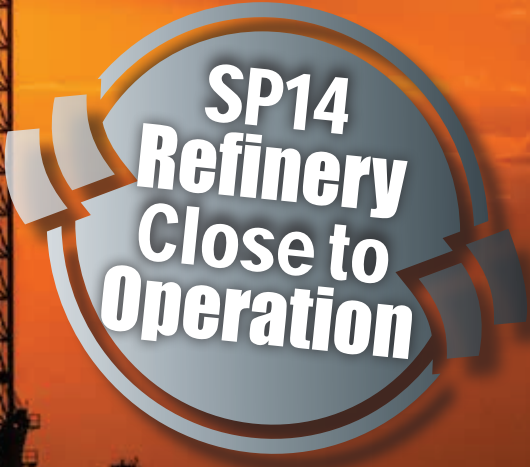




IRAN MONTHLY Petroleum

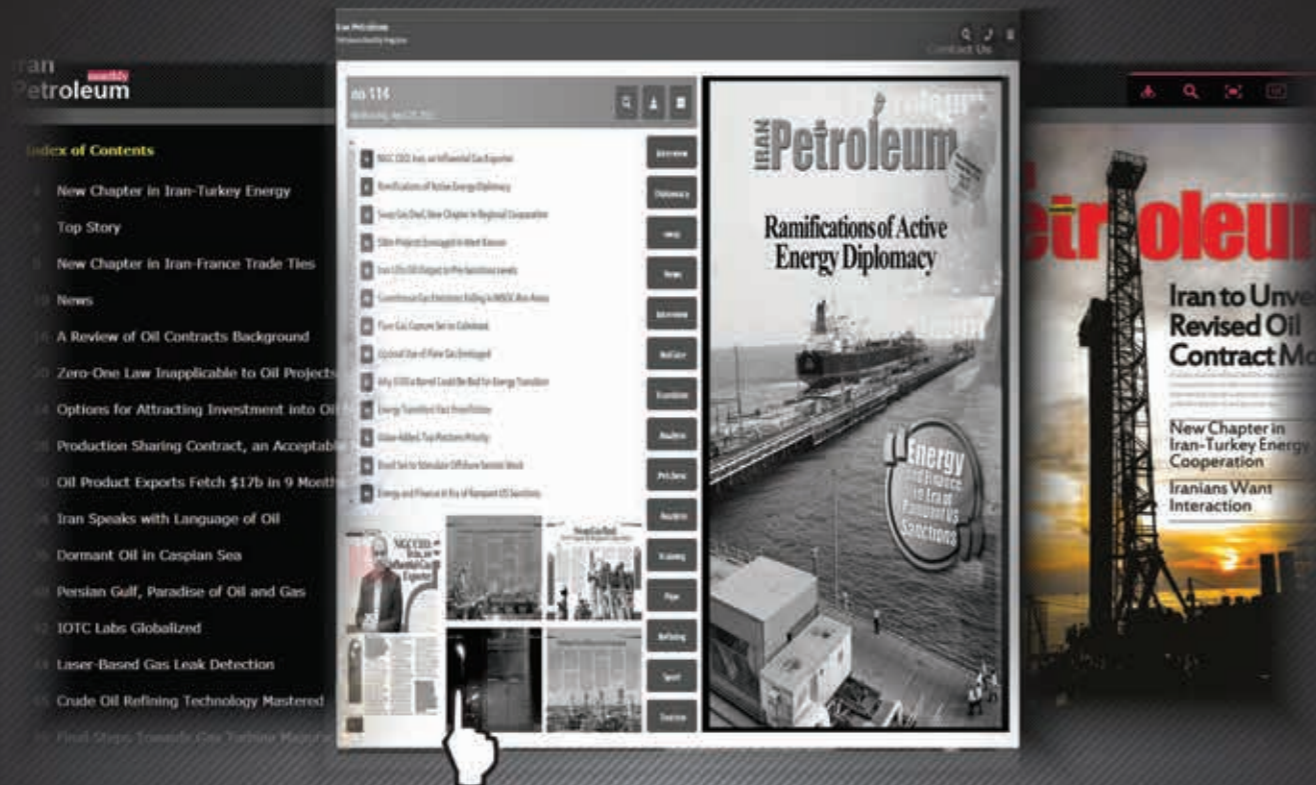
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Iran Hydrocarbon Reserves Estimated at 16 BBL



SP14
Refinery
Close to
Operation





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Crude Oil Storage Investment

Ali Forouzandeh
Director General of Public Relations

National Iranian Oil Company (NIOC) recently introduced for the first time opportunities for investment in crude oil storage tank construction within the framework of public-private partnership contracts. Iran's crude oil production capacity has neared 4 mb/d, which is hoped to increase to 5.7 mb/d in coming years. Reaching this objective requires \$90 billion investment over ten years. Crude oil storage is of high significance in terms sustained production and market management, not to mention the value-added to be created.

In Iran, there is capacity for 130 million barrels of crude oil storage, 110 million barrels of which is already available and the remaining 20 million under construction. National Iranian Refining and Distribution

Company (NIORDC) and National Iranian Oil Company (NIOC) respectively account for 35 million barrels and 95 million barrels of the storage capacity. Gas condensate storage also stands at 30 million barrels.

NIOC intends to bring crude oil storage capacity to 7.7 million barrels. Investors should take into account the fact that NIOC would deliver oil with such specifications and other affairs including design, manufacturing, financing, storage and delivery of crude oil to NIOC rests upon with investors. Ownership of crude oil is always in the hands of NIOC while reservoirs and auxiliary installations would belong to investors. As it was said, it is the first time this opportunity has been announced for investment and private investors have been invited in.

28 Distribution

Railroad Fleet Handles 35ml Products

With the arrival of 500 new refueling trucks through an Iranian company and with 100% reliance on domestic power, the fleet of National Iranian Oil Products Distribution Company (NIOPDC) has been modernized. These refueling trucks, which are equipped with vapor recovery equipment and a standard tanker trailer, have a new generation of gearbox, emergency brake and radar between the lines. Currently, between 30 and 35 ml/d of petroleum products is transported by railroad fleet. Jalil Salari, CEO of National Iranian Oil Refining and Distribution Company (NIORDC), underscored the need to expand infrastructure for fuel transportation in proportion with consumption rate in the country, saying: "We are trying to have a bigger view of the country's fuel transportation portfolio and considering that the consumption in the country has increased, it is necessary to provide its infrastructure in the cycle of transfer and storage." For this purpose, along with strengthening the land sector, the transmission capacity was expanded, especially in the rail sector, and we developed the rail fleet in some areas so that we can use it in special conditions," he added. Salari referred to NIORDC's plan to renovate and equip the road fleet of fuel distribution, saying: "NIORDC has a better and more effective fleet than others. But considering the product's transportation radius, it must have the necessary safety and equipment, which happened in the country and we were able to use the domestic capacity to modernize the fleet."

21,000km Pipeline
Salari said, "In parallel with the development and equipping of the fuel distribution fleet in the country, the development of the pipeline network has also been put on the agenda. Based on the plans, we are trying to move from 16,000 km to 21,000 km, which has reduced the radius of access and optimized energy consumption, and in addition, it also brings environmental benefits and energy security in the country." He also said plans were under way at the refining industry to increase the capacity of fuel storage facilities. "In parallel with the expansion of pipelines, we are trying to enhance the storage capacity of facilities in the country."

Euro-Grade Gasoil
Salari laid emphasis on the management of energy consumption and the necessity of reducing energy consumption in the transport network. "New vehicles that enter the fleet have less fuel consumption. On the other hand, in the production sector, with the operation of the Isfahan refinery, 55 ml of gasoil has entered the transportation cycle, which means Euro-4 and 5 gasoil is provided for heavy vehicles, which will bring about environmental benefits and reduction of pollution in addition to increasing the quality of distributed fuel in the country," he said. He added with the completion of overhaul and maintenance at Shazand and Isfahan refineries, premium gasoline was being distributed in Tehran. During the first two weeks of the first month of winter, 104 ml/d of gasoline and 115 ml/d of gasoil was distributed across the country. Salari also touched on the quality of fuel distributed, saying: "The gasoline distributed in the country is monitored and sampled regularly by the Department of Environment and National Standards Organization. Its quality complies with environmental standards."

57% Handled by Road Fleet
Salari stated that one of the measures to develop the fuel transportation infrastructure in the country is to increase the fleet size and said: "Today, more than 57% of the fuel distribution takes place through ground transportation, and 500 new vehicles were also injected into this fleet."

29

Petroleum

Will 2023 See Oil Market Prosper?

36

OIL

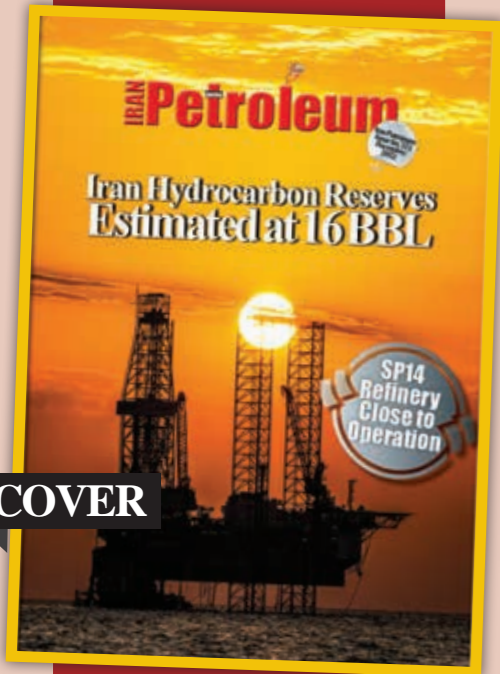
37

Petroleum

China Economic Growth and Oil Price

34

35



COVER

Ahvaz, City of Bridges



44

35 Pacts with Academic, Scientific Centers



40

Investment in Crude Oil Storage Capacity



16

SP14 Refinery Close to Operation



04

Mothballed Oil Wells Rehabilitation



08



Negar Sadeqi

SP14 Refinery Close to Operation

→ Over the past one year, three trains of gas sweetening have become operational at this refinery, which sets a record. The onshore section of this project has been invested \$5.2 billion in. To learn more about the project, "Iran Petroleum" has interviewed Mohammad Mehdi Tavassolipour, the SP14 project manager.

The refinery of Phase 14 of the giant offshore South Pars gas field is almost coming online. With the completion of this megaproject, which has been operated only by Iranians, all South Pars refineries would have become operational. The offshore section of this project came on-stream in 2019 with a current output of 56 mcm/d of rich gas.

» The SP14 refinery is close to coming on-stream. Would you please tell us about the details of this project?

The SP14 project is divided into two parts: onshore and offshore. The onshore part of this project includes refining facilities, and the offshore part includes 4 gas platforms (two main platforms and two satellite platforms), 44 wells and two 32-inch pipelines to transfer offshore gas to the refinery to undergo onshore sweetening process. Given the classification of South Pars projects based on priority in recent years and the Petroleum Ministry's policy of preventing lucrum cessans in gas recovery from this jointly-owned field, the consortium in charge of SP14 was ordered to launch the offshore section as fast as possible to allow for production. In April 2018, two offshore platforms came online and two more platforms become operational by March 2020. Now, 56 mcm/d of rich gas is being supplied.

» How much gas has so far been produced from this phase?

The aggregate gas production from SP14 is estimated at 62 bcm.

» How much has been invested in SP14 development?

The investment made in drilling, offshore platforms, pipelines and onshore installations totals \$5.2 billion, provided by National Iranian Oil Company (NIOC).

» What are the characteristics of the SP14 refinery?

The SP14 refinery is the 13th and the last refinery in South Pars, which is approaching its inauguration. With the operation of this refinery, the file of development projects in the South Pars refinery sector will be closed. The products of this refinery are similar to the two-phase projects of South Pars, including 50 mcm/d of methane to be injected into the national trunkline, 77 kb/d of

gas condensate, 400 tonnes a day of sulfur as well as one million tonnes of ethane and one million tonnes of LPG per annum.

» Over the past year, three trains of sweetening have come online at this refinery. Is it a new trend in South Pars refineries?

No. Fortunately, with the mission assigned to us by the Petroleum Ministry, we managed to bring three trains of gas refineries into operation as of 2022. The first train came online in March 2022, to be followed by the second one in November 2022 and the third one in January 2023. We're trying to complete the last train of sweetening in the near future.

» What's the share of domestic manufacturing in the SP14 refining sector?

The SP14 refinery project coincided with the tightening of Western sanctions against Iran. As expected, foreign partners

denied us any service. However, we managed to complete the SP14 refinery without any foreign companies' involvement and relying only on our own technical capacity and expertise. In the equipment manufacturing sector, the domestic share is about 70%, which is a record in the South Pars refineries.

