

The background of the cover is a photograph of an industrial oil refinery. In the center, a tall distillation column is topped with a large, bright yellow and orange flame. The foreground and middle ground are filled with a complex network of silver-colored metal pipes, valves, and large horizontal cylindrical storage tanks. The sky is a clear, bright blue with some light, wispy clouds. The overall scene is industrial and active.

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Iran Sticks to Energy Diplomacy in East Asia

Ali Forouzandeh
Director General of Public Relations

Activating strong diplomacy and strengthening international ties in the energy field are among the priorities of Iran's Petroleum Ministry under the 13th administration. Diplomacy centered on the trade of oil, gas, petroleum products and petrochemicals and the export of technical and engineering services, interaction with neighboring countries in order to reduce tariffs and finding suitable solutions for interactions, expanding bilateral or multilateral agreements with target countries and encouraging foreign investment are important parts of the energy strategy of Iran's Petroleum Ministry in the 13th administration.

Simply put, the strategy of Iran's Petroleum Ministry can be expressed in such a way that it is trying to provide the essential grounds for curbing international restrictions against Iran via energy diplomacy. Meanwhile, it should be emphasized that foreign policy is not limited to a single region and Iran's Petroleum Ministry approach is to identify and utilize all the accessible potentialities and capabilities in the emerging economies to ensure maximum interactions aimed at growth and economic dealings, as well as international energy trade.

With the beginning of the 13th administration, Iran's Petroleum Ministry, despite the severe and unilateral sanctions of the United States, has been pursuing its priorities through energy diplomacy. Likewise, the ministry has struck several memoranda of understanding and contracts with such countries as Turkmenistan, Russia, Qatar, some Latin American countries, Oman, etc., based on bilateral and win-win relations, in addition to expanding activities. Now, after one year of the

13th administration in office, the development of diplomacy has reached East Asia, that is, Japan.

Iranian Minister of Petroleum Javad Owji, who visited Japan on September 25 to attend the third ministerial participation in the Asia Green Growth Partnership Ministerial Meeting (AGGPM), continued the energy diplomacy of the 13th administration with the executives of major oil and gas companies in Japan, including Toshiaki Kitamura, CEO of Inpex, Takeshi Saito, President of Eneos, Yamamoto, CEO of Fuji Oil, Taramura, Board Member of Nippon Export and Investment Insurance (NEXI), Haba, CEO of Mitsubishi Oil and Gas and CEO of Marubeni Company and exchanged views on investment opportunities in Iran's upstream and downstream oil industry, cooperation, business of energy carriers and technology.

Emphasizing that Iran is 100% ready to accept investment from Japanese companies, the Minister of Petroleum, while inviting these companies to improve the level of their presence in the Iranian market, stated: "Iran's crude oil production capacity stands at 4 mb/d and Iran has managed to enhance its oil exports volume to several countries. The Iranian official further emphasized the development of cooperation between the two countries in his meeting with the Minister of Foreign Affairs of Japan, and said: "Iran may play an important role in supplying energy to Japan; currently the level of economic cooperation between the two countries is not at the desirable level. Japanese companies are very well-known in Iran and this is a valuable investment for the development of cooperation between the two countries."

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Reviving Low-Yield Oil Wells, NIOC's Serious Concern

Peiroleum

Figures do indicate that Iran ranks first in the world in terms of the aggregate oil and gas reserves. Taking advantage of this huge wealth or preserving it for future generations has always been a challenge for policy makers. The arrival of renewable energies and the efforts of countries to ramp up energy security and non-dependence have caused oil-rich countries to seek to optimize production from hydrocarbon reservoirs in order to turn it into a capital for future generations. In the meantime, some countries, including Iran, have put on their agenda a written program to revive inactive wells as a short-term solution to improve their oil output. The following is an overview of Iran's plan to revive low-yield oil wells.

According to the BP Statistical Review of World Energy 2020, Iran ranks fourth in the world with 156 billion barrels of proven oil reserves. According to the same report, Iran's R/P ratio among the countries of the region and fellow OPEC members is so low necessitating making efforts to pull up the level. Compared to global standards, this situation is mainly caused by the lack of development of the explored fields and the lack of optimal development and production from the fields being exploited.

Previously, developing oil fields and enhancing oil production in Iran was done with a reservoir-oriented approach, but in the new plan pursued by the National Iranian Oil Company (NIOC), oil production has become well-oriented which is economically better and boosts productivity. To recover oil from a new well, an average investment of about \$10 million is needed, while in the plan to revive low-yield wells, with an investment of \$1 million, a well can become productive, hence it leads to a 90% reduction in the cost of enhancing production level. According to experts, reviving low-yield wells is a shortcut to producing oil, so if only 10% of this project comes to fruition, 8-10% increase in oil production in the country will be achieved, which means an increase of 300-400,000 barrels per day in the country's total crude oil production capacity.

Making Upstream Oil Industry Knowledge-Based
Currently, the plan to revive low-yield wells is being pursued by the Oil and Gas Innovation and Technology Park (OGITP). According to Mohammad Javad Kefayati, head of OGITP, any number of companies that participate in this project could be attracted by the Park because it is a great work that can be translated into the onset of turning the upstream sector of oil industry knowledge-based.

In the park, room has been provided for the deployment of knowledge-based companies, and their support with the help of investors, and after obtaining improved output from low-yield wells or oil production from abandoned wells, a part of its revenues will be paid directly to the companies involved in the project. According to the existing demand for investment, it could be argued that such projects have economic justification, to the extent that even if the oil price drops to \$20 per barrel, these projects will still remain technically viable. On the other hand, this process requires \$5 to 100 million dollars in capital, which, according to estimates, has full economic justification. The important point is that this process is one of the neglected investment opportunities and has been approved by the Economic Council as a key task in the oil industry if the forecasts continue, a large supply of this oil will be witnessed within the next two or at most three years. This is despite the fact that even with a 50% success of the project, its efficiency and output will be beyond expectations, even though the type of technology used or the machinery or technical knowledge used in the projects would also matter. In the process of higher efficiency of wells, a smart approach has been formulated with the centrality of innovation and many simple and complex solutions will be aggregated and presented, and of course, attraction for the entry of knowledge-based companies and financing firms has been provided. So far following a recall, 46 companies have been registered and admitted.

\$700m Credit
Currently, NIOC is primarily pursuing a national project to revive inactive and low-yield wells, known as the Propeller Scheme, which has been approved by the Economic Council and is in the final stages. Provided that everything goes on according to the plan, by September 2022, contracts will be signed with technology and knowledge-based companies in this regard. Activities begin afterwards and this will be the first time in the history of upstream oil industry of Iran that the capacity of technology and knowledge-based companies has been tapped in such a manner. The Economic Council has earmarked \$700 million for reviving low-yield and abandoned wells for an annual production of 80 million barrels of oil, and after the recall and through legal procedures, nearly 40 companies have been recognized as eligible, and if their proposed plan is approved technically and economically, contracts will be signed with them for the development of low-yield wells.

Low-Risk wells for Recovery
According to an NIOC announcement, there are 750 to 850 low-yield or abandoned wells in this plan, of which nearly 120 wells have been initially shortlisted because of having a lower risk for recovery. These wells are mostly in the oil-rich fields of the south. After screening, the wells that are easier to recover will be up for grabs for the companies.

The wells introduced in this plan are categorized as easy, medium and hard wells, and for all three categories of wells, a technical and economic model has been developed, each with a different tariff. According to experts, an investment of 7 to 12 million dollars and an average of 10 million dollars is needed to produce oil from a new well, while in the plan of reviving low-efficiency wells, with an investment of 1 million dollars, a well can become productive. This reduces costs by 90%. The financial model for implementation of the project is based on a tariff, and according to the head of OGITP, a specific tariff will be paid for each barrel of oil produced from low-yield wells and according to the classification of the wells.

High-Risk but Economically Justified
Despite the perceived risks, reviving low-yield wells has an economic justification. Considering the enthusiasm of technology companies to participate in this plan and the high demand that other companies have shown to join, it is expected that after signing the contract, the best and new call on companies will be made again for the same purpose. But the selection process of knowledge-based companies in this plan is one of the important issues.

According to the officials, all the companies in this project are technological and knowledge-based and are screened with great care. Based on this, any company whose technology has been proven and claimed to be able to revive wells is accepted, unless they are unable to propose a technical and economic plan. Among the companies present in this project, there is an Iranian company, which according to Kefayati, was perceived as possessing the right technology and despite the low tariff, and is interested in participating in the project due to its high attractiveness and economic efficiency.

At the same time, an Iranian university has also announced its readiness to revive low-yield wells, and two companies are also working in cooperation with the universities. It is noteworthy that well production enhancement is one of the fastest and least expensive methods to enhance crude oil production in the world.

Basically, methods of improving production are divided into three categories: Well Production Enhancement, Surface Facility Improvement, and Enhanced Oil Recovery; and their implementation period is respectively, at least six months, two years and three years. Well Production Enhancement methods can be implemented in wells that are productive but with low efficiency, as well as inactive wells. Every year, a percentage of the productive wells of NIOC are removed from the production group as inactive wells.

Currently, several wells out of the total number of wells drilled by NIOC are classified as shutdown, abandoned and suspended wells and are not productive any more. Low-efficiency and inactive wells of crude oil producing companies are the best platform for researchers and technologists in the field of creating and implementing new well-based technologies, as well as the best opportunity to create start-up and technology and knowledge-based companies in the field of well services.

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Geopolitical tectonic plate of world energy changing

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Oil is the world's most important energy source. It is a key element in the global energy system. The world's energy demand is growing rapidly, and the world's energy supply is becoming increasingly tight. The world's energy supply is becoming increasingly tight, and the world's energy demand is growing rapidly. The world's energy supply is becoming increasingly tight, and the world's energy demand is growing rapidly.

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Energy Prices Hammering UK Economy

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The British economy has faced many challenges over recent years. Among many other factors, Brexit and the coronavirus pandemic have taken a toll on the economy. The economy is still recovering from the pandemic, and the cost of living is rising sharply. The cost of living is rising sharply, and the cost of living is rising sharply.

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Guilan; Paddy Fields & Tea Farms



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Veteran Oilman Coaches Iran National Wrestling Team

We became undisputed champion



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Developing Oil Park, Fresh MOP Approach for Growth



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Iran Energy Diplomacy in the Land of the Rising Sun



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Record 128bn Liters Transmission Set



Iran Energy Diplomacy in the Land of the Rising Sun

Javad Owji, Iran's Minister of Petroleum, who visited Tokyo from Saturday to Wednesday, September 24-28, heading a delegation to attend several meetings and consult with Japanese majors, represented the government of the Islamic Republic of Iran in the state memorial ceremony of Shinzo Abe, the late president of Japan. In the visit to Japan, in addition to meeting Nishimura Yasutoshi, the Minister of Economy, Trade and Industry of Japan, Yoshimasa Hayashi, and the Minister of Foreign Affairs of Japan; HE Owji also met with the CEOs of major Japanese oil and gas companies, including Toshiaki Kitamura, the CEO of Inpex, Takeshi Saito, the president of Eneos, Yamamoto, the CEO of Fuji Oil, Tramura, a member of the board of directors of the Nippon Export Investment Insurance (NEXI), Haba, the CEO of Mitsubishi Oil and Gas, and the CEO of Marubani Company, to discuss investment opportunities in the upstream and downstream sectors of Iran's oil industry, cooperation, trade of energy carriers and technology.

Iran's Role in Supplying Japan's Energy Needs

Attending Shinzo Abe's state memorial ceremony, participating in the Asia Green Growth Partnership Ministerial Meeting (AGGPM) and meeting with some large Japanese companies were among the most important plans of HE Owji during his trip to Japan. Investment in Iran and its open arms to welcome Japanese companies and investors in the oil industry, were HE Owji's main messages to the Japanese investors during his 4-day stay in the land of the rising sun. In separate meetings he had with Nishimura Yasutoshi, Minister of Economy, Trade and Industry of Japan, and Yoshimasa Hayashi, Minister of Foreign Affairs of Japan, Owji emphasized Tehran's determination to develop economic relations with Tokyo.

In the meetings he emphasized that the level of economic cooperation between the two countries is not at a decent level, and expressed optimism that it would be possible to cooperate with Japanese companies in the oil, gas, refining and petrochemical sectors. In a meeting with the Minister of Economy, Trade and Industry of Japan, he emphasized Iran's readiness to develop cooperation in the oil and gas sector with Japan, pointing to the good reputation of Japanese companies in Iran, and added: "Iran's oil industry will need \$160 billion in the next eight years in the oil, gas, refining and petrochemical sectors." Stating that there is a possibility of cooperation between Iran and Japan on optimization and training under the sanctions, Owji said: "There are very high potentialities - from upstream to downstream sectors - for Japanese companies to cooperate with Iran." Iran's Minister of Petroleum further stated that the heads of state of the two countries recently met in New York, he clarified: "We have examined the fields of



cooperation in the meeting with Japanese companies and are trying to expand it." Owji added: "The Iranian people will not forget the memory of the Japanese Oil Refining Company (Idemitsu), which bought oil from Iran during the embargo on the sale of Iranian oil due to the nationalization of the oil industry." The Iranian energy official further said that Iran may play an important role in meeting Japan's energy needs, adding:

"The unprecedented drop and low level of trade and economic cooperation caused by the unilateral and cruel sanctions of the United States is not desirable for the two countries." Emphasizing that Iran welcomes cooperation with Japanese companies that have the necessary experience and technical knowledge in the field of optimizing energy consumption and reducing carbon emissions, collecting flare gases, etc., Owji said: "Any

company that invests in this sector may save half of the amounts they produce."

