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Innovation at KNPC: **A Journey from Idea to Achievement**



AL-WATANIYA

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Editorial

Innovation and Shaping the Future

Kuwait National Petroleum Company (KNPC) continues its steady advancement toward building a world-class operational framework grounded in innovation, sustainability, and cutting-edge technologies adoption. The Company firmly believes that keeping pace with rapid global transformations demands a dynamic work environment, one that nurtures continuous development and converts ideas into practical achievements with measurable, real-world impact. Reflecting this commitment, KNPC launched the General Innovation Policy, marking the Company's dedication to embedding creativity and development as core elements of daily operations and practices.

In this issue we spotlight the key features of this integrated framework, showcasing the Company's efforts to foster a culture of innovation, strengthen intellectual property protection programmes, and advance patent registration initiatives. It also highlights forward-thinking initiatives that transform creative ideas into practical solutions, enhancing safety, improving operational efficiency, and generating sustainable added value across all work areas.

Additionally, the issue explores the Company's Digital Transformation journey, examining the deployment of smart systems and advanced technologies designed to elevate the work environment, boost performance efficiency, and accelerate core business processes. These efforts reflect KNPC's alignment with global technological advancements and its vision of building a more flexible, efficient, and sustainable operational ecosystem.

On the environmental sustainability front, we shed light on the Company's greening, afforestation, and resource reuse initiatives, demonstrating a genuine commitment to supporting the green transition, working to reduce carbon emissions, aligned with carbon neutrality objectives and sustainable development goals.

The issue also highlights capability development programmes and young leader preparation initiatives, reaffirming that investment in human capital remains the cornerstone of continued success and future growth. In addition, it features inspiring field experiences and success stories of national talents who have demonstrated excellence and strong presence across various work sites.

What ties all topics of this issue together is a clear and compelling truth that innovation is no longer merely an initiative, but rather an integrated institutional culture that supports development and sustainability while reinforcing the position of KNPC as a leading Company capable to keep pace with changes and ready to shape a more efficient and competitive future.

Rakan Hamed Al-Fadala

Editor-in-Chief



Innovation at KNPC: A Journey from Idea to Achievement

As the oil and gas sector undergoes rapid transformation, innovation has become essential for enhancing performance, improving efficiency, and building future-ready solutions. In line with this vision, Kuwait National Petroleum Company (KNPC) continues to foster a Corporate culture rooted in creativity and continuous improvement. The Company achieves this through an integrated innovation ecosystem, transforming promising ideas into practical initiatives that deliver real value across operational, technological, and environmental dimensions.

In this feature, Al-Wataniya highlights KNPC's Innovation Strategy and General Policy, launched under the leadership of CEO Wadha Ahmad Al-Khateeb. This strategic initiative represents a significant institutional step toward embedding innovation as a core component of the Company's operations and daily practices.

The issue includes an interview with Deputy CEO for Planning and Finance Khaled Al-Khayyat, who outlines the pivotal role of the Planning and Finance Directorate — through Research and Technology Department in establishing KNPC's first comprehensive Intellectual Property Protection Programme. Beyond its notable technical achievements, the programme recently earned recognition with Kuwait Petroleum Corporation's (KPC) Excellence Award in the "People and Culture" category.

The feature further explores how the Research and Technology Department is strengthening KNPC's innovation ecosystem through specialised programmes covering idea generation, intellectual property protection, and patent registration — all reflecting the Company's strategic ambition to evolve from a technology consumer into a technology developer.

The issue also highlights the Innovation Room, a dedicated creative platform designed to inspire innovative thinking, experimentation, and teamwork through hackathons, workshops, and targeted development programmes.



Establishing an Institutional Framework for Innovation

In a message reflecting appreciation for employees' efforts and a forward-looking vision grounded in creativity, the CEO, Wadha Ahmad Al-Khateeb, announced the launch of the General Innovation Policy (First Edition). This milestone establishes a clear institutional framework for innovation, strengthening the Company's capacity to achieve its strategic objectives and advance consistently and confidently in business performance while executing plans and projects effectively.

Al-Khateeb highlighted the Company's commitment to aligning with global trends, noting that the announcement coincides with World Creativity and Innovation Day, observed annually on April 21. On this occasion, the Company reaffirms its dedication to nurturing a culture of institutional innovation and embedding creative thinking as a fundamental approach across all operations, and practices.





Transforming creative ideas into practical initiatives that enhance performance



The Company's success depends on the contributions and creativity of all employees



• Wadha Ahmad Al-Khateeb

Al-Khateeb explained that the policy is now directly linked to approved annual objectives, with innovation incorporated as a key pillar in institutional performance evaluation. Each Department is assigned annual targets to generate innovative and creative ideas, translating them into practical initiatives that enhance performance and drive sustainable value creation.

Role of Employees

Al-Khateeb emphasised every employee's vital role in supporting the innovation ecosystem, stressing that challenges—regardless of their scale—require collaborative teamwork and practical, innovative thinking. These collective efforts

enhance the Company's flexibility, ensure business continuity, and transform challenges into real opportunities for growth. She also expressed sincere appreciation for employees' dedication and ongoing contributions in fostering creative and innovative ideas and strengthening the Company's competitiveness.

A Shared Responsibility

She concluded by affirming that innovation is a shared responsibility, with the Company's success rooted in every employee's creativity and contributions. She expressed her aspirations for continued accomplishments that reflect the distinguished reputation and standing of Kuwait National Petroleum Company.

A Clear Methodology

This initiative reinforces a structured institutional approach that integrates innovation across all Company activities and practices, enhancing its ability to achieve strategic objectives and elevate operational and competitive performance.

The Company reaffirmed its commitment to institutional excellence through the establishment, implementation, and continuous improvement of an effective, integrated Innovation Management System (InMS), fully aligned with the ISO 56001 standard, as well as its intellectual property policy, and core values. In alignment with its mission and vision, the Company focuses on



enhancing innovation by developing capabilities, systematically identifying ideas and inventions, protecting them, and leveraging them effectively to strengthen economic returns and sustain long-term competitiveness.

Pillars of Innovation

In this regard, KNPC's Management and employees are committed to key principles forming the foundation of its institutional innovation ecosystem, foremost being strategic alignment. All innovation activities and investment plans are ensured to align fully with the Company's objectives, including achieving operational excellence, supporting energy sector transformation, advancing Digital Transformation, and improving process efficiency — directing innovation efforts toward strategic priorities with tangible, sustainable impact.

The Company also emphasises establishing a robust InMS aligned with ISO 56001, enabling a systematic approach to managing innovation,

including identifying, assessing, and mitigating risks associated with new ideas, products, services, and processes, ensuring well-governed and forward-thinking innovation practices.

Change Management

KNPC leverages Change Management to drive idea generation through continuous hackathons and an "Ideas Platform," ensuring a steady flow of new concepts while accelerating

implementation, fosters creativity among employees, and streamlining governance.

For this, the Company emphasis on promoting a culture of innovation across all organisational levels. Creativity, practical experimentation, empowerment, and continuous learning are actively encouraged, contributing to the establishment of a supportive and innovation-driven work environment.





- In cooperation with Abdullah Al-Salem University, Innovation Project launched

Continuous Evaluation

The Company applies PDCA cycle (Plan-Do-Check-Act) through periodic audits, evaluations, and feedback to continuously improve its Innovation Management System and helps achieve innovation goals and improve performance.

KNPC further ensures the provision of essential resources, including Talent Development Programmes, tools, and information, strengthening employee competencies and driving sustained institutional performance.

Intellectual Property Protection

KNPC ensures full legal and regulatory compliance across all innovation activities while safeguarding intellectual property.

The Company actively promotes diversity and inclusion through harnessing varied viewpoints and expertise to fuel creativity and drive sustainable innovation, supporting institutional innovation ecosystem.

Knowledge Management

Committed to organisational learning, KNPC prioritises knowledge management by capturing, protecting, and sharing knowledge to maximise its value and sustain long-term institutional growth.

Through this launch, the Company establishes a comprehensive framework for innovation, reinforcing its capacity to achieve excellence and advancing its journey toward a more

sustainable, competitive, and future-ready organisation.

Stakeholder Engagement

KNPC fosters active Stakeholder Engagement by enhancing satisfaction and participation across employees, customers, suppliers, partners, and the wider community, cultivating long-term strategic relationships.

Innovation is driven through a comprehensive 360-degree approach to value creation, encompassing financial, operational, environmental, and social dimensions, ensuring sustainable and meaningful added value.

Patents as “Intangible Assets” Drive Our Technological Edge

In a move reflecting the transformation of Kuwait National Petroleum Company (KNPC) from a technology consumer to a “technology developer,” the Planning and Finance Directorate, through Research and Technology Department, successfully established the Company’s first Integrated Intellectual Property (IP) Protection Programme. This initiative did not only achieve technical milestones but was also recently honoured with the prestigious “Excellence Award” presented by Kuwait Petroleum Corporation (KPC). In the category of “People and Culture,” the award acknowledges the programme’s role in strengthening institutional innovation and converting ideas and inventions into legally protected knowledge assets, both locally and internationally. The initiative is a testament to KNPC's commitment to homegrown innovation, in line with best global practices in research, development, and IP protection in the oil sector.