I would like to add that because the foreign companies from whom we had purchased some of the refinery equipment were legally obligated to set up the equipment and be present alongside the Iranian manpower, but due to the sanctions, they did not respect their commitments and we moved forward using the power of knowledge-based companies. At the beginning, we were very worried about employing knowledge-based companies due to the sensitivity of the equipment used in the refinery, but now that a year has passed since the launch of the first gas sweetening train of the refinery, we are witnessing the success of local companies. Although at the beginning, the activities of this sector were a

bit difficult and time-consuming, in launching the next trains, the work progressed at a significant speed and we were able to put all the refinery units into production without the presence of foreign companies.

» NIOC applies strict standards to oil and gas projects. It was the first time knowledge-based companies were engaged in the SP14 refinery trains. To what extent is the equipment up to NIOC standards?

We show no flexibility in implementing standards. The job is sensitive and the slightest error imposes life costs on us, not to mention financial costs. The Petroleum Ministry has no desire to endanger human life by disregarding the implementation of standards due to sanctions and cause environmental pollution and ultimately reduce the useful life of refineries and offshore platforms.

Iran's petroleum industry has been always subject to sanctions, but we also tried to have minimal deviations in the design and

specifications of the projects. I would like to emphasize that NIOC shows no flexibility in these issues. Under certain circumstances, we may have to be flexible in discussing financial issues and duration of projects, but never in technical issues. It is noteworthy that the activities of the onshore and offshore sectors with a gas pressure of more than 120 Bar and a high amount of H₂S do not allow flexibility to the contractor. Worrying about sanctions does not make us use non-standard equipment in our projects. Therefore, the manufacturers are not authorized to launch a project until they are cleared by NIOC for standards. As I mentioned, the first sweetening train of the SP14 refinery came online in March 2022 and has been working for one year now. We are not worried anymore about the absence of foreign companies as we can launch our equipment.

» Could you give us figures about the structure used in the SP14 refinery?

The onshore facilities of the SP14



The products of this refinery are similar to the two-phase projects of South Pars, including 50 mcm/d of methane to be injected into the national trunkline

As I mentioned, the first sweetening train of the SP14 refinery came online in March 2022 and has been working for one year now

The structure at the refinery includes 40,000 tonnes of metal structures, about 6,000 kilometers of cabling equivalent to the distance from Iran to Germany, 3 million inches of pipe in diameter, 360,000 cubic meters of concrete injection

The SP14 production, which stands at 56 mcm/d of rich gas, is equivalent to half gas required by Tehran Province at peak shaving

refinery has been built on 170 ha of land by four of the eight members of the consortium led by the Industrial Development and Renovation Organization (IDRO). The structure at the refinery includes 40,000 tonnes of metal structures, about 6,000 kilometers of cabling equivalent to the distance from Iran to Germany, 3 million inches of pipe in diameter, 360,000 cubic meters of concrete injection, equivalent to 6 times the concrete structure of Milad Tower in Tehran.

» **In launching the refinery, how much attention has been paid to environmental issues?**

The Petroleum Ministry has a comprehensive program to gather flare gas from the 13 South Pars refineries, and this plan is being

studied. SP14 is not excluded from this plan and I hope that the financial resources of this plan will be secured soon and we will see a decrease in the amount of flaring in South Pars. But in the case of the parts related to the SP14 refinery, Unit 129 of effluent treatment unit is operational to treat a major part of the refinery's pollutants. The next issue is, according to the instructions given to us by the Department of Environment, to use online monitoring analyzers in all furnaces of the refinery, including Units 104 and 116 and all exhaust chimneys of the refinery. We have notified our contractors so that we can measure water and air pollutants real-time to prevent any excess. Fortunately, these instructions have been chiefly

implemented and the rest will be implemented in the near future.

» **How many persons were employed in the SP14 refinery?**

At different stages of the project implementation, the active forces varied depending on the project implementation, but at the peak of the implementation activities, about 9,000 service workers, including unskilled workers, specialists, and technicians, were hired. Currently, about 8,100 persons are working, and with the operation of the refinery, the type of persons will actually change towards the operation and maintenance forces, and it will reach about 1,100 during the operation period, like other phases of South Pars refinery. During the last five years, we have

not had any accidents leading to injury or death during the implementation of the project, which I hope will continue until the end of the operation.

» **As the SP14 refinery project is approaching completion, which one do you think is more difficult: offshore or onshore?**

It is difficult to implement the project in both the onshore and offshore sectors, but the restrictions in the offshore sector due to bad weather especially in the second 6 months of the year make it more difficult to work in the sea. On the other hand, in terms of cost, work in the offshore sector is more expensive than the refinery sector, but in terms of implementation calendar, project implementation in the offshore

sector has a shorter time than the refinery sector. Due to the limitations in the offshore sector, we have tried as much as possible to do all the activities that can be done in the onshore sector in the construction yards of our onshore platforms so that when the platforms and their accessories are installed offshore, they could be done with less time.

Of course, I would also like to add that drilling offshore wells is a very complicated task. Wells must be drilled from the 70-meter seabed and about 4 kilometers, which is a very complicated and heavy task; however, Iranian companies have long been highly capable to implement drilling projects in South Pars.

» **South Pars is supplying**

700 mcm/d of gas, while in cold months, domestic and business sectors consume 600 mcm/d. Does it show the significant contribution of South Pars to national gas supply?

Yes, that's right. The South Pars gas field is a joint gas field possessed by Iran and Qatar, so the sooner the production from South Pars phases starts, the better it is for Iran. The SP14 production, which stands at 56 mcm/d of rich gas, is equivalent to half gas required by Tehran Province at peak shaving. Therefore, you may see how this gas feed to the national trunkline can help stabilize gas production, not to mention the well-being of citizens in the domestic and industrial sectors.

Mothballed Oil Wells Rehabilitation

■ National Iranian Oil Company (NIOC) has long focused on developing technologies to enhance recovery from oil wells. Although sanctions have posed an obstacle in its way, it aims to cut short the way to its objective by embarking on a quick-yielding project for the rehabilitation of low-output and abandoned wells. In this manner, by spending much less than drilling new wells, NIOC would be able to enhance its crude oil output. Without enhancing oil output, no future may be envisaged for enhanced oil recovery (EOR) projects. Therefore, the important thing would be to enhance production in any possible manner. Internationally speaking, more oil production would empower Iran to become more influential in the oil market while remaining resilient to challenges and restrictions because in the economic and political structure of the world energy, oil barrels have the final say.

Easily recoverable oil wells exist no longer in Iran or anywhere else in the world. Nonetheless, given the natural decline in the oil recovery of wells, it is necessary to manage wells so as to maximize their current pure value. That would become possible only by applying modern EOR methods. Due to the sanctions imposed on Iran's petroleum industry, local knowledge-based companies are expected to help rehabilitate low-yield wells. Iran has 5,500 oil and gas wells in 400 hydrocarbon fields. Rehabilitation of low-yield wells would provide capacity for the supply of an annual 80 million barrels of oil with minimum investment.

Due to the possibility of rehabilitation of about 70 idle oil wells by adopting well-scale approaches, one can expect local knowledge-based firms to enhance output from these wells by 120 kb/d within five years by investing only €1 billion.

Well production investment is one of the quickest and lowest-cost ways of enhancing crude oil production in the world. Oil recovery from a new well requires on average \$10 million

in investment. But with \$1 million investment in rehabilitation of low-yield wells would cut costs by about 90%.

NISOC to Rehabilitate 33 Wells

Mohammad Hossein Ghazal, deputy CEO of National Iranian South Oil Company (NISOC) for petroleum engineering, said rehabilitation of low-yield wells started two years ago, adding: "Since rehabilitation of some wells requires application of specific technologies, we have to import them first prior to entering the production phase." "Thirty-three wells have been selected for the implementation of this project. Among them are wells that no recovery from which has so far taken place. There are also wells with an output of below 1 kb/d which may be increased," he said.

Ultrasonic EOR

Iranian knowledge-based companies plan to use various methods such as stimulating the well or using jet pumps to rehabilitate wells, but among these methods, the ultrasonic method is to be used for the first time in Iran.

Mohammad-Reza Jalali, the CEO of a

local knowledge-based company, pointing out that the use of ultrasonic tools to enhance oil recovery has come to fruition for the first time in the Middle East in Iran, said: "We are currently pursuing the optimization of this well-based method because in this method, we receive the wells properties on a phased basis in order to be able to simulate the well."

Referring to his company's background in supplying downhole tools and undertaking ultrasonic projects for National Iranian Drilling Company (NIDC), Arvandan Oil and Gas Production Company (AOGPC) and NISOC, he said: "The ultrasonic EOR method is more cost-effective than hydraulic fracturing



which is high-risk and costs \$3-5 million. By applying the ultrasonic method, higher quality may be achieved by lower costs and risks.”

Only 30% Recoverable

Iran holds 1,200 billion barrels of oil equivalent in 400 oil and gas reservoirs. Currently, less than 30% of existing resources could be recovered using available technologies.

A review of the experiences of countries and oil companies in the world in the implementation of “Inactive Wells Rehabilitation Plan” shows that this plan can be quite attractive from an economic point of view during the period of declining oil revenues and increasing risk of new discoveries and developments.

As a result, considering the limitation of investment in Iran for the development of oil fields and maintaining and

increasing production, this plan could be implemented in Iran. Of course, expert studies of this project have not been presented to media and have not been evaluated, but according to the Minister of Petroleum, by implementing the plan to rehabilitate inactive wells, 80 million barrels could be added to the annual oil production capacity of the country.

About 34% of wells drilled in Iran are closed, which is a high percentage and of which 14% is mothballed with no possibility of rehabilitation. For a variety of reasons such as high water production or high gas percentage, these wells are inaccessible.

Rehabilitation Contracts

Mohammad Saber Karambeigi, a deputy head of Petroleum Industry Innotech Park, expounding on the procedures of cooperation in the rehabilitation of low-yield wells, said: “Companies providing drilling services and venture capital institutions must provide up to five proposals of oil wells to Innotech, then the technical details of the plans will be reviewed by the technical and economic working group and the names of the companies whose proposed plans will be reviewed.” “Innotech will sign a contract on behalf of NIOC by creating capacity and introducing various dimensions of the contract with companies providing drilling services and venture capital institutions, because Innotech is

authorized by NIOC to steer rehabilitation plans. This is despite the fact that in the past, access to the country’s oil and gas wells was almost difficult or impossible for companies providing drilling services,” he added.

Noting that oil wells rehabilitation agreements differ from buyback or IPC, he said that a new model of contract would be developed with a view to making the petroleum industry knowledge-based.

Studies have been conducted on about 200 closed and low-yield wells previously run by NIOC, and approximately 80% of wells are closed due to the following reasons: high water production (about 35% of closed wells) as well as problems related to the well bore itself (about 30%); downhole pressure fall-off (about 15%). Of course, according to experts, statistics and figures can be presented even in a general and detailed manner in this field, and the case of each well and its production history should be examined separately.

For instance, at Iranian Offshore Oil Company (IOOC) level, out of the total number of closed wells, which are about 120 wells, only 10 were identified as technological candidates for rehabilitation. As a result, if the cost of working on a well is, for example, one-fifth of drilling a new well, and the expected return or significant production is guaranteed, it is definitely economical to do more research and operational work on the well to rehabilitate it.

But the important point is that we should not expect a large percentage of closed wells to return to the production circuit

again with technological methods.

On the other hand, it should be noted that the restoration of closed wells requires strengthening the capacity of domestic companies, because although it is possible for knowledge-based companies to have good technical and specialized capabilities, not all of them have the executive and operational power on the well, and in case of contract and licensing round, they are forced to use the power of operating companies in the field of operation management to implement their own ideas.

\$700mn Credit

Rehabilitation of low-yield or mothballed oil and gas wells could be a low-cost solution for the development of the country’s oil industry, specifically when the main operators of this project are local knowledge-based companies. Iran’s Economic Council has earmarked \$700 million in credit for rehabilitating low-yielding and inactive wells for the annual production of 80 million barrels of oil, and after the call for tender and through legal procedures, nearly 40 companies have declared their readiness to implement these projects, which if the technical proposal is approved economically, the contract for the development of low yield wells will be signed.

If the final recovery rate of oil fields in Iran could be enhanced by one percent through investment and new technologies, we may witness the rise of the country’s foreign exchange earnings. For instance, if the final recycling coefficient of the three fields of Ahvaz, Bibi Hakimeh and Rag Sefid increases by one percent, at least \$40 to 50 billion will be generated for the country.