Cooperation even under Sanctions

Nishimura Yasutoshi, Minister of Economy, Trade and Industry of Japan, in this meeting, underlined the good terms between the two countries and Iran's high cultural history, and said: "Iran is an important country in the region and the world, and Japan is interested

in strengthening relations with Iran."

The Japanese official expressed regret for the withdrawal of the country from the Azadegan Field's development project, and said: "The Japanese government has always supported the Joint Comprehensive Plan of Action (JCPOA) and hopes that the negotiations will be concluded as soon as possible and that Japan will be able to cooperate with Iran, especially in the oil and gas sector."

Emphasizing that Japan encourages Japanese companies to operate in Iran, Yasutoshi added: "Even during sanctions, there are good opportunities for cooperation, especially in the field of optimizing energy consumption, collecting associated gases, etc." Stating that many Japanese companies kept their offices in Tehran and are present in Iran, he said: "This shows the importance of interaction with Iran for Japanese companies." In the meeting, Japanese Foreign Minister Yoshimasa Hayashi also recalled that he accompanied the Prime Minister of this country, Fumio Kishida, to the New York summit, where they met with Iranian President Seyyed Ebrahim Raisi and Foreign Minister Hossein Amirabdollahian, and emphasized: "High-ranking officials of the two countries are determined to develop cooperation." He added: "Over recent months, the price of oil has soared a lot and Iran has the opportunity to take maximum advantage of this situation by finalizing the negotiations."

Iran's 100% Readiness to Welcome Japanese Companies

On the sidelines of the state funeral of the late Japanese Prime Minister Shinzo Abe, Javad Owji told in an interview with the Japanese state network (NHK), that Iran is trying to attract foreign investment without waiting for the revival of the JCPOA, saying:

The Japanese government has always supported the Joint Comprehensive Plan of Action (JCPOA) and hopes that the negotiations will be concluded as soon as possible and that Japan will be able to cooperate with Iran, especially in the oil and gas sector

Iran's oil industry will need \$160 billion in the next eight years in the oil, gas, refining and petrochemical sectors

"Iran is 100% ready to absorb investment from Japanese companies." By inviting Japanese companies to expand their presence in the Iranian market, he stated: "Iran has the daily production capacity of 4 million barrels of crude oil and has been able to increase its crude oil exports rate to several countries."

Pressure on Fossil Fuel Producers Could End in Energy Crisis: Owji

Addressing AGGPM, Owji underlined the necessity of an evolutionary, fair energy transition and focus on natural gas development, adding: "In the past years, an aggressive approach to the need to quickly reduce the use of fossil fuels with the aim of reducing CO2 emissions has led to reduction in investment in fossil resources."

He stated that with the subsidence of the COVID-19 pandemic, the increase in global energy prices and demand, as well as geopolitical crises, the world's energy supply is facing danger in the current situation, adding: "Contrary to the expected trend in the process of aggressive energy transition and the reduction of the share of fossil fuels, the forecasts indicate that renewable energy alone will not be able to meet the growing need for global energy in the current situation and in the coming decades, and consumption of fossil fuels, especially natural gas, will experience a growing trend in the next decade; therefore, this question is raised: What should be done to provide sustainable energy security with minimum pollution and acceptable cost in this transition period?"

Iran's Great Role in Guaranteeing Global Energy Security by Relying on Huge Gas Reserves

Pointing out that different countries of the world, including energy suppliers, in the past few years, while realizing the global needs related to reducing CO2 emissions, have adopted policies to diversify their energy portfolio and reduce CO2 emissions in production processes, he stated: Success of these programs depend on active global participation, especially in the field of investment and technology. Owji continued: "The prerequisite for this action is the acceptance of a fair and evolutionary energy transition rather than adoption of aggressive policies to eliminate fossil fuels from the global energy mix. On the other hand, a fair and gradual energy transition requires avoiding forced rationing and, more



importantly, active and non-discriminatory participation in the financing of CO2 emission reduction projects, especially in the field of fossil production (elimination of flaring, CCS/CCUS) with a better understanding of technology gaps, economic problems, dealing with oppressive and illegal sanctions, etc., which have trapped some countries in constant erosive crises."

He said: "In my view, an important part of the solution to the global challenge of ensuring the world's energy security depends on paying attention to and focusing on natural gas as a clean fuel of choice for at least the next few decades, which would be able to provide a significant share of the energy needed by the world."

Iran's minister of petroleum stated: "According to many experts, natural gas may serve as a bridge between the era of dominance of fossil fuels and the era of superiority of renewable energies. At this critical time, Iran may play a significant role in securing the global energy security by

relying on its huge natural gas reserves."

Imposition of Sanctions on Iran Jeopardizes Global Energy Security

Owji, pointing out that the Islamic Republic of Iran, with more than 33 trillion cubic meters of natural gas reserves, is the second largest natural gas country in the world and has set a production record of 1 billion cubic meters per day, which puts the country third in the world in terms of daily production volume, further stated: "This is despite the fact that Iran's natural gas production prospects have a great capacity to increase, thanks to vast untapped regions and many untapped fields. These advantages, along with Iran's strategic position in accessing various markets and neighbors with rich oil and gas resources, confirm the influential role of the Islamic Republic of Iran in the future of the energy security of regional countries and of course the world." Emphasizing that the unilateral and oppressive sanctions imposed against the Islamic Republic of Iran, as the

holder of the largest oil and gas reserves and the world's most important energy producer, have jeopardized the energy security of the world and the region, HE Owji said: "Although the sanctions have made it a challenge for Iran to realize its massive oil and gas production and export capacities and to play an effective role in the regional and global energy supply chains, over the past years, despite all the restrictions, the country has made significant achievements in various oil, gas and petrochemical sectors."

Collective Efforts Needed for Realization of Low-Carbon Economic Development

Emphasizing that the realization of low-carbon economic development in the world and achieving the goals and prospects of this summit requires the cooperation of all countries, including developed and developing countries, and all producers and consumers of fossil energy, he said: "What is certain is the issue of energy transition and

although the reduction of dependence on fossil fuels has been pursued more seriously over recent years, it seems that there is a long way ahead for the full realization of the goals at the country level, and in this regard, it is inevitable to pay attention to the level of economic development of countries in determining their duties and obligations." Owji, in his closing remarks, proposed that the following could be taken into account in order to bolster ties between fossil fuel producing and consuming countries: paying attention to natural gas and focusing on it as a clean and low-cost fuel, unhindered access to financial resources and technology without discrimination and sanctions due to the global effects caused by restrictions on the implementation of plans concerning global energy security and reducing rate of emissions, revising the energy investment portfolio, especially by giving priority to increasing gas production, eliminating flaring and improving energy efficiency, cooperation in developing and promoting technologies necessary to jack up energy efficiency, smart grids and energy storage and collection of flare gases, cooperation and interaction in line with the commercialization of the hydrogen economy, creating innovative technology parks (ITP) in order to share knowledge among projects, discuss and exchange information, cooperate in clean fuel development projects, standards and implement relevant market development models, holding continuous and targeted events to identify problems and to identify solutions and policy and developing a plan for the development of multilateral cooperation between major fossil energy consumers and producers with the aim of curbing carbon emission during the energy transition era.

While welcoming the presence of international companies possessing capital and technical know-how in the field of enhancing energy efficiency and reducing CO2 emissions, from the development of clean and renewable energies, energy storage in Iran, he said: "Without international cooperation in the evolutionary reduction of CO2 emissions and if the current aggressive approach of not paying attention to the interests of fossil fuel producers in the energy transition process continues, the world will undoubtedly face a crisis in energy supply and access in the next decade."

In the past years, an aggressive approach to the need to quickly reduce the use of fossil fuels with the aim of reducing CO2 emissions has led to reduction in investment in fossil resources

Although the sanctions have made it a challenge for Iran to realize its massive oil and gas production and export capacities and to play an effective role in the regional and global energy supply chains, over the past years, despite all the restrictions, the country has made significant achievements in various oil, gas and petrochemical sectors

IR Iran Becomes a Member of the Shanghai Cooperation Organization (SCO)

Ehsan Jenabi

The Islamic Republic of Iran became a permanent member of the SCO at its 21st Summit in the presence of 12 permanent and observer members

The President of Uzbekistan Shavkat Mirziyoyev, as the host of the 22nd SCO Summit, announced Iran's permanent membership in his speech on Friday 16 September 2022. The Islamic Republic of Iran became a permanent member of the SCO at its 21st Summit in the presence of 12 permanent and observer members. Since the early years of the establishment of this organization, Iran's efforts to become a member initiated, and in 2005, Iran was accepted as an observer member of the organization. During the last 16 years, a lot of efforts were made by Tehran to become a member of this organization. Officials of the 13th administration also consider this event as a great opportunity for our country. According to the government spokesperson's tweet, the bill "Addition of the Government of the Islamic Republic of Iran to the SCO" will be submitted to the Iran's parliament to pass legal formalities after its approval by the government.



The SCO at a glance

The (SCO) was officially established in June 2001 by China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. Despite the official announcement of this body in the early 2000s, the main basis for the establishment of this organization should be seen in the competition of super powers over the Central Asian region in the era after the end of the Cold War. On April 26, 1996, the heads of states of China, Russia, Kazakhstan, Kyrgyzstan and Tajikistan

met in Shanghai, China, under the name of "Shanghai 5", with the aim of building security trust in their borders, and finally, after 5 annual meetings, in 2001, they officially announced the establishment of the SCO.

What does SCO do?

The SCO was established as a multilateral association to ensure security and maintain stability across the vast Eurasian region, join forces to counteract emerging challenges and

threats, and enhance trade, as well as cultural and humanitarian cooperation. The main objectives of the SCO are to (i) strengthen relations among member states; (ii) promote cooperation in political affairs, economics and trade, scientific-technical, cultural, and educational spheres as well as in energy, transportation, tourism, and environmental protection; (iv) safeguard regional peace, ...

The most powerful member in the SCO,

and Why?

In the SCO, Russia and China are considered to be the most powerful stakeholders in the organization. Both have their own geopolitical interest that they are pursuing, which is focused more on security threats than economic deals within the organization.

Civilian organization to counter American influence

The SCO was established without military

The main objectives of the SCO are to (i) strengthen relations among member states; (ii) promote cooperation in political affairs, economics and trade, scientific-technical, cultural, and educational spheres as well as in energy, transportation, tourism, and environmental protection; (iv) safeguard regional peace

goals, in the form of multilateral security, economic and cultural cooperation, with the aim of establishing a balance against the influence of America and NATO in the region. In fact, being a member of the SCO since its establishment until now, unlike the North Atlantic Treaty (NATO), does not create an obligation for the members with regard to military cooperation issues. In fact, the SCO is one of the few bodies or organizations in which Western countries do not have any involvement in the structure and internal decisions of its members.

The difficult path of Iran's membership in the SCO

Despite having good relations with the founding and member countries of the SCO, Iran passed through a relatively difficult path: from being an observer member to becoming a permanent member. During the years after 2005, the discussion of accepting Iran's permanent membership in the SCO has been discussed for many years, but until July 2015 and after signing the Joint Comprehensive Plan of Action (JCPOA) between Tehran and the 5+1 countries, international sanctions and Security Council resolutions prevented Iran's membership in the SCO. There were legal and political restrictions against Iran's joining this institution. But after the approval of Resolution 2231 in the United Nations Security Council, the first serious step for Iran's membership in the SCO was taken and the big legal obstacle was removed.

In the meantime, Iran's close relationship with the permanent member countries of the SCO was also of great importance and it seems to have brought the basis of trust between the parties. With this in mind, in 2017, Iran's attempt to become a permanent member of the SCO, despite the agreement of all members, remained fruitless due to Tajikistan's opposition citing various security and political reasons. However, recently Dushanbe reacted positively toward Tehran's permanent membership and agreed to accept Iran's permanent membership. Finally, on 17 September, 2021 (26 Shahrivar 1400), Iran was accepted as a permanent member of the SCO as the ninth country. Although Iran was accepted as the ninth main member of this organization at the 2021 meeting in Tajikistan, the commitments of permanent membership were officially signed at the Samarkand Summit. Since the membership



of Iran as an observer in the SCO, three administrations in a row took office in the country. In fact, the observer's membership began with the ninth administration, and during this period, the senior officials of our country had repeatedly asked other members to agree to the permanent membership of Iran in the SCO.

World's energy majors

As the SCO member and observer countries are among the world's largest energy producers and consumers, this organization can establish close cooperation among its members in the field of energy exports and imports, and it can have a great impact on the world's energy management and the world energy market conditions. Iran, as one of the permanent members of the SCO, can take advantage of the benefits available in the field of oil and gas exports to the members.

In fact, the sale and return of money from energy exports can be significantly facilitated. Of course, this situation highly depends on the removal of international sanctions against Iran. In the current situation of extensive Western sanctions, even the major companies in the SCO will not welcome economic cooperation and partnership with Iran.