Al-Wataniya Magazine spoke with DCEO Planning and Finance, Khaled Al-Khayyat, to learn about the journey of establishing this award-winning programme and how KNPC successfully registered its first patent internationally.





The first Integrated Intellectual Property Programme to win the Excellence Award



• Khaled Al-Khayyat

Building a Culture of Innovation

- **First, congratulations on your IP registration programme winning the Excellence Award. How was this recognition received?**

This recognition from KPC is a source of pride for KNPC, its leadership, and employees. It confirms that we are on the right path toward building a culture of innovation. Winning this award reflects the leadership's belief that real investment extends beyond equipment to the brilliant minds that create solutions and make a difference. They are fully committed to supporting innovation in every way.

In this regard, I must acknowledge the significant contributions of the CEO, DCEOs, Department Managers, and all participating teams, whose ongoing support and efforts have been pivotal in establishing and sustaining this programme.

- **What motivated KNPC to establish this formal programme, and what value did it bring to merit such high recognition?**

The value lies in protecting the Company's technological sovereignty. Over the years, and in line with KNPC's commitment to fostering a culture of innovation, the Company sought to safeguard the inventions of its Engineers and prevent external exploitation. The IP and patent registration programme

provides an institutional framework that transforms ideas into legally recognised assets owned by KNPC, maximising their value.

Our award reflects the development of a comprehensive system, including an IP policy, a patent guide, and an inventor rewards system. Together, these elements foster a competitive work environment that encourages innovation and continuous development.



• Honouring of winners in Research and Technology Department



• Khaled Al-Khayyat in the middle of Fahed Al-Mutairi and Khalid Al-Mulla

Registering Four Patents

- Are there tangible outcomes that qualified the programme for this award?

Absolutely. The programme has resulted in three patents registered internationally with the United States Patent and Trademark Office (USPTO), along with several innovations currently under review.

Our inventions, such as the “Aminic Sealant for Flare Systems,” the “Tool for Torque Application on Non-Permeable Flange Contact Surfaces and Related Methods,” and the “Cooling Equipment Cleaning Method,” are not just documents—they are practical solutions that improve safety, environmental compliance, operational efficiency, and profitability in our Refineries. These accomplishments exemplify why the programme is considered a model of institutional excellence.

Establishing the “Innovator Identity”

- How does this system support “People and Culture”?

Promoting a culture of innovation is an integral part of KNPC’s environment and values. This was a key factor in establishing the “Innovator Identity” within the Company, transforming scientific research from individual efforts into a sustainable institutional strategy.

We recognise not only the final results but also the creative journey. The programme provides an initial reward when an invention passes internal evaluation and is submitted for patent registration, followed by a major reward upon issuance of the patent certificate.

- What is your vision for the next phase following this official recognition and commending the programme’s excellence?

We view the Excellence Award as a beginning, not an endpoint. Our ambition is to expand collaboration with affiliated companies to transfer this successful experience. We aim for KNPC to remain at the forefront of global innovation, with our national workforce as the driving force behind this ongoing excellence.



Our inventions provide practical solutions that enhance profitability



Committee Members (IIPC)

Members:



Khaled A. Al-Khayyat
Head



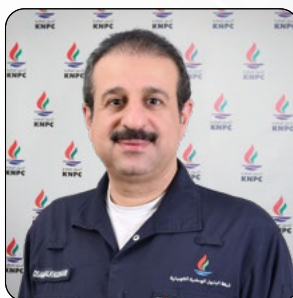
Abdullah Al-Otaibi
Deputy Head



Essam Al-Merjan



Hemoud Al-Reshood



Osamah Al-Khudhari



Omar Al-Molhem



Rakan Al-Fadala



Ahmed Al-Bdah



Shaimaa A. Ameen



Mohammed Al-Otaibi



Ahmad Al-Own



Athari Al-Otaibi



Bassam Al-Shammari



Reem Al-Shammari

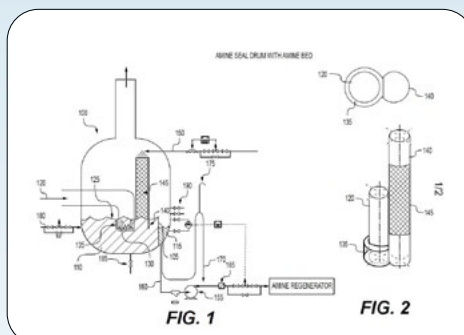


Abdulmuttaleb Al-Tarakhmah

Internationally Certified Patents

Amine Seal in the Flare System

The Company has achieved a significant technical milestone with the development of an innovative system known as the "Amine Seal in the Flare System," invented by Kanagi Spai Sabapathi. This groundbreaking innovation is designed to enhance the environmental performance of flare systems and reduce pollutant emissions produced during flaring operations across oil and gas facilities.



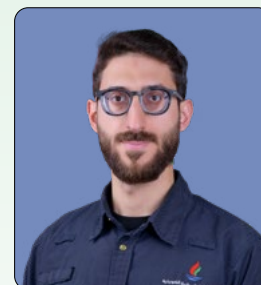
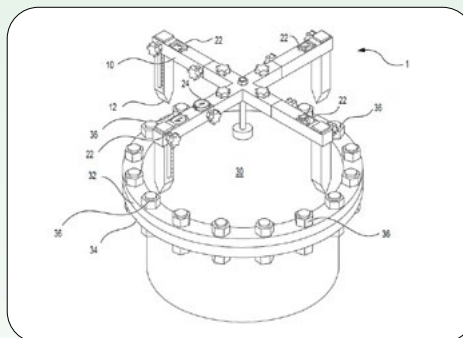
• Kanagi Spai Sabapathi

The system operates by replacing water with amine inside the flare seal drum. A precisely controlled amine-water mixture is maintained at a specified operating level within the drum. An integrated amine recovery unit captures the used amine, enabling it to be regenerated and continuously reused, ensuring operational sustainability.

This innovation delivers a remarkable reduction in sulfur oxide (SO₂) emissions of up to 80% under normal operating conditions, significantly improving both environmental performance and overall operational efficiency.

Torque Application Guide Tool for Blind Flange Contact Surfaces

Hassan Al-Ali, a Technical & Professional Ladder (TPL) Specialist at Research and Technology Department (Group A), has emerged as a new generation of Engineers prototype capable of turning technical knowledge into practical, high-value solutions. His contributions earned him



• Hassan Al-Ali

the Best Young Employee Award in recognition of an innovative engineering tool designed to enhance maintenance safety and reduce leakage risks across refinery piping systems and process equipment.

Al-Ali's invention tackles a critical maintenance challenge: applying the correct bolt-tightening sequence when assembling blind flanges. This precise engineering task demands the gradual and balanced distribution of torque across flange contact surfaces, ensuring gasket integrity and preventing leakage in pipelines, equipment nozzles, and other essential oil and gas industry.

The tool has been officially patented under the title "Torque Application Guide Tool for Blind Flange Contact Surfaces and Related Methods," registered in the name of Kuwait National Petroleum Company with the United States Patent and Trademark Office.

Developing a Method for Cleaning Cooling Equipment

Kuwait National Petroleum Company (KNPC) has further strengthened its record with a notable scientific and technical achievement. The Company secured a patent from the United States Patent and Trademark Office (USPTO) for its groundbreaking invention titled "Method for Cleaning Cooling Equipment."

The patented invention introduces an innovative approach to cleaning the Cold Box within liquefied natural gas (LNG) units. It incorporates carefully structured procedural steps alongside a specialised solvent specifically formulated for this application, enhancing operational efficiency and ensuring the long-term sustainability of unit performance.

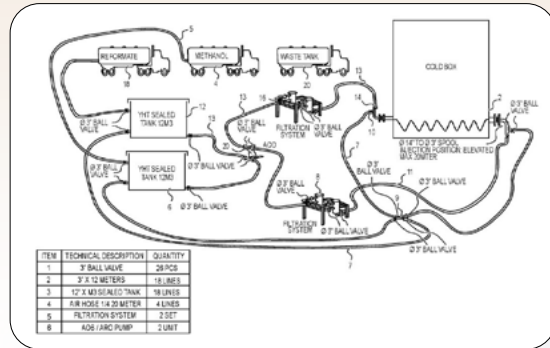
This accomplishment reflects the collaborative dedication of professionals from both KNPC and Kuwait Integrated Petroleum Industries Company (KIPIC). The contributing inventors include Manager Technical Services Group at Al-Zour Refinery, Saleh Al-Jutaili, Senior Process Engineer at Mina Al-Ahmadi Refinery, Abdulrahman Al-Sumaie, and former KNPC employee Kanagi Spai Sabapathi.