NIOC managers estimate average oil recovery rate at 28%. Therefore, by adding 1% to this rate, the country’s recoverable oil reserves would increase by 8.78 billion barrels, i.e. \$450 billion in value. Even if 50% of this amount is spent, more than \$225 billion in revenue would be earned.



Iran Hydrocarbon Reserves Estimated at 16 BBL

The director of exploration at National Iranian Oil Company (NIOC), Mehdi Fakour, has said that Iran was estimated to sit atop 16 billion barrels of hydrocarbon reserves. "Iran's low-cost for oil and gas production, represents a positive and promising privilege in attracting foreign investment," he said. Fakour said planning was under way for the exploration of at least 3 billion barrels of oil and 30 tcf of gas up to the 7th National Development Plan, noting that the figures had been set based on the estimated budget allocation up to March 2027. "According to the US Geological Survey, Iran, Russia and Iraq are the three countries that may continue oil and gas exploration for years, while other gas and oil-rich countries will not have new discoveries in coming years. At best, they may extract oil and gas from their current fields," he said. He added that sedimentary basins were mainly seen around the Zagros Mountains, covering Iran, Iraq, Turkey and Russia.

Border Exploration

Fakour also referred to exploration along maritime and land borders as the most important exploration priority of the petroleum industry and added: "Now relevant exploration activities are under way in Khuzestan, Ilam and Kermanshah provinces, the Dasht Moghan region and any other place where there is a possibility of hydrocarbon resource exploration. It could be said that there is no border point where the Directorate of Exploration is not involved."

He pointed to the identifying gas structures and the outsourcing of exploration blocks as other exploration priorities of NIOC, adding: "In the outsourcing of exploration blocks, investment negotiations are underway with three domestic groups, and if an agreement is reached, the relevant contracts will be signed in accordance with the IPC model. The signed oil and development activities will be carried out in cooperation with E&P companies."

He put the economic value of the project at around \$2.5 billion and said: "Investors are willing to act separately and not in the form of a joint team in this area."

Gas Exploration

Fakour further announced the implementation of a research-operational project in the Sea of Oman area and stated: "This project has had about 63% progress and with the identification of reserves related to this area, gas explorations in the waters of Sea of Oman will be certain."

Emphasizing the need to accelerate the exploration

process in the Persian Gulf, he also said: "In this area, 1,600 km of 2D seismic testing and 10,500 km of 3D seismic testing are planned."

Western Hydrocarbon

He further pointed out the existence of 14 exploration blocks in the country and said: "These blocks have already been defined by the Directorate of Exploration, but due to sanctions imposed on Iran, they have not yet been awarded to any company. However, due to the discovery of about 30 tcf of gas in one of these blocks, which is located in the Persian Gulf, negotiations have been held to assign the development of the field."

He said the new discovery was a significant leap in the economy of the south of the country.

According to him, the exploration process of oil and gas resources is at an acceptable stage, and the existence of hydrocarbon explorations in the north and southwest of the country has been confirmed.

Fakour referred to the surface geochemical method, which is a method for finding hydrocarbons through the surface of the earth, as an effective method, saying: "This method is being verified with seismic data, and significant fields have been counted using this method."

Regional Cooperation

Touching on joint exploration projects with neighboring nations, Fakour said: "We are currently carrying out joint research activities with four countries, some of which are defined in the field of basic studies and some in the field of executive actions."

He stated: "Joint exploration activities

with Tajikistan are underway and this cooperation has entered the implementation stage."

Unconventional Discovery

Fakour further emphasized that part of exploration belonged to unconventional sources and said: "In this regard, reservoirs have been identified and their volume has also been determined."

He said: "Regarding gas hydrates, we have identified methods and Iran is one of the few countries that has reached maturity on gas hydrates."

Oil, Gas Output

Fakour referred to the issue of exploration in the 7th National Development Plan, saying: "According to the plan proposed by the Directorate of Exploration to NIOC, within a five-year period, 3 BBL of crude oil and 30 tcf of natural gas is to be produced."

"Committing this amount of exploration has been made minimally and with the minimum average budget of the last four years (equivalent to \$1.5 billion) the higher the budget, the higher will be exploration level," he said.

"Increasing the number of drilling rigs to at least 36,

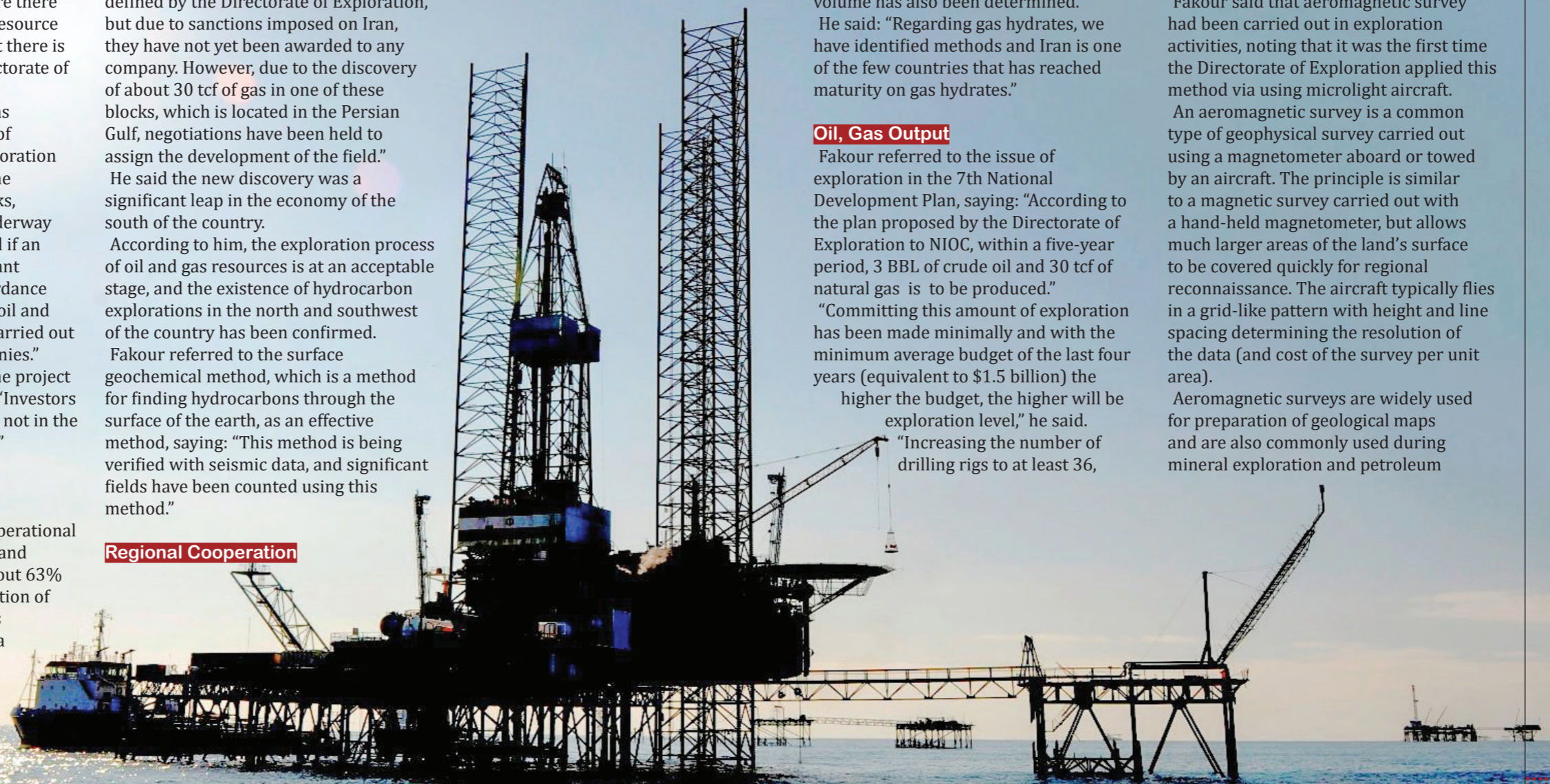
performing 8,600 km of 2D seismic and an unprecedented 16,500 km of 3D seismic testing, and conducting exploration operations in the non-seismological field over 210,000 km are among the most important exploration plans for the 2026 horizon," said Fakour.

Aeromagnetic Survey

Fakour said that aeromagnetic survey had been carried out in exploration activities, noting that it was the first time the Directorate of Exploration applied this method via using microlight aircraft.

An aeromagnetic survey is a common type of geophysical survey carried out using a magnetometer aboard or towed by an aircraft. The principle is similar to a magnetic survey carried out with a hand-held magnetometer, but allows much larger areas of the land's surface to be covered quickly for regional reconnaissance. The aircraft typically flies in a grid-like pattern with height and line spacing determining the resolution of the data (and cost of the survey per unit area).

Aeromagnetic surveys are widely used for preparation of geological maps and are also commonly used during mineral exploration and petroleum



exploration. Some mineral deposits are associated with an increase or decrease in the abundance of magnetic minerals, and occasionally they are sought after commodity may itself be magnetic (e.g. iron ore deposits), but often the elucidation of the subsurface structure of the upper crust is the most valuable contribution of the aeromagnetic data. It has also been used to detect buried fault zones that are prone to damaging earthquakes.

As the aircraft flies, the magnetometer measures and records the total intensity of the magnetic field at the sensor, which is a combination of the desired magnetic field generated in the Earth, as well as tiny variations due to the temporal impacts of the constantly varying solar, wind and the magnetic field of the survey aircraft. By subtracting the solar, regional, and aircraft impacts, the resulting aeromagnetic map shows the spatial distribution and relative abundance of magnetic minerals (most commonly the iron oxide mineral magnetite) in the upper levels of the Earth's crust. Because different rock types differ in their content of magnetic minerals, the magnetic map allows

a visualization of the geological structure of the upper crust in the subsurface, particularly the spatial geometry of bodies of rock and the presence of faults and folds. This is particularly useful where bedrock is obscured by surface sand, soil or water. Aeromagnetic data was once presented as contour plots, but now is more commonly expressed as thematic (colored) and shaded computer generated pseudo-topography images. The apparent hills, ridges and valleys are referred to as aeromagnetic anomalies. A

geophysicist could use mathematical modeling to infer the shape, depth and properties of the rock bodies responsible for the anomalies. Airplanes are normally used for high-level reconnaissance surveys in gentle terrain, and helicopters are used in mountainous terrain or where more detail is required.

Geobotanical Drilling

Fakour said the latest exploration method was being used in Iran. He said the geobotanical prospecting method had been merely used in three countries.

He said that geobotanical prospecting refers to prospecting based on indicator plants like metallophytes and the analysis of vegetation.

The technique has been used in China since the 5th century BC. People in the region noticed a connection between vegetation and the minerals located underground. There were particular plants that thrived on and indicated areas rich

in copper, nickel, zinc, and allegedly gold though the latter has not been confirmed. The connection arose out of an agricultural interest concerning soil compositions. While the process had been known to the Chinese region since antiquity, it was not written about and studied in the west until the 18th century in Italy.

Stratigraphic Traps

Fakour said more than 95% of the exploration process had been carried out in the anticline traps.

"Due to lack of access to stratigraphic traps exploration technology, a significant portion of the hydrocarbon in these areas remained intact," he said.

He added that the stratigraphic traps were being surveyed, which would prove to hold significant oil and gas reserves.