The Special Demographic and Export Potentials

The SCO member and observer countries account for about half of the world's population and one fourth of the world's landmass. In the first stage, this issue can economically create a large market for members to cooperate with each other and facilitate and strengthen their commercial and economic cooperation with each other. In the next stage, such demographic and territorial potential can be very effective

in altering power equations and creating a balance of power at the global level. According to these interpretations, Iran's permanent membership in the SCO can be very positive and fruitful, particularly in terms of enhancing the level of non-oil exports. In the current situation, Iran's non-oil exports to East Asian and Central Asian countries is not considerable and do not exceed several billion dollars, but Iran's permanent membership in this organization can significantly increase Iran's commercial income. However, it is noteworthy that the removal of sanctions against Iran will be a prerequisite for such an event for Iran's economy and exports.

Iran and World Trade Organization

Although there are pros and cons regarding Iran's membership in the World Trade Organization (WTO), Iran has been applying

to join the WTO for many years, and Iran's membership as an observer member was previously approved, but Iran's permanent membership case has not come to fruition for various reasons. In the meantime, regardless of the US sanctions and obstacles on the way of Iran's membership, the issue of the non-compliance of Iran's economic structures with the WTO rules and the lack of grounds for joining this organization has been always raised. To wrap up, it could be argued that while aborting the efforts made by the US to make Iran politically and economically isolated, Iran's membership in the SCO will definitely lead to strengthening infrastructure capabilities, reforming structures to make the economy more competitive, and rebuilding laws based on compliance with the requirements of the SCO, and this would eventually pave the ground for Iran to join the WTO.

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Iran's membership in the SCO will definitely lead to strengthening infrastructure capabilities, reforming structures to make the economy more competitive, and rebuilding laws based on compliance with the requirements of the SCO

Iran Hopes to Create Sulfur Value Chain

Millions of tonnes of sulfur is produced in Iran annually, while sulfur consumption is low in the country. In addition to that, sulfur exports are faced with such challenges as low price and environmental restrictions. Therefore, petroleum industry experts have made great achievements in covering this widely-used material to products of higher value added through knowledge-based measures, the last of which was the launch of granule and urea production plant at the largest sulfur production facility in northeastern Iran.

Sulfur is one of the most important constituents of oil and gas, which is very important to various industries. This chemical product has many applications in the manufacture of chemical compounds and as a processing product in the industrial cycle. The results of studies show that the annual production of sulfur in the world will increase significantly in the coming years. At present, considering the annual production of more than two million tonnes of sulfur in various oil and gas refining industries of the country and considering the problems of its export in relation to its very low price and considering the restrictions and laws imposed to protect the environment, it seems essential to replace most of the sulfur produced with higher value-

added products. Moreover, sulfur as a by-product of gas refining is a serious challenge in the refining industry in terms of both the environment and HSE due to its potential for environmental pollution and flammability and explosion. For this reason, conversion of sulfur into more value-added products and the ability to sell quickly has always been one of the priorities of gas refining companies. To solve the above-mentioned problems, sulfur must be converted into a variety of products, including polymers, composites, carbon disulfide, micronized sulfur, sulfur nanoparticles, sulfur asphalts, and so on. By producing more value-added sulfur products, in addition to creating wealth and developing national employment, we will also see an improvement in the quality of the environment. Also, if safety measures are not taken in the process of transportation, unloading and loading and storage, its potential risks can become a concern for humans, society and the environment.

Inevitable Sulfur Value Chain

At present, the spec of crude oil are changing to heavier and the amount of sulfur in these reserves is increasing. On the other hand, the permissible amount of sulfur in petroleum products is constantly limited by strict environmental laws, and countries with very sour gas reservoirs, due to global economic conditions and

fluctuations in the global energy market, have comprehensive plans to develop such fields and gas production in such a way that the desulfurization process of oil and gas products will be considered more seriously in the near future, and in general, the annual sulfur production in the world has been accompanied by an upward trend. Statistical evidence from the past to the present shows that the supply of sulfur in the world exceeds its demand. As a result, surplus sulfur is left unused in the world every year, which not only creates storage problems but also has devastating environmental impacts.

Comprehensive Document

Due to the current problems of sulfur production in Iran, the increasing trend of sulfur production in the country, the lack of a guaranteed market for crude sulfur and the need for sustainable gas production, the need to organize has made it very important to pay attention to this issue. Also, considering the increase in the amount of sulfur produced, especially in Iran's neighboring countries and the limited global consumer market, it is clear that we cannot rely only on the export of crude sulfur; that is why in the project, the idea is to formulate and present short-term, medium-term and long-term solutions to overcome the existing problems. In this project, several main activities such as identifying sulfur value chain problems in Iran, modeling appropriate models

(benchmarking) in the sulfur industry, identifying and analyzing the sulfur value chain and identifying its beneficiaries, trend analysis, formulating strategies and drawing the optimal sulfur value chain development roadmap, initial technical and economic studies of the production processes of selected sulfur products are on the agenda. Techniques of field data collection, taking poll through designing questionnaires and referring to previous sources and projects are among the methods and techniques used in the project. Sulfur producers in the country, all relevant management institutions and the private sector could benefit from the results and output of this project.

Sulfur Value Up 3-8 Times

Recently, in the Sarakhs region in northeastern Iran, two plants involved in the sulfur value chain (bentonite sulfur fertilizer and molten sulfur) were launched with the private sector investment and technical knowledge developed by the Sharif University of Technology. According to Javad Owji, the minister of petroleum, since in the Assaluyeh region, which is the center of gas production in Iran and the Middle East, sulfur production stands high, a new sulfur park will be built using local knowledge with domestic investment. "Prior to launching these two plants, the sulfur produced in northeastern Iran was exported wholesale to India and China. Therefore, by launching these plants,

in addition to supplying domestic needs, we will be exporting a product whose value would be 3-8 times higher than wholesale sulfur," he said.

Iran, Mideast Sulfur Hub

In the Middle East, Iran ranks third in terms of sulfur production behind Saudi Arabia and the UAE. In Iran, in addition to gas refining companies, oil refineries including Tehran, Shiraz, Tabriz, Arak, Isfahan, Abadan and Bandar Abbas as well as the Razi and Khark petrochemical companies also supply sulfur. Yahya Feyzi, acting head of the Shahid Hasheminejad Gas Refining Company, said entirely local knowhow has been used in building the Shahid Soleimani sulfur plants. The refinery is producing a maximum 2,000 tonnes a day of sulfur. One of its main challenges was the 2.5-million-tonne sulfur depot which caused safety and environmental challenges. Therefore, it had to export raw sulfur to Bandar Abbas to be exported to India and China. Now, thanks to knowledge-based companies and the private sector's investment, this sulfur is handed over to four private plants in the form of molten to be transformed into products of higher value-added. In the future plans of the park, the private sector is supposed to convert 4.5 million tonnes of sulfur from Turkmenistan and other CIS countries to bentonite, micronized sulfur, liquid sulfur and other more value-added products by building at least 15 factories. Currently, Central Asian sulfur is imported from the Sarakhs border and sent to Bandar Abbas for export purposes.

Ensuring Oil Flow at Azar Field: A Herculean Task?

- Azar is one of Iran's oil fields developed by an Iranian consortium with €1.4 billion in investment. One of the most complex oil fields in Iran, Azar is located in Anaran exploration block in Ilam province, western Iran.
- Based on comprehensive reservoir and geological studies, the field is estimated to contain 4.3 billion barrels of in-place light crude oil with an API of 32, and 400 million barrels of recoverable oil. According to Javad Owji, Iran's Minister of Petroleum, currently, more than 210,000 b/d of oil is currently being produced in the province, and Azar accounts for the lion's share of the produced crude.

Azar is one of the most complex oil fields

Without exaggeration, Azar is one of the most complex oil fields not only in Iran but also in the region; special geological formations and extensive facies changes have made drilling in this field one of the most difficult and challenging operations; the average duration of the well drilling operations in this field is several times longer than other wells in onshore fields of the country, and the implementation of drilling operations and some downhole services (such as mud and cement) in this field is one of the most difficult and time-consuming drilling services due to the sequence of high-pressure, low-pressure layers and the certain pressure regimes of the formations of this field.

In addition, the composition of the Azar field fluid contains high molar percentages of hydrogen sulfide and carbon dioxide, which create highly corrosive conditions and make the use of special corrosion-resistant alloys in downhole equipment, pipelines and wellhead and processing facilities inevitable. The use of these special alloys in the

nuclear and military industries, and the existing sanctions have made the supply of these materials hit many hurdles from the very beginning of the project's development; however, despite all the difficulties, all the equipment and goods required by the project have been procured.

Another complication of developing Azar is the weak reservoir properties of the field, which caused an Iranian company to include acid fracturing operations in the field development plan from the very beginning due to the fissured nature of the reservoir, and to include this operation in the Azar exploratory well No. 2, resulting in a significant boost in the production efficiency index of the well. This operation was also implemented in some wells during the development of the field.

Another challenge facing the Azar Field's development operation, which has not been reported in any other oil field, is the occurrence of numerous cracks and fissures in the field, which appear after seasonal rains. Based on the investigations, these cracks are the result of the

weak structural levels of the earth's layers, and erosion alone is not its cause, and since these cracks can be dangerous for the structures, buildings and facilities, in the areas adjacent to the waterways (given the potential for formation of these cracks into wide underground tunnels and the collapse of these tunnels and finally creation of chimneys and sinkholes), building facilities has been refrained from and by conducting detailed studies, the danger zone of the area has been identified and separated into more hazardous and less hazardous areas; also to understand the origin of these cracks and fissures, which increase the risk of the development operation, measuring the problem of erosion or global subsidence of the land was investigated as one of the reasons for the opening of cracks, and determining the rate of vertical and horizontal variations of the cracks themselves was considered.

Performing Acid Fracturing Operations

Drilling 19 production wells and one wastewater

disposal well with an average depth of 4,600 meters, performing acid fracturing and high-volume selective acid stimulation in all wells in Azar Field, installation of wellhead facilities and 80 km of 8-inch pipelines, construction of 320 kilometers of pipelines to transfer oil and gas from the field to the desired destinations; which is NGL 3200 for the crude oil and associated petroleum gas produced at Cheshmehkhosh production unit, construction of a central processing unit with a capacity of 71,500 barrels, and construction of an early production unit with the capacity of 30,000 barrels of crude oil are among the operations implemented for developing Azar Oilfield.

The Azar oil field, whose production target has been achieved in the development plan, has achieved this target by relying on domestic capacities, while Iraq has benefited from the cooperation of foreign companies to develop the Al-Badrah field, which is joint with the Azar field. This field is very unique from the point of view of the geological structure, in such a way that the drilling operation is difficult and challenging in

this field, and the average drilling time in Azar field is several times longer than drilling in onshore wells in other parts of the country. At the same time, the successful implementation of acid fracturing operations in several wells of the Azar field was an activity that was implemented for the first time in the country on a field scale, while other wells of this field were also subject to high-volume selective acid job, which made maximum involvement of the production layers possible and as a result a significant increase was achieved in the production efficiency index from the wells of this joint field. There was no backdrop of successful implementation of acid fracturing operations in the field scale in the country and Azar was the first oil field where this operation was carried out. For implementation of acid fracturing operation, five wells were considered and it was decided to continue this process after implementation of the operation in five wells of the field, but after implementation of the operation in three wells, due to some problems in the optimal management of the wells, it was decided to replace high-volume acid job in the future.

Formation with Alternating and Complex Pressure Regimes

Azar Field has a structure with alternating and

complex pressure regimes. The entanglement of the structural features of the field caused continuous and unpredictable variations in the pressure regime of the layers of the earth during the drilling operations at great depths. That is, due to the high frequency of low-pressure and high-pressure layers and the recording of unusual formation pressures during drilling, in short time intervals, both drilling mud waste and high-pressure fluid flow have occurred, and to solve this problem, casings and liners of unusual sizes were used. The deepest and heaviest surface string casings in the country, with a depth of more than 2 km and a weight of about 500 tons, have been installed in Azar wells, and the largest number of drilling sections for optimal access to the reservoir layer at the level of the country's oil fields with seven bores has been carried out in Azar field. In addition, due to the high pressure and temperature of the reservoir, Azar Field could be considered one of the fields with high pressure and temperature (HPHT) and considering the high amount of acid gases, the operational challenges of this field are doubled. Add to the list of difficulties, the high heterogeneity in rock and fluid properties, especially the quality of oil produced from different reservoir horizons, the presence of abundant wax and asphaltene deposits, and high amounts of hydrogen sulfide gas in the reservoir.