• Saleh Al-Jutaili



• Abdulrahman Al-Sumaie



Tool for Removing and Installing Drain Valves

A team from Mina Abdullah Refinery at Kuwait National Petroleum Company (KNPC) has achieved a significant milestone by securing an international patent from the United States Patent and Trademark Office (USPTO) for an innovative tool designed for removing and installing drain valves in hydrogen compressors. This invention addresses complex maintenance challenges through a practical, internally developed solution.

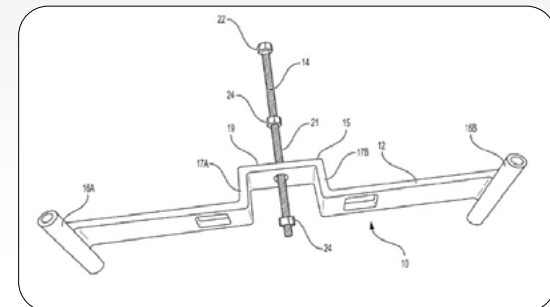
The achievement was led by Senior Rotating Equipment Engineer, Abdulaziz Hussein Al-Tamimi and Rotating Equipment Engineer, Bibekananda Bisoi, both from the Clean Fuels Project. Drawing on their extensive field experience, the duo conceptualised and implemented the tool within active production units, demonstrating a seamless integration of technical knowledge with real-world operational demands.



• Abdulaziz Al-Tamimi



• Bibekananda Bisoi



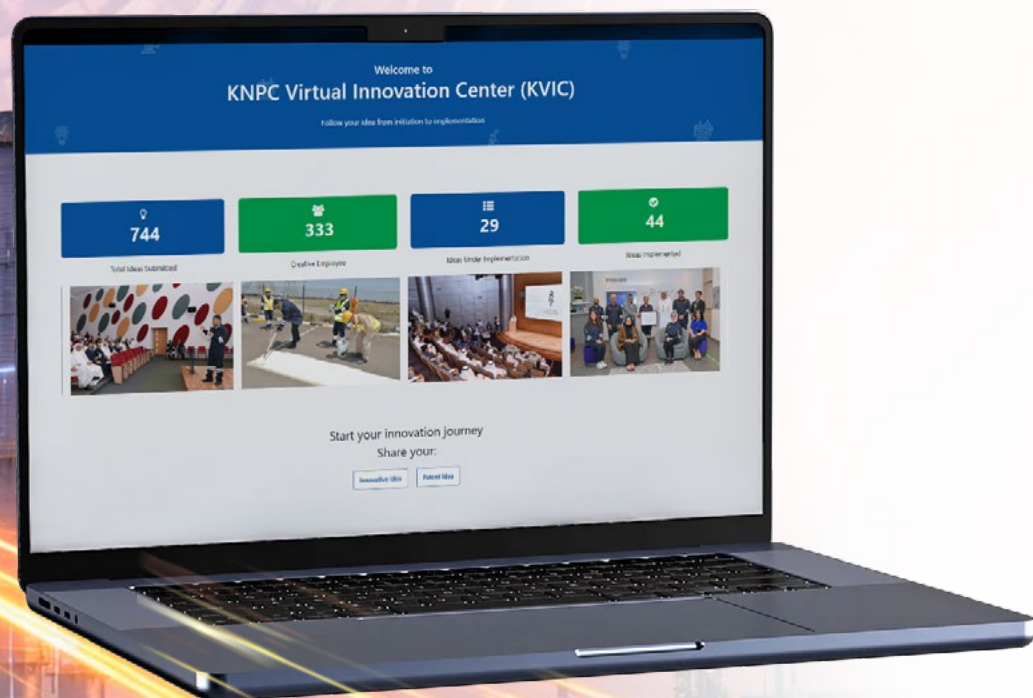
Innovative Practical Solutions that Support Operational Efficiency

In line with its vision to strengthen innovation and foster a culture of Corporate creativity, Kuwait National Petroleum Company (KNPC) is actively building an integrated ecosystem that empowers employees to transform creative ideas into practical, value-driven solutions. This initiative supports operational efficiency, sustainability, and Digital Transformation.

KNPC Manager Research and Technology Department, Shaimaa Ameen, affirms to "Al-Wataniya" that "development and sustainability are two fundamental pillars of the Company's Corporate Strategy." She noted that this vision is reflected in the adoption of structured innovation programmes and an enhanced work environment.

Ameen explained that KNPC has established dedicated channels for submitting, evaluating, developing, and implementing employee ideas. "The Company also prioritises intellectual property protection and the conversion of innovations into real-world applications that improve performance, boost efficiency, and advance environmental responsibility." She added.

In a recent interview, Ameen outlined the key features of this integrated innovation ecosystem and its various programmes, emphasising its critical role in driving sustainable development within KNPC.





Our goal is to boost operational efficiency, support sustainability, and drive Digital Transformation



• Shaimaa Ameen

• **First of all, what initiatives has KNPC implemented to encourage innovation?**

Based on its belief in the importance of innovation in strengthening leadership in the oil and gas sector, KNPC implemented several key initiatives, with the Innovative Ideation and Patents Registration Programme standing out as one of its most significant efforts to reinforce industry leadership.

Integrated System

• **Could you briefly explain these initiatives?**

The Innovative Ideation and Patents Registration Programme is an employee-focused incubator that preserves, develops, and utilises creative ideas and inventions and transforming them into tangible added value and potential revenue streams for the Company. Through KNPC Virtual Innovation Centre (KVIC), a unified digital platform, employees can easily submit their ideas. The programme aims to improve the work environment, enhance operational performance, and strengthen safety.

• **What are the objectives of this innovation management and patents system?**

The system institutionalises a culture of innovation by enabling employees to submit ideas through structured channels for evaluation and development. It protects intellectual property under local and international legal frameworks, safeguarding the Company's rights and strengthening its position. Beyond protection, it transforms innovative ideas into practical applications that add value, improve operational performance, increase efficiency, and support Digital Transformation and sustainability.

Strengthening Communication with Employees

• **What significance does this system hold for the Company?**

The significance of this system lies in strengthening innovation culture by engaging employees across all locations — particularly field and shift workers — capturing and developing their creative ideas. It ensures these ideas are studied and implemented effectively while maintaining alignment with global best practices

in innovation and intellectual property protection.

• **How does it contribute to fostering innovation within the Company?**

The system embeds innovation as a core operational pillar through a practical framework covering idea submission, evaluation, development, and implementation. It fosters a motivating environment that rewards individual initiatives both financially and morally, encouraging active participation. Over time, this transforms innovation into an integral part of organisational culture, improving performance, efficiency, and sustainability.

Expanding the Programme

• **What is the role of Research and Technology Department in supporting this system?**

Research and Technology Department established and developed the patents programme, defining intellectual property policy, workflows, submission procedures, evaluation mechanisms, and reward systems. In collaboration with the Innovation



• Sheikh Nawaf Al-Sabah honouring the Excellence Award winners

Committee, it later merged the Innovative Ideation Programme with the Patents Registration Programme. The Department continues to expand and strengthen the Integrated Innovation System, working to increase employee participation.

Certificates and Financial Rewards

• How are employees encouraged to submit innovative ideas?

Employees are encouraged through recognition certificates awarded when ideas pass evaluation, and financial rewards distributed after implementation — covering both idea owners and contributors based on value and impact. Patent inventors receive official achievement certificates alongside financial incentives. This dual approach of moral and financial recognition drives greater participation and innovation.

Objective and Structured Evaluation

• How are ideas and patents evaluated?

Ideas and patents are evaluated

through separate, objective criteria tailored to each programme's nature.

Innovative ideas undergo technical review by the Ideas & Intellectual Property Taskforce -20 members drawn from various Departments- who evaluate submissions via KNPC Virtual Innovation Centre (KVIC) platform, communicate with idea owners, and conduct initial presentations to align ideas with the Company's strategy and operational challenges.

High-potential ideas meeting the evaluation criteria are escalated to the Ideas & Intellectual Property Committee, chaired by the Deputy CEO for Planning and Finance, with the Deputy CEO of Mina Abdullah Refinery as Vice-Chair, supported by 13 Experts and Managers from across the Company. The Committee issues final approval decisions, after which a dedicated manager is assigned to oversee implementation and ensure successful delivery.

For patents, registration procedures follow legal frameworks to protect intellectual property rights. This

integrated system ensures systematic evaluation, maximises value, and selects the most impactful initiatives aligned with the Company's strategic vision and in line with ongoing and future challenges.

A Stimulating Work Environment

• What value do patents and innovative ideas bring to the Company?

Patents and innovative ideas add value across multiple dimensions enhancing safety, protecting the environment, improving operational efficiency, and reducing time and effort while providing solutions to field challenges.

