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Oil, Gas & Renewables

September 2024

THE PUSH FOR PRODUCTION GROWTH TO 2 MBD

NOC : THE CHALLENGE TO KEEP THE LIGHTS ON

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NOC: THE CHALLENGE TO KEEP THE LIGHTS ON

By Paul Grant

For much of the past decade, people in Libya learned to live with the reality that political crises can impact them personally. That has particularly been so when it comes to the power supply.

Courtesy of NOC

Up until mid-2023, for a multitude of reasons, regular power cuts were an unfailing and miserable feature of daily life across the country. Fears that the lights would again go out and the airconditioners stop inevitably resurfaced towards the end of August when oil companies were forced to reduce production.

In the event, the fears proved groundless. The lights and the airconditioners stayed on. For the first time in Libya, disruption to the fuel supply did not result in power cuts.

This major turnaround is the result of action by the NOC and its affiliates to ensure that fuel continued to get to the power stations.

The scale of the challenge cannot be understated. According to the IEA, roughly two thirds of the country's electricity production has depended on oil to power the turbines at the stations, the other third relying on gas. In 2023, Libya's power stations used 1,000 million cubic feet of gas alone every day to generate electricity for the domestic market.

Demand has since then been increasing.

The electricity company, GECOL, estimated its consumption of crude oil for 2023 at $573 million, up from $368 million in 2022, while its estimate for heavy fuel consumption was about $315 million in 2023, compared with $295 million in 2022.

Courtesy of NOC

The latest cutback in oil production has been massive. It first started at the Sharara field, with the NOC then declaring *force majeure* there as of 7 August. But it took on a new dimension on 26 August when national production dropped by 959,000 bpd. Two days later, this was down to 591,000 bpd, around half the 1.28 million bpd on 20 July.

This could have had power stations being forced to cut electricity production. It did not happen because NOC and the oil companies, working together, started diverting and delivering fuel to stations affected. As a result, the power supply remained largely stable.

"It required coordination," said an oil company staffer.

However, in the current situation, despite the earlier fears, it was the sort of success that does not get noticed. Good news rarely does. But for those in the know, there is praise for NOC: "It managed to ensure the power stations worked normally," said a senior GECOL official. "In the circumstances, that was no small achievement."

Courtesy of NOC

NOC AND AFFILIATES GO FOR PRODUCTION GROWTH

By Moutaz Ali

Despite all the various challenges, the prime focus of the Libyan oil industry remains the push to increase production. That permeates all the way down from the NOC, through the exploration and production companies, whether they are affiliates of the NOC or not, to the myriad of service companies, Libyan and foreign.

Courtesy of NOC

At a cabinet meeting on 10 June, 2024, in Tripoli, the head of the Government of National Unity, Abdulhamid Dabaiba, announced the target for production by the end of 2025: two million bpd. The figure had already been stated on a number of occasions by NOC officials including the chairman, Farhat Bengdara, although earlier this year the two million target had been set for within three years, i.e. by 2027.

The target is now much more ambitious, It is now official GNU policy, and remains so despite the recent stoppages.

At the June cabinet meeting, Dabaiba also announced that Libyan oil output had exceeded 1.5 million bpd.

In fact, the figure he mentioned included the production of gas and condensate. The NOC subsequently said on 19 June that oil production stood at 1,246,028 bpd, with gas at the equivalent of 53,499 bpd and condensate at 231,051 bpd equivalent, giving a total of 1,530,578 bpd.

For its part, the NOC has explained that its key operational plan during 2024 is to ensure the sustainability of oil production by drilling 121 new wells and maintaining 1,335 existing wells.

In this context, there are now regular reports of new wells being drilled, existing wells having their production rates increased and old, closed wells being brought back into production by the use of new technologies.

Mellitah Oil & Gas has been performing strongly. On May 30, NOC revealed that Mellitah had managed to drill in a noticeably quick time a new well named FB-36 in the El Feel field and successfully evaluated a production capacity of 5,056 bpd. The company also succeeded in carrying out improvement works to well B4-27 in the Bouri Field without using a drill and had assessed production at 1,200 bpd.

The day after the Mellitah announcement, NOC announced that Waha Oil had successfully increased its oil production by 40,000 bpd using first-time technologies such as Geosphere 3D,

Long Reach and the horizontal drilling (B220H). It was reported, too, that Waha's technical team had successfully finalised the improvements of well 6K5 located in the Gialo field at a depth of 11,000 feet which will produce 4,000 barrels equivalent of gas per day.

Waha Oil also reported that it had signed a strategic partnership contract with SLB (formerly Schlumberger) aimed at increasing oil production and improving the technical skills of Libyan operatives working in oil and gas industries.

Under the deal SLB will be able to conduct advanced research on the ground at Waha fields in the North Gialo area and aims to solve geological problems there which it is hoped will increase Waha's oil production by 100,000 bpd.

On 9 June, Akakus Oil Operations announced that it had drilled ten new horizontal and vertical wells and finalised the maintenance of 18 wells at the Sharara oil field with a capacity of 24,921 barrels a day.

Earlier, on 19 May, Nafusah Oil Operations announced the start of pumping through the new oil pipeline from the North Hamada field which will deliver the field's production to Mellitah port via the El Feel field's pipeline. Pumping through the new pipleine was initially put at 2,000 bpd, but the plan is to reach 25,000 bpd.

The new 50-kilometre, 12-inch pipeline has a design capacity of 70,000 bpd. It is equipped with optical fibre monitoring and a camera surveillance system.

Nafusah Oil Operations also announced that the production of well A-4 was at 3,000 bpd with plans to reach 10,000 bpd in September 2024.

The company began maintenance of existing wells in March 2022 and started the production from well A-4 in August 2023 with 1,500.00 bpd.

Other companies have begun using Enhanced Recovery Technologies for Unconventional Oil Reservoirs. Harouge Oil Operations has used hydraulic fracturing technology with the help of SLB (formerly Schlumberger) to increase oil production of an old well, AA-10, in its Farigh field in the eastern Sirte Basin (not to be confused with Waha's Faregh field). Output has been boosted from just 250 to 1,600 bpd

.

For its part, Zueitina announced at the beginning of August that it was carrying out maintenance works at wells in its Sabah field south of Sidra and Ras Lanuf to ensure the safety of the well pipes and outer casings as well as replacing and installing new submersible pumps ahead of the field returning to full production.