Cooperation of Iranian Universities to Ensure Production

Given the fact that oil production conditions are pretty unique in Azar Field, maintenance and operation of the wells of this oil field also require special know-how and expertise, which is currently being carried out by the engineers and experts of the Iranian oil industry with the cooperation of domestic universities. It should be remembered that at the beginning of the exploration and development of this joint field, the development of this huge and complex field was supposed to benefit from the capabilities and experience of major foreign companies, but this was not possible due to the sanctions imposed on the country; therefore, an important part of the activities was assigned to the Research Institute of Petroleum Industry (RIPI) under three consecutive contracts and projects since 2018. Saber Mohammadi, the operator of a project to guarantee the flow and improve production in the Azar oil field, said in this regard: "Azar Field with more than 4 billion barrels of oil in-place storage and light oil production, as well as a special geological structure and a sequence of high-pressure and low-pressure layers, has made drilling in it one of the most difficult and challenging operations." The fluid composition of Azar Field contains a high percentage of hydrogen sulfide

gas and carbon dioxide, and the presence of these gases creates highly corrosive conditions, which necessitates the use of special corrosion-resistant alloys in downhole equipment, pipelines and wellhead as well as processing facilities, and on the other hand, due to the high corrosiveness of the fluid, the acid job in the wells of this field is associated with many challenges and problems. According to him, continuous injection of asphaltene deposition inhibitor and corrosion inhibitor is currently being carried out in the production wells of this field under the continuous supervision of the Research Institute of Petroleum Industry, and this measure plays a significant role in guaranteeing the production flow in the oil field. Based on this, according to the characteristics of the field, by late June, in the form of a comprehensive scheme, the pathology of acid job in the wells of Azar field and the optimization of its formulation were examined and the optimization of acid treatment packages in different wells of Azar field was announced as one of its most important achievements; therefore, the protocol for checking acid treatment packages in the material synthesis stage and before use in the field was carried out for the first time in Azar field with the effective participation of the RIPI, which will lead to a safe and economical production.



Iran, Russia Presidents Pleased with Energy Ties

The presidents of Islamic Republic of Iran and the Russian Federation have expressed their satisfaction with the expansion of relations between the two countries on energy, banking, land and sea transportation, and customs sectors. During a meeting in Samarkand on Thursday, 15 September, the presidents of Iran and Russia, Seyed Ebrahim Raisi and Vladimir Putin, expressed their

satisfaction with the remarkable progress in the relations between the two countries, especially on banking, land and sea transportation, customs and energy sectors. In the meeting, the President of Iran assessed Tehran-Moscow economic cooperation as useful for the two nations as well as the countries in the region and reviewed various aspects of economic, transit and banking cooperation between the two

countries. Reviewing NATO's expansionist policies, Raisi underlined the developments in the Caucasus, and said: "Any change in the region's geopolitics is a destabilizing and unacceptable action." In the meeting, the President of Russia also assessed the positions of Russia and Iran as convergent and harmonious, and while referring to the dangers of NATO's excesses, he said: "NATO's threats are not

limited to Europe and include other countries of the world." Pointing to the extensive trade relations between Moscow and Tehran, Putin expressed his satisfaction with the increase in the visits of economic officials of the two countries, and stated: "The volume of trade between the two countries has skyrocketed by 81% over the last year (2021) and by 30% in the first five months of the current year."

Iran Eyes 200 kbd Crude Oil Output Rise by Yearend

The CEO of the National Iranian Oil Company (NIOC) said Iran's oil production capacity will reach 4.38 million barrels per day by the end of the current calendar year, which began on March 21 with a 200,000-barrel increase.

Mohsen Khojastehmehr, pointing out that the oil production capacity in the 13th administration rebounded to the pre-sanctions level at the end of last calendar year, added: "Our oil production capacity is now 3,838,000 barrels per day."

He continued as saying: "By the end of this [calendar] year, with the measures taken, Iran's oil production capacity will reach 4.38 mb/d." Regarding the increase in oil exports in the 13th administration, the Deputy Petroleum Minister said: "Considering the rise in oil production capacity, we may enhance our exports level due to the available capacity in the international markets."

Iran, Japan Hold Joint Seminar on Net Zero Emissions by 2050

An educational seminar entitled "Introduction of Japan's policies in using hydrogen and ammonia to achieve zero carbon emissions by 2050" was held in Tehran.

The educational seminar, titled "Introduction of Japan's policies to use hydrogen and ammonia to achieve zero carbon emissions by 2050," was held in Tehran in the presence of Abbas Razmi, Director of Health, Safety and Environment (HSE) of NIOC, Yuka Kida, Head of the Economic Department of the Embassy of Japan in Iran, and Masashi Watanabe, Director of Oil and LNG Policy at the Natural Resources and Energy Agency of the Ministry of Economy, Trade and Industry (METI) of Japan. At the opening of the seminar, the NIOC director of HSE emphasized the necessity of managing gas flaring emissions (no flaring) and gaining awareness of new methods and their application in managing greenhouse gas (GHG) emissions in Iran's oil and gas industry, and said: "The main goal of the seminar is to mitigate greenhouse emissions, and good goal setting and planning have been made in the world, especially in Japan."

Renovation of Strategic Facilities of Oil Terminals on Agenda

The CEO of the Iranian Oil Terminals Company (IOTC) said ensuring the stability of operations and enhancing the reliability of the equipment and facilities, their preventive and basic maintenance and repairs, and the implementation of development projects are some of the company's priorities.

Abbas Asadrrouz stated: "Considering its mission and responsibility in the field of storage, measurement and export of crude oil and its important role in the value chain of the National Iranian Oil Company (NIOC), IOTC has always kept the stability of production and improving its capabilities in the field of updating equipment and preparing operational conditions on its agenda."

He added: "In order to carry out the important tasks assigned to IOTC and ensure the stability of operations and improve the reliability of the equipment and facilities for their preventive and basic maintenance and repairs, measures have been taken and/or are being taken."

Iran, Uzbekistan Agree to Boost Oil Trade

Ahmad Asadzadeh, the Deputy Petroleum Minister for International Affairs and Trade, who met and talked with Abdi Jamil Imiaminovitch, the Deputy Minister of Energy of Uzbekistan, on the sidelines of the 16th Iranplast Exhibition, said that preliminary agreements have been struck with Uzbekistan to boost the level of trade of petroleum and petrochemical products. He said: "It is expected that a new chapter will be opened in the relations between the two countries in the field of energy and petrochemicals in the future due to the knowledge of the two sides of each other's capabilities." The trip of Uzbekistan's energy delegation to Iran was held in parallel with the 16th Iranplast exhibition, following the visit of Iranian Minister of Petroleum Javad Owji to Uzbekistan and his meetings with the officials of the Ministry of Energy of the country on the sidelines of the Shanghai Cooperation Organization Summit in Samarkand. Considering the existing capacities between Tehran and Tashkent in the field of energy and the interest of both sides, the Iranian delegation headed by Mr.

Iran Ready to Bolster Global Energy Security

Iran's Minister of Petroleum Javad Owji voiced Iran's readiness to enhance the global energy security regardless of political workings of certain countries in the oil market.

Underlining the fact that the global energy market needs an increase in Iran's oil supply, Mr. Owji said: "As a major producer of oil and petroleum products in the world, 'we are always ready to contribute to global energy security and while playing an important role in oil supply make attempts to depoliticize the oil and gas sector.'" After the end of the 32nd ministerial meeting of the OPEC+

coalition, Javad Owji stated: "From a technical and expert point of view, the OPEC+ technical and monitoring committee in its base scenario has predicted an excess of supply to global oil demand in 2022 at the daily level of 400,000 barrels, which is compared to last month's forecast, which was about 600,000 b/d less." He stated that according to the studies, the decisions of OPEC+ have helped to improve the conditions of the oil market in terms of the balance of supply and demand, adding: "However, in the current situation, as a result of some concerns about the consequences of

geopolitical tensions for the world's economic growth and possible damage, the demand of the global oil market is fragile, and the proof of this is the high volatility of crude oil prices in recent months, which should be taken into account." He clarified: "According to the latest published statistics and reports, the proper compliance of the OPEC+ coalition member countries reached the level of 546% in July 2022, and the main reason for the increase in the level of compliance was the non-production of the committed amount by some countries. The petroleum minister added: "Due

to the reduction in the production of some OPEC+ producers and the non-realization of the committed production levels, as well as the reduction in the level of commercial reserves of crude oil and petroleum products in some major consuming countries, the 32nd ministerial meeting of OPEC and non-OPEC while again supporting the decision of the 19th OPEC+ ministerial meeting (July 2021), based on consensus, decided to cut the total output of OPEC+ by 100,000 b/d for the month of October 2022, and OPEC+, in the form of monthly expert and ministerial meetings,



to monitor market developments and take any necessary measures to ensure the stability of the oil market." Reminding that the global energy crisis is intensifying, especially in the European region,

Owji said: "An example is the hike in the price of natural gas in some European gas hubs to about \$70 for every one million BTU which is equivalent to the price of oil being more than \$400 dollars per barrel."

Petrol Output of Persian Gulf Star Refinery Up

The deputy of Persian Gulf Star Oil Company CEO for production announced implementation of development plans to enhance the capacity of Persian Gulf Star Refinery. "Gasoline production of Persian Gulf Star Refinery, as the main supplier of gasoline in the country, has grown by more than 20% compared to the same period last year," said Soroush Ziglari. He said among the important steps taken by Persian Gulf Star Oil Company as the gem of the country's refining industry in the first 6 months of the calendar year of 1401 which began on March 21, was the rise in the production of gasoline, so that despite the increase in summer trips and the increase in the daily consumption of gasoline in the country, there was no disruption in the balance of production and consumption of gasoline in the country. The refinery official said: "With the plans made in the implementation of the next stages of the capacity enhancement project and the development plans of the value chain of products, in the near future the Persian Gulf Star Refinery will be converted into a large and modern petro-refinery in order to produce the items needed by the country and create more value added."

Iran Exports Petchem Catalyst to Russia

The 16th edition of the Iranplast exhibition was held in the five categories of "raw materials", "manufactured and semi-manufactured goods", "machinery and equipment", "services" and "banks, stock exchanges and financial institutions" at the permanent location of international exhibitions in Tehran from September 20 to 24. During his visit to the exhibition, Iran's Minister of Petroleum Javad Owji said: "Export of petrochemical products in terms of weight and dollars in the first 6 months of this [calendar] year have increased compared to the same period last year." Referring to the stunning presence of domestic and foreign companies at the 16th Iranplast exhibition, he added: "Visiting the booths of the showcase, I noticed the presence of knowledge-based companies in the field of value chain and practical equipment. Of course, the exhibitors also raised their challenges, and we are trying to solve them as soon as possible." Iran's petroleum minister continued: "Last year, the petrochemical industry deposited \$12.5 billion into the Nima system, and based on the available statistics in the first 6 months of this calendar year, compared to the same period last year, we have witnessed an increase in the export of petrochemicals in terms of weight and hard currency."

Talks underway top Export CNG Engineering Services

The CEO of the National Iranian Oil Refining and Distribution Company (NIORDC) said: "Countries that have visited the facilities in the country and considering our second place in the field of CNG development - in terms of the number of places and supply channels and the number of vehicles in the transportation sector- we hope to be able to export technical-engineering services in this field, by using companies that supply and produce equipment and goods."

Jalil Salari said: "In this regard, negotiations have been also conducted to use the capacity of NIORDC in the field of CNG overseas."

The NIORDC CEO said: "CNG distribution capacity in the country will increase to 30 to 34 million cubic meters per day with the planned measures."

Pointing out that 213,000 cars have been converted under the Economic Council's approval, he added: "With the launch of the system for converting gasoline-powered cars to gas-powered cars, facilitation took place in this area. Due to the increase in the fee of CNG supply stations, we need to use their entire capacity."

Iran to Export Technical, Engineering Services, Urea to Nigeria

Iran's Minister of Petroleum Javad Owji said: "Iran and Nigeria enjoy many capacities that they may use in the future to expand bilateral relations in the field of energy."

Mr. Owji underlined signing of a memorandum of understanding between Iran and Nigeria for cooperation in various fields, including the export of technical and engineering services and petrochemical products (urea).

Speaking on the sidelines of a meeting with the visiting Nigerian Timipre Sylva, the Nigeria's Minister of State for Petroleum Resources, stating that Iran and Nigeria had previously held various talks on the sidelines of the meeting of the heads of state of the Gas Exporting Countries Forum (GECF) in Qatar.

"In today's meeting, according to the previous constructive meetings with the Nigerian side, a favorable memorandum of understanding for cooperation was signed between Iranian companies and Nigeria in various fields of energy, including the export of technical and engineering services to this African country, fueling gasoline cars using the capabilities of Iranian companies, using the capabilities of Nigerian side for production of liquefied natural gas (LNG) and the development of Nigerian oil and gas fields."

NISOC Eyes 3mb/d Production Capacity by March 2023

The National Iranian South Oil Company (NISOC) has planned to bring its crude oil production capacity to 3 mb/d by the end of the current calendar year, which began on 21 March.

According to NISOC, Ramin Roghanian, the director of technical affairs of NISOC, said: "This year's goal of the company is to reach the daily production capacity of 3 mb/d, which will be achievable if the requirements are met."

A five-year plan has been developed in both surface and subsurface sectors, he said, adding in the subsurface section,

drilling of new wells, workover of a number of existing wells, and a large volume of downhole restoration operations, and in the surface section, construction and development of a number of facility projects are planned.

He said: "75 technological contracts have been either signed or are being signed with knowledge-based companies and domestic universities to support domestic manufacturing and meet the technological needs of NISOC."

The NISOC official further stated that the final goal of the project is to achieve the production

capacity of 3 million barrels per day, adding: "Tenders are being held as part of the above requirements. The main challenges of achieving this are the long process of holding tenders, determining a fair estimate according to the inflation rate, issuing the required permits to determine the tasks of the projects, lack of drilling equipment inventory, empowering the National Iranian Drilling Company, access to modern technologies, providing maintenance services and supply of downhole pumps."