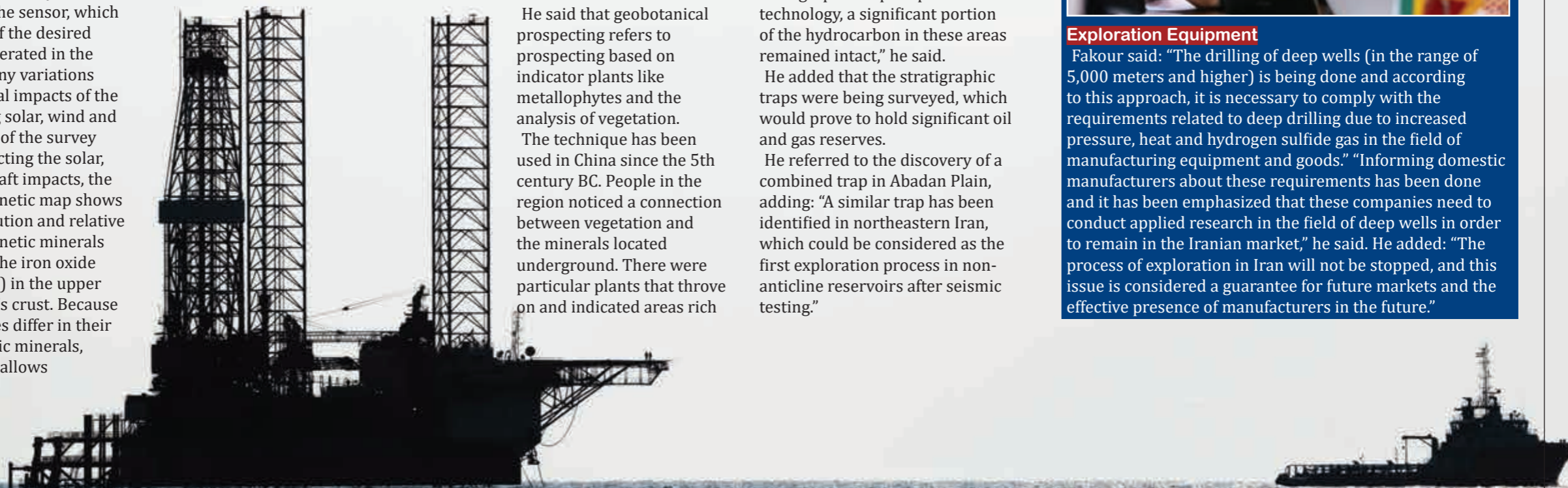
He referred to the discovery of a combined trap in Abadan Plain, adding: "A similar trap has been identified in northeastern Iran, which could be considered as the first exploration process in non-anticline reservoirs after seismic testing."

FOCUS



Exploration Equipment

Fakour said: "The drilling of deep wells (in the range of 5,000 meters and higher) is being done and according to this approach, it is necessary to comply with the requirements related to deep drilling due to increased pressure, heat and hydrogen sulfide gas in the field of manufacturing equipment and goods." "Informing domestic manufacturers about these requirements has been done and it has been emphasized that these companies need to conduct applied research in the field of deep wells in order to remain in the Iranian market," he said. He added: "The process of exploration in Iran will not be stopped, and this issue is considered a guarantee for future markets and the effective presence of manufacturers in the future."



Investment in Crude Oil Storage Capacity

■ A meeting was held to introduce opportunities for investment in crude oil storage tanks construction and operation, required by National Iranian Oil Company (NIOC), within the framework of public-private partnership (PPP). This is the first time the private sector is given the chance for investment in the crude oil storage sector. NIOC intends to enhance its crude oil storage capacity by 7.7 million barrels.

Iran's oil production capacity is now close to 4 mb/d, which the country plans to increase to 5.7 mb/d in coming years. Achieving this goal requires an investment of \$90 billion over a ten-year period. Meanwhile, the crude oil storage sector is very important for two reasons: continuity of production and market management and creation of added value resulting from oil sales.

There are storage tanks for 130 million barrels of crude oil in Iran, of which 110 million barrels is available and 20 million barrels under construction. National Iranian Oil Refining and Distribution Company (NIORDC) owns storage tanks for 35 million barrels, while NIOC owns storage tanks for 95 million barrels. Gas condensate storage tanks can handle 30 million barrels.

During the aforesaid meeting, discussions were focused on crude oil storage tank construction projects based on Build-Own-Operate (BOO), Build-Operate-Transfer (BOT)

and Engineering, Procurement, Construction and Finance (EPCF) models. Based on NIOC planning, National Iranian South Oil Company (NISOC) would need 2-million-barrel storage tanks, Arvandan Oil and Gas Production Company (AOGPC) 1-million-barrel storage tanks, Iranian Central Oil Fields Company (ICOFC) 500,000-barrel storage tanks and Iran Oil Terminals Company (IOTC) 4.2-million-barrel storage tanks.

Furthermore, NIOC would need to invest in the completion and reconstruction of new storage tanks, renovating and maintaining existing ones. This issue was highlighted by Fereidoun Kurd Zangeneh, director of investment and business at NIOC.

Crude Oil in NIOC Possession

The duration of the crude oil storage tank project contract is up to 18 years, and the construction period of the first phase is up to 24 months since signing the contract, the construction period

of the second phase is up to 12 months after the first phase, and the crude oil storage period is up to 15 years after the end of the period.

Of course, investors must know that NIOC only delivers crude oil with specified specifications to the investor, and the rest of the affairs, including design, construction, construction, financing, storage, maintenance and delivery of crude oil rests with the investor. Kurd Zangeneh said that the ownership of crude oil in this contract under any circumstances belongs to NIOC and the ownership of tanks and ancillary facilities during the contract period and after that belongs to the investor. This is the first time that NIOC provides the private sector with opportunity to invest in crude oil storage projects. Of course, before this the private sector was active in the project of building storage tanks in Jask and Qeshm terminals.

Kurd Zangeneh pointed out that according to the NIOC statute, the

steering and management of the crude oil production value chain from the exploration stage to export and delivery to consumers is one of the duties of this company. "One of the important links of this chain is the construction of storage tanks. Through NIOC direct investment, storage tanks have been built for more than 60 million barrels of oil."

In accordance with the development of oil fields and the increase of oil production capacity in the country, the issue of building crude oil storage capacities is also important because it could be effective in the field of sales and meeting the customers' needs, and provide significant benefits for the country, while facilitating the operation of crude oil, he said.

NIOC Obligations

However, the obligations of NIOC to prospective investors include delivering crude oil to the investor for storage, receiving the stored oil from the investor, and purchasing oil

storage services and paying fees. The guarantee of fulfilling the obligations of the construction period and the guarantee of the company in the gas referral process are based on the PPP Guarantee Regulations. In addition, the warranty for the performance of obligations is for one year and could be renewed at the end of each year.

If the investor companies get the commodities they need from the knowledge-based companies; NIOC, in advance, purchases storage services up to 20% of the one-year operating period. Payments are calculated monthly and in foreign currency and some is paid in cash and some in local currency.

Kurd Zangeneh said the government had approved tax exemption for BOO, BOT and EPCF contract, adding: "This implies that natural and legal persons engaged in

such contracts would enjoy tax exemption during construction and operation."

NIOC, while signing the contract for the purchase of crude oil storage services with the investor, pays the crude oil storage fee during the contract period. All responsibilities related to financing, design, supply of goods, construction, start-up, repair and maintenance during the contract period lie with the investor, with NIOC facing no liability in this regard.

Investment in Maintenance

Hamid-Reza Shahdoust, director of operations at IOTC, said the company was mainly tasked with exporting crude oil and gas condensate, shipping operations, and crude oil swap through northern terminals. He said that IOTC had been also assigned part of the task for crude oil exports from Jask terminal.

Referring to the storage tanks owned by IOTC in Kharg Island, he said: "In this area, there are 48 tanks with different capacities of 250,000 to 1 million barrels, where exported oil is stored. There are nine 150,000-barrel tanks in the northern terminal." He announced the storage of crude oil in Kharg Island at 4.2 mb/d, adding: "Based on the investigations and decisions made by the Office of Deputy CEO of NIOC for Investment and Business, the investment for the construction of three 1-million-barrel and 2 600,000-barrel tanks would be done

in this area." He asked the private sector to review maintenance projects of the existing storage tanks.

Storage Tanks in Cheshmeh Khosh

Yasser Farnia, technical director of ICOFC, said: "The Company would account for building storage facilities with a capacity of 500,000 barrels in the strategic Cheshmeh Khosh area in western Iran along the border with Iraq."

He expressed hope that storage tanks would store 10-day production volumes. "ICOFC could help the investing companies in terms of providing water and electricity resources. In addition, there is no problem for the allotment of land from the natural resources side, and the allotment can be easily made for the construction of reservoirs and facilities," he added.

40 Companies Ready

Last October a forum was held to introduce opportunities for investment in the building of 100 vessels in the Persian Gulf and Caspian Sea areas, worth one billion euros. The NIOC-organized event recommended BOO projects. At that time, CEO of NIOC Mohsen Khojasteh-Mehr said that NIOC would guarantee purchasing these vessels from builders for a ten-year period. According to Kurd Zangeneh, 40 companies, including local and foreign, volunteered to build vessels.

Belal Wells Strike Gas

CEO of Pars Oil and Gas Company (POGC) Mohammad Hossein Motejalli has announced that the appraisal-exploration well drilled in the Belal gas field has struck gas. "It is the first step in the process of more targeted and more principled development of this joint field,"

he said. He added that drilling the well had begun last July with a view to appraising production from the gas layers of the field. "All through appraising the Belal field's gas layers, gas was struck in the first layer of the field and the drilling rig flare was turned

on," he said. Ehsan Mohammadi, the Belal gas field development manager, said the contract for the construction of wellhead jacket for this field had been awarded to an Iranian contractor. He added that it was under way at Iran Marine Industrial Company yard. "Holding

tender bids for the construction and installation of production platform with capacity of 500 mcf/d of rich gas and laying a 150-km pipeline for the transfer of three-phase liquid to South Pars refineries is under way alongside installing fiber optic cables. The contractors are

to be decided before the end of the current calendar year so that the process of assigning activities of this sector would be finalized in the first quarter of next calendar year," he said. Shared by Iran and Qatar, Belal lies 30km southwest of the giant South Pars gas field.

Power Plants Fed with 2.8bn Liters Liquid Fuel

CEO of Iranian Oil Pipelines and Telecommunication Company (IOPTC) Arsalan Rahimi has said that 2.8 billion liters of liquid fuel had been delivered to power plants across the country during the first three quarters of the current calendar year. "The power plants connected to the pipeline network receive their necessary fuel on schedule," he said. "With the sharp drop in temperature and due to the imbalance of gas and the urgent need of power plants to receive feedstock, this is being done by sending liquid fuel as an alternative fuel to power plants from the pipeline network," he added. Rahimi referred to the pipeline network's 60% share of fuel and petroleum products distribution, saying: "During the first three quarters of the current calendar year, 2.8 billion liters of liquid fuel was delivered to power plants by pipeline." Noting that 19 power plants were connected to the pipeline network, he said 9 more plants were planned to be connected, which would require IRR 5,900 billion in credit.

\$300mn Saved by 104 Manufacturing Projects

A deputy minister of petroleum has said that 104 first-time manufacturing projects have been defined and forwarded to the Office of Vice-President for Science and Technology. "With the implementation of these projects, the costs of commodity supply would be cut 30-60% and more than \$300 million would be saved in hard currency," said Vahid Reza Zeidifar, deputy minister for engineering, research and technology. Noting that adopting strategic policies for economic resilience within the Petroleum Ministry has largely ended technological dependence on Western countries for the supply of petroleum industry technological needs, he said: "These policies have largely helped neutralize international sanctions." He added that manufacturing-related policymaking and planning within the petroleum industry included formation of first-time manufacturing working group at the level of senior oil managers with a view to facilitating manufacturing contracts in the main companies and subsidiaries. He said that agreements had been signed for 37 of the aforesaid 104 projects for \$32 million, while 19 others are being followed up on for contracting. The rest is being reviewed by the Petroleum Ministry.

Gas Output Capacity Set to Grow 500 mcm/d

CEO of National Iranian Oil Company (NIOC) Mohsen Khojasteh-Mehr has said the company planned to enhance gas production capacity by 500 mcm/d by 2029. He said NIOC had significant plans for gas compression at the giant offshore South Pars gas field. "The conceptual and basic engineering studies for gas compression are in the pilot stage. They are done and the turbocompressor design for gas compression is 70% complete," he added. Khojasteh-Mehr said in parallel with this pilot project, the basic engineering of all South Pars phases would have been concluded by early next year, after which EPC projects would be operated. "We have signed memorandums with foreign investors for this purpose, but it does not mean that we will wait for them," he added. Touching on the prospect of gas production in coming years, he said: "During the one year into office of the 13th administration, NIOC has boosted gas production capacity for one year. We hope to enhance the gas production capacity by 500 mcm/d by 2029." Reacting to a memorandum signed between Kuwait and Saudi Arabia for the development of the al-Durra gas field, which is known as Arash in Iran, the NIOC chief said: "In terms of planning for oil and gas production from that field, we are well ahead of these countries."

Rich Gas Output at 1.04 bcm/d

National Iranian Oil Company (NIOC) is currently producing 1.04 bcm/d of gas from 23 gas fields in the country, the company's director of supervision on production said. Hormoz Qalavand said 980 mcm/d of gas was delivered to National Iranian Gas Company (NIGC) for distribution in domestic trunklines. "In addition to oil production, NIOC is also in charge of gas production for feeding power plants and for exports," he said. "All NIOC-affiliated gas production companies including Pars Oil and Gas Company (POGC), Iran Central Oil Fields Company (ICOFC) and National Iranian South Oil Company (NISOC) are supplying maximum gas in winter," said Qalavand.