Transforming ideas into implemented projects accelerates development in daily operations, drives adoption of modern technologies, and supports Digital Transformation away from traditional models. This strengthens performance, competitiveness, and institutional excellence. The programme also cultivates a motivating work environment that

promotes knowledge sharing, attracts talent, and encourages continuous creativity.

Top Management Support

- **How does the programme align with the Company's development and sustainability goals?**

The Company firmly believes that development and sustainability are fundamental strategic pillars of KPC and is committed to continuously supporting them.

The innovation programme stands as a key pillar of the Corporate Innovation System. Since its launch, it has received continuous support from the CEO and Top Management, reflecting a strong commitment to fostering innovation and empowering employees across all sectors.

This support goes beyond mere adoption — it includes providing the KVIC platform and ensuring access for all employees, promoting inclusivity in idea generation and knowledge sharing.

Management closely monitors implementation stages and actively works to overcome challenges during evaluation and execution, ensuring ideas are successfully transformed into impactful and valuable initiatives.

An Integrated Institutional Framework

- **Can the programme enhance KNPC's position as a leader in refinery innovation?**

Absolutely. The programme directly strengthens KNPC's position as a refining sector leader by providing an integrated institutional framework that protects intellectual property and rewards creativity, encouraging employees to submit high-quality, applicable ideas that support sustainable innovation.

In cooperation with the Innovation Committee, the programme establishes clear methodologies for managing and measuring innovation impact, ensuring alignment with broader innovation requirements.

Employees have been trained through the internationally recognised Certified Applied Innovation Leader (CAIL) Programme, alongside workshops on idea generation—elevating the maturity of the innovation system and improving performance indicators.

This institutional approach positions KNPC among global refining industry leaders, consistently delivering innovative solutions that protect



An integrated framework for managing innovation, idea generation, and patents



intellectual assets, empower employees, and create long-term value for the Company and its Stakeholders.

Message to Employees

Ameen has sent an encouragement for the employees to participate in the programme:

"This programme was designed specifically for you — accessible to every employee, across all locations and levels. Awareness campaigns and field visits have been conducted to ensure no one is left out.

Do not hesitate to share your ideas. Your daily experience is a valuable source of improvement opportunities, and every innovative idea can make a real difference in enhancing operations.

Remember: every great innovation begins with a single idea — and yours could be the one that creates lasting impact and carries your name forward.

The opportunity is in your hands. Participate, innovate, and become part of a success story written through your efforts."

• Innovation Room... A Creativity Platform that Makes a Difference!

In an era of rapid technological change and growing industrial competition, innovation has become essential for Corporate sustainability and competitiveness. Aligned with this vision, KNPC established its "Innovation Room" — a dedicated space designed to cultivate creativity, develop forward-thinking solutions, and unlock the full potential of its workforce. The initiative empowers employees to contribute meaningful ideas that strengthen the Company's sustainability and competitiveness.

Al-Wataniya Magazine spotlights this groundbreaking initiative — the first of its kind across oil sector companies — as a practical model for embedding an innovation-driven culture in the workplace. It reflects KNPC's commitment to adopting global best practices and mirrors the broader oil sector strategy, which places innovation at the heart of performance improvement, operational efficiency, and quality enhancement.



**KNPC
Innovation
Studio**

The Launch of the Innovation Team

In 2017, KNPC established its Innovation Team under the patronage of DCEO Planning and Finance, Khaled Al-Khayyat. Drawing members from across various Departments, the team operated on three core pillars: an innovation-driven culture, deep knowledge, and modern technologies. Its mission was to institutionalise innovation, motivate employees to submit development ideas, and promote successful practices throughout the Company.

A Strategic Step

On 13 February 2020, KNPC officially inaugurated the Innovation Room—known as the "Innovation Studio"—in the presence of former CEO—Waleed Al-Bader. The move was a strategic step towards strengthening institutional creativity and fostering an environment where innovative ideas can thrive. Overseeing the room's activities is the Innovation Committee, led by Vice Chairperson Engineer Altaf Faisal Al-Snafi, who ensures objectives are met through a clear vision and integrated methodology aligned with international best practices.

A Supportive Environment

The Innovation Room is dedicated to embedding a culture of institutional innovation by empowering employees to develop and refine their ideas within

a supportive ecosystem. This enhances performance and operational efficiency, with a strong focus on transforming initiatives into actionable projects—reinforcing KNPC's role as an innovation leader in the energy sector at both regional and global levels.

Achievements and Key Initiatives

Since its establishment, the Innovation Room has accomplished several remarkable milestones. Most notably, it developed a comprehensive innovation strategy and policy, alongside an Integrated Innovation Management System built on international standards—elevating KNPC's standing among regional and global peers.

The Room has also successfully organised five hackathons, generating creative solutions to operational challenges, and launched the "Ideas Together" initiative, which encourages employee participation and transforms ideas into actionable projects. Furthermore, it has delivered awareness programmes and specialised workshops designed to deepen employees' understanding of innovation concepts and modern tools—building their capabilities and motivating active contribution to improving the work environment and operational processes.

The Room also played a key role in launching the Enterprise Innovation

System (EIS), developed in collaboration with Abdullah Al-Salem University and Innovation 360 Group—further cementing KNPC's position among leading innovators in the oil sector.

The Innovation Room's efforts span operational, institutional, and service innovation, ensuring well-rounded development across all aspects of the Company's operations.

The Future Plans

The Innovation Room continues advancing toward greater achievements by pursuing ISO 56001 certification in innovation management, organising events such as Innovation Day and annual hackathons, empowering Innovation Ambassadors, and refining idea evaluation mechanisms—all to sustain excellence and reinforce a long-term culture of innovation.

A Source of Pride for KNPC

KNPC takes great pride in the Innovation Room, which stands as a successful model of leveraging national talent, designed entirely by the Innovation Committee and saving approximately KD 10,000. This reflects KNPC's commitment to digital solutions and advanced technologies, aligned with Kuwait Petroleum Corporation's (KPC) 2040 strategy and the oil sector's vision for excellence and efficiency.

Innovation Team



Reem Al-Shammari



Abdulaziz Al-Baijan



Shaikhah Al-Meshaileh



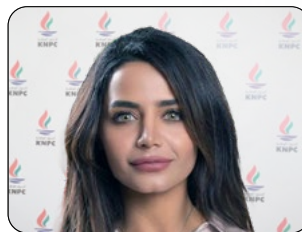
Abdulaziz Leeri



Altaf Al-Snafi



Jaafar Husain



Sarah Aboerjaib



Ali Al-Qallaf

An Integrated Environmental System Towards Carbon Neutrality

In line with its commitment to environmental responsibility, KNPC is advancing a comprehensive portfolio of sustainable initiatives across its operational and administrative sites to reduce carbon emissions. These efforts support Kuwait's national strategy to achieve Net-Zero Greenhouse Gas Emissions by 2050 for the oil and gas sector, and by 2060 for other sectors — a goal announced at the United Nations Climate Change Conference (COP27) in 2022.

In this regard, KNPC's General Services Department has been a key driver of greening and afforestation efforts since the Company's establishment, reflecting a deep commitment to preserving the surrounding environment, improving air quality, reducing carbon levels, and enhancing the aesthetic appeal of workplaces across Kuwait.

To institutionalise these efforts, the Department launched the "Green e-File," an integrated platform designed to document and inventory all vegetation elements across Company sites. Beyond record-keeping, the platform serves as a vital tool for sustainability reporting and a key reference for meeting regulatory requirements, particularly those set by the Environment Public Authority (EPA).

In an interview with Al-Wataniya Magazine, Manager General Services Department Athari Al-Otaibi outlined the features of this integrated environmental system, stressing that KNPC views afforestation projects as long-term investments in environmental sustainability and quality of life, not merely aesthetic enhancements.





• Athari Al-Otaibi

The Green e-File

At the outset, Al-Otaibi explained that KNPC's General Services Department has implemented extensive greening and landscaping projects since the Company's inception, providing agricultural services across various facilities. These efforts aim to preserve the surrounding environment, reduce carbon emissions, and enhance the aesthetic appeal of workplaces across Kuwait.

She noted that this role prompted the development of the "Green e-File"- a structured platform to showcase these initiatives, document associated expenditures, meet regulatory requirements, and strengthen institutional transparency.

Al-Otaibi added that the "Green e-File" extends beyond documentation, serving as an active resource in the Company's sustainability and environmental reports while supporting future initiatives and ensuring compliance with EPA requirements.

The file comprehensively catalogues all vegetation elements across Company sites, including green spaces, trees, shrubs, palm trees, and

various plant species.

"Making the file accessible through the Company's website has helped clearly demonstrate the outcomes of this environmental investment, reflect the scale of the Department's efforts, and reinforce KNPC's standing in environmental sustainability," she highlighted.

Green Areas

Al-Otaibi emphasised that KNPC places great importance on the environment surrounding its facilities, maintaining approximately 234,905 m² of green areas that play a vital role in improving air quality, reducing carbon levels, and increasing oxygen levels.