Reviving Low-Yield Oil Wells, NIOC's Serious Concern

Figures do indicate that Iran ranks first in the world in terms of the aggregate oil and gas reserves. Taking advantage of this huge wealth or preserving it for future generations has always been a challenge for policy makers. The arrival of renewable energies and the efforts of countries to ramp up energy security and non-dependence have caused oil-rich countries to seek to optimize production from hydrocarbon reservoirs in order to turn it into a capital for future generations. In the meantime, some countries, including Iran, have put on their agenda a written program to revive inactive wells as a short-term solution to improve their oil output. The following is an overview of Iran's plan to revive low-yield oil wells.

According to the BP Statistical Review of World Energy 2020, Iran ranks fourth in the world with 156 billion barrels of proven oil reserves. According to the same report, Iran's R/P ratio among the countries of the region and fellow OPEC members is so low necessitating making efforts to pull up the level. Compared to global standards, this situation is mainly caused by the lack of development of the explored fields and the lack of optimal development and production from the fields being exploited.

Previously, developing oil fields and enhancing oil production in Iran was done with a reservoir-oriented approach, but in the new plan pursued by the National Iranian Oil Company (NIOC), oil production has become well-oriented which is economically better and boosts productivity. To recover oil from a new well, an average investment of about \$10 million is needed, while in the plan to revive low-yield wells, with an investment of \$1 million, a well can become productive; hence it leads to a 90% reduction in the cost of enhancing production level. According to experts, reviving low-yield wells is a shortcut to producing oil, so if only 10% of this project comes to fruition, 8-10% increase in oil production in the country will be achieved, which means an increase of 300-400,000 barrels per day in the country's total crude oil production capacity.

Making Upstream Oil Industry Knowledge-Based

Currently, the plan to revive low-yield wells is being pursued by the Oil and Gas Innovation and Technology Park (OGITP). According to Mohammad Ismail Kefayati, head of OGITP, any number of companies that participate in this project could be attracted by the Park because it is a great work that can be translated into the onset of turning the upstream sector of oil industry knowledge-based.

In the park, room has been provided for the deployment of knowledge-based companies, and

their support with the help of investors, and after obtaining improved output from low-yield wells or oil production from abandoned wells, a part of its revenues will be paid directly to the companies involved in the project. According to the existing demand for investment, it could be argued that such projects have economic justification, to the extent that even if the oil price drops to \$20 per barrel, these projects will still remain technically viable. On the other hand, this process requires 85 to 100 million dollars in capital, which, according to estimates, has full economic justification. The important point is that this process is one of the neglected investment opportunities and has been approved by the Economic Council as a key task in the oil industry. If the forecasts come true, a large supply of this oil will be witnessed within the next two or at most three years. This is despite the fact that even with a 50% success of the project, its efficiency and output will be beyond expectations, even though the type of technology used or the machinery or technical knowledge used in the projects would also matter. In the process of higher efficiency of wells, a smart approach has been formulated with the centrality of innovation and many simple and complex solutions will be aggregated and presented, and of course, attraction for the entry of knowledge-based companies and financing firms has been provided. So far, following a recall, 48 companies have been registered and admitted.

\$700m Credit

Currently, NIOC is primarily pursuing a national project to revive inactive and low-yield wells, known as the Propeller Scheme, which has been approved by the Economic Council and is in the final stages. Provided that everything goes on according to the plan, by September 2022, contracts will be signed with technology and knowledge-based companies in this regard. Activities begin afterwards and this will be the first time in the history of upstream oil industry of Iran that the capacity of technology and knowledge-based companies has been tapped in such a manner. The Economic Council has earmarked \$700 million for reviving low-yield and abandoned wells for an annual production of 80 million barrels of oil, and after the recall and through legal procedures, nearly 40 companies have been recognized as eligible, and if their proposed plan is approved technically and economically, contracts will be signed with them for the development of low-yield wells.

120 Low-Risk wells up for Recovery

According to an NIOC announcement, there are 750 to 850 low-yield or abandoned wells in this plan, of which nearly 120 wells have been initially shortlisted because of having a lower risk for recovery. These wells are mostly in the oil-rich fields of the south. After screening, the wells that are easier to recover will be up for grabs for the companies.

The wells introduced in this plan are categorized as easy, medium and hard wells, and for all three categories of wells,

a technical and economic model has been developed, each with a different tariff. According to experts, an investment of 7 to 12 million dollars and an average of 10 million dollars is needed to produce oil from a new well, while in the plan of reviving low-efficiency wells, with an investment of 1 million dollars, a well can become productive. This reduces costs by 90%. The financial model for implementation of the project is based on a tariff, and according to the head of OGITP, a specific tariff will be paid for each barrel of oil produced from low-yield wells and according to the classification of the wells.

High-Risk but Economically Justified

Despite the perceived risks, reviving low-yield wells has an economic justification. Considering the enthusiasm of technology companies to participate in this plan and the high demand that other companies have shown to join, it is expected that after signing the contract, the next and new call on companies will be made again for the same purpose.

But the selection process of knowledge-based companies in this plan is one of the important issues.

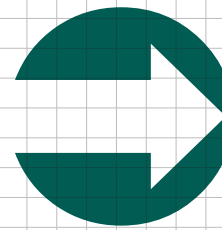
According to the officials, all the companies in this project are technological and knowledge-based and are screened with great care. Based on this, any company whose technology has been proven and claimed to be able to revive wells is accepted, unless they are unable to propose a technical and economic plan. Among the companies present in this project, there is an Iranian company, which according to Kefayati, was perceived as possessing the right technology and despite the low tariff, and is interested in participating in the project due to its high attractiveness and economic efficiency.

At the same time, an Iranian university has also announced its readiness to revive low-yield wells, and two companies are also working in cooperation with the universities. It is noteworthy that well production enhancement is one of the fastest and least expensive methods to enhance crude oil production in the world.

Basically, methods of improving production are divided into three categories: Well Production Enhancement, Surface Facility Improvement, and Enhanced Oil Recovery; and their implementation period is respectively, at least six months, two years and three years. Well Production Enhancement methods can be implemented in wells that are productive but with low efficiency, as well as inactive wells. Every year, a percentage of the productive wells of NIOC are removed from the production group as inactive wells.

Currently, several wells out of the total number of wells drilled by NIOC are classified as shutdown, abandoned and suspended wells and are not productive any more. Low-efficiency and inactive wells of crude oil producing companies are the best platform for researchers and technologists in the field of creating and implementing new well-based technologies, as well as the best opportunity to create start-up and technology and knowledge-based companies in the field of well services.

Developing Oil Park, Fresh MOP Approach for Growth



The successful experience of Silicon Valley as the most famous science and technology park led to establishment of many other similar parks across the globe. As a result, only 5 parks in the 1950s exceeded 60 in the 2000s. In Iran, since the early 2000s, with the establishment of Isfahan Scientific and Research City and Pardis Science and Technology Park, science and technology parks were set up with a novel approach from that of research institutes and universities, and their number has reached 49 parks so far. In Iran's Petroleum Ministry, with the understanding of the status of technology and innovation parks, efforts have been made to establish a technology park since mid-2019, which led to the establishment and launch of the Oil and Gas Technology and Innovation Park (OGTIP) by the National Iranian Oil Company (NIOC) on behalf of the Ministry in 2020.



Baran Mohammadi

→ The following is an in-depth interview with Mohammad Ismail Kefayati, head of the OGTIP, on the park's agenda and prospective plans.

The most important topic that started last year in this park was the call for the well revival scheme to attract knowledge-based and technological companies

What is OGTIP's main mission?

As you know, the most important mission of technology and innovation parks is to coordinate the supply and demand of technology through various means, including holding events. Parks pursue topics such as open innovation to exploit the external and internal knowledge potentialities to solve the internal problems of oil. There are two types of events in the parks, both of which pursued at OGTIP, the direct (pitching) and reverse (reverse pitching) events. The most important topic that started last year in this park was the call for the well revival scheme to attract knowledge-based and technological companies. This call was made and its initial briefing

work was carried out with the groups that we cooperated within different sectors, including the NIOC directorates of Research and Technology and Production Monitoring, as well as investment companies, etc. In carrying out this briefing phase, different NIOC directorates, along with the National Iranian South Oil Company (NISOC), Iranian Offshore Oil Company (IOOC) and Iranian Central Oil Fields Company (ICOFC), cooperated with us.

How many companies signed up?

More than 50 companies registered, of which 48 companies were initially admitted. We tried to cast an open approach towards these firms. When their claim of possessing technology was proven

to us, we were not too strict and accepted them and then we moved on to the briefing stage. We were supposed to hold the second briefing plan in the spring, but for some reasons, especially the necessity of being approved by the Economic Council, we decided to reschedule the plan and engage ourselves with the preliminaries. We consulted separately with the investors and funds that had to provide financing, and after that these funds announced their readiness to support these companies.

Does this financial support have a ceiling?

In the resolution of the Economic Council, very good lending conditions have been considered for them, but our projection is

that they will create up to \$500 million dollars of facilities for these companies. This is an exceptional opportunity for companies that have never existed before, and this is current approach.

How will you work with these companies?

Each of these companies will be assigned to work on 5 wells. They will start their work with a well in order to evaluate their technologies, if the idle well becomes productive with their

technology, more wells will be provided to them.

How many wells have you considered for this purpose?

750 wells can be revived. It approximately costs \$ 10 to 12 million to drill a well, but \$ 1 to 2 million is required to revive a well. Therefore, it is very profitable for us to revive the existing wells. On the other hand, we may evaluate various technologies, maybe this issue can be applicable to normal wells.

In how many stages will these wells be revived?

We will start with about 100 wells that have a lower risk, then we will go to medium and high risk wells.

In which oil regions of Iran are these wells located?

In the areas operated by NISOC, IOOC and ICOFC. These wells are low-yield and some are also abandoned.

How much will restored wells enhance oil production capacity?

According to the plan, in the first phase, they will add 30,000 to 50,000 barrels to the country's oil output, but in total, the capacity to increase oil output is between 300,000 and 400,000 b/d.

Are the companies domestic?

Yes, but foreign companies have also announced their readiness to take part in the revival of the wells.

Which countries are they from?

They are from Russia and China. In order to be economically justifiable to them they would like to be awarded more wells. On the other hand, these companies have access to update technologies. Some of them are rivals in our desired sectors and also possess technology. Recently, members of a business, economic and oil delegation from Malaysia

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visited the premises of OGTIP. This business delegation was visiting Iran at the invitation of the Department of International Affairs and Trading of the Petroleum Ministry and a number of knowledge-based companies under the supervision of the OGTIP attended a meeting with them and presented their achievements in the field of the oil and gas upstream and downstream chains, design, engineering, maintenance and repairs and chemical production. The members of this trade delegation also announced some achievements and their interaction with Iran's knowledge-based companies.

These meetings prove the ineffectiveness of sanctions. The members of this delegation clearly stated that even if the embargoes continued, they would readily cooperate with our country in the field of oil and gas technologies.

Regarding achievements, products and technologies, it was decided to establish a link between the two countries through this trade delegation.

How about the gas sector; do you have any plans to prevent pressure drop in gas fields, especially South Pars?

Yes, we have a plan, we hope that the well revival plan in the oil sector will be successfully completed and then we will enter the gas sector. In fact, after the well-oriented plan, we are going to enhance oil recovery and reservoir-oriented production. It is possible to use the capacities of knowledge-based companies in the gas sector; as well.

Have the universities also announced their readiness in this field?

Yes. Sharif University of Technology, Shiraz University, Amir Kabir University and Imam Hossein (AS) University are among the universities that support knowledge-based companies.



Are you doing anything with regard to manufacturing equipment needed by the oil industry?

Yes, we are corresponding and consulting with the Association of Oil Industry Equipment Manufacturers regarding standards, manufacturing and production of equipment needed and widely used in the oil industry. For instance, in this field, the working group for the first-production of parts and equipment has been formed to determine how these parts and equipment should be used to reduce their risk. In the sector of improving the quality of equipment and parts needed to compete with foreign items, as

well as fostering the use of these equipment among the companies of the oil industry, plans have been devised. With the events that we organize, we create interaction between the applicant group, universities, research institutes and knowledge-based companies so that these groups get closer together and synergy is created in this sector.

There are more than 2,000 companies in the oil, gas, refining and petrochemical sectors in the country, which supply 80% of the equipment needed in the industry. The sanctions provided a proper opportunity for Iranian manufacturers. More than 90 percent of the participants in

the current year's Iran Oil Show were domestic companies. The good potential has been created inside the country. This can lead to manufacturing the equipment needed by the oil industry and meeting more than 90% of the oil industry needs. It is very good to be able to form such capabilities domestically.

The use of international brands is one of the topics that can be used in this park. Have you devised any plans in this regard?

Yes, one of the issues we care about is to tap international potentialities. Speaking of international brands, we want to

use these brands inside OGTIP. As a free trade zone, the park can neutralize sanctions and, on the other hand, create technologies that are fruitful in the oil industry in international activities and international brands. Countries like Germany, Russia and Turkey are ready to give us these brands.

Has there been any discussions in this regard?

Yes, initial consultations have been made with these companies. Our connection is park to park. We have no problem accepting these companies, the legal infrastructure of these companies must be provided inside the park.