In February 2022, the Sabah field was seriously damaged and cables and other equipment looted. In May this year, the NOC lifted *force majeure* on the field after the company formally took it over again. When operating normally, Sabah and the immediate surrounding field which together pipe production to the Sidra and Ras Lanuf terminals were producing 19,000 bpd.

Courtesy of NOC

SIRTE OIL IN QUEST FOR GROWTH AND SUPPORT FOR TRAINING

By Paul Grant

Sirte Oil negotiations with leading US companies should realise rapid production increases as well as open up job opportunities for young Libyans.

Sirte Oil is implementing technical innovations to significantly ramp up its oil production, and in order to achieve their goals, the company is looking to extend its collaboration with major US firms.

Talks began in early August when the chairman of Sirte Oil's management board, Mustafa Hammad, hosted a delegation of US companies that included the technology company SLB. Later in the month Hamad headed to the USA to meet Caterpillar and its subsidiary, Solar Turbines Inc.

Sirte Oil has set a target of increasing production to 120,000 bpd by the end of the year. This is a major increase compared to figures in the middle of last year, recorded at 87,000 bpd. In order to meet the goal, the talks with the US companies focused on extending their already established collaboration, and implementing a rapid expansion of both production capacity and the technical services used. The talks also focused on Sirte's IT goals as well as training and workshops, with the particular aim of increasing the number of Libyans with oil-sector skills.

As it is, Sirte Oil has been piloting the use of digital transformation technologies to accelerate and expand operations. This includes rolling out a new control centre, a digital monitoring system capable of real-time feedback on production operations and well performance. It is expected that this new monitoring system will help boost production rates.

The company is seen as leading the way for other other NOC affiliates to develop real-time digital monitoring systems.

Sirte Oil has already been working on a number of projects, notably in the area of gas production. These were acknowledged by NOC in a

Courtesy of NOC

Courtesy of NOC

message on 6 August congratulating the company for developments which had resulted in increased production, particularly gas production. They were:

- Pumping gas from the Raguba and Laheeb fields to the coastal gas system and providing fuel to power generators in the Zelten field, thus reducing gas flaring;
- Setting up a separate condensate pumping station which enabled 2,000 barrels of condensate per day to be added to production again instead of flaring it;
- The installation of oil separation and pumping equipment in the Wadi field, to increase output, and connecting wells in the Rashad gas field to the coastal network.

Developments had already been discussed with the NOC and other NOC affiliates at meetings in Marsa El-Brega at the beginning of August to review the company's performance. At the time, Hammad spoke of "unprecedented" rates of growth in production. He also said that there was growth in other areas, notably the maintenance and development of oil field infrastructure, including buildings.

Later in August, the NOC reported that Sirte Oil had connected all its oil and gas pipelines to its wells and production systems at all its fields and sites and that the company had also managed to increase gas production by 40 million cubic feet.

The extra gas is now being piped to power plants to generate 80 megawatts of electricity for the national grid.

A reliable electricity supply has been an issue at many oil fields in Libya. To address the issue of powering oil pumps efficiently, Hammad headed to the USA in late August for a series of high level meetings with Caterpillar and their subsidiary company, Solar Turbines Inc.

Solar Turbines produces turbines that generate electricity to power pumps for oil wells which then are able to increase production. They have already supplied turbines to AGOCO for the Messla and Sarir fields (*see "New turbines help AGOCO increase oil production, page 10*).

According to Sirte Oil, it and Solar Turbines discussed expanding the scope of cooperation. A deal was also agreed with Caterpillar on supplying post-drilling equipment.

During discussions on after-sales service, Hammad proposed that Caterpillar and Solar Turbines set up a major services base in Libya, which would include a training centre, a workshop and warehouses for spares.

Sirte suggested that as well as localising maintenance work in Libya, Caterpillar and Solar Turbines also look to technology transfer, establishing a project that could have real results, opening up job opportunities for young Libyans.

According to Sirte Oil, the first step resulted in Solar Turbines agreeing to organise training programmes at their training centres in the US on operating and maintaining gas turbines.

WAHA OIL PLANS MASSIVE PRODUCTION INCREASE BY END OF 2024

By Paul Grant

Courtesy of NOC

Waha Oil says that its production should reach 420,000 bpd by the end of 2024. It made the announcement at its meeting with the NOC on 4-5 August to review the company's activities and plans for 2025.

The projection represents a 30 percent increase on the 322,000 bpd production figures announced by Waha on 4 July and would be a major boost. As such, the target is potentially even more impressive when compared to the 2023 figures.

At Waha's annual general meeting in January, it was disclosed that its production in 2023 had reached 290,000 bpd and that this figure amounted to 97 percent of its production target for the year.

If the 420,000 bpd target is achieved it would be a 45 percent increase on the 2023 figures. a major achievement.

Waha is one of the top exploration and production companies in the country and is crucial to NOC's plans to boost production. This was recognised by NOC chairman Farhat Bengdara in January at Waha's annual meeting when he said the corporation relied significantly on Waha to execute its plan to increase national production rates.

No precise details have as yet been published as to where the production increases are being made or planned. However, there is an ongoing programme to increase production by 120,000 bpd. This, when implemented in full, would indeed see Waha hit the 420,000 bpd figure. It is focused on further developing a number of major Waha fields, in particular Waha, Samah, Daffah and North Gialo, all in the Sirte basin.

Of these, North Gialo is regarded as the most important. According to Waha, the developments at the field should add nearly 100,000 bpd to its overall output.

The production increase programme is being implemented in collaboration with SLB. On 25 June, Waha announced what it called a "strategic partnership" with SLB to increase production as well as develop local skills and competencies. Describing the move as "ambitious" it said that the partnership had already

produced tangible results, noting as an example, the use of guided drilling in the Daffah field. SLB has been using this and other new technologies, in some cases for the first time both in Libya and the wider region.

NOC had already announced at the end of May, that the use of new technologies in Waha fields had resulted in an 40,000 bpd increase in production between 2022 and 2024.

In the case of one well in the Daffah field, horizontal drilling and, for the first time, extended reach drilling and the use of a GeoSphere 360 3D reservoir mapping-while-drilling service resulted in the well producing 3,000 bpd.

NOC also said at the same time that Waha had completed and tested its 6K5 development well in the North Gialo field to a depth of some 11,000 feet, resulting in production of 4,000 bpd and two million cubic feet of natural gas. In addition, the well has been brought onstream in record time.

