed it into reality by establishing the training center for new engineers under development, which became part of several initiatives that the group launched under the sponsorship of the South and East Directorate of KOC.

The center was opened at the Burgan office complex (Phase 2) under the patronage of Executive Vice President for the South and East Kuwait Bader Al-Munaifi, who expressed his gratitude for all the efforts done by the Support Services Group led by Amina Rajab, and the projects services team led by Mansour Al-Ajmi. He also urged engineers under development to take advantage of this achievement and continue their efforts to improve the center for the benefit of KOC staff.

Main Goals

The main goal of establishing a center to train engineers under development at KOC and other oil companies is to provide organized and intensive training to engineers that meets their needs and requirement for the present and future.

The initiative also seeks creating specialized booklets that provide engineers under development with training in all aspects of project management, mainly design, planning, cost estimation and control, supply control, contracts and construction. The consolidation of all those important stages make an integrated project.

Sections and Tasks

The center was established inside the office complex in Burgan (Phase 2), and includes several halls and special equipment and electronic applications that makes communication and training easier.

The center also includes a computer lab, which is a hall that contains several laptops uploaded with an online library that includes all supportive booklets and training tools necessary for engineers under development.

The training tools comprise five parts, each of which specializes with one stage of the project. The first part deals with general

- Providing organized and intensive training to new engineers under development that meets their needs
- Center includes two computer labs, teaching and learning tools
- E-Learning, a leading application made available for trainers
aspects, while the second part deals with projects control, and the third deals with design, engineering and other items related to certain types of design and engineering. The fourth part handles construction, while the fifth deals with health, safety, security and the environment. The center also includes the main teaching hall, which contains interactive monitors and audiovisual devices that help improve trainees’ capabilities.

**Leading Application**

The E-Learning application is a leading application that the center provides for trainees. It is an automated application that includes all booklets, instructions, diagrams, videos, educational material and training tools that the center provides for engineers under development.

The application contains four sections; the first includes general topics away from the projects, the second deals with design, the third with construction and the fourth is the projects control section.

A trainee starts using the application by signing up and providing personal and professional information, after which they can access all training material including booklets, and interact with other trainers.

Furthermore, the application allows leading engineers who supervise training to monitor the training progress of each engineer under development and intervene when necessary.

**Work Team**

The center falls directly under the Support Services Group “South and East” in KOC, and therefore it is led by group director Amina Rajab; who also leads the team that established it.

The team leader is followed by the center’s supervisor, projects services team leader (south and east) at KOC Mansour Al-Ajmi, whose team handles the day-to-day duties.

In addition, the team includes three leading engineers: Nahid Al-Hajir, Javid Shahna, and Santano Bi; all of whom are design engineers. It also includes 29 other engineers of various specialties, including 13 in design, 4 in planning, 4 in construction, 3 in cost estimation and control, 2 in projects, 1 in contracts, 1 in equipment and 1 in mechanical design.

The center’s supervisors indicated that there are other initiatives currently under study and will hopefully be launched in the near future to serve the best interest of the directorate and entire company. This experiment has been very promising, and promises for more in the framework of the company’s continuous development, they added.

**Helping Engineers**

Director of the Support Services Group “South and East” in KOC Amina Rajab stressed that the center’s task is to help newly graduated engineers better handle the massive challenges of the company’s strategy for 2040.
Furthermore, she noted that all internal expertise, skills and resources were utilized to prepare studies and organized training methods, adding that engineers under development can use the training, booklets and tools available online to improve their technical skills.

She expressed her appreciation for the fact that the center will help provide highly trained engineers capable of meeting the requirements of the company’s strategy for 2040.

Moreover, she added that the second phase includes automating the engineers booklet, performance and control system through the E-Learning Portal, expressing her gratitude to all who contributed to building this center.

**Enhancing Capabilities**

Meanwhile, projects services team leader (south and east) at KOC Mansour Al-Ajmi said that there are many new employees under development who join KOC every year as part of the company’s policy to enroll national manpower in its various activities and operations.

He added that there are several engineers who struggle to work in the field after graduation, explaining that in spite of the fact that they receive training as part of a special program for employees under development, this still remains not enough, and this is where the initiative to establish the center came from to further enhance their professional capabilities.

He further indicated that the new center includes various material, including booklets, manufacturers’ catalogues, in-field training stations, video interaction, and graphic simulation for all products and facilities.

Al-Ajmi concluded by saying that he was glad that the center was established and made available for engineers under development to take advantage of what it provides.
The ‘New Kuwait 2035’ Vision primarily stipulates transforming Kuwait into a financial and commercial hub that attracts investments and allows the private sector to lead the economic activity, encourage competitiveness, improve production efficiency with the support of a state apparatus.

The oil sector believes in the importance of partnership with the private sector in achieving sustainable development, which is why it has plans to increase the private sector’s contributions to 30% of the total contracts given to oil projects executed by Kuwait Petroleum Corporation (KPC) and its subsidiaries as part of the 2040 Strategy.

Kuwait Oil Company (KOC) is a leading example in improving partnership between the oil and private sectors, as it plays a leading role in all initiatives that seek to improve the oil sector’s performance. This also provides an extra motivation for KOC to push forward the national economy in both of its sectors: the public and private.

The Consolidated Partnership Advisory Council is among the quality initiatives that the oil sectors started in order to improve its partnership with the private sector. Since its establishment in 2009, the council has sought improving partnership between the oil sector and local private sector in order to implement KPC’s vision of actively supporting national industries through short and long term plans with strategic goals.

The council launched a number of initiatives to enhance the private sector’s role in the oil sector, including determining material used in the oil sector which can be obtained form the local market through local suppliers and manufacturers, while fast moving consumable items need to be identified.

Other initiatives carried out by the council include determining the causes of problems and obstacles facing works implemented by private companies in order to solve them as soon as possible and avoid them in the future.

The Consolidated Partnership Advisory Council includes 21 members divided into three categories: 5 members representing suppliers, 5 members representing the public sector and concerned private entities, and 11 members representing local oil companies.
is expanding digital initiatives

With two online platforms filled with expert knowledge and relevant content

DISCOVER MORE

expert.Q8Oils.com  Q8Oilshub.co.uk
/company/Q8Oils  /company/Q8Oils-uk
The quarterly corporate magazine of KPC and its subsidiaries