We are trying to provide the

conditions for these companies to be present in the park. We may prevent brain drain via attracting top university graduates to the park in the form of knowledge-based companies. We have set a target for the activity of the park and we are ready to establish this connection with all science and technology centers, even with science and technology parks from the US and Canada. At the same time, we are also ready to interact with the reputable universities across the world. OGTIP is an exceptional and novel opportunity to effectively materialize the ambition of turning the oil industry into a knowledge-based sector.

More than 90 percent of the participants in the current year's Iran Oil Show were domestic companies. The good potential has been created inside the country. This can lead to manufacturing the equipment needed by the oil industry and meeting more than 90% of the oil industry needs

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128bn Liters Oil Transmission Record Set

Transmitting oil and petroleum products from production points to consumers in Iran is one of the activities that require precision, speed and round-the-clock efforts, depending on the type of geography and its specific coverage. With 14,000 kilometers of oil and petroleum products transmission lines, Iran has a certain place in terms of the diversity of these lines and the uniqueness of the lines in the Middle East in this domain. Arsalan Rahimi, CEO of Iranian Oil Pipelines and Telecommunication Company (IOPTC), has said Iran distributed 128 billion liters of crude oil and petroleum products last calendar year (20 March 2022), setting a new record in this regard. With the implementation of development projects in the oil transportation industry, including new projects for the construction of pipelines, the length of oil transportation pipelines and the country's products will reach about 17,000 kilometers in the next 4 years.

The figures provided by Rahimi show that last calendar year, about 68 billion liters of crude oil and 60 billion liters of petroleum products were transported, which shows an increase of 6 and 12 percent, respectively, year-on-year. 79% of transfers in the petroleum products sector belong to gasoline and gas oil - 40% gasoline and 32% gasoil. This volume of daily transfer is equivalent to 65.8 million liters of gasoline and 63.6

million liters of gasoil.

New Lines

Currently, more than 14,000 km of pipeline is transmitting crude oil and petroleum products. More pipelines like the 414 km Naein-Kashan-Rey with capacity of 200,000 barrels, 292 km Shazand-Rey pipeline with capacity of 350,000 barrels, 449 km Bandar Abbas-Rafsanjan pipeline with capacity of 270,000 barrels would bring about good developments in upgrading capacity of oil transmission. Furthermore, two new pipelines known as Tabesh Pipeline, 948 km long, and Persian Pipeline, 400 km long, are planned to be constructed.

In general, it could be argued that over four years Naein-Kashan-Rey, Bandar Abbas-Sirjan-Rafsanjan and Mehraran-Fasa pipelines would add 2,500 km to Iran's crude oil and petroleum products distribution capacity. Then, Iran's pipelines would total 17,000 km long.

Unique Pipeline

IOPTC is distributing crude oil and petroleum products through 194 distribution centers and 296 telecom stations across the country. Among IOPTC pipelines, the Maroun-Isfahan pipeline has unique complexities which may not exist in the world. It is known as the world's second longest pipeline, just behind the Alaska pipeline, for the

transfer of crude oil and petroleum products. Another key pipeline is the Bandar Abbas-Rafsanjan pipeline which is very vital. It is operating round the clock and is working even beyond its transmission capacity. It may handle 1,800 cubic meters per hour. Due to the sensitivity to petroleum products supply in Bandar Abbas, the pipeline's capacity has reached 2,100 cubic meters. This pipeline is distributing totally 315,000 b/d of petroleum products.

Domestic Manufacturing

Among the important issues in the transportation of oil and petroleum products, the required equipment could be mentioned. The equipment required by IOPTC includes two groups of telecommunication equipment and pipelines. The pipeline equipment is divided into two parts: rotary and non-rotary equipment. Rotary equipment includes turbines, electric motors, pumps and booster pumps. In the field of rotary equipment, we have a total of 922 rotary devices including turbines, electric motors, booster pumps and various pumps. Non-rotary equipment also includes instrumentation equipment, controllers and other equipment that is used at the company level in the pipeline sector. According to Rahimi, all of this rotary equipment is produced in the country and

there is no dependence on foreign countries in this field.

Powerful Turbines

Referring to the reparation of turbines used in transferring crude oil and petroleum products, Rahimi said: "At one time in the country we had problems to overhaul turbines and had to take them to other countries such as the UAE and repair with many problems, but now, in addition to overhaul, manufacturing of various turbines with complex construction is done locally."

Rahimi, stating that in the field of instrumentation equipment and production of valves in the country, there is production capacity, recalled: "In telecommunications, apart from spare parts that we need for pre-purchased foreign equipment, we have full capacity for manufacturing equipment."

He said that numerous agreements had been signed with local companies for the supply of telecom equipment, including one for the manufacturing of 35 PDH radio links, whose test has been done.

Smart Pigging

The lifespan of oil and products pipelines has certain standards, but maintenance of pipelines is one of the parameters that affect the life of pipelines. The oldest petroleum product distribution pipelines in Iran are the 16-inch Abadan-Mahshahr pipeline and the Ahvaz-Rey pipeline, which were put into operation in 1956 and are still in operation. The oldest crude

oil pipeline in the country is the Gachsaran-Shiraz pipeline, which was put into operation in 1962 with a capacity of 45,000 barrels and is still in use.

In any case, it is noteworthy that monitoring and maintenance of pipelines is of particular importance to smart pigging measures.

Rahimi said: "The average lifespan of our products pipelines is 36 years and the average lifespan of oil pipelines is 32 years, which is something like 30 years in the world. Now, using smart pigging technology, we know the exact status of the lines and the percentage of corrosion. Since 2004, the first high-volume excavations were carried out as the first phase of smart pigging in the country's pipelines, and then we carried out the second, third and fourth phases. By performing smart pigging, we were able to stabilize the condition of our lines and make the necessary repairs."

The results of follow-ups and repairs and defects of pipelines during follow-up operations have 4 different priorities. The required repairs of pipelines up to level 3 are important, 100% and level 4 are up to 80%. Slightly, the replacement of the pipe coating is done. Rahimi said that a total of 17,000 km of pipelines had undergone smart pigging in the country. "So far, 302,000 inches of pigging has been done and implemented at the company level, and phase 5 is also in the future plan, the initial steps of which have been done, and with the permission of the Board of Directors, this phase will be implemented soon."



Petro-Refinery Building, Key in Preventing Crude Oil Sales

Completing the value chain and preventing crude oil sales is among the major concerns of the National Iranian Oil Refining and Distribution Company (NIORDC) in reviewing and revitalizing old refining plants and developing new petro-refineries under the “Support for the Development of Downstream Oil and Gas Condensate Industries” Act. Accordingly, by reviewing the submitted proposals for construction of petro-refineries and petrochemical units, 8 petro-refinery projects, including 5 crude oil petro-refinery projects and 3 gas condensate petro-refinery projects have been approved by Petroleum Ministry. For construction of petro-refineries, measures have been taken in line with ensuring sustainability, improving and increasing the quality of refined products in Iran’s refineries, which seem to be the beginning of a new era of refining activities to form petro-refineries and prevent crude sales in the industry.

Mahnaz Mohammad Qoli

Shahid Soleimani Petro-Refinery

The development of the petro-refining industry is one of the projects sought by the developed and developing countries in a bid to generate higher value added. Developed countries set the ground for the significant growth of their petro-refining industries by setting up chemical parks and petro-refinery units and providing special instruments and facilities to these industries. These countries are trying to play a role in the future of the world energy market by developing industries for converting crude oil into profitable items. In the meantime, Iran, which has a long history in the world’s refining industry, in coincidence with passing the law supporting the development of downstream oil and gas condensate industries, i.e. the law on the construction of petro-refineries, has taken an important step to move away from selling crude oil. Construction of 8 new refinery and petro-refinery projects with a capacity of 1.49 million barrels per day has been finalized, the most important of which being the “Shahid Soleimani Petro-Refinery”. The project of Shahid Soleimani Petro-refinery with a capacity of 300,000 barrels/day is one of the measures and plans of the Raisi administration in order to prevent the import of gasoline and to diversify the petroleum products mix, which, in addition to producing fuel, also supplies petrochemicals. Chemicals account for 25 to 30% of Shahid Soleimani Petro-

refinery’s output. Diesel has a significant share in the product basket of the facility; besides, 35% of its products are kerosene, 15% gasoline, 11% propylene, 10% jet fuel, 9% ethylene, 8% fuel oil, 5% paraxylene and 2% benzene. The composition and variety of products in the refinery have been taken into consideration with regard to the maximum production of petrochemical products and processing items such as benzene, xylene, propylene, butane, polypropylene, etc. The project is located near the Persian Gulf Star Gas Condensate Refinery in Bandar Abbas and about 438 hectares of land has been allocated to it. Shahid Soleimani Petro-refinery is one of the important projects in which the development of the value chain will be fulfilled, and oil products will be transmitted to central Iran through a planned network of pipelines. The project could be called the first project in the field of refining and petrochemical integration in the country that minimizes or even removes many of the challenges faced by both sectors especially for feedstock supply. Furthermore, the plant will play an important role in changing the layout of Iran’s pipelines and the transmission industry, in addition to meeting the country’s domestic need for fuel and preventing its import. Promotion of technical knowhow, creating job opportunities and tapping the capabilities of domestic companies and knowledge-based firms are among other advantages of the project. With the implementation of

the project, the refining capacity in the Hormozgan region will exceed 1 mbd, which, together with the need to enhance the storage capacity of products in the region, will lead to the development of the country’s fuel reserves and the creation of new infrastructures in the marine sector, export and jetties. The signing of the financial memorandum of understanding for construction of Shahid Mahdavi Oil Project is one of these measures, which will enhance the fuel storage capacity of the region by 600 million liters. Preventing the gasoline shortage crisis, preventing gasoline imports, creating value added for the downstream products of oil industry, preventing sales of crude oil, passing behind refinery construction era and moving towards construction of petro-refineries, and diversifying the mix of petroleum products are among the other goals of this huge national project.

1st Project to Link Refining, Petrochemical Industries

Shahid Soleimani Petro-refinery is the first project of NIORDC in the field of refining and petrochemical integration. The purpose of building this refinery is to create value added and prevent crude sales in order to align the administration’s view and the Transformation Document. According to Salari, the NIORDC managing director, the challenges that have existed separately in both the refining and petrochemical sectors in the past will be minimized in this consolidation process. In other words, the entire chain is expected to be minimized.

Considering the importance of the project in the field of production and transmission, technical know-how, job creation and the use of the domestic companies’ potential and the capacity of knowledge-based companies in Iran’s oil industry, the project seems to provide Iran with the opportunity to continue its presence in global arenas. NIORDC (20%), Persian Gulf Petrochemical Industries Company (PGPIC), Tadbir Energy Development Group, Ahdaf Investment Company and the National Development Fund of Iran are the shareholders of Shahid Soleimani Petro-refinery.

Petro-refinery in Iran’s Capital

Among the other measures taken by NIORDC to prevent crude sales and support the development of oil and gas condensate downstream industries, the activities of Tehran Oil Refinery towards construction of petro-refinery units could be underlined, which are being carried out according to the existing infrastructure in the refinery through quality improvement and turning to the production of petro-refining products. The refinery, which is more than 50 years old, plays an important role in the energy supply of the country, and over the last decade, has made important investments and taken measures in order to sustain the business, continue production, improve the quality of products, and most importantly, implement numerous projects in order to remove environmental pollutants from the production cycle. Referring to the fundamental measures taken to upgrade

the hub system of this refinery and moving towards petro-refining, Seyed Mustafa Tehrani, director of operations of Tehran Oil Refining Company, is quoted as saying: “We are trying to improve the quality of the products by using the maximum available capacity of the company. The most important step in this regard is building and launching the CCR project with the aim of improving the quality of gasoline and starting studies on the project of converting heavy products into chemical and petrochemical items; with the launch of this project, while boosting the octane number of our gasoline, its benzene rate will decrease.” Increased production of heavy cuts in the company is another project under way at Tehran Oil Refinery, he added, saying: “With the studies and research conducted and cooperation with knowledge-based centers and engineering companies, we are considering entering the petrochemical and chemical realm based on the needs of the country and the emphasis of the petroleum minister, which will bring about a unique achievement for the company.” According to him, in the design of new projects, two very important factors, determining the completion of the value chain and modifying the consumption pattern, are considered, so production of propylene, maleic anhydride, and isobutane is on the agenda. In general, there is a high capacity and a very suitable space for implementing various projects and diversifying the product portfolio in the petrochemical and chemical fields in Tehran Oil Refining Company.



Iran Hunting out Oil Market Share thru Diplomacy

Expansion of Iran's export markets

The Islamic Republic of Iran's Petroleum Minister has met with high-ranking officials and ministers of many countries including Russia, Turkmenistan, Azerbaijan, Serbia, Armenia, Tajikistan, Sri Lanka, Iraq, Oman, Cuba, Venezuela, Nicaragua, Nigeria and Mauritius during the past 12 months. The list of the Minister's meetings can be even longer if we mention the meetings with the General Secretary of GECF, representatives from State Oil Company of Azerbaijan Republic (SOCAR), CNPC and Sinopec.