Other new technologies include "infilling" (the addition of new wells between existing holes in a field) which boosts production.

The practice, and drilling other new wells, is central to Waha's expansion plan. As it is, the company drilled 28 new wells in 2023 and the figure for 2024 is expected to be considerably higher.

No specific number has been disclosed, but the NOC said in June that over 100 new wells would be drilled this year and 1,335 would undergo maintenance work to boost their productivity.

The figures cover all production companies in the country but, as one of the largest companies, Waha is expected to account for a large numbers of the new or upgraded wells.

It is not always plain sailing.

In August maintenance work on the pipeline from the Waha field to Sidra, and then a fire, saw production drop significantly, but it was a temporary matter, with the fire being quickly extinguished.

Overall, however, it is the use of new technologies that Waha sees as key to its future performance.

The aim, it says, is to "leverage global expertise [in new technologies] to enhance local capabilities and achieve production targets".

NEW TURBINES HELP AGOCO INCREASE OIL OUTPUT

By Moutaz Ali

The installation of new turbines at Messla and Sarir has finally enabled AGOCO to increase its total production to 291,000 bpd but delays and challenges meant the project took ten years to carry out.

Courtesy of NOC

On June 22 2024, Arabian Gulf Oil Company (AGOCO) staff celebrated the testing and launch of its new turbines for the Messla and Sarir oil fields. The installation of the US-made turbines to generate 36 MW which then powers compressors to extract oil, has been described by AGOCO CEO Mohamed Ben Shatwan as an "historic achievement".

In the circumstances, that seems no exaggeration, not just because it has enabled AGOCO to boost its overall production to 291,000 bpd. It has taken ten years to get the project, codenamed L-63, up and running.

Speaking in a video report in August, Ben Shatwan explained that the project started in 2014 but then faced a succession of challenges.

Increased water in wells

AGOCO, he explained, had begun oil and gas production in 1967 using natural flow to extract crude from the wells that can be up to 12,000 feet deep. By the beginning of 1988, however, the percentage of water of the wells began to increase. This prevented them from flowing naturally and resulted in the need to use electrical submersible pumps to ensure production.

That meant that demand for electricity increased. The power lines supplying the electricity came from the township of Messla, 40 kilometres away, but the community there had its own power needs. Increased electricity demand at the oilfields resulted in voltage fluctuations and power cuts. Over a 25-year period the problem became steadily worse.

Clearly, additional power had to be found from another source.

Turbine contracting

In early 2014, the L63 project came into being. A contract to import two massive turbines was

signed with EMI, the agent for San Diego-based Solar Turbines, a subsidiary of Caterpillar Inc. Manufacturing was completed a year later.

"With a delegation from the National Oil Corporation and national oil companies, we visited the Solar Turbines factory in the US, in San Diego," explained Ben Shatwan. But, "as the equipment was getting ready for shipment, it was discovered that it required a long time for installation and trial procedures". It was estimated that this could last two to three years. Additionally, "given the security situation that the country was experiencing in 2015, it was difficult to recruit foreign workers and foreign companies to start operating this project which would take two to three years to install".

Meanwhile, he said, AGOCO was losing about 40,000 bpd.

Temporary generators

To his question as to what could be done, the American company proposed to supply temporary mobile generators. "Contracts were subsequently made for these turbines during their initial installation process. They were Titan 250 36-MW".

Then came another challenge. After the mobile generators' arrival at Brega port and while on their own way to the fields, one of them fell off the truck that was transporting it. It had to be sent to Belgium for repairs. This further affected plans.

The mobile generators arrived in 2015 and were installed. By 2017, further mobile generating equipment had been shipped and installed. This provided a solution to production problems, noted Ben Shatwan "and we achieved an increase in production at Messla and Sarir of about 60,000 bpd". Moreover, he added, "the cost of this equipment was recovered in only ten days of the production period".

The story is finally over. "On June 22 2024, the testing process began, and the new turbines were linked to the Missla and Sarir fields" explained Ben Shatwan, noting that the mobile generators would be withdrawn, being five years old and in need of an overhaul.

With the installation of the gas turbines, the electricity supply was now entirely stable and AGOCO was producing 291,000 bpd, he explained after visiting the two fields to inspect the work. AGOCO's target for them is now 330,000-335,000 bpd.

Ben Shatwan is clearly proud of completing a project which, ten years ago, he had helped to start. He has described it as "an historical achievement" but has credited it to AGOCO staff "who have contributed to maintaining production levels, who developed the fields infrastructure despite the difficult financial situations that the company is facing". Matters could have been even better, he suggested in his video report, because delays in approving budgets, the provision of funding and the accumulation of debts meant that "many" other projects aimed as increasing production had themselves been delayed.

But he was clearly very happy that the long saga of the turbines had come to a satisfactory ending.

AGOCO chairman Mohamed Ben Shatwan thanks Derrick York, president of Solar Turbines Inc. and company officials for completing the power generation project for the Sarir and Missla fields. *Photo courtesy of AGOCO*

LIBYA AND SONATRACH : AIMING TO BOOST OIL PRODUCTION AS ALGERIA SEEKS TO EXPAND ITS FOREIGN INVESTMENTS

By Majd Gannud

In late July, a Memorandum of Understanding (MoU) was signed between the National Oil Wells Drilling & Workover Company (NWD), a subsidiary of Libya's National Oil Corporation (NOC), and the Algerian National Petroleum Works Company (ENTP), a subsidiary of Algeria's state oil and gas company Sonatrach.

Courtesy of Sonatrach

Under the deal, ENTP is to supply drilling and workover equipment to NOC. Additionally, ENTP will provide maintenance and training services.

The two parties have developed their collaboration on the basis of the protocol signed in February 2022 between the NOC and Sonatrach, under which the Algerian corpoation committed to returning to Libya.

In January 2024, the NOC and Sonatrach signed additional annexes to extend the Algerians existing exploration and production rights for areas 95/96 and 65, located in the Ghadames Basin near the Algerian border.

The agreement, originally set to expire in 2022, was extended for an additional two years. This extension allows for a whole range of cooperation in oil and gas, renewable energy, training and exchange of expertise.

The February 2022 agreement re-established Sonatrach's operations in Libya. It not only authorised the completion of Sonatrach's contractual is obligations for the Ghadames areas, it also set out a framework for field development plans for the discoveries made in these areas and formally initiated the development of these newly-identified oil fields.