Iran Oil Exports End 2022 at a High

Iranian oil exports hit new highs in the last two months of 2022 and are making a strong start to 2023 despite U.S. sanctions, according to companies that track the flows, on higher shipments to China and Venezuela. Tehran's oil exports have been limited since former U.S. President Donald Trump in 2018 withdrew from JCPOA and reimposed sanctions aimed at curbing oil exports and the associated revenue to Iran's government. Exports have risen during the term of his successor President Joe Biden, who had sought to

revive the nuclear deal, and hit the highest since 2019 on some estimates. This comes despite headwinds such as a stall in those talks and competition from discounted Russian crude. Energy consultant SVB International said Iran's crude exports in December averaged 1.137 mb/d, up 42,000 b/d from November and the highest 2022 figure SVB has reported based on estimates given earlier. "Lower Chinese demand and Russia's supply to China have been a major challenge for them. Most of its oil still goes to the Far East,

ultimately China. Iran also helps Venezuela to export its oil." Adrienne Watson, a National Security Council spokesperson at the White House, said the administration's enforcement of the sanctions is robust, and "Iran's macroeconomic figures clearly bear this out." "We have not and will not hesitate to take action against sanctions evaders, together with sanctions against Iran's missile and drone trade, and human rights violations against the Iranian people," Watson said. Consultant Petro-Logistics, which



tracks oil supply, said it was also seeing an upward trend in Iranian crude exports which, in its view, in December reached their highest

level since March 2019. Kpler, a data intelligence firm, put Iranian crude exports at 1.23 mb/d in November, the highest

since August 2022 and almost on a par with April 2019's rate of 1.27 mb/d, although they slipped to just below 1 mb/d in December.

Eight-Month Petchem Output Up 7% y-o-y

Petrochemicals production has risen seven percent in Iran during the first eight months of the current Iranian calendar year (March 21-November 21, 2022), compared to the same period of time in the past year, according to an official at National Petrochemical Company (NPC). Bijan Chegeni, the NPC's director for production control, put the eight-month petrochemical output at 47 million tonnes, and highlighted that the petrochemical plants operated at 71 percent of their optimum capacity during this period. In the mentioned eight months, 2.5 million tonnes of aromatics, 5.4 million tonnes of polymer materials, 5.6 million tonnes of fertilizers and related materials, 14.1 million tonnes of hydrocarbon materials, and 19.5 million tonnes of basic and chemical materials were produced by the country's petrochemical sector, according to the official. He said: "23 million tonnes of products were supplied by Assaluyeh plants, up 8% year-on-year; 13 million tonnes by plants at Mahshahr and 11 million tonnes at other petrochemical plants, up 14% year-on-year." Chegeni said: "1.3 million tonnes of feedstock was injected into West Ethylene Pipeline during the eight-month period, up from last year's 1.29 million tonnes."

Knowledge-Based Firms Break German Monopoly

A top official with Iranian Offshore Oil Company (IOOC) has said that knowledge-based companies in Iran had managed to repair MAN THM 1304 turbines, which were under the monopoly of their German manufacturer.

"The overhaul of four MAN turbines were carried out in Siri by knowledge-based companies, saving € 3 million," said Massoud Mohammadi Ganjaroudi. "Due to imposition of sanctions and the refusal of MAN to overhaul these turbines in previous years and the significance of the Siri, it was necessary to assign the task to local knowledge-based firms," he said. "Considering the conditions before the sanctions, the manufacturer's proposal was around € 3 million, which, relying on domestic resources and localization of technology in domestic companies, € 1.2 million was saved," he added.

Mohammadi Ganjaroudi said the overhaul of three MAN turbines had been assigned to one company and another turbine to another company. "After that, the experts of these companies visited the Siri region, separated the turbine from the package and its accessories, and in the workshop of that company, after preliminary checks, they designed special tools and finally dismantled the turbine in accordance with international standards."

Refining Technical Knowhow Mastered

CEO of National Iranian Oil Refining and Distribution Company (NIORDC) Jalil Salari has said technical knowhow has been fully mastered for under-license refining units. Referring to the signature of 17 research MOUs and agreements, he said: "With the involvement of knowledge-based companies, 17 MOUs and agreements, worth \$50 million, were signed for commodity chain. We hope to go ahead with domestic manufacturing of equipment and win a foothold in foreign markets." "In the overseas refinery project, many commodities are transported from within the country. Until today, we have prepared about 100 tons of goods in the collection, of which 30 tons have been transferred to a foreign refinery for the purpose of using Iranian goods. Now we are witnessing the use of Iranian catalyst in a foreign refinery, and foreign companies have closely seen these capabilities and understood the credibility of Iran's refining industry," he said. Salari added: "Today, catalyst is produced domestically and we have met our requirement during the special period of embargo and all our refining units are operational. This has happened in a situation where 15 years ago we had a shortage of catalysts during overhaul operations, but today all companies supply their needs in this sector from within."

ICOFC to Rehabilitate Potentially Productive Wells

CEO of Iranian Central Oil Fields Company (ICOFC) Mehdi Heydari said some wells with potential gas production may be rehabilitated.

"That would result in the increased production of this clean fuel," he said. Heydari expressed hope that South Zagros Oil and Gas Production Company would bring into operation the Dey and Aghar gas fields next winter. That, he said, along with the Tous gas field would help add 10 mcm/d of gas to national output. He added that the Khar Tang field would also add another 10 mcm/d within two years. Referring to the significance of natural gas storage projects, he said: "Therefore, we have to accelerate storage projects and overcome obstacles." He added that development of the Tous gas field should go ahead on schedule. Farshid Kheybari, CEO of East Oil and Gas Production Company (EOGPC), said EOGPC was the only supplier of gas to north and northeastern Iran. "EOGPC's current production capacity stands at 62 mcm/d, 43 mcm/d of which is delivered to the Shahid Hasheminejad refinery to be treated, and about 1.5 mcm/d of gas from the Shourijeh B storage site is withdrawn to be transmitted to Mashhad for consumption after the separation of condensate.

Furthermore, 15-18 mcm/d of gas is drawn up from the Shourijeh D storage site," he added.

13th Administration Realizes Energy Diplomacy in LatAm

Minister of Petroleum Javad Owji has said the 13th administration had managed to bring to fruition Iran's energy diplomacy through signing agreements with Latin American nations. Touching on the Petroleum Ministry's capabilities in drilling and development of onshore and offshore fields, he said: "In the upstream sector, we have no foreign consultants and that is good potential. We have qualified manufacturers and contractors in this sector."

Enumerating half-complete oil and gas fields in Latin American nations,

he said: "We identified the fields that the Americans and Europeans had left unfinished, and in this regard, we put the issue of technical and engineering services for their development, and during the trip to these three countries, we signed memorandums and contracts for them. For their development, we use the capacity of the Petroleum Ministry and part of the capacity of the private sector, including contractors and capable manufacturers of the country."

"In the field of refining and integrated petrochemical/refining complexes, we had negotiations based on which



there were refineries and integrated petrochemical/refining complexes that were incomplete in these countries and in some cases three or four countries participated in their development, and we agreed to be the third and fourth partners in their development and advance the work," he added.

Owji said: "The issue of exporting crude oil and gas condensates, petroleum and petrochemical products, which was realized before this trip and we saw its results, but in the second step, we stepped into the field of developing the capacity of the country's refineries and by increasing the refining capacity to

prevent the sale of crude oil and We took action on the gas condensates of our own country, and all this goes in parallel with the development of onshore and offshore oil and gas fields of Latin American countries, for which we signed good agreements."

Owji said the agreements signed with Latin American nations were win-win deals, adding: "We hope that in the new front that has been formed in this part of the world, we will have an increase in processing capacity and synergy with these countries will occur."

He said: "Bartering oil for goods was another issue which we negotiated because these countries have potentially productive farmlands due to precipitation and they produce some agricultural products which may need, including cereals, soya and sugar, which we have already bought from them. Of course, the issue of barter was negotiated separately and the Ministry of Agriculture signed MOUs in parallel."

18 Processing Units at Abadan Refinery

Being the first oil refinery in the Middle East set up more than 110 years ago, Abadan oil refinery is considered one of Iran's refining hubs, but due to the dilapidation of some of its units, its renovation and updating using modern technology is inevitable. For this purpose, replacement and renovation of the refinery was carried out in two stages, the first stage with the construction of a new refining complex of 150,000 b/d as phase 1 in 2005 and the second stage with the construction of a new refining complex with a capacity of 210,000 b/d under the title of Abadan Refinery Capacity Development and Stabilization Plan as Phase 2 started in July 2017 and the first part of it was put into operation in December. Therefore, the final capacity of the refinery was stabilized at 360,000 b/d. Farhad Ahmadi, CEO of National Iranian Oil Engineering and Construction Company (NIOEC), said the first part of this project had been handled through an agreement with a consortium made up of Oil Design and Construction Company (ODCC) and a foreign partner. "This phase includes 18 processing units, which due to the COVID-19 pandemic and the absence of a foreign partner, the design, construction and installation of the major part of the equipment of this project was carried out by Iranian engineers, specialists, manufacturers and contractors." "The design, construction and installation of the largest atmospheric distillation unit with a capacity of 210,000 b/d and vacuum distillation unit with a capacity of 100,000 b/d, which is unique in the Middle East region, as well as the construction and installation of the largest hydrocracker unit (hydrogen catalytic cracking) with the capacity of more than 42 kb/d, which is considered the largest hydrocracker unit in the Middle East, are among the features of the project," he added.

Specifications

On the other hand, the integrated design, construction, transportation and installation of the largest hydrogen furnace in the Middle East region weighing 1,500 tonnes, the design, construction and installation of the country's tallest refinery flares with a height of 120 and 125 meters, the design, construction and installation of the largest naphtha hydrotreating unit with a capacity of 65 kb/d and setting a record of 32% progress in the construction of refining megaprojects in the final year of the

project and under the 13th administration are among the important features in the implementation of this plan.

Stabilizing the refining capacity of the Abadan refinery, enhancing the efficiency of the refinery through renovating facilities and phasing out obsolete facilities, improving the quality of oil products based on the Euro-5 standard and mitigating environmental pollutants, increasing the percentage of kerosene and premium gasoline production by improving production technology and reducing fuel oil production are among the objectives of the Abadan development project.

"Optimizing and producing more value-added products in Abadan Refinery, which is one of the objectives of this project, is very important because with the implementation of the second part, all the products of this refinery will be produced in compliance with the Euro-5 standard. Reducing the environmental pollutants of the products, increasing the production of kerosene and premium gasoline via improving the production technology, reducing the production of oil furnace and stabilizing the capacity of the refinery are also other achievements of the implementation of this project, which will be realized by phasing out the old units and building and launching the new distillation units of phase 1 and 2 with capacity 210 kb/d and 150 kb/d," said Ahmadi.

Phase II

Referring to the inauguration of the first phase of the 2nd phase of the Abadan refinery

development project, Ahmadi said: “soon, simultaneously with the opening of this section, the ground will be broken for the implementation of the second part of the project.” According to him, “in the first part of this project, the capacity of the Abadan refinery will be stabilized at 210 kb/d, and with the implementation of the second part within three years, the quality of the oil products will also meet the Euro-5 standard, which we hope will be implemented in the shortest possible time.” Referring to the achievement of 34 million persons-hour without disabling accidents in this project, he said: “For the first time in this project, rail and road transportation have been used to transport equipment to the country, which is unique in its kind.”

Production/Export Capacity

He also pointed to the upgrading the quality of oil products produced in this refinery and said: “With the implementation of this phase, in addition to enhancing the quality and quantity of

products produced in the country, Iran’s national export capacity will also increase significantly.” According to him, in the first part of the project, 60,000 barrels of naphtha will be produced daily, and in the second part, 16 million liters of Euro-5 quality gasoline will be produced daily.

Ahmadi said implementation of this huge national project during imposition of the most severe sanctions on the country was a step towards enhancing domestic capacity and the self-confidence of domestic experts. While referring to the diversity of crude oil input in this project he said: “In this project, for the first time, ultra-heavy equipment has been placed by rail.” Ahmadi also announced that 95% of the engineering of refining projects in the country is implemented locally and said: “In the commodity sector, more than 70% of the refining equipment has been manufactured locally.” According to him, more than 102 domestic companies have contributed to this project. “In the second part, the quality of products will be upgraded. In general, 1.5% of the new

refining production in this project will be liquefied petroleum gas (LPG), 22% will be kerosene and jet fuel, 21% will be gasoline and 24% will be diesel. With the full implementation of the project, the share of fuel oil produced in the Abadan refinery will be significantly reduced,” he said.