"These areas are distributed across multiple sites, including Mina Al-Ahmadi (MAA) Refinery (69,669 m²), Mina Abdullah (MAB) Refinery (70,532 m²), over 49,000 m² across Local Marketing Department sites, and more than 18,000 m² at the Head Office Building, alongside other locations," she said.

"The Company also maintains 58,726 outdoor trees and shrubs and 4,222 indoor plants, reflecting a comprehensive approach to both



Athari Al-Otaibi:
234,905 m² of
green areas



indoor and outdoor environmental care," she added.

Al-Otaibi further noted that the Department recently completed landscaping at the Main Support and Emergency Operations Centre (MSEOC), adding approximately 10,000 m² of green space.

Reclaimed Soil

Al-Otaibi explained that part of these green areas has been cultivated on reclaimed and treated soil, reflecting KNPC's adoption of innovative sustainable practices despite the significant operational and technical efforts required. She stressed that environmental returns remain the primary driver of such initiatives.



Sustainable Plant Production

Al-Otaibi highlighted that over the past three years, the Department introduced the practice of collecting seeds from seasonal flowers and trees and germinating them annually in the nurseries of MAA and MAB Refineries, ensuring optimal utilisation and meeting the Company's annual plant requirements.

“This practice has proven highly successful — last year alone saw the cultivation of approximately 115,000 seedlings, the planting of 100,000 seasonal plants, an increase in ground cover by 30,000 plants, and a focus on 15,000 perennial plants,” she further explained.

Al-Otaibi also noted that the Department utilises spring and winter seasons to collect and germinate seeds within protected environments, after which seedlings are transferred to various Company sites and seeds are collected again at season's end — maximising agricultural cycles, reducing reliance on external suppliers, and directly lowering costs.

Specialised Nurseries

To enhance production and protect plants from disease, Al-Otaibi stated that the Department established specialised nurseries at MAA Refinery, near the Administration Mosque, and at MAB Refinery, near the guest house, to nurture and maintain plants and seeds in a healthy and suitable environment.

Al-Otaibi noted that these nurseries have significantly improved the efficiency of treating damaged plants and trees, enabling their rehabilitation and reuse. They also meet the needs of Company sites while generating surplus seedlings that are distributed to employees.



**58,726 outdoor trees,
shrubs,
and 4,222 indoors**





“Green e-File” supports sustainability reporting



Employee Engagement

Al-Otaibi stressed that the Department actively engages employees in KNPC's transition toward a greener environment, recognising the importance of fostering a sustainable environmental culture.

“The Department has adopted interactive programmes to raise awareness and encourage home gardening among employees, with regular distributions of ornamental and edible seedlings to motivate broader participation,” she explained. “These seedlings include both ornamental and fruit-bearing edible plants,” she added.

Lemongrass

Al-Otaibi mentioned lemongrass as one of the distributed plants, with around 5,000 seedlings provided to employees last year — marking the first production batch from the Head Office nursery, followed by additional campaigns.

“Lemongrass is rich in antioxidants, a good source of vitamins and minerals, and well-suited to Kuwait's warm and humid climate. Its ability to withstand high temperatures and thrive in pots makes it ideal for local conditions,” she explained.

Moringa Plant

“Moringa is another plant cultivated and distributed, with over 5,000 seedlings provided to employees. Its dried leaves can be used as a nutrient-rich herbal drink, offering health benefits such as boosting immunity, improving digestion, and reducing inflammation,” Al-Otaibi added.

In regard of their suitability to Kuwait's climate, she noted that moringa tolerates high temperatures and can be grown in pots or directly in soil using seeds or cuttings.





Ongoing Distribution Campaigns

Al-Otaibi emphasised that the latest seedling distribution campaign, held in February 2026, drew strong employee participation, with around 3,500 seedlings distributed, including aloe vera, petunia flowers, 900 washingtonia palms, 1,100 leucaena plants, and nearly 500 willow and cypress trees.



Advanced Irrigation Systems

Al-Otaibi stated that KNPC utilises an advanced irrigation network equipped with modern systems, including electric timers, to optimise water consumption and reduce waste and labor effort — particularly important given Kuwait's demanding summer climate.

“Treated water recovered from refinery cooling systems is reused to irrigate green areas, reducing freshwater consumption, lowering costs, and supporting the Company's sustainability goals and carbon neutrality targets,” she added.

Rainwater Reuse

Al-Otaibi pointed out that at the MSEOC site, rainwater harvesting has been implemented through a dedicated reservoir, with the collected water currently used to irrigate around 350 sidr trees. These trees form natural wind and dust barriers along the northern side of the centre, demonstrating KNPC's commitment to practical and sustainable environmental solutions.



A Proactive Vision for Digital Transformation to Enhance Operational Efficiency

KNPC is advancing steadily toward establishing a leading model of Digital Transformation, placing innovation and smart technologies at the heart of its operational and refining processes. Guided by its proactive vision, the Company continues to develop an integrated work ecosystem driven by data and advanced analytics — enhancing performance efficiency, elevating safety standards, and strengthening its capacity to meet the growing demand for high-quality petroleum products.

This direction reflects KNPC's ongoing commitment to adopting the latest technological solutions and deploying them effectively across all sectors, in alignment with Kuwait Petroleum Corporation's (KPC) aspirations and long-term strategy.

Below, we highlight the most significant initiatives and projects the Company has implemented to advance its digital journey and deliver sustainable added value.





• Control Room

18 Initiatives and Technological Solutions

During fiscal year 2023/2024, KNPC launched approximately 18 initiatives aimed at accelerating Digital Transformation and embedding innovative technological solutions into its operations. Two internal Committees were also formed to oversee the implementation of these initiatives.

Among the most notable is the Cybersecurity Data Lake Project — a dedicated repository for storing and classifying structured and unstructured data from multiple sources. The Data Lake's significance lies in its ability to facilitate rapid and efficient data exploration and analysis, as well as extracting insights from billions of records, enabling informed decision-making in record time. This project is aligned with KPC's Strategy 2040, which targets the development of cybersecurity monitoring and risk protection capabilities.

Enhancing Refinery Efficiency

As part of its drive to improve operational efficiency, KNPC successfully implemented the Digital Operator Rounds (DOR) Programme

across all Refinery Modernisation Project (RMP) units at Mina Abdullah Refinery (MAB). This programme represents a major leap in data collection methods through the digitisation of field operations. It also provides comprehensive reports and accurate performance analytics for operators and supervisors, improving managerial decision-making and production outcomes.

Developed entirely by KNPC's IT Department Engineers and Programmers, the programme achieved cost savings exceeding KD 1 million, with annual recurring savings estimated at over KD 650,000. It is currently being rolled out across all KNPC's refineries.

The "Easy HR" Application

KNPC launched the first version of Easy HR, a unified HR services platform developed entirely in-house by its IT Department. The application offers employees a comprehensive suite of services, including submitting various types of leave requests (including sick leave), accessing financial data, generating salary certificates electronically, approving overtime hours, tracking leave balances, reviewing attendance records, and



Implementing cutting-edge systems to boost operational efficiency



managing financial obligations and loans.

In the same vein, KNPC deployed a chatbot on Microsoft Teams, functioning as a virtual employee within the IT service desk. It enables users to log new support requests, check the status of existing ones, and access Frequently Asked Questions (FAQs).

The Advanced "eLogbook" System

The eLogbook System is a sophisticated digital replacement for traditional paper-based logbooks, operating on computers within Control Rooms and developed entirely by KNPC's IT Engineers and programmers. The system offers numerous advantages, most notably digital data archiving, seamless data sharing across teams, and easy tracking of past reports

with clear accountability. It also enhances data reliability, raises procedural and standards compliance, and improves audit outcomes — contributing to reduced insurance costs, while supporting environmental sustainability through significant paper reduction.

"Wathq" — An Upgraded Version

As part of its Digital Transformation, KNPC developed the Wathq System for the electronic signing of contracts with local Contractors, leveraging authentication via Kuwait Mobile ID (Hawiyati) app. This has accelerated and improved the efficiency of contracting procedures.

The Company also deployed the Mobile Device Management application (Workspace One - MDM) across its Refineries, enabling remote technical support for all mobile devices at refinery sites. Currently active on more than 130 mobile devices, the application has significantly improved IT support efficiency and response times for users across various work locations.

2025: Tangible Achievements

KNPC continued to deliver significant milestones in its Digital Transformation journey during fiscal year 2024/2025, with the IT Management Division making notable contributions to workflow development and efficiency improvement.

Key achievements include the launch of the "Kuwaiti" system — a comprehensive solution for managing employee data and contracts under the Kuwaitization programme, automating storage and retrieval processes with high efficiency.