Return after a decade-long hiatus

The latest agreement formalises an Algerian return after a long absence and an even longer period of uncertainty.

In July 2012, the Algerian oil giant announced the resumption of its exploration activities in

Libya, following a halt caused by the events of 2011. But it effectively pulled out of Libya in 2014 because of security issues. There were reports at the time that it was abandoning its investments in Libya altogether.

That seemed confirmed when, in November 2018, the company removed a rig from its concession in the Ghadames Basin. At that time, the company's CEO estimated the value of Sonatrach's investment in Libya, including equipment, to be worth $155 million. He noted that the rig had not been vandalised, saying simply that it was being removed to protect the company's investments.

Libya at the forefront of investments in Algeria's neighbours

Sonatrach has been seeking to increase its production capacity, and notably by investing in three of its neighbours, namely Libya, Mali and Niger. It also wants to achieve energy security for itself as well as to support renewable energy and hydrogen projects.

Algerian oil expert Masoud Daoudi believes that the partnership with Libya could be extremely productive for both parties, as Libya looks to increase its own oil and gas production, through a national strategy for which huge investment sums have been allocated.

In 2022, Sonatrach's then CEO said that it planned to invest an estimated $40 billion in the energy sector between 2022 and 2026. The Algerian government subsequently revised this upwards to $50 billion between 2024 and 2028. This investment aims to increase output by 1.3 percent, from 194 million equivalent tons in 2023 to 207 million equivalent tons by 2028. Additionally, Algerian Minister of Energy and Mining Mohamed Arkab was reported saying in February this year that Sonatrach planned to invest $442 million between 2024 and 2028 in exploration and production in its three neighbours.

An old friend

Of course, Sonatrach's involvement in Libya goes back further than the Libyan revolution. In 2006, it announced its first oil discovery in the Ghadames Basin in Libya. This concession had been awarded to it by NOC in March 2005. At the time, Sonatrach had committed itself to invest at least $750 million in exploring for oil in Libya in partnership with Oil India and Indian Oil. They had won the bid for four blocks in the Ghadames Basin covering an area of 6,934 square kilometres.

Libyan oil expert Yusuf Mahmoud has described Algeria as an "old friend" in terms of oil partnerships, saying that it had been working for about three decades in exploration and production in the Ghadames Basin, which extends across the Libya-Algeria border.

Mahmoud believes that the technical success of the partnership relies on the Algerian engineers' extensive knowledge of the geological nature of the area. Because it is located in the border region between the two countries, logistical operations and the movement of equipment should be much easier, since Algeria's largest oil fields, Hassi Messaoud and Hassi R'mel are just over the frontier.

AMBITIOUS ZALLAF STARTS PRODUCTION IN THE SOUTH

By Michel Cousins

One of the NOC's youngest affiliates, Zallaf Oil, expects its total production to reach 15,000 bpd by the end of 2024. This was reported at a meeting at NOC headquarters on 11 August to review Zallaf's performance so far this year and its plans for 2025.

Courtesy of Zallaf Oil

Zallaf has a number of oil fields. Two are in the south: Erawin in the Murzuq Basin and Atshan between the Murzuq and Ghadames Basins. A third, Chadar, is in the Sirte basin, not far from Ajdabiya.

West of Ubari, the Erawin field started production on 29 March last year when its first operation well came onstream. Five weeks later, at the beginning of May 2023, Zallaf said that up to that point 92,000 barrels had been produced from the well, an average of 2,875 bpd. By 24 December, Libyan Independence Day, it was reported that total output from the well had reached around one million barrels, an average of almost 4,000 bpd.

The oil is currently being taken by tanker to the processing unit in the Sharara field, about 100 kilometres away. However, it is estimated that that once other wells are brought into production and a pipeline linking Erawin and Sharara is completed, output should reach 16,000 bpd.

Attention, however, has more recently shifted to the development of the Atshan field at Concession NC 210, located next to the border with Algeria. It is primarily a gas field.

Work on the C3-1 exploratory well in the field was halted temporarily at the beginning of July following a blowout, but this was quickly brought under control and by the beginning of August Zallaf was clearly very pleased with the results, describing them as "impressive".

There are plans to build a gas production complex at Atshan as well as a gas pipeline.

Operations at the Chadar field, also known as the NC-126 concession, southwest of Jalu, are still in their early stages. The plan is to develop three wells and link them to the neighbouring Faregh field belonging to Waha Oil.

Zallaf also has the Zahra field (Concession NC-209) in the Sirte basin. Exploratory wells in 2006 and 2007 by the previous concessionaire showed the presence of oil. Nothing has been done since then. But Zallaf is reported to now be looking into the development of the field.

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NEW HAROUGE CHAIRMAN IN AMAL FIELD INSPECTION

By Paul Grant

Harouge Oil has a new chairman and management committee. Abdussalam Mohamed Gaaim was appointed chairman by the NOC in June as part of a management reorganisation of the company.

Also appointed at the time were Mohamed Jaballah Mohamed as a member of the committee with responsibility for operations and maintenance, and Salem Ahmed Al-Turki as the member for administrative and financial affairs.

The other members are Salah Ramadan Sassi (Development & Engineering) and Mohammed Abdel Karem Elnaas (Technical Services). A handover ceremony from the former board to the new one took place on 10 July .

On 5 August, accompanied by Jaballah Mohamed and Al-Turki, Gaaim made his first Harouge oilfield visit, to the company's most important site, the giant Amal field. Located in the eastern Sirte basin, north-west of Awjila, the field was at its peak of production in the early 1970s, and it was thought that it would reach its economic limit in 2027. But Harouge is working on prolonging its life. Like other producers, it is using new technologies to reactivate closed boreholes or boost production at operating wells, the Amal field included. While at Amal, Gaaim and his colleagues inspected work at two new gathering stations as well as a measurement platform project, now at the start-up stage.

Other focuses for Harouge as it moves to boost production in line with NOC targets are the Farigh field, some 70 kilometres south of Amal, and the Ghani field in the western Sirte basin, some 130 kilometres east of Waddan.

In late June, the use of hydraulic fracking at well AA-11 in the Farigh field resulted in output rising from 250 b/d to 1,600 b/d and potentially even more once work is completed.

Rehabilitation work at Harouge's Ghani field is now in its second phase.