Refining Capacity

Ahmadi listed the flexibility in the country’s fuel consumption management by launching the Abadan refinery development plan, among other achievements of this plan and stated: “With the implementation of the second phase of the Abadan refinery development project, the production capacity of this refinery will be stabilized, while the launch of the new unit enables the Directorate of Corporate Planning of National Iranian Refining and Distribution Company (NIORDC) and the Petroleum Ministry to increase the capacity of this refinery to more than half a million barrels per day if needed to manage the

country’s fuel consumption.”

Emphasizing that with the full implementation of the second phase of the Abadan refinery development plan alongside the old units, in addition to the stunning increase in refining capacity, the country will have the possibility of exporting products and Iran will not need to import gasoline, he added: “The first phase of the second step of the Abadan refinery development plan has 6 units under license, including atmospheric and vacuum distillation units, liquefied gas and utility units.” He further announced the possibility of exporting naphtha for the first time and added: “The naphtha produced in this phase could be exported in addition to being used as feedstock in petrochemical plants.”

€2.6bn Investment

Ahmadi said €2.6 billion had been invested in the second phase of the Abadan refinery development project. He added that €1 billion had already been invested while the remaining €1.6 billion



would be allocated in the second phase.

He said that in the second phase, hydrotreating and gasoline production units including CCR, NHT, ISOM, GHT and KHT as well as utility units would be built. Ahmadi said the 110-year-old refinery did not quit processing even when it was struck by Bathists’ air raids during the 1980-1988 imposed war, noting that the facility remained a strategic hub in the Middle East region. He said that the Abadan refinery accounted for 19% of Iran’s gasoline output.



Railroad Fleet Handles 35ml Products

With the arrival of 500 new refueling trucks through an Iranian company and with 100% reliance on domestic power, the fleet of National Iranian Oil Products Distribution Company (NIOPDC) has been modernized. These refueling trucks, which are equipped with vapor recovery equipment and a standard tanker trailer, have a new generation of gearbox, emergency brake and radar between the lines. Currently, between 30 and 35 ml/d of petroleum products is transported by railroad fleet. Jalil Salari, CEO of National Iranian Oil Refining and Distribution Company (NIORDC), underscored the need to expand infrastructure for fuel transportation in proportion with consumption rate in the country, saying: "We are trying to have a bigger view of the country's fuel transportation portfolio and considering that the consumption in the country has increased, it is necessary to provide its infrastructure in the cycle of transfer and storage." "For this purpose, along with strengthening the land sector, the transmission capacity was expanded, especially in the rail sector, and we developed the rail fleet in some areas so that we can use it in special conditions," he added. Salari referred to NIORDC's plan to renovate and equip the road fleet of fuel distribution, saying: "NIOPDC has a better and more effective fleet than others. But considering the product's transportation radius, it must have the necessary safety and equipment, which happened in the country and we were able to use the domestic capacity to modernize the fleet."

21,000km Pipes

Salari said: "In parallel with the development and equipping of the fuel distribution fleet in the country, the development of the pipeline network has also been put on the agenda. Based on the plans, we are trying to move from 16,000 km to 21,000 km, which has reduced the radius of access and optimized energy consumption, and in addition, it also brings environmental benefits and energy security in the country." He also said plans were under way at the refining industry to increase the capacity of fuel storage facilities. "In parallel with the expansion of pipelines, we are trying to enhance the storage capacity of facilities in the country."

Euro-Grade Gasoil

Salari laid emphasis on the management of energy consumption and the necessity of reducing energy consumption in the transport network. "New vehicles that enter the fleet have less fuel consumption. On the other hand, in the production sector, with the operation of the Isfahan refinery, 55 ml of gasoil has entered the transportation cycle, which means Euro-4 and 5 gasoil is provided for heavy vehicles, which will bring about environmental benefits and reduction of pollution in addition to increasing the quality of distributed fuel in the country," he said. He added with the completion of overhaul and maintenance at Shazand and Isfahan refineries, premium gasoline was being distributed in Tehran. During the first two weeks of the first month of winter, 104 ml/d of gasoline and 115 ml/d of gasoil was distributed across the country. Salari also touched on the quality of fuel distributed, saying: "The gasoline distributed in the country is monitored and sampled regularly by the Department of Environment and National Standards Organization. Its quality complies with environmental standards."

57% Handled by Road Fleet

Salari stated that one of the measures to develop the fuel transportation infrastructure in the country is to increase the fleet fare and said: "Today, more than 57% of the fuel distribution takes place through ground transportation, and 500 new vehicles were also injected into this fleet."

We try to provide convenience facilities for the fleet drivers in the routes that have a larger radius to transport the fuel safely." He also referred to the vapor recovery project, saying: "The implementation of the vapor recovery project in the transmission and distribution cycle is one of our duties, in the form of which our commitment is to implement this project in 200 tankers, which, considering that this new and powerful fleet is equipped with the equipment of the vapor recovery project, in practice, the vapor recovery plan has been implemented in the fleet sector beyond the commitments." It should be noted that the tripartite memorandum of understanding on the renovation and upgrading of the road refueling fleet was signed in February last year. Based on this memorandum worth IRR 17,500 billion, it was decided that the financial resources required for the renovation of 500 road tankers be provided by Bank Mellat.

12,000 Tankers

The transport fleet is one of the key infrastructures of any country and plays a central role in economic, political and social development. In NIORDC, fueling fleet is one of the most key directorates

that has been active in it for a long time and is responsible for fueling in various sectors of industrial and domestic consumption. NIOPDC transfers more than 250 ml/d of petroleum products from warehouses to consumption centers. The rail transport fleet also carries out the transfer work through private companies of the rail sector and mostly includes the transfer of fuel oil and gasoil in the field of power plants and export destinations. Currently, according to Ali Akbar Nejad-Ali, CEO of NIOPDC, about 70% of the products needed by the power generation sector is delivered by oil tankers, and about 12,000 oil tankers operate in the product distribution chain, and the modernization of this fleet plays an important role in facilitating and updating the processes of this operation as well as increasing the safety factor and environmental standards. In total, more than 36,000 fuel supply routes in the entire country transfer products.

Piped Delivery 7% Up

On the other hand, 16,000 kilometers of

pipelines across the country transport oil and refined products from the production origins to the sources of consumption. According to Arsalan Rahimi, CEO of Iranian Oil Pipelines and Telecommunications Company (IOPTC), in the last calendar year, 128 billion liters of oil and varieties of petroleum products were distributed and transported through pipelines across the country, and to transfer this volume, 4,300,000 oil tankers with capacity of 30,000-liter had to travel on the country's roads. He said that 1 billion liters of gasoil had been saved during seven months, adding: "At the same time, 128 billion liters of crude oil and petroleum products were transferred, which shows an 8% increase in transfer rate compared to 2020 and a

7% increase compared to the average of the last decade." According to him, due to the operation of the pipelines in the seven months of this year, the traffic of 3 million road tankers of 25,000 liters has been prevented on the country's roads, thereby saving 1.4 billion liters of diesel in road transportation of petroleum products.

This issue, while reducing road and environmental accidents and increasing the safety factor of transmission, has led to savings in liquid fuel consumption as a strategic and valuable fuel in the country.

Considering the importance and necessity of paying attention to the issue of optimizing energy consumption, it can be said that the net energy saving in the process of transporting large quantities of petroleum products through the pipeline network in the mentioned period of time was equivalent to one billion liters of

diesel worth more than \$700 million. During the seven months of the current calendar year, 385 ml/d of crude oil and petroleum products was distributed through pipelines across the country, including a total 40 billion liters of crude oil and 37 billion liters of petroleum products. Rahimi said the process of delivery of crude oil and petroleum products was under way in the most ideal way. Last calendar year, 3,009 billion liters of liquid fuel was delivered to power plants through pipelines. The same year, 68 billion liters of crude oil was distributed, up 5% year-on-year. During the first half of the current calendar year, 34.5 billion liters of crude oil was distributed, up 1.5 billion liters compared with the year before.



Trio of ROVs Delivered to Brazil's OceanPact

Forum Energy Technologies (FET) has delivered three of its 200-HP Perry XLX-C work-class ROVs to Brazil-based OceanPact. The systems, which were manufactured at FET's UK facility at Kirkbymoorside, North Yorkshire, will be deployed across two of OceanPact's vessels to support inspection, repair and maintenance services for the state-owned oil company's oil fields (Petrobras). The 3,000-m depth rated compact 200-HP XLX-C delivers the high performance of a work-class vehicle in a smaller form. FET said the vehicles benefit from an "impressive" high flow auxiliary hydraulic circuit combined with a high payload capacity to carry additional tools and sensors.

VIEW



Exxon Mobil Secures Exploration Rights in Egypt

Egypt has assigned Exxon Mobil oil and gas exploration rights to two offshore blocks in the outer Nile Delta, according to a company statement. The company's Egyptian subsidiary will operate both blocks and hold 100% interest, with exploration activities expected to start this year. The awards for the blocks, which cover 11,000 sq km, are still subject to further government approvals.

VIEW



NCS Licenses Awarded to Equinor, Others

The Awards in Pre-Defined Areas (APA) were announced by the Ministry of Petroleum and Energy (MPE) on Jan. 10. In total, 47 licenses were offered to a total of 25 companies. OKEA ASA has been offered interests in four new production licenses on the Norwegian Continental Shelf (NCS), two of which as operator. The company said the awards

further strengthen its portfolio of near-field exploration opportunities around its Draugen, Brage and Gjøa production hubs. The company now has interests in more than 16 exploration-focused licenses. The two new OKEA-operated licenses are located in the Norwegian Sea and the Northern North Sea, close to its operated Draugen and Brage assets.

Norway

Egypt

Sri Lanka

Sri Lanka Finalizes Oil Exploration Rules

Sri Lanka is preparing to issue two-year oil and gas exploration licenses for as many as 900 offshore blocks for foreign firms to scout for energy resources and bring in vital investments to the crisis-hit country, a top official told Reuters on Jan. 12. Starting oil production is part of President Ranil Wickremesinghe's plan to attract foreign investment as he seeks to stabilize the economy amid the country's worst economic crisis in seven decades.

Australia

Western Australia, Test Bed for Hydrogen Economy

The state of Western Australia, currently accounting for more than half of Australia's total LNG exports, is planning an extensive build-out of hydrogen infrastructure to become a key producer of the new fuel. Its masterplan dovetails with the national strategy to become a global hydrogen superpower, but the rollout in Western Australia will be of special interest for several reasons.

VIEW



China Economic Growth and Oil Price

An important and influential factor in the global price of oil is the amount of supply and demand; any decrease or increase in supply or demand may have a significant impact on global markets. What is of high significance in the demand side is the actors who are among the most important buyers of oil. In fact, the amount of demand of this group of actors can have a significant impact on the prices in the world markets. Among these players, China, as the world's largest energy consumer, has a significant role in determining prices. For this reason, when supply and demand are to be considered as a criterion and indicator for the analysis of the global energy markets, an important part of the attention is directed to the position of China and the amount of demand of this country for oil.

Shuaib Bahman

China Back to Balance

China's economic growth has, over recent years, disproven forecasts and estimates due to the consequences of COVID-19 crisis such that it faced only 3% growth in GDP in 2022, which was lower than the target rate of 5.5%. In order to understand the decline rate in China's economic growth, it should be noted that since 1976, this is the second negative performance of this country's economy. In fact, China has seen such a level of economic growth only twice in the last 40 years.

However, many economic estimates show that China's economic growth will improve to 4.9% in 2023. The increasing economic growth of China means that the country needs more energy. For this reason, the Organization of the Petroleum Exporting Countries (OPEC) has projected in its latest monthly report that China's demand for oil will grow by 510 kb/d in 2023, after the decrease it experienced last year due to COVID-19 restrictions. Of course, this does not mean the growth of global demand for oil this year because according to OPEC estimates, the amount of demand

in the world markets will remain at 2.2 mb/d. At the same time, 510 tb/d alone cannot have any significant impact on the world markets. Add to China's economic growth the economic situation of other major consumers in the market. At least two other big economies of the world, the United States and Europe, are facing a decline in economic activities. In its latest report on the growth of the world economy, the International Monetary Fund (IMF) has revised down its forecast in 2023 due to the continuation of the war in Ukraine, high inflation and the increase in interest rates of central banks. As a result, even if China sees a decent economic growth, there is no such trend among other major economic powers in the world. At the same time, other factors are effective in the supply and demand of oil in the world markets, which may affect the future prices. For instance, Western sanctions against Russia may have an impact on the export and, as a result, the production of oil products in this country. If these sanctions lead to

the partial removal of Russian oil in the markets, then the possibility of affecting the supply will increase. However, there is still a possibility that Russia will continue to supply oil at lower prices. In such a situation, the balance of supply will be maintained and of course the prices may decrease to some

extent. Another important point here is the increase in the US shale oil production. Oil production in major shale oil fields in the US increased by about 77.3 tb/d in February to reach a record 9.38 mb/d. Although this increase in production is partly due to the bottlenecks caused by the winter and the ability to manage cold weather against Russia and the country's energy embargo, if this trend of American production continues, the supply and demand in the world markets can reach a new equilibrium point.