Maintenance Rescheduling System

K-MAX Maintenance Rescheduling System is designed to streamline maintenance procedures and work rescheduling by reducing cycle times, accelerating approvals, enhancing Stakeholder transparency, and

The "Digital Operator Rounds" programme saves approximately KD 650,000 annually

improving inspection scheduling — thereby minimising the risk of delays. It represents a pivotal step in advancing the management of inspection deferrals and their associated risks.

Udemy Business Pro Platform

KNPC signed an agreement with Udemy Business Pro educational platform to develop employee skills, providing practical training programmes in real-world environments that deepen understanding of modern technologies. This initiative is part of the Company's broader efforts to grow employee capabilities, foster a motivating work environment, and drive shared success.

K-Recruitment Plan System — automating the aggregation of workforce hiring needs across the oil sector — was also completed, enhancing workforce planning efficiency.





- Honouring One of the Digital Applications Innovation Teams in the Commercial Department

Attendance Tracking System

At the request of KPC, KNPC's IT Department developed an electronic attendance system for oil sector employees attending training courses at the Petroleum Training Centre, using Hawiyati application.

A comprehensive employee performance appraisal system was also developed to accommodate the needs of all KPC subsidiaries, streamlining evaluation processes and boosting productivity — with several companies already implementing it.

Technology Catalogue Platform

KNPC launched Technology Catalogue Platform as part of its advanced

technological solutions within its Digital Transformation and innovation strategy. The platform is a specialised B2B technology services hub that allows companies to browse and compare emerging technologies, supporting well-informed investment decisions. It also enables companies to explore and benchmark solutions used by peers and competitors. This initiative represents a strategic investment in the Company's technological infrastructure and its digital and innovation capabilities.

3D Printing

In keeping pace with the latest technological developments and ensuring quality in alignment with its

2040 strategy requirements, KNPC completed a study on manufacturing four different types of metal spare parts using two distinct metal 3D printing technologies. The parts were manufactured to American Society for Testing and Materials (ASTM) standards, using globally approved refinery materials — reinforcing operational efficiency and cementing the Company's leadership in this field.

The Smart Workshop

Continuing its Digital Transformation and smart systems journey, KNPC completed the Smart Workshop Project at its training centres. Equipped with the latest Virtual Reality (VR) and Augmented Reality



- Participants in carrying out maintenance work

(AR) technologies, alongside video refinery simulations, the workshop provides advanced technical training for Company employees.

KNPC also launched Mesa Visual Energy Optimisation Application, supported by training courses empowering employees to monitor steam, electricity, and fuel consumption at Mina Al-Ahmadi Refinery — ensuring the implementation of energy efficiency recommendations and the reduction of operational costs.

The Commercial Department: A Comprehensive Digital Shift

The Commercial Department's transition from a traditional and semi-automated work model to a fully integrated digital system marks a qualitative leap in KNPC's Digital

Transformation journey. It reflects the Company's success in developing its technological infrastructure and enhancing operational efficiency in alignment with KPC's strategy — and stands as a testament to how the Department transformed one of its greatest challenges into a distinguished success story.

Diversified Events

The past two years have seen a number of events that have positively advanced the Digital Transformation agenda. In 2025, KNPC inaugurated a new data centre at its Head Office, equipped with the most advanced and effective systems to enhance operational efficiency across all Departments.

The Company also organised an Artificial Intelligence Forum to equip

its employees and those of Kuwait Integrated Petroleum Industries Company (KIPIC) with strategic insights into the rapid advancements in AI. KNPC also launched the CEO Excellence Award to encourage employee creativity and outstanding performance.

In July 2024, KNPC launched the fifth edition of its Corporate Hackathon, aimed at developing employee capabilities, fostering innovative solutions to sector challenges, and building the latest global digital skills — with AI skills at the forefront — benefiting technical and administrative sectors alike.

Awards and Recognition

KNPC's efforts were recognised with several innovation awards. The Company ranked first in the Kuwaiti



- Ongoing maintenance of the Company's refineries

Oil Sector and achieved an advanced ranking among top innovative companies in the oil and gas sector regionally and globally, according to a study by the prestigious American Boston Consulting Group (BCG).

KNPC also won the Excellence in Digital Transformation and Contractor Workforce Welfare Award during its participation with KIPIC at the third edition of the Gulf Downstream Association Conference and Exhibition. IT Department employees won the top three places in the Kuwait Cybersecurity Hackathon 2025, organised by Coded Academy in collaboration with the National Cybersecurity Centre.

KNPC closed 2025 with an outstanding global innovation performance, earning a place in the top quartile

of innovation leaders among global energy, oil, and gas companies, according to a study conducted by Abdullah Al-Salem University in collaboration with Innovation 360 Group of Sweden.

Geo-Spatial Solutions Excellence Award

At the start of 2026, KNPC received the Geo-Spatial Solutions Excellence Award from Esri, an American Geospatial Technology Company, at the closing ceremony of Middle East and North Africa GIS User Conference held in Riyadh on January 20–21.

This achievement reflects KNPC's remarkable progress in Digital Transformation and its dedicated application of AI technologies across programmes and applications. The award was granted in recognition

of the Company's innovation of a GIS Digital Twin model — delivering world-class, high-precision data that empowers decision-makers to make more efficient choices at a level surpassing established global benchmarks.

This recognition affirms KNPC's global standing and establishes a new phase built on integrating AI and advanced analytics into Geographic Information Systems (GIS).



The “eLogbook” system replaces traditional paper-based logbooks



- Winners of third place

بالشركاء الاستراتيجيين

الشركاء الاستراتيجيون

Prestigious International Occupational Health and Safety Awards

KNPC has once again demonstrated its global leadership in safety by securing a series of prestigious international awards for 2025–2026. This achievement reflects the Company's enduring commitment to world-class health and occupational safety standards and a deeply embedded culture of sustainability across all operations.

The awards were granted by two globally respected organisations — the Royal Society for the Prevention of Accidents (RoSPA) and the British Safety Council (BSC) — in recognition of KNPC's outstanding and sustainable performance in the prevention of accidents and protection of employees. Multiple sectors earned this distinction, including Mina Al-Ahmadi Refinery, Head Office, Local Marketing, and the Departments within the Projects Directorate.

The awards include RoSPA's Achievement Award (Gold Category and Order of Distinction), Gold Medal Award, and President's Award, alongside the British Safety Council's International Safety Award at both Merit and Distinction levels.





A Deeply Rooted Safety Culture

These global awards reflect how profoundly safety culture is embedded within KNPC's institutional identity. The Company firmly believes that protecting its workforce, preserving the environment, and securing operations are the fundamental pillars of long-term business sustainability.

This excellence stems from the collective dedication of all employees, strict adherence to international standards, and a Top Management vision that has positioned KNPC's work environment as a benchmark for the global oil sector.

At its core, this success is driven by a holistic safety management approach applied consistently across all sectors—ensuring seamless integration between operational activities, major projects, and administrative functions. This reinforces the principle of "shared responsibility," extending beyond field operations to every function and Management level throughout the Company.

Sustained Achievement

The true value of these accomplishments lies in the enduring excellence they represent. KNPC's sites have maintained RoSPA Gold Awards for over nine consecutive years, qualifying them for elevated recognition tiers including the President's Award and Order of Distinction. These honours are reserved exclusively

for organisations demonstrating continuous improvement and long-term competence in occupational risk management.

Integrated Roles

Top Management's steadfast commitment is the primary driver of KNPC's success in health and occupational safety. Leadership places HSE at the top of its strategic priorities, channelling essential resources and policies to ensure a safe work environment — translating into proactive risk management, clearly defined responsibilities, and rigorous performance monitoring across all levels.

A Strategic Approach

KNPC's participation in International Award Programmes reflects a deliberate strategy to benchmark performance against global best



practices and advance its continuous improvement journey. Engaging with internationally recognised evaluation bodies allows the Company to objectively assess its systems, identify development opportunities, and strengthen its overall health and occupational safety framework.

These achievements reinforce KNPC's ongoing investments in advanced safety technologies, comprehensive training programmes, and sophisticated risk management practices — driving measurable performance improvements and enhancing the Company's capacity to manage risks in complex, high-hazard environments.

While these awards mark a significant milestone, KNPC remains firmly committed to maintaining and elevating this standard of excellence through innovation, employee engagement, and systems development. In doing so, the Company continues setting new benchmarks for the broader oil and gas industry.

World-Class Standards

RoSPA Awards rank among the most recognised global benchmarks for workplace safety, assessed through precise indicators covering leadership commitment, risk management effectiveness, employee engagement, and continuous improvement — all of which strengthen the standing of recipient organisations.

The British Safety Council's International Safety Award, on the other hand, is granted to organisations implementing effective health and Occupational Safety Management Systems and adopting proactive hazard prevention approaches. KNPC's recognition at both Merit and Distinction levels demonstrates its capacity for systematic risk management and its success in cultivating a sustainable, deeply embedded safety culture across all operations.