Courtesy of NOC

TANKER FLEET BEING MODERNISED

By Moutaz Ali

For the past five years Libya's shipping company, the General National Maritime Transport Company, has been modernising its fleet. The aim is to replace all its fuel tankers that are more than five years old

The General National Maritime Transport Company was set up in 1975 to ensure that Libya had its own fleet of oil and oil products tankers. It currently operates 19 vessels including four Suezmax (the largest measurement of ship capable of transiting the Suez Canal when fully laden), 11 Aframax (oil tankers with a deadweight of 80,000-120,000 tonnes) and two medium-range tankers.

Since 2019, the GNMTC has been pursuing plans to modernise and develop its fleet. Over the past five years it has acquired seven new tankers. At the same time, it sold nine tankers, most of them acquired in the 1970s.

According to GNMTC, it is seeking to replace all its oil tankers that are over five years old with others that meet the market's current needs and specifications.

"We have now finalised three phases of the plan by buying new seven oil tankers," GNMTC has said.

These new tankers are:

- ***Ebn Hawke*l, built 2021, 237 metres, 111610 dwt**
- ***Fezzan*, built 2021, 249 metres, 113500 dwt**
- ***Anwaar Benghazi*, built 2021, 249 metres, 113500 dwt**
- ***Anwaar Trablus*, built 2022, 249 metres, 115519 dwt**
- ***Ghat*, built 2022, 249 metres, 115519 dwt**
- ***Alhaya*, built 2023 249m, 115519 dwt**
- ***Kufra*, built 2023, 249m, 115519 dwt.**

Courtesy of GNMTC

Courtesy of GNMTC

The NOC has been a prime user of the GNMTC fleet although currently new vessels are being used in the international market, with shipping application marinetraffic.com showing that in August none was moving Libya crude.

This past month saw the *Kufra* in the south east Pacific off Chile, the *Alhaya* further north in the Pacific, sailing from San Francisco to Panama, the *Anwaar Trablus* also operating off the coast of California, the *Ghat* sailing between Ireland and Houston, the *Ebn Hawkel* operating in the north western Atlantic, the *Fezzan* in the Caribbean awaiting orders while the *Anwaar Benghazi* wasn operating in the Arabian Gulf.

Some of the fleet's other tankers, such as the *Anwaar Al Naser*, (built 2006, 164 metres, 29006 dwt) are used to bring fuel products to Libya, under contracts with the NOC.

Courtesy of GNMTC

BREGA PLANS GAS CYLINDER REFILLING STATIONS THROUGHOUT THE COUNTRY.

By Michel Cousins

For almost every Libyan household, a gas cylinder is an indispensable item for the kitchen, and it has to have enough gas in it. Without that, there is no cooked food. But there can be problems. In some cases, just keeping hold of a gas cylinder is an issue. They are reportedly among the most stolen items in the country, particularly when they are kept outside the house. However, that is an issue for the police.

For most people, having a cylinder with enough gas has depended on the presence of cylinder distribution centres within a reasonable distance of home. Brega Oil Marketing Company operates a number of them. There are also private distributors under licence from Brega and there are unlicensed distributors as well. The price of exchanging an empty standard-size cylinder for a full one depends on which distributor you use. A cylinder at a Brega exchange point costs LD 2, according to the company. A licensed distributor can cost a little more while at an un-licensed distributor it can cost around LD 8 or LD 10.

Courtesy of Brega Oil Marketing

Courtesy of Brega Oil Marketing

But Brega has been pushing out an alternative system to cylinder exchange. In April 2021, the company opened its first instant cylinder refill station at its Tripoli depot on the Airport Road.

Since then, it has been rolling out a programme to open instant gas-cylinder filling stations throughout the country. The first were opened in Zliten, Kharouba (in Misrata) and in the Al-Hani and Busetta districts in Tripoli.

More recently, they have opened in Jalu, Tajoura and Zahra. Others are under construction in Gharyan and Brak Al-Shatti.

Further stations are planned in the near future at Brega's depots in Misrata and Zawiya as well as at Sirte, Khoms, Bani Walid, Tarhouna, Ajilat and Zuwara as well as in Ghat, Ubari and Wadi Utba.

The price at a refilling station is even cheaper than at a cylinder distribution centre, according to Brega: LD 1.5 compared to LD 2.

LISCO TO BEGIN MANUFACTURING DOMESTIC GAS CYLINDERS AT THE START OF 2025

By Sami Zaptia , Libya Herald

The Libyan Iron and Steel Company (LISCO) will start manufacturing domestic gas cylinders in January or February of 2025. The news was given by LISCO's chairman, Mohamed Al-Faqih.

The news came as a side comment by Al-Faqih during his presentation on 29 August at the Tripoli workshop on "Libyan Industrial Exports – Reality and Prospects" organised by the Libya Industry Union (LIU) and the Libyan Experts Forum (LEF).

Libya suffers from a shortage of domestic gas cylinders.As a resut, their black market price currently varies from LD 600 to LD 1,000, depending on whether purchaserss are in coastal or regional Libya.

The problem is the scrap value of the cylinders is worth more than their value as a working gas cylinder. They are often illegally exported or smuggled to neighbouring countries to be used for scrap.

ZUEITINA OIL PORT UPGRADING

By Paul Grant

Zueitina Oil has replaced a floating Single Point Mooring (SPM) at the company's terminal as part of the company's maintenance and upgrading programme. The old crude oil SPM, named "Shahat", was disconnected and taken into the port ahead of installing the new platform, nicknamed "Charlie", and connecting loading and shipping hoses. Zueitina had contracted with a British company for the replacement SPM which arrived at the port in late July.

Upgrading of the terminal continues. In May, Zueitina called on relevant companies to pre-qualify for a contract to rehabilitate the LPG loading platform at the terminal on a turnkey basis. Repairs were said to include the rehabilitation of the platform structure, corrosion treatment to platform sections, pipes and hoses and painting. Last November, Zuetina announced it wanted a comprehensive study on the best way to upgrade two crude oil loading platforms including lines and equipment at the terminal.

Most recently, in mid-August, the company issued a pre-qualification call to marine contractors for the inspection, repair, re-painting and long-term maintenance of corrosion-damaged pipe supports between the LNG station and the loading platform.

Meanwhile, as part of plans to stop flaring gas and achieve net zero gas emissions at its 103A Intisar field, the company has announced that it signed an agreement at the beginning of August with UK-based Penspen which specialises in sustainable energy projects.