Global Outlook

Oil markets in 2022 were accompanied by significant fluctuations. While this year started with the price of oil around \$75 per barrel, it also climbed to a peak of \$130 per barrel after the start of the Ukraine war and the worsening of the energy crisis in the West.

However, this trend faced a significant setback at the end of 2022 due to concerns regarding the global economic growth outlook. If only supply and demand are the basis of the oil market analysis, it could be expected that the current balance in the world markets will be maintained. Because in coincidence with the predictable economic growth for China, it is expected that there will not be a severe disruption in oil supply. In fact, global supply and demand will remain at the equilibrium point. However, it is quite clear that supply and demand are only one of the variables influencing prices in global markets. Therefore, it is not possible to present the oil price outlook in 2023 by emphasizing this index only. In the meantime, what is important is the reduction of restrictions caused by COVID-19 around the world, which can accelerate the economic growth of major powers. Tight control measures in China have had a wide-ranging impact on domestic travel since the first quarter of the year, putting significant pressure on fuel demand. According to data from China's National Bureau of Statistics, oil refining fell by nearly 2 mb/d in the first ten months of 2022 compared to the five-year trend from 2015 to 2019. In fact, China's zero-COVID policy reduced the country's domestic demand by 40%. However, these restrictions are expected to be greatly reduced in 2023, which will mean more Chinese demand for oil consumption. At the same time, the continuation of the war in Ukraine is also a very important factor that may affect the global supply and demand of oil. Also, the continuation of OPEC+ policy of limiting supply and reducing production by up to 2 mb/d by the end of 2023 may have a significant impact on oil prices.



Will 2023 See Oil Market Prosper?

With the beginning of 2023, the developments of the oil market in 2022 and the perspective of the New Year have been reviewed. The idea is to examine the factors affecting the market. It must be acknowledged that 2022 experienced ups and downs in the oil market and profound changes have taken place in this market. These developments have caused the 2023 Outlook to have many uncertainties, and as a result, many reputable institutions have doubts in their forecasts, and most institutions are waiting for market stability.

OPEC Basket Price Surge

The developments of the oil market in 2022 experienced two different trends in the first and second half of the year. While the recovery of the global economy continued with a different trend between different regions for most of 2022, it faced a significant decrease in the 4Q22. The price of oil in the first and second months of 2022 was accompanied by a soaring trend due to the improvement of the global economy and the intensification of geopolitical tensions in Eastern Europe. Contractionary monetary policies by central banks and concerns about a possible energy crisis in the Eurozone drove prices up. The EU's decision to fill the strategic gas storage on the one hand caused an increase in the price of natural gas and an increase in the demand for crude oil in order to replace it in power plants, while on the other hand it accelerated the increase in the capacity of power generation from non-fossil sources due to the increase in the prices of fossil fuels in the 1H22. But in the 2H22, due to the resurgence of the COVID-19 in China and the country's strict zero-COVID policy, the country's GDP growth was affected in the 2H22, and due to the decrease in economic activities of member states of the OECD, the demand for oil experienced a weaker growth. Due to the completion of gas storage according to prearranged plans in Europe and the easing of concerns regarding the energy crisis in the European winter season, as well as the phased release of strategic petroleum reserves (SPR) by OECD member states, crude oil prices were associated with a downward trend in the second half of the year.

OPEC+ Constructive Role

However, the constructive decisions of the OPEC+ members participating in the Declaration of Cooperation (DoC) according to the market conditions led to more stability and balance in the global oil market in 2022. Compared to last year, the price of the OPEC Reference Basket (ORB) showed an increase of \$31.0 or 44.6%, from an average of \$69.45 per barrel last year to an average of \$100.45 per barrel in 2022. It is worth noting that according to the latest OPEC monthly report, the growth of global GDP in 2022 is estimated at 2.8%. For American and European members of OECD, transportation fuel demand was lower than expected and led to an annual growth of global crude oil demand of 1.4 mb/d for OECD member states. Along with the impact of central banks' monetary policies on the global economy and crude oil demand, new lockdown in China has strongly affected oil demand, and the country reduced oil demand in 2022, so that the annual growth of crude oil demand in non-OECD countries reached 1.2 mb/d. Meanwhile, the global demand growth for crude oil in 2022 has been 2.5 mb/d and on the oil supply side, the growth of non-OPEC oil supply continued. U.S. shale oil companies have continued to focus on dividend to shareholders and curbed output growth due to higher production costs amid tight supply chains and high inflation. The main drivers of non-OPEC production growth in 2022 were the United States, Canada, Guyana, Russia, China and Brazil. The growth of non-OPEC supply in 2022 is estimated to have been 1.9 mb/d. For the moment,

due to the increase in commercial oil storage in 2022 compared to 2021, the volume of oil storage of OECD member states at the end of 2022 was 114 million barrels less than the 2015-2019 average..

2023 Outlook

The conflicting forces in the oil market show that the short-term forecast of this market is associated with a high degree of uncertainty. On the macro scale, expecting a decrease in economic growth and even a recession in the US and Europe in the 4Q22 and the 1Q23 is considered one of the key factors that weakens the price, but at the same time, it is possible to forecast a reduction in movement restrictions in China due to the zero-COVID policy would reactivate and stimulate the economy of this country and increase the demand for oil while strengthening the volume of economic activities. On the micro-scale, the decline in the supply of Russian oil due to the complete stoppage of crude oil imports from Russia by EU, although the application of a price cap for the purchase of Russian crude oil exports will also increase the dimensions of this issue and at least in the short term will put increasing pressure on oil prices. Due to these various and unequal forces affecting the oil market, the future perspective of the oil market is not very clear in the future.

Oil Demand and Supply Uncertainty

According to OPEC's latest monthly report, the growth of world gross production for the coming

year is expected to be 2.5%, and global oil demand is expected to increase by 2.2 mb/d in 2023 compared to the previous year. Meanwhile, other sources, such as Oxford Energy, forecast that oil demand was 1.8 mb/d in 2022 only to fall to 1.5 mb/d in 2023.

It is now expected that oil demand will decrease by 0.91 and 0.59 mb/d in the fourth quarter of 2022 and the 1Q23, respectively, the most important factor of which is the weakening of economic growth, especially in the economies of advanced countries. The oil demand growth in OECD member countries in America is estimated at 0.3mb/d for 2023 based on the OPEC monthly reports, and this figure is insignificant for the European members of the Organization and is around 0.4 mb/d.

But at the same time, there are also strengthening factors for the growth of oil consumption in 2023. In non-OECD countries, oil demand is expected to increase by 1.9 mb/d, with China and India growing the most. The expected lifting of some of the restrictions related to zero-COVID policy in China next year is one of the most important drivers of oil consumption growth in 2023, and it is estimated that China's oil demand will increase by about 0.550 mb/d in 2023.

China and Covid Restrictions

It is worth noting that in the 20th National Congress of China, the COVID-19 restrictions for international travelers to China have been lifted and therefore demand for travel to China has increased. In addition, the continued growth of demand for jet fuel to the extent of 0.68 mb/d in 2023 will be one of the main factors of oil consumption growth, which can partially offset the negative impact of the economic

OIL

recession. Russia's oil production outlook is one of the most determining factors in the short-term oil supply situation. In November 2022, excluding oil exports through pipelines, Russian crude oil exports to Europe decreased by 0.97mb/d compared to the period before the Russia-Ukraine tension (average of January and February 2022), but at the same time 1.14 mb/d of Russian crude oil has been sold to Asian buyers (mainly China and India), so Russian crude oil exports in March-November 2022 (after Russia-Ukraine tension) compared to January and February 2022 (before geopolitical tension) shows an increase of 0.284 mb/d. This issue is also true regarding Russian oil products, and in general, it could be said that Russia's petroleum exports (crude oil and oil products together) in the post-geopolitical tension period compared to the previous period have grown by an average of 0.329 mb/d.

Russia Oil Set to Fall

Now, according to the plans to stop the import of crude oil and oil products from Russia to Europe and the price cap policy, Russia is expected to see its oil exports fall by 2 mb/d, 1.1 mb/d of which would be

sold to third nations, particularly India. Therefore, it is expected that by the end of 2023, Russian oil production will decrease by about 0.9 mb/d compared to the previous year. Moreover, non-OPEC supply in 2023 is expected to grow 1.5 mb/d. Limited oil production in the United States and the start of production of offshore fields in Latin America and the North Sea are expected to increase supply. The United States is expected to lead the way with a share of about 75% of the total growth, followed by Norway, Brazil, Canada, Kazakhstan and Guyana, although the reduction in Russian supply due to EU sanctions is the main factor affecting the decline in non-OPEC oil supply growth in 2023. The decrease in oil supply of non-OPEC+ countries due to the unplanned shutdown and the limitation of production capacity due to the reduction or stoppage of investment, operational and environmental challenges is the most important main driver of the weakness in the growth of oil supply in the short term. This is due to the fact that many OPEC+ member countries do not have the capacity to produce in accordance with their quotas and the gap between the actual production of these countries and their announced quotas is gradually increasing.

Balance and Continuity of Excess Supply

According to the OPEC Secretariat estimates, the amount of oil supply in 2022 is estimated to be 0.41 mb/d more than its demand. It is expected that the oversupply will continue in 2023 with a lower intensity and reverse in the last quarter of the year, and oil demand will be 0.300 mb/d more than oil supply. This is the first time since the 1Q16 that the oil market will face 6 consecutive seasons of excess oil supply, that is, from the 2Q22 to the 3Q023, so that the amount of oil supply in 2023 will be 0.58 mb/d more than its estimated demand. Due to the excess supply and demand balance, it is expected that the oil storage level of OECD member countries in 2023 will be 58 million barrels less than the five-year average of 2015-2019. Of course, along with the revival of China's economy in the 2H23, the expectation that OPEC+ countries' supply schedule will not change and the unilateral sanctions against Iran's will be maintained, other sources such as Oxford Energy have projected that supply shortage in the oil market would be seen from the third quarter of 2023 in a way that demand for oil would be 0.43 mb/d higher than supply.

Price Forecast and Different Approaches

Despite the uncertainty of the oil market and according to Oxford Energy institute's forecast, the price of Brent stabilized at an average level of \$101.2 per barrel in 2022, which will decrease to \$94.2 per barrel in 2023,. The forecast of a decrease in economic growth and oil demand in the 1Q23 will cause the price of Brent to go through a weakening trend during this period, and the average price of Brent in the 1Q23 will reach less than \$90 per barrel. This is in a situation where it is expected that in the 2H23, with the strengthening of economic growth, especially due to the cancellation of zero-COVID restrictions in China, Brent prices will rise again and cross \$100 per barrel. Goldman Sachs forecast, Brent climbing to \$105 per barrel by the 4Q23 due to the solid demand growth particularly in China.

Investment

Although the annual investment in the upstream sector of the oil industry is lower than the pre-COVID annual investment, even including inflation in recent years, Investment in non-OPEC's upstream sector in 2022 was estimated at \$424 billion, up 19% from 2022 and in 2023 investment in non-OPEC nations' upstream sector is expected to reach \$459 billion, up from 2022.

Tennis Trainer: We Eye Powerful Presence in Asia



The 31st round of Table Tennis Pro League of Iranian clubs ended with the Palayesh Naft Abadan team coming first. The champion team was comprised of local seeds, as well as national needs. The young coach had managed to bring the championship title to the Youth category of Palayesh Naft Abadan. This year, he emerged as the head coach of the Adults to reach championship. The following is the full text of interview "Iran Petroleum" has conducted with Mehdi Jozari, the head coach of Palayesh Naft Abadan, focusing on the championship of his team and his future plans.

Can you repeat this championship?

The Naft team has high potential, and I believe that we can even display better performance than this. The capacity of Naft in table tennis is very high. We have a good investment in the academy and base sector, and in other words, Palayesh Naft Abadan enjoys good support, and for this reason, they can repeat this championship again with a good planning. If you have noticed, our team has always been among the 4 teams in the tournaments and if not the champion, at least it has been on the podium.

You mentioned the basic teams. You became the champion of Iran with the youth team of Palayesh Naft. How do you see the future of oil?