Solar Panels in “Umm Al-Aish”... A Landmark Achievement in Carbon Neutrality

Aligned with Kuwait's national sustainability goals, Umm Al-Aish LPG Filling Plant has emerged as a trailblazer in industrial clean energy adoption. The plant now operates entirely on solar power, marking a pioneering milestone in Kuwait's green economy transition. This achievement reflects a strong commitment to renewable energy and supports the nation's sustainable development ambitions under the "New Kuwait 2035" vision.

Umm Al-Aish plant stands out as a truly distinctive project, operating entirely on clean energy rather than partially — a rarity in industrial applications. Its solar power station generates approximately 4 MW daily, fully meeting the plant's electricity demands and providing a stable, clean energy source for all daytime operational loads. This significantly reduces dependence on the national power grid, enhancing both operational efficiency and energy reliability. Powering this achievement are approximately 7,000 solar panels installed across the facility.



Remarkable Results

The project has delivered outstanding environmental and economic outcomes. It reduces carbon emissions by approximately 5,000 tons annually — equivalent to burning nearly 10,000 oil barrels for conventional electricity generation, and comparable to emissions reduction of planting over 430,000 trees. Beyond its environmental impact, the project relieves the national grid of around 11 GWh annually while generating electricity cost savings of approximately KD 25,000 per year. Most notably, the plant earned Net Zero certification in 2025 — well ahead of the global 2050 target established under Paris Climate Agreement.

The Future Plans

Building on this success, future expansion plans are underway to extend solar energy utilisation into night-time operations by transitioning to a hybrid system supported by battery storage — enabling round-the-clock energy independence.

Additionally, solar energy production is continuously monitored through an Integrated SCADA System, which automatically captures real-time production data and displays it on a dedicated dashboard, ensuring uninterrupted tracking of operational efficiency and performance.

Environmental and Technical Challenges

The project navigated several challenges, including stringent gas industry safety requirements, extreme heat, dust, and sand encroachment, as well as hard soil conditions during installation. These were successfully overcome through the selection of environment-suited technologies, appropriate drilling techniques compatible with local soil conditions, and seamless integration with existing safety systems.

GORD Certifications

Environmental certifications issued by Gulf Organisation for Research and Development (GORD) represent a recognised regional benchmark for evaluating environmental performance and sustainability standards. Earning these certifications reflects a strong commitment to global best practices across energy efficiency, emissions reduction, and resource management, while reinforcing

confidence among partners and regulatory bodies. They demonstrate that industrial facilities can effectively balance heavy operational demands with environmental responsibility.

Solar energy adoption played a pivotal role in satisfying GORD's sustainability requirements, particularly in reducing carbon footprint and improving energy efficiency. This contributed to lowering conventional electricity consumption, strengthening environmental performance indicators, securing additional evaluation points, and significantly elevating the plant's overall sustainability rating.

Conclusion

Umm Al-Aish plant proves that fully solar-powered industrial operations are an achievable reality, not a distant ambition. Its success serves as a regional model, demonstrating that transitioning to clean energy simultaneously enhances operational efficiency while delivering lasting environmental and economic value.

Integration with “New Kuwait 2035”

This project directly aligns with the "New Kuwait 2035" vision, advancing energy diversification, environmental sustainability, the transition to a green economy and promoting clean energy adoption in industries. It also

carries a proud national imprint — conceived and delivered by Kuwaiti Engineers alongside local Consultants and Contractors — demonstrating that home-grown talent is fully capable of executing strategic, internationally standardised projects.



- SCADA System for displaying solar energy data

Al-Zour Refinery Laboratories... One of the Largest Laboratory Systems in the Middle East

The Laboratories of Al-Zour Refinery serve as a cornerstone of Al-Zour Oil Complex's operational framework. From the outset, Kuwait Integrated Petroleum Industries Company (KIPIC) prioritised establishing these laboratories since the initial stages of the Refinery's foundation, recognising their vital role in ensuring petroleum product quality and supporting operations to the highest international standards.

Aligned with this vision, the Company developed a fully integrated laboratory system designed to achieve its strategic objectives, enhancing operational efficiency and strengthening its competitive position within the oil sector.



Enhancing Product Quality

The inauguration of Al-Zour Refinery's laboratories on January 17, 2023, marked a significant milestone in advancing its technical infrastructure. Equipped with state-of-the-art instruments aligned with global best practices in chemical and industrial analysis, the laboratories reflect KIPIC's commitment to supporting refining operations with precise scientific tools, ultimately enhancing product quality and improving overall operational performance.

A Key Role

Al-Zour laboratories rank among the largest oil laboratories in the Middle East in terms of size and capacity. They play a vital role in analysing and monitoring the quality of crude oil and petroleum products, including Naphtha, Diesel, Jet Fuel, and Fuel Oil.

The role of these laboratories also encompasses analysing samples from various refining units—covering gases, liquids, and solid materials—ensuring compliance with international specifications prior to use or export.

Housing more than 400 specialised instruments, the laboratories process over 400 samples daily and conduct more than 2,500 tests using over 500 chemical substances. Operating in accordance with internationally recognised standards—including ISO,

ASTM, UOP, and APHA—they ensure the accuracy and reliability of results, supporting data-driven operational decision-making.

Beyond technical analysis, the laboratories contribute to optimising production efficiency and addressing operational challenges across refining units. Functioning around the clock within a fully integrated system, they maintain continuous, high-efficiency performance.

Qualified National Expertise

The laboratories are led by highly qualified national professionals specialising in chemical analysis, including skilled chemists who undergo continuous training on the latest technologies. They are supported by approximately 40 technicians working in shifts to ensure uninterrupted 24/7 operations.

An Integrated System

The laboratory system comprises several specialised sections, including the final products, gas, water, and oil laboratories. These units operate in an integrated manner, performing precise analyses across all stages of refinery operations.

The laboratories are also responsible for issuing quality certificates for petroleum products destined for export, in full compliance with quality, health, safety, and environmental standards. Since

operations commenced, more than 1,900 quality certificates have been issued—a testament to the system's efficiency and the rigor of its analytical and verification processes.

A Strategic Addition

Al-Zour Refinery laboratories represent a significant addition to Kuwait's refined product quality assurance system, contributing to the national economy and strengthening the Country's oil sector at both regional and global levels.

The laboratories are equipped with advanced air treatment systems, ensuring a safe and healthy working environment. This reflects KIPIC's ongoing commitment to the highest standards of quality and safety.

An Advanced Model

Al-Zour Refinery laboratories stand as a leading model of infrastructure supporting Kuwait's refining sector. Through advanced analytical capabilities, a qualified national workforce, and a commitment to enhancing operational efficiency and product quality, they strengthen production reliability and boost the competitiveness of Kuwait's Oil Sector.

This integrated system aligns with Kuwait's vision to develop its industrial base and promote sustainability in operational performance.



“Sanad”: Your Nearby Safe Space for Mental Wellness

In a move reflecting its dedication to healthy work environment, KNPC continues strengthening its commitment to employee well-being through key initiatives, including the "Wellness Clinic" and "Sanad." Designed to promote mental health awareness, these programmes offer confidential, professional support to employees, fostering balance and stability in the workplace. Reflecting this commitment, Al-Wataniya Magazine met with Sr. General Practitioner Dr. Mishaal Fahad Al-Mutairi to explore "Sanad" initiative and its various dimensions.



“ Dr. Al-Mutairi:
First of its kind in
the oil sector





• Dr. Mishaal Al-Mutairi

• **What was the drive behind the launch of Sanad, and what type of mental health does it target?**

Wellness Clinic strives to provide proactive mental health support for employees. "Sanad" was launched as a proactive response to employees' psychological needs, particularly following the shift to remote work due to recent regional conflict. The initiative provides structured, rapid support aimed at enhancing employees' psychological and professional balance.

• **How would you describe the mission of "Sanad" initiative?**

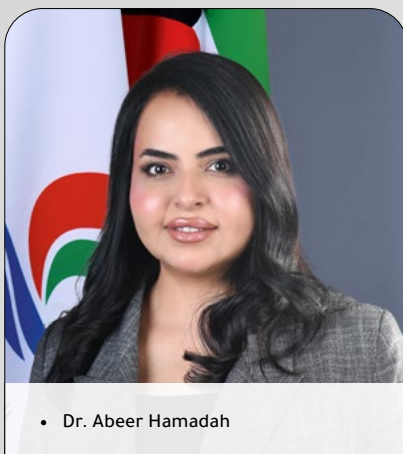
"Sanad" is built on the belief that mental health support must be accessible, confidential, and readily available—especially during difficult times. Every employee deserves a safe, judgment-free space to turn to, empowering them to manage stress in ways that promote lasting balance and stability.

• **Mental health has become an urgent necessity today. How has KNPC, through Wellness Clinic and "Sanad," made support more accessible and easier to reach?**

We take pride in "Sanad" being the first initiative of its kind within the oil sector. This achievement reflects KNPC Management's unwavering support, fostering an environment where innovation thrives and forward-thinking ideas are embraced—ultimately advancing employee health, safety, and overall well-being.