Courtesy of Zueitina Oil

NAFOURA FIELD CENTRAL TO AGOCO'S PLANS TO INCREASE PRODUCTION

By Michel Cousins

The Benghazi-based Arabian Gulf Oil Company (AGOCO) is already one of the largest producers in the country, but at its general assembly in January, in line with the NOC's strategic plan to increase national production, it committed itself to boosting its own output by 100,000 bpd, a third more than what is was producing in 2023.

A major component of AGOCO's plans is the further development of the massive Nafoura field in the Sirte Basin near Awjila, in particular investing in new wells and upgraded wells.

The field is one of AGOCO's oldest. Oil was first discovered there at the dawn of Libyan oil history, in 1956. But it did not come onstream for another ten years. Production peaked at 380,000 bpd in 1969. But the field is far from exhausted.

In 2009, plans were approved to redevelop it and boost production. However, the 2011 revolution and subsequent events put a break on those plans. It is only in the past couple of years that redevelopment has again been actively pursued.

Last year, the field produced some 21,000 bpd. The amount is now increasing.

In the past few weeks, new wells have either been coming onstream or showing encouraging results. At the end of July, AGOGO announced what it described as a jump in production at Nafoura. It said that tests carried out on its new well there, Y5-51, had given extremely promising results. The well recorded a natural production flow of 2,710 bpd. Thanking staff for the what it called a strategic success, AGOCO said that the results were proof of the importance and value in developing the field.

Just a day later, AGOCO then announced that another new well in the same field, G-319-91, was producing 2,000 bpd.

Courtesy of NOC

In the case of the well Y5-51, AGOCO also noted that water content was no more than 1 percent. In an industry where there is an increasing presence of water in the wells and where the water to oil and to gas ratios can be quite high, that is an encouraging figure.

As it is, AGOCO announced last May that after a 13-year wait, it had commissioned a gas dehydration unit at Nafoura to remove moisture from natural gas and increase its quality.

There are other challenges at Nafoura, not least, as in other fields, the electricity supply, needed to power the gas compressors and ensure production stability.

AGOCO's production monitoring committee is looking into the situation with the compressors and at its meeting in early August it set up a specialist team to devise, as AGOCO has put it, "radical" solutions so that, in future, not only are there no more production fluctuations but so that production also can be significantly increased.

Courtesy of NOC

SOLAR POWER USE IN PUBLIC BUILDINGS BACKED BY AUTHORITIES

By Michel Cousins

In December 2023, the Renewable Energy Authority of Libya (REAoL) announced plans to encourage mosques across the country to install solar panels.

It was part of an initiative to install the panels on all state institution buildings. Now named "Go Green", the initiative has been developed by REAoL in conjunction with the Tripoli-based Ministry of Industry & Minerals and the Ministry of Planning.

As part of Go Green, solar panels have already been installed on various official buildings, notably health centres. These have included clinics in Yefren, Zintan, Khoms, Emsalata, Tarhouna, Tajoura and Janzour. Most recently, solar panels were set up at the local hospital in Al-Aziziya. Additionally, REAoL has been in talks with other state organisations, including the Libyan Iron and Steel Company in Misrata, about using solar power. There have been similar talks with the Misrata municipality.

The Go Green drive, itself part of the National Strategy for Renewable Energy and Energy Efficiency, aims to reduce dependence on fossil fuel-generated power by five to ten percent by 2035.

A larger strategy is to produce 4 GW of electricity from renewables by 2035. By then it is predicted that 20 percent of Libya's energy generation will come from these sources. This strategy includes solar parks, such as a 200 MW solar photovoltaic power park on a 500-hectare site near Nalut, as well as wind farms.

But the focus at present is on smaller projects, such as getting panels onto existing buildings.

Indeed, the Go Green-related projects carried out so far have been relatively small in number, partly because the initiative is still in its initial stages. The immediate objective is 12,000 rooftop solar systems.

So far, most of the interest has come from communities away from the big cities, where connections to the national grid have been less reliable and power cuts more common. A dependable solar-based supply is an attractive proposition, especially given Libya's abundance of sunshine. Worldwide, it ranks ninth for solar radiation.

It is not just REAoL that is pushing for action.The Tripoli-based planning ministry has become an enthusiastic partner in promoting alternative energy. There has been a number of meetings on the subject between the head of REAoL, Abdul Salam Al-Ansari, and the GNU planning minister, Mohamed Al-Zaidani. In one such meeting on August 18, the minister said that renewable energy was of the the utmost importance and that the ministry was doing everything it could to transform Libya into a producer of clean energy.

To encourage solar installations, the authorities are reported to be planning to offer advantageous loans, although no details have as yet been disclosed.

The Go Green initiative has been developed with support from a number of non-Libyan organisations such as USAID. In an August report in on the initiative, USAID said that transitioning to renewable energy would have beneficial financial consequences in Libya.

"A large portion of Libya's national budget subsidises electricity generation, money that could be used for other priorities."

It also quoted an electrical engineer, Mohamed Elamin of Insiab Libya Solar, who has been installing solar power systems in southern Libya for several years.

"Electricity access in southern areas and the significantly high temperatures have led to increased demand for solar panels and systems," he said, noting also that Libyans in remoter areas wanted to avoid dependence on the electricity grid.

Many appear impressed with the Go Green project. USAID has said that as a result of it, Libya is "integrating energy-efficient solutions, developing renewable energy resources and mitigating risks from climate-related disasters, while ensuring communities have the necessary energy for homes and businesses".

LIBYA MUST AIM FOR CROSS-BORDER SOLAR POWER PROJECTS

By Moutaz Ali

The Libyan Centre for Solar Power Research & Studies is seeking to cooperate with similar centres regionally and internationally. They recognise that, worldwide, successful solar power projects are cross- border.

Courtesy of NOC

"We are researching projects on exporting solar power to neighbouring countries, especially to the EU in the north, such as Italy," Dr Yousef Alnass, the General Manager of the centre, told *Libya Energy* in an interview at centre's headquarters in Tajoura, east of Tripoli.

"We are pushing towards collaborations with similar regional and international consultancy centres to work on proposing renewable energy projects to governments and I confidently believe that Libya has all the required potential to attract partners".

However, governmental support is crucial he says.

Cooperation with national boards

"There is no doubt that renewable energy is the future for the world, and we must be aware of this in Libya. In this regard, we are cooperating with the ministry of industry to raise awareness of the sector's importance for national policy-makers".

In recent years, power cuts have occurred when generating stations ran out of gas and fuel oil supplied by the NOC affiliates to the electricity company, GECOL.