The plan of the club is to preserve and educate young people so that they can go up and become champions again and reach the national team. Naft's youth and teenagers can make Naft's senior team and somehow support the team's championship in the following years. We have Arshia Enayatzaheh, who also has the ability to play in the senior team and even plays in some competitions. He is not only considered one of the company's youth players, but also a national player. According to the club's policy, our priority is to use our own youth players and to participate in bigger competitions, we use stars and great players alongside these young people so that the team will go to the competition stronger.

Your team is the first representative of Iran in

table tennis tournaments of Asian clubs. Can you tell us about this?

This is a great honor for Naft and my team, but so far nothing has been said about these tournaments and we don't know what the plan of the Asian Table Tennis Federation is for holding these games. In which country this tournament will be held, how it will be held and how many teams will be present, these are all issues that will be determined in the future and the federation must inform in this regard, but if it is held, it must be with the most powerful team. Let's participate in these competitions to be a worthy representative for Iran's oil and table tennis. Therefore, we will probably strengthen the team by recruiting some great players and national stars.



Could you tell us about the team's championship and what made you come first?

First of all, I would like to thank my players who applied all the tactical instructions in this tournament and managed to win the championship with a double effort. I am satisfied with the performance of each and every one of them. The matches were really very tough and sensitive. The teams participated in these competitions with strength and the presence of their national team members. My trainees performed very well in these competitions and showed that they deserve the championship title. As you know, the competition was held in three rounds, two of which were in Tehran and the final round was in Abadan,

where we celebrated the championship at home.

You mentioned the powerful presence of the teams. Tell me about the level of the competition?

The level of competition was very high. The teams had a tough competition and the competition was very close. My team won the championship with two losses, which shows that the teams were at the same level and no team had won before. The presence of young players who were highly motivated and experienced players who did not want to lose to the youth made for a very good competition. All the teams intended to win the championship, but my students did a great job in this year's competition.

What was the line-up of your team?

The composition of my team was one of the best compositions in the tournament. We had both young players and experienced and star players. In fact, our team included both local players (two people) and corporate players (one person); of course, we also had one or two non-local players. Afshin Nowrouzi, the veteran captain of our team, and Soroush Amirinia, who is also one of the Iranian table tennis stars, were among the company's players. Along with these players, Noshad Alamian was also present. For this reason, I believe that we entered the tournament with an ideal composition.



Part II

Review of Oil Industry Influential Men Dr. Fatemi

Experts and analysts unanimously agree on Dr. Fatemi's charming writing skills. He always sought to focus his journalism skills on narration and analysis. In France, he had tried his best to learn academically how to write and then he tried to put his knowledge into practice.

His article about the occupation of Iran in 1941 and the abdication of Reza Shah, which appeared in Bakhtar daily newspaper, is a case in point. The article is as follows:

"Two or three years after this event, I personally heard from Maj. Gen. Zarghami, the wartime chief of staff, saying military commanders had betrayed. He said when the Ministry of War and the Supreme Council of War put two divisions of Tehran on the furlough and the starving and naked troops flocked the streets of the capital and deserts, the Shah got deeply angry and summoned Maj. Gen. (Ahmad) Nakhjevan, the minister of war, and the Supreme Council members, and spoke harshly to us. When he was told they had only followed the Crown

Prince's instruction, he demanded his personal handgun to kill the Crown Prince. He relieved Nakhjevan on the spot and ordered to shoot him to death. Nakhjevan was held in jail until Reza Shah departed the capital for exile. Reza Shah had a unique chance, which he missed out on, to win permanent reputation in Iran's history. He had better resisted to death and not accept a disgraceful death in exile. During the Allies' occupation of Iran, the entire country would be sympathizing with him, but due to the defective structure of the military he failed to benefit from those public sentiments. Instead, he triggered public fury and hatred against two decades of autocracy. Therefore, during the time when people were normally expected to shed tears for the foreign occupation of their country, they could not hide their happiness and joy with those sudden developments. The London Radio used to launch a diatribe against Pahlavi until sometime after, acknowledging that the 21 February 1921 had been fomented by Britain...It specifically revealed that

when Iran had come under attack by two foreign armies, the Shah had instructed the mayor of Tehran to sign over the City Hall Garden, located in Pahlavi St., to him at the price of seven rials per square meter. Informed sources said two things instilled so much fear into Reza Shah who preferred to abdicate monarchy and leave Sa'dabad Palace. One was the attacks he was subjected to on a daily basis on the London Radio, and the other one was that he feared the Red Army might take him prisoner. Maybe Reza Shah himself had no idea that his troops were betraying him. One day, Reza Shah had asked French Lt. Gen. Jean, who was president of Iran's Military Academy for several years, how long Iranian troops could resist if the country comes under enemy attack. The French military commander had asked what kind of enemy he meant. Reza Shah had responded: "The Soviets for example. Jean had said: "As much as the Russian Army reaches your borders". The proud dictator had got so angry at this response that he had to apologize the following day. He had seen flattery,

lying and boot-licking under his absolute rule that during his final years in office he imagined he was the top Eastern power and even much stronger. In any case, after he abdicated, the Allies claimed that they had brought democracy to Iran, whose boundaries were clear. We could go into bickering among ourselves, but stay put vis-à-vis what they do with our country and our people. But as people were full of fury and grudge they were happy with this minimum liberty. Unfortunately, since Reza Shah had left no party, group or even personality unscathed during his 20-year rule, this so-called democracy could no our country no good. The country did not make any headway to have parties and a parliamentary system. Rather, the country further plunged into more weakness, depravity and misery. Foreign agents who had been intimidated and went into hiding found that they faced no restrictions for continuing their work. The same military and civil fugitives took the helm of affairs anew and the country once again was headed towards tyranny and injustice, pillage and aggression."

Ahvaz, City of Bridges

Ahvaz, the provincial capital of Khuzestan, is located in southwestern Iran. Ahvaz oil field is the biggest oil field in Iran and the third largest oil field in the world. Statistically known as the 34th most populated city in the Middle East, Ahvaz has won fame for its numerous bridges. The Karun River, watered by water flowing from Mount Zard Kuh, snakes through the city of Ahvaz, dividing it into eastern and western sections. The following is a brief review of some historical and natural attractions of Ahvaz. One of them is nine bridges built over the Karun. One is used as railway while the other eight have given a specific view to the city due to their beautiful architecture and design. The last bridge was built in 2020.



Pol-e Sefid (White Bridge)

A German engineer started building the bridge together with his wife who was an engineer and successfully completed the work up to the stage of mounting one of the crescents, but the British ruling Anglo-Iranian Oil Company (AIOC) took back the equipment and tools they had provided to the bridge builder, including a crane with which he had raised and restrained the first crescent. After some time, finally, with the most primitive possible tools of that time and using an alternate tool to crane, the second crescent was mounted on the bridge structure. In the summer of 2009, the reconstruction and restoration of this bridge was put on the agenda and it was given a special effect with lighting.

Black Bridge, Bridge of Triumph

In 1929, in coincidence with the construction of Iran's transnational railway, the first bridge was built over the Karun. Due to the black color of stones used in its construction, it was named Pol-e Siah (black bridge). It is 1,050 meters long and 6 meters wide. This bridge links the Bandar Imam railways in the south of Khuzestan Province to the Khorramshahr-Tehran-North railway. During WW II, the bridge was used as a way to transport food, power and ammunition for the Allied forces, and it was given the nickname Bridge of Triumph due to its role in the victory of the Allies.



Lashgarabad, Ahvaz Falafel Market

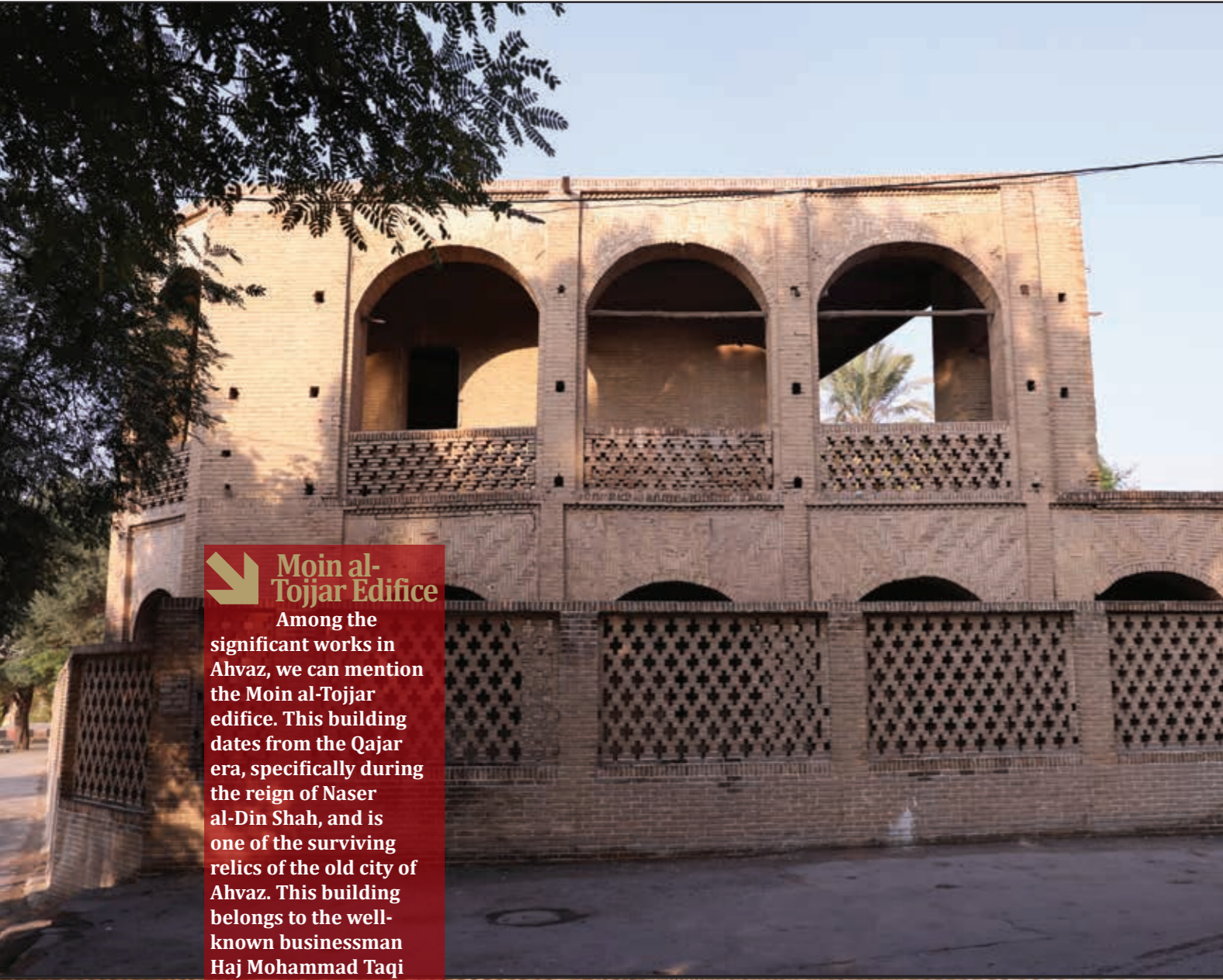
This neighborhood is located in the west of the Karun. In the 2000s, with the establishment of many falafel shops on Anousheh Street, this neighborhood became the falafel market of Ahvaz. Many tourists and travelers who travel to Ahvaz ought to visit this street once and try the falafels there. Falafel is a food that is made with chickpeas and is used after frying in oil with various pickles.



Ahvaz 8th Bridge

The design of this bridge is different from other bridges over Karun and it is made of cable and without foundation. This bridge is 643 meters long and 13 meters wide and is built in four directions. The bridge has two large piers and the bridge deck is connected to these piers by cables.





↘ Moin al-Tojjar Edifice

Among the significant works in Ahvaz, we can mention the Moin al-Tojjar edifice. This building dates from the Qajar era, specifically during the reign of Naser al-Din Shah, and is one of the surviving relics of the old city of Ahvaz. This building belongs to the well-known businessman Haj Mohammad Taqi Moin al-Tojjar, who was a famous merchant. He founded a company called Naseri Company for shipping in the Karun and built a series of buildings in Naseri Port (modern Ahvaz). He established his office on the bank of the Karun and built a bath, a market, a garden and a mosque next to it.



Iran Petroleum

If you have any comments regarding the articles in this magazine, please feel free to contact us through e-mail. Your views are appreciated



Petroleum Ministry - Public Relations

Thank you for reading
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Moin al-Tojjar Edifice Ahvaz