• **Who leads the "Sanad" initiative from a medical and supervisory perspective?**

"Sanad" is led by Wellness Clinic under



• Dr. Abeer Hamadah

the supervision of General Practitioner Dr. Abeer Hamadah, whose expertise in mental health and deep understanding of employee needs shaped the initiative's development. It was designed as a strategic response to delivering trusted, professional support that fosters workplace balance and stability.

The clinic offers specialised services including psychological support, smoking cessation, and weight management—all within a confidential, professional environment.

• **How do you ensure the confidentiality and privacy of employees' data?**

Wellness Clinic upholds the highest standards of confidentiality and privacy, forming the very foundation of "Sanad." All cases are handled with complete discretion, and no information is ever shared without the employee's explicit consent.

• **What are the most common mental health conditions you encounter, and how are they handled?**

The clinic most frequently addresses stress, anxiety, and sleep disorders—among the most prevalent workplace challenges. Each case begins with an initial assessment followed by preliminary psychological support, including guidance and practical coping strategies. Cases requiring specialised intervention are referred to appropriate entities, all within a strictly professional and confidential framework.

• **Is mental health support directed to a specific group of employees, such as refinery workers or administrative staff?**

Mental health support is available to

all employees—Refinery workers and administrative staff alike. This inclusive approach reflects the diverse professional challenges faced across the Company and ensures comprehensive care for everyone.

• **In your view, how has awareness of mental health changed within society and KNPC compared to the pre-COVID-19 era and the early stages of Wellness Clinic?**

Mental health awareness has improved significantly since the pre-COVID era. Global challenges have deepened understanding of psychological well-being and the importance of seeking support. At KNPC, this shift is clearly reflected in growing employee acceptance of mental health concepts and increased utilisation of Wellness Clinic services—a notable contrast to earlier stages when stigma was far more prevalent.

• **How do you see the future of digital mental health care?**

Digital mental health care is emerging as a cornerstone of modern healthcare, offering greater accessibility and flexibility—particularly in workplace settings. We envision it evolving as an integrated complement to in-person services rather than a replacement, with an unwavering focus on quality and confidentiality.

• **What values or principles guide the team's work?**

Our work is guided by three core principles: attentive listening, respectful support, and strict confidentiality.

• **How can employees access "Sanad" services?**

Employees can easily reach "Sanad" through Wellness Clinic via email at wellnessclinic@knpc.com or WhatsApp at 98575104. All requests are handled promptly and flexibly, with full confidentiality maintained throughout every stage of communication.

• **Are there plans to expand "Sanad" initiative, such as launching a website or a mobile application?**

Developing a dedicated application is a key future goal, aimed at improving accessibility and user experience while upholding the highest standards of quality and privacy.

Clean Fuels Project: A Quantum Leap Enhancing Global Competitiveness

The Clean Fuels Project (CFP) ranks among Kuwait's Oil Sector's most significant strategic initiatives, delivering major operational, economic, and environmental impact. Officially inaugurated by KNPC on March 22, 2022, the project marks a milestone in modernising Mina Al-Ahmadi and Mina Abdullah Refineries, elevating their efficiency to advanced international standards.

The project elevated the combined production capacity of both refineries to approximately 800,000 barrels per day of high-quality petroleum products, fully compliant with the latest global specifications. What sets this project apart on a global scale is its remarkable execution - all upgrades were carried out without interrupting ongoing refining operations at either facility, ensuring uninterrupted supply to both local and international markets throughout.

The project also unified both refineries into a single, highly flexible complex, significantly enhancing KNPC's ability to respond to shifting domestic and global demand for petroleum derivatives.

Through dedicated project units, KNPC now produces low-sulfur petroleum products meeting stringent environmental benchmarks, including Euro 4 and Euro 5 standards, strengthening the global competitiveness of Kuwaiti exports and broadening their international market share.

The project's total capital cost reached approximately KD 4.68 billion, financed through a balanced structure - 30% contributed by Kuwait Petroleum Corporation (KPC) and the remaining 70% secured via external financing sources.



Strategic Project



Fuel-Gas Desulfurization Unit Project

Optimising Energy Efficiency and Minimising Environmental Emissions

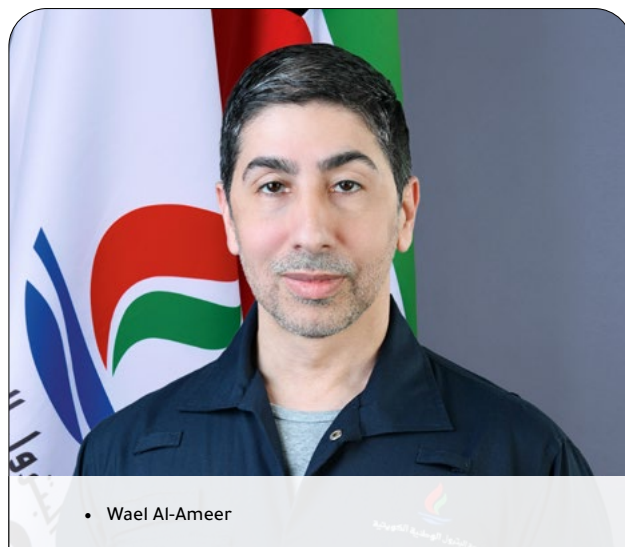
As part of its commitment to emissions reduction and sustainability, Kuwait National Petroleum Company (KNPC) is developing a Fuel Gas Desulfurization Unit at the Gas Liquefaction Plant in Mina Al-Ahmadi Refinery. The project targets sulfur oxide (SOx) emissions produced from fuel gas usage across refinery operating units, while optimising energy resource utilisation in production processes.

The initiative represents a significant step toward maximising energy efficiency and improving air quality by removing hydrogen sulfide (H₂S) from fuel gas prior to its use as refinery fuel. This contributes to lowering emissions and enhancing operational performance and sustainability.





• Mohammad Al-Khawaled



• Wael Al-Ameer



Al-Khawaled: Lowering H²S content to below 160 ppm



To learn more about the project, Al-Wataniya spoke with Team Leader of Project Coordination at Projects Department (1), Mohammad Al-Khawaled, who noted that fuel gas serves as the primary energy source for furnaces in LPG Trains 1, 2, and 3, as well as boilers, old refinery units, and Ethane Recovery Unit turbines.

Al-Khawaled highlighted that the gas contains hydrogen sulfide, which upon combustion generates sulfur oxides (SO_x) — harmful pollutants responsible for serious environmental and health consequences, including respiratory damage, acid rain, and the deterioration of both air and water quality.

Specialised Unit

Al-Khawaled stated that, in keeping with KNPC's commitment to minimising the environmental impact of its operations, the Company has decided to establish a dedicated unit for removing hydrogen sulfide from fuel gas at the Gas Liquefaction Plant in Mina Al-Ahmadi Refinery. The unit will mirror the one implemented

under the Fifth LPG Train Project, which treats fuel gas for LPG Trains 4 and 5 facilities. He emphasised that the project fulfils two core objectives: enhancing energy utilisation efficiency and significantly reducing harmful environmental emissions.

Compliance with Environmental Regulations

Al-Khawaled explained that fuel gas comprises two main types: high-pressure and low-pressure fuel gas. High-pressure fuel gas is supplied from the High-Pressure Fuel Gas Header, while low-pressure fuel gas is drawn from the Low-Pressure Fuel Gas Header. Both streams consist primarily of a mixed gas composition, particularly Methane and Ethane.

He added that following treatment through the desulfurization unit, both streams will contain less than 160 parts per million (ppm) of hydrogen sulfide — the threshold approved by the Environment Public Authority (EPA). This confirms KNPC's firm dedication to upholding environmental standards and regulations across the State of Kuwait.

Al-Khawaled further outlined that the project is structured around two main sections. The first focuses on treating low-pressure fuel gas supplied to the furnaces of LPG Trains 1, 2, and 3, as well as boilers and old refinery units,



Al-Ameer: Project execution will begin in Sep. 2027 to be completed in 2030



with a processing capacity of 154 million standard cubic feet per day (MMSCFD). The second section is dedicated to treating high-pressure fuel gas used in the turbines of the Ethane Recovery Unit (U-35), with a processing capacity of 34 million standard cubic feet per day.

Project Phases

Meanwhile, Senior Engineer Project Coordination, Wael Al-Ameer, confirmed that the Front-End Engineering Design (FEED) Study Phase has been successfully completed, with the tender expected to be issued shortly. Execution works are anticipated to commence in September 2027, with full project completion scheduled for September 2030.

Al-Ameer further noted that the low-pressure fuel gas treatment unit will be constructed south of LPG Train 3, while the high-pressure fuel gas treatment unit will be situated within the Ethane Recovery Unit (U-35).

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