"Let's think about how much money the Libyan state is losing by providing power stations with

gas and fuel oil rather than exporting them. It shows how important it is to invest in solar power plants which could save so much money for the country," explains Alnass,

"Moreover, a solar power station's staffing requirements are almost nothing compared to other traditional power plants" he explained.

The centre generates its own electricity using solar power and is linked to a traditional power station which during the day it feeds surplus solar-generated electricity. It only uses conventional power at night.

"We linked with GECOL as a pilot to encourage it to create solar power stations. This could save massive amounts of fuel because part of their generating capacity would be free," he said.

However, says Alnass, the authorities are still not sufficiently focused on the importance of solar power. He also thinks that successive issues that Libya has faced have prevented them from going ahead with plans for renewable power projects.

Researching different renewable energy and technology.

The centre does not restrict its research to solar power, but studies other renewable energy projects and technologies, such as power conservation to reduce electricity consumption or Biomass energy using a range of biofuels, such as methane (biogas) generated from wastewater and organic waste from farms, factories and homes.

"We research different renewable powers with leading industries in the country such as the iron and steel works in Misrata where currently they are using the problematic brown hydrogen which causes carbon dioxide emissions. We are working with them to switch over to green gydrogen which is very clean."

The centre is also promoting private sector investment in renewable power projects.

"We have cooperated with several national engineering and power companies because we are relying heavily on investment by the private sector, which still needs to be developed.

We greet with open arms anyone who knocks on our door seeking help, support and advice, based on our expertise in renewable energy."

Dr Yousef Alnass, the General Manager of the Libyan Centre for Solar Power Research & Studies

A HOT PROSPECT: GEOTHERMAL ENERGY IN THE LIBYAN SAHARA

By Ahmed Al-Amin, University of Sebha

Exploring the untapped potential for geothermal energy production and export in southern Libya represents a golden opportunity that could revolutionise the region's energy sector.

The growing global demand for electricity underscores the importance of switching to sustainable and environmentally-friendly energy sources. Geothermal energy, extracted from the subsurface of the earth to generate energy and heat, stands out as a clean, reliable and cost-effective source in this context.

With growing concerns about environmental degradation and energy security, the adoption of renewable energy solutions such as geothermal energy is gaining momentum around the world.

In southern Libya, the development of geothermal energy can play a decisive role in meeting the region's energy needs in various ways.

Geologically-active areas in the region offer promising opportunities for geothermal projects, which can revolutionise local communities by providing sustainable solutions for a wide variety of needs such as power generation, industrial projects, agriculture, air-conditioning and heating. This would have a positive and radical impact on local economies and livelihoods.

Geothermal energy can be used in electricity generation, as it can be combined with conventional steam plants to reduce the energy used to produce the steam. It can also be combined with solar power orojects to produce solar/thermal power plants, reducing the area of solar collectors used to heat water. Moreover, geothermal can be included in conventional generating stations, reducing production costs. It can also be employed directly in agriculture for heating greenhouses as well as for heating or cooling buildings using absorption cooling.

In addition, geothermal can be deployed in industrial processes such as drying food products and in other industries, reducing production costs. Many other African countries have taken advantage of their own geothermal reservoirs to achieve energy independence and reduce expensive energy imports.

Exploring the untapped potential for geothermal energy production and export in the south of Libya represents a golden opportunity that could revolutionise the region's energy sector. Geothermal energy, known for its cleanness, sustainability and affordability, has the potential to reduce dependence on traditional fossil fuels. Given the high hydrocarbon prices and the urgent need to address climate change, it is necessary for southern Libya to drill deeper into the field of geothermal energy.

In one of the studies to assess the system, it was found that at depths of even less than 1,000 metres in

the geothermal system in the Sirte Basin, the temperatures and heat flow values ranged from 40° Celsius to more than 60°. Another report showed that geothermal energy sources in Waddan have the potential to meet many of the local community's energy needs. Research indicates that they could provide direct electricity generation, including much of what is needed for significant air-conditioning usage.

It was shown, too, that geothermal energy could be used in hybrid power stations, relying on both geothermal and gas. The study proposed a hybrid power station, using both natural gas and thermal energy, to produce 128 MW, thereby providing Waddan and nearby villages with a sustainable, reliable energy supply.

These data represent a major opportunity to harness geothermal energy in southern Libya. There are high-temperature water wells in the south, for example in Qatroun, Sokna and Waddan and these wells are spread in important basins such as Kufra Basin and Murzuq Basin. But further studies are needed to establish the potential from thermal energy. These locations also have enormous solar power, which makes it possible to combine the two types of energy to reduce energy production costs.

A power boost eor the south

Because of the diverse energy resources such as solar, oil, gas, wind, geothermal, as well as the strategic geographical location that connects the various regional energy networks, southern Libya has a huge potential to make a significant contribution to the regional energy market. Specialised companies focused on geothermal projects can play a pivotal role in unlocking the potential of geothermal energy in the south of the country. These firms bring valuable experience in creating efficient and sustainable geothermal energy projects that can empower local communities, while enriching the overall energy landscape of the region.

In short, geothermal energy in southern Libya is of enormous importance to the region because it provides a level of efficiency that makes it a viable option for sustainable energy generation.

The potential locations of geothermal projects offer many opportunities to harness this environmentally-friendly and renewable energy resource. And although there are initial costs associated with the creation of geothermal projects, the long-term advantages outweigh that initial investment. The impact of geothermal energy on communities in the south of Libya could be profound, as access to reliable and sustainable energy sources can boost living standards and spur economic development. Through strategic investments in geothermal energy projects and collaborative partnerships with industry professionals, southern Libya can unleash its true potential as a major renewable energy player in Africa.

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A TOUGH BUT REWARDING LIFE FOR DESERT OIL WORKERS

By Zaineb Sharrada

Life for oilfield workers far from home can be difficult and stressful. They can be away from their families for three weeks at a time. For foreign employees it is usually much longer. But the oil companies try to ensure that their staff enjoy a good quality of lifein terms of accommodation and other facilities, along with good salaries. One such compani is Zallaf.

Around 800 kilometres south of Tripoli, and some 100 kilometres south of the Sharara field, Zallaf's Erawin field covers a vast area of 8,285 square kilometres. It is a long distance from any major town.