At the same time, it should be noted that signing 8 contracts and memoranda of understanding with three Latin American countries on development of oil and gas fields, upgrade and modernization of refineries and enhancing refinery utilization capacities, training manpower and experts in oil, gas and petrochemical industries, export of technical engineering services and technology transfer and the development of export markets for crude oil, gas condensate and petroleum products, are among the achievements of the visits of the Minister of Petroleum and his accompanying delegation to three Latin American countries.

■ ■ ■ A review of the Iranian Ministry of Petroleum's performance under the Raisi administration in the field of energy diplomacy bears witness to the ministry's active diplomacy with various countries. The meetings of Javad Owji, Minister of Petroleum, with high-ranking officials, ministers, executives and representatives of neighboring countries and his visit to Latin American countries have sparked so much interest among the countries in a way that their officials and representatives have all voiced their interest either to purchase crude oil from Iran or benefit from Iranian natural gas. Having a glance at the performance of Iran's active energy diplomacy over the last year, one may get to know about the status of this important industry in Iran's economy under President Raisi:

Enforcement of the contracts with these countries in the field of reviving their refining capacity, while increasing the sustainable export of crude oil and gas condensate, preventing crude oil sales, creating value added and receiving petroleum products; will turn the 40-year dream of overseas oil refining into a reality for Iran, and may ensure the export market of the products for Iran in Latin America and the Caribbean Sea which are adjacent to the United States of America.

Currently, Iran's plan for active diplomacy in the field of energy is expansion of its oil and

petrochemical products export markets and trend of gas swaps, which has been realized given Iran's capacity building to achieve a daily production capacity of more than 4 mb/d of oil and signing \$100 billion of contracts and memoranda in the oil industry. On the other hand, regarding the measures taken over the last year to counter the impact of the US sanctions, Iran's oil exports has increased by 40%, oil revenues doubled, gas swaps from Turkmenistan to the Republic of Azerbaijan through Iran started, and gas exports grew by 25%; the country's energy security has been ensured, the export of technical and engineering

services snowballed, and for the first time in the last four decades, Iran has been able to achieve its dream of having an overseas refinery.

Gas Export Revenues up 64%

Another major issue is the export of natural gas to neighboring countries and the development of energy diplomacy in the last year, which, in addition to signing a tripartite gas swap agreement with the countries of Turkmenistan and the Republic of Azerbaijan, has many benefits, especially for the supply of gas in the northern regions of the country; over the past year, the gas export commitments to Turkey, Iraq, Armenia and Azerbaijan have been fully fulfilled, and the income from gas export ratcheted up from \$1 billion in the Iranian calendar year 1399 (ended on March 19, 2021), to \$4 billion in 1400 (started on March 20, 2021), of which nearly \$1 billion is from unfollowed-up arrears of the past years which were finally repatriated, but under the same conditions, in terms of volume, one billion cubic meters of gas was sold more than the preceding year, and Iran's commitments were fulfilled in accordance with the signed contracts.

Other key achievements of the country in the gas sector include: promotion of Iran's standing in gas trade by registering the highest amount of gas sales in the last 3 years, a 64% hike in gas export



revenues, an 11% growth in the volume of gas exports to Turkey, continuing negotiations to boost gas exports volume, collecting about \$1.6 billion of Iran's gas claims from Iraq, gas swap uptick by 138%, continuation of gas barter with Armenia's electricity, and holding talks with various countries while prioritizing neighboring countries to enhance Iran's share in the international gas market.

Export of Iranian Catalyst

In parallel with the expansion of energy diplomacy by Iran's Petroleum Ministry, petrochemical industries have also made the best use of the opportunities provided for the development of industry and marketing. For instance, a memorandum of understanding was signed between the National Petrochemical Company (NPC) and the Union of Chemical Industries of Russia regarding the exchange of technical savvy and knowledge-based cooperation in the field of petrochemical industry equipment; an Iranian catalyst has also been exported to Russia.

The important role of the petrochemical industry in the country's economy and hard currency supply is known to everybody. In the Iranian calendar year 1400, Iran's petrochemical exports amounted to \$14.3 billion, of which 90% or \$12.7 billion was supplied to the Forex Management Integrated

System, locally known as "NIMA", and petrochemical companies managed to fulfill 154% of the annual hard currency obligation and provide about 24% of the country's hard currency needs which has been unprecedented so far. This is despite the fact that the commitment of petrochemical firms was \$6.5 billion last calendar year.

Moreover, the value of petrochemicals exports from August 2021 to June 2022 under the Raisi administration was \$15.6 billion, and during this period, petrochemical companies deposited more hard currency into the "NIMA system" than their commitment. Given the fact that Iran's petrochemical exports are expected to hit \$18 billion this calendar year, a much greater amount will be deposited into the "NIMA system" by the yearend to March 2023. This year, petrochemical companies have been committed to supply \$11.5 billion to the "NIMA system".

Finalization of 28 APG Collection Contracts

In the last one year, 28 contracts worth more than \$1 billion have been signed for the collection of associated petroleum gases (APG), otherwise known as flare gases, and petrochemical complexes are planned to cooperate in APG collection in the development projects of 16 crude oil reservoirs in major oil fields. Among the measures taken by

the Petroleum Ministry for materialization of this strategy is awarding the development of oil and gas fields fully to petrochemical companies. Iran's Minister of Petroleum Javad Owji is of the opinion that it will be a win-win deal for both sides because with the development of oil fields in less than three years, petrochemical companies will be able to guarantee the supply of gas and liquid feedstock for their units for at least 30 years.

It turns out that using the financial power of the country's most profitable industry, i.e. petrochemicals, could be a suitable solution for financing oil industry projects in the long run without having to wait for the outcome of the nuclear talks in Vienna.

LPG Exports by Sea

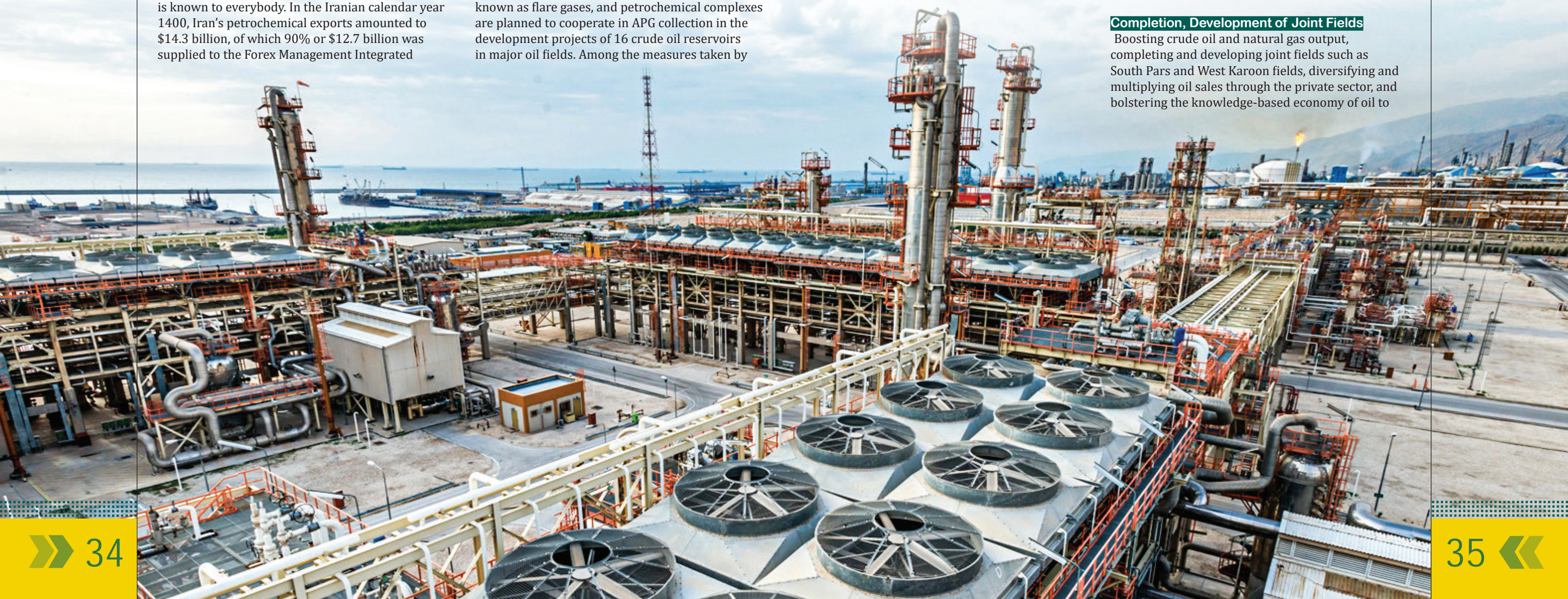
Initiating export of liquefied petroleum gas (LPG) by sea has been another outstanding measure taken in Iran's oil industry under the Raisi administration over the course of the past 12 months. This prevents the daily waste of 2,000 tons of LPG that was previously flared, and in addition, generates up to \$360 million in annual income for the country.

With this plan, Hormozgan province is expected to become one of the country's energy hubs, and in parallel, it will be one of the country's export hubs in the south. Launched with the aim of strengthening Hormozgan's status as an energy production and export hub next to the Shahid Soleimani Petro-refinery worth \$12.5 billion and the Shahid Mahdavi oil depot, which is slated to come on-stream in the future in the region with a capacity of 600 million tons per year, the LPG export project is among the projects aimed at bolstering energy security in Hormozgan region. Tapping marine energy export capacities and the development of logistics infrastructure such as the development of jetties are among the most important concerns in the export of LPG from Iran.

On the other hand, construction of Shahid Soleimani Petro-refinery, construction of the 300,000-barrel Morvarid Makran Refinery and export of petroleum products to Afghanistan, as well as the overhaul of some refineries in friendly countries such as Venezuela, Syria, etc., are among the other activities in the oil industry in the last year based on energy diplomacy of the President Raisi's administration.

Completion, Development of Joint Fields

Boosting crude oil and natural gas output, completing and developing joint fields such as South Pars and West Karoon fields, diversifying and multiplying oil sales through the private sector, and bolstering the knowledge-based economy of oil to



realize the neutralization of sanctions and fostering an export-oriented business could be viewed as the goals and activities of National Iranian Oil Company (NIOC) under President Raisi's administration over the past 12 months.

In the last one year, NIOC, focusing on the centrality of the oil industry and on deepening the structural priorities, has put extensive and strategic planning on its agenda in order to maximize oil and gas recovery rate, so that in coincidence with the export and development of the oil market overseas, create productivity and economic prosperity at home to realize and guarantee the vision of comprehensive development plans.

Achieving Export and FOREX Goals via Strong Energy Diplomacy

In this one-year period, in the fields of international, energy diplomacy, marketing, export and sale of crude oil, NIOC has been able to jack up crude oil export volumes by 40% and roll up the volume of gas condensates exports 3.5 times under the absolute US embargo on Iran's oil industry, and secure voluminous hard currency gains for the country to strengthen the bargaining power of Iran's diplomacy in nuclear negotiations.

In the same period, there was also a threefold increase in revenue from the export of crude oil, gas condensate, natural gas, petroleum products

and petrochemicals year-on-year. The commitments of the Petroleum Ministry under note 14 of the budget bill of the calendar year of 1400 were realized, for which, NIOC adopted novel methods of crude oil export, such as market creation, bartering crude oil with goods or exchanging oil with investment in the country, and bartering crude oil and gas condensate with the demands of contractors.

Of course, intensive talks with world energy majors, such as Gazprom, Gazprom Neft, Lukoil, Tatneft and Geocom, were also instrumental in this path.

It was during this period that NIOC took legal measures to defend the national interests in international and domestic courts and updated and adapted the texts of contracts for the sale of crude oil and petroleum products to the sanctions conditions and prepared for the post-sanctions conditions in the legal grounds and along with that, took executive measures concerning enhancing oil and gas production capacity and devising development plans.

Realization of Oil, Gas Production Capacity Schemes

Enhancing the oil production capacity and returning to the capacity prior to the start of the sanctions to 3.838 million barrels per day,

setting a new gas production record in South Pars by recovering 705 million cubic meters of gas on a single day from the joint gas field for the first time and increasing the daily production of gas to 1.36 billion million cubic meters and realization of the announced plan to supply gas to the domestic, industrial and power plant sectors in a sustainable manner in the winter of 1400 could be counted among the measures taken in the 13th administration in the oil industry.

Of course, the measures were not bound to these areas and all the potential capacities were used to produce gas and escape from the gas deficit crisis, and for this purpose, the executive operations of the new pipeline construction for phase 16 of South Pars and the completion of the 56-inch gas pipeline to the Kish gas power plant and injection of gas were taken into account by NIOC.

In Bushehr province, Iran's gas production heartland, many measures were also taken in the 13th administration: commissioning the demercaptanization project (DMC) of the gas condensates of phases 2 and 3 of the South Pars refinery to increase the export of gas

condensates, as well as operation of the first phase of the LPG export jetty with a loading capacity of 5,000 cubic meters per hour in the Siraf Pars service port.