Employees work eight hour shifts daily, seven days a week while on site, beginning at 7:00 am. Each has a specific role within dedicated departments overseeing safety, operations, general services, production, maintenance and logistics. At the end of their working day, workers live in on-site accommodation made up of individual units equipped with televisions and internet, alongside gym facilities, a cafeteria serving healthy meals, outdoor green spaces, a mosque and gardens.

Oil companies such as Zallaf offer a significant benefits package. This includes almost double pay for overtime and opportunities for professional development through overseas training programmes and other helpful support.

"One of the challenges that workers face is isolation, being kilometres far away from their families and friends and the feeling of not going home any time they like. However, social media platforms provide a virtual bridge, allowing workers to stay connected with their loved ones, share experiences and build a sense of community even from afar", an engineer told *Libyan Energy*.

"We, along with our colleagues, become like a family, getting together often after work to chat and chill out. This helped us relax and forget about the stress of the oil field and the feeling of missing our families and friends ."

One engineer on the Erawin field told *Libya Energy* he was one of a team of 30 Zallaf workers there, all Libyans. The company as a whole has 800 Libyan employees.

The field is, however, a diverse and multicultural environment, hosting approximately 300 foreign workers working for subcontractors and from a variety of counties, including India, Bangladesh, Tunisia, Egypt and various sub-Saharan states.

Courtesy of Zallaf Oil

These workers specialise in various fields and provide a range of services. Some, such as software engineers, work on special projects, while others have duties that may take days or even months to complete. Many of the foreign workers stay at the field for extended periods.

Oil companies, including Zallaf, say they are committed to providing their employees with competitive and comprehensive benefits packages.

But that does not make it easy. Even just reaching these remote fields from Tripoli could involve a journey of around 12 hours in a car.

However, many oil field workers opt to use the nearby landing strip for a much quicker and more convenient two-hour flight. This significantly improves their quality of life, allowing them to spend more time with their families and enjoy their personal lives.

Zallaf, established in 2013 as a subsidiary of the NOC, began operations in 2017. Besides Erawin, it operates the Atshan field, located between the Murzuq and Ghadames basins and bordering Algeria. The company also has the concession covering the Chadar field located southeast of Ajdabiya in the Sirte Basin.

LIBYA ENERGY

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Libya Energy is a new English-language business magazine dedicated to the oil, gas, electricity and renewable energy sectors in Libya.

As well as the printed version it is available online. It is owned by Tadweel for Media and Digital Services, which is a registered Libyan company. Copies are distributed both in Libya and abroad.

The magazine publishes well-researched articles about planned developments and those being achieved in the Libyan oil and gas sector and in the field of renewable energy as well as accurate and authoritative information and statistics. Libya Energy is produced in collaboration with Libya Herald.

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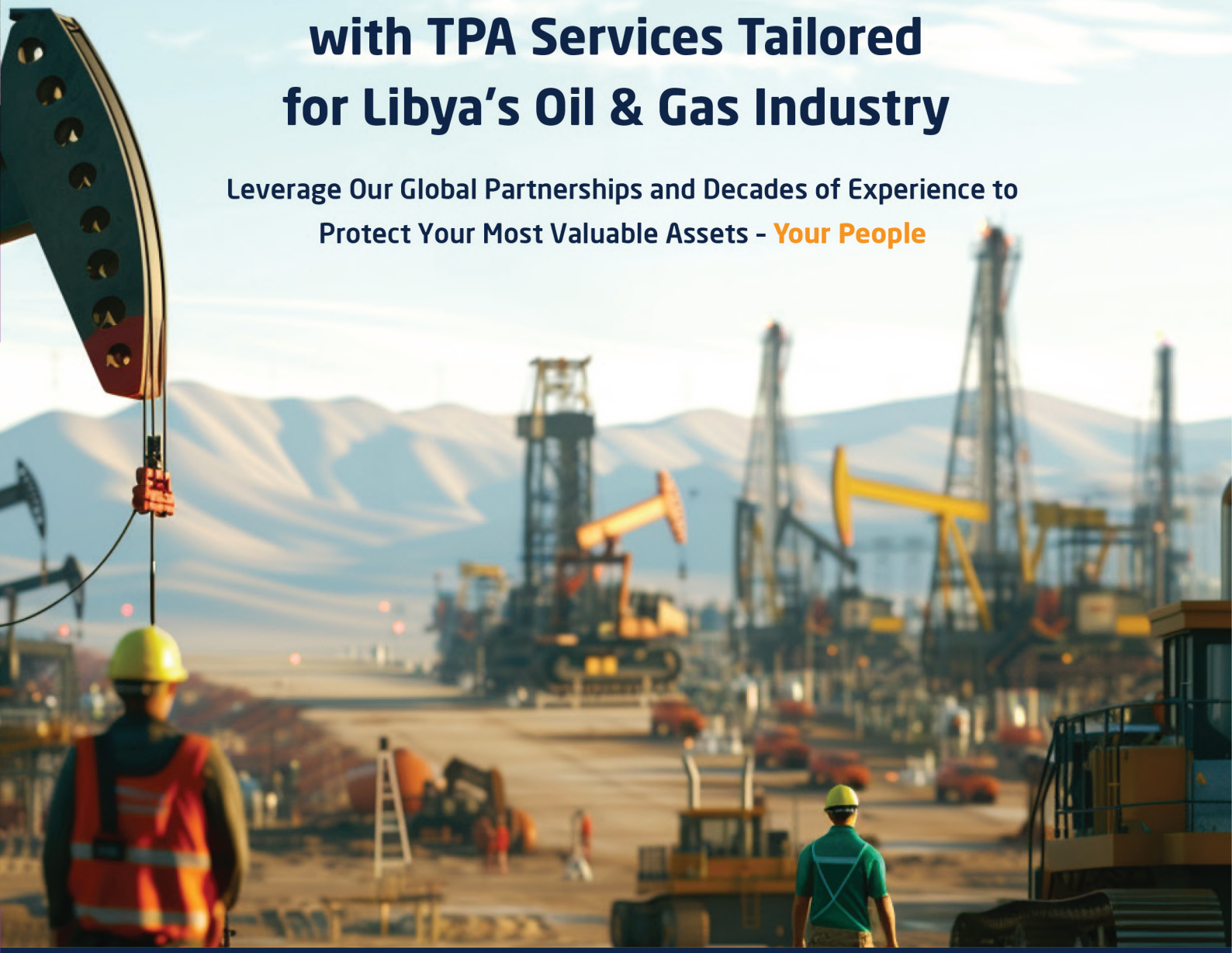

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