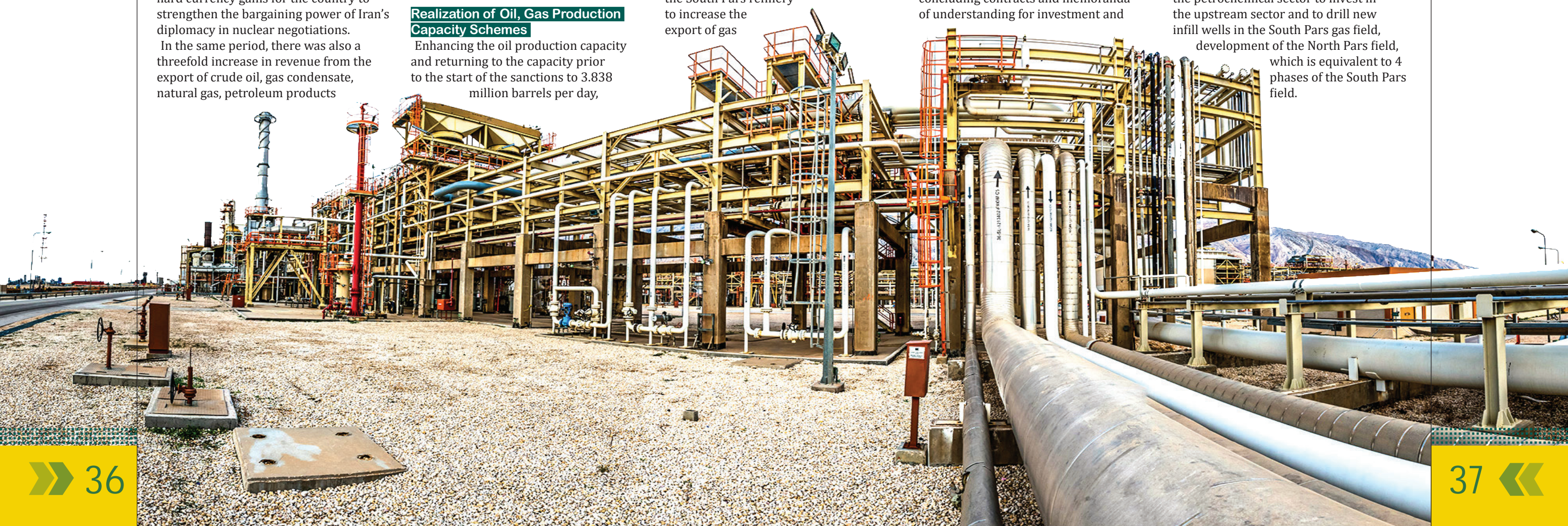
In the same period, in order to prepare for the fruition of international negotiations, NIOC successfully carried out a drill to increase production by 500,000 b/d. In addition, the company engaged itself with completion of the central processing unit, completion of drilling of 13 new wells, installation and commissioning of wellhead facilities, flow pipelines and the oil transmission network in order to bring on-stream 20 wells and increase the production flow rate of the South Azadegan joint field from 80,000 to 110,000 barrels during the period.

Upstream Development

The development and operation of onshore and offshore joint oil and gas fields has always been one of the priorities of the oil industry in different eras; therefore, the Petroleum Ministry of the 13th administration took a step forward in this direction by concluding contracts and memoranda of understanding for investment and

field development. These include signing a management cooperation memorandum between NIOC and Russia's Gazprom worth \$40 billion in the upstream sector, concluding a memorandum of understanding with banks and exploration and production (E&P) companies for the integrated development of the Azadegan field worth \$7 billion with the aim of reaching production flow rate to 570,000 b/d, signing contracts with domestic and foreign companies in order to develop oil fields with a value of about \$3.8 billion and concluding a memorandum of understanding to increase the production of ethane from 9 South Pars refineries and increase its efficiency from 67 to 75% worth \$500 million.

Also, in this administration, a comprehensive 8-year plan (1401 to 1408) for oil and gas production and development and investment in oil and gas fields was formulated, including a \$160 billion investment outlook for production and development of oil and gas fields. On the other hand, it was planned to use the financial power of the petrochemical sector to invest in the upstream sector and to drill new infill wells in the South Pars gas field, development of the North Pars field, which is equivalent to 4 phases of the South Pars field.



Iran has launched projects worth \$3 billion in South Pars on the occasion of the government week. Javad Owji, the Iran's Minister of Petroleum, and Mohsen Khojastehmehr, the CEO of the National Iranian Oil Company (NIOC), launched these projects on the occasion of the government week in Iran: the first unit of the combined cycle power plant project of the South Pars centralized power plant with an investment of more than \$450 million, the demercaptanization unit of gas condensate (DMC) of the South Pars Phases 2 and 3 refinery with an investment of €75 million and the plan to transmit gas condensate produced from South Pars Site 2 refineries to South Pars Site 1 with an investment of €19 million and implementation of the new 32-inch sea gas transmission pipeline from South Pars Phase 16 Platform to Phases 15 and 16 refineries with an investment of more than €165 million.

Development of North Pars Gas Field with Gazprom

Addressing the ceremony of commissioning national oil projects in South Pars, Javad Owji emphasized on welcoming any domestic and foreign investment, and said that a memorandum of cooperation had been signed with Russia's Gazprom on the development of the North Pars gas field. Iran's minister of petroleum announced a 20% increase in export of liquefied petroleum gas (LPG) in the first year of the 13th administration compared to the same period last calendar year which ended on 20 March 2022, and announced that Iran would soon become self-sufficient in production of propylene from propane. Also, according to Minister Owji, implementation of the propylene production plan from propane (PDH/PP) in Parsian Sepehr Refinery and Pars Petrochemical Company has already started. Implementation of this project is important because currently a part of the propylene needed by the petrochemical complexes is being imported. The petroleum minister said: "In the next few years, we will reach self-sufficiency in terms of propylene production from propane, while it should also be noted that the Research Institute of Petroleum Industry (RIPI) has obtained the technical license for production of polypropylene (PP) and this sector has been completely localized." The projects that were either launched or their construction started in South Pars on the occasion of commemoration of the government week are as follows:

Localization of Technical Knowhow for Demercaptanization of Gas Condensate

The demercaptanization (DMC) unit of gas condensates for phases 2 and 3 of South Pars Refinery with a daily processing capacity of 80,000 barrels has been commissioned in order to complete the value chain of the refinery, reduce the corrosive effects of harmful compounds on refinery facilities and equipment, minimize



environmental pollutants, upgrade and improve gas condensate quality, and ease marketing, export, etc. Minister of Petroleum Javad Owji stated that the country's gas condensate sweetening capacity rose by 80,000 barrels per day with the inauguration of this project, adding: "The biggest advantage of this project is localization of the know-how to demercaptanize gas condensate inside the country." Referring to the increased demand for gas condensate, Iran's petroleum minister said gas condensate is more easily sold in the domestic and international markets. Mohsen Khojastehmehr, the NIOC CEO, also said: "The investment made in this project will return to the country within three to four months, while since the launch of this project, 10 million barrels of gas condensate have been sweetened and exported, and about \$45 to \$46 million of hard currency and capital return have been reaped." He has also stressed that the implementation of this project was aimed at bolstering Iran's gas condensate exports rate. This project was implemented based on the technical knowhow and license provided by RIPI, and the stages of purchasing goods, manufacturing, installing and operating it took place under an EPCC contract worth €74 million and Rls. 2,610 billion by Khatam Al-Anbiya (PBUH) Construction Headquarters. The value added resulting from implementation and start-up of this unit is more than \$4 per barrel, which will result in an annual income of more than \$110 million.

Operation of Gas Condensate Transmission Pipeline of South Pars Refineries

The production capacity in the South Pars gas field has now exceeded 705 million cubic meters per day (mcm/d). Given high consumption of gas in Iran, gas production means production of more gas condensate;

on the other hand, stopping the flow of gas condensate impacts gas production; with the implementation of the gas condensate pipeline project of South Pars, we are witnessing an increase in operational flexibility and preventing production stoppages in the field and refineries of South Pars Site 2 due to the completion of the capacity of gas condensate storage tanks and a significant saving in the cost of transporting gas condensate of Site 2. The petroleum minister has said that with the implementation of this project, the cost of transmitting gas condensate between Sites 1 and 2 will be reduced dramatically. Previously, transfer of gas condensate was carried out via sea, and with the implementation of this pipeline, we see an annual saving of Rls. 15,000 billion. The NIOC CEO has said that the daily cost of renting a giant oil vessel is nearly \$35,000, which will be deducted from costs with the implementation of this pipeline. The gas condensate in Site 2 refineries was transmitted to Site 2 storage facilities by construction of a pipeline of approximately 52 kilometers from the south of gas condensate tanks of phases 22 to 24; and after hurdling 190 obstacles including various pipelines, flare lines, roads, canals, etc. The pipeline, implemented with €12 million and Rls. 16,000 of capital, transfers the gas condensate produced in the South Pars Site 2 refineries to the centralized tanks located in Site 1, from there to the Persian Gulf Star refinery with the existing pipeline and pumping station for production of gasoline and other stuff. The project, which was implemented using the 100% potential of Iranian engineers, experts and workers, has created job opportunities for 500 people at full production tilt.

28 mcm of Phase 16 Gas Recovered

Once a 32-inch gas pipeline from South Pars platform

SPD16 (border block) to South Pars Phases 15 and 16 refineries (the easternmost Assaluyeh Refinery at Pars Site 1) comes online, an increase in gas production from South Pars Phase 16 with three-phase fluid transfer capacity of 1 billion cubic feet per day (28 mcm/d), safe and sustainable production through the new pipeline, considering the frequent accidents of the current phase pipeline and the use of domestic capabilities will be the result. The NIOC CEO described implementation of the 115-km pipeline as strategic, and said: "Due to numerous leakages in the South Pars Phase 16 pipeline in the past, we witnessed the loss of 28 mcm/d of gas production from this phase in the winter season." He said that due to the occurrence of this problem under the 13th administration, NIOC quickly repaired this pipeline, and continued as saying: "However, this pipeline was not reliable and at the same time, we planned construction of a new pipeline. With the implementation of the pipeline this year, in the winter, we will have 28 mcm/d of gas available in this phase." The project is being implemented under a procurement contract worth €70 million for the supply and purchase of pipes by "Mahshahr Pipe Mill Company" and Atta Steel and an EPC contract valued €97.3 million by Iranian Offshore Engineering and Construction Company with Pars Oil and Gas Company as the project employer. The project is expected to create 550 direct jobs.

Inauguration of Gas Units 3, 4 and 5 of Iran LNG Combined Cycle Power Plant

The combined cycle power plant of "Iran Liquefied Natural Gas Company", which includes five gas units with a capacity of 162 MW and two steam units with a capacity of 160 MW, has been facing a serious interruption since 2013, and once Raisi administration took office, it resumed production in 2021, and units 3 and 4 and 5 are now complete. Abdulhossein Bayat, Chairman of the Board of Directors of "Pension Funds, Savings and Welfare of Oil Industry Employees", regarding construction of this power plant, which is in the list of projects to be bankrolled by the Pension Funds, said: "The second part of the 1,130 MW power plant of the Iran Liquefied Natural Gas Company has been constructed with an investment of \$360 million by the Oil Industry and NIOC retirement pension funds." Noting that the design, construction and commissioning of this power plant by Iranian builders, consultants and contractors has come to fruition, he clarified: "All the 800 megawatts of electricity produced in this power plant will be transmitted to South Pars Gas Complex, major industries and other consumers until the start of the Iran LNG Plant.

Inauguration of LPG Loading Facility in Assaluyeh

The LPG storage and loading facilities and the complete export chain have been implemented with about \$100 million of investment by "Petrosanat Iranian Company". Implementation of the project is aimed at earning \$1 billion annually, while 150 people are directly employed.

Joint Fields Development on Fast Track

Executive operations of the second phase of the Yaran joint field development project, the development of the Bilal joint oil field in the Persian Gulf, the development and maintenance of the Gachsaran Nargesi field, and the PDH project of Bid Boland Persian Gulf Refinery in Behbahan for production of propylene from propane, kicked off via videoconference by Iranian Minister of Petroleum Javad Owji during the Government Week that ended on August 29. In the ceremony held on the occasion of launching the projects, Minister Owji said that no investment in Iran is as profitable as that in the oil industry, underlining the need to invest \$160 billion to complete prioritized projects.

Identification of 140 Prioritized Oil Projects

Addressing the ceremony, Owji said: "Estimates show that in order not to be in need of importing products, \$160 billion in investment is needed for about 140 prioritized projects within the next 8 years." Stating that investing in the oil industry is a super-heavy investment, the Minister of Petroleum added: "Today, no project like oil, gas and petrochemical projects is profitable, they are low-risk, high-yield and quick-return plans, and instead of taking facilities from banks, from their own financial strength as well as that of economic holdings is used to build and complete them."

Expanding Export Horizons

Among the achievements of Iran's Petroleum Ministry in the past year, Owji underlined the hike in exports, payment of arrears and collection of hard currency revenues in the field of gas, and added: "With good marketing in various countries and continents including Latin America, India, Asia and Europe and also using all capacities, we have managed to reach these achievements."

Referring to the linking of investment to the removal of sanctions in the previous administration, he said: "We took over the Petroleum Ministry in a situation where liquid fuel reserves in power plants had decreased by 25 to 30% and the administration was also in heavy debts."

The Minister of Petroleum continued as saying that: "At the beginning of the 13th administration in September 2021, according to a preliminary survey it was determined that due to the lack of investment, we will face a gas deficit of 250 million cubic meters

at the beginning of the cold season, and exports of oil, products and gas condensate were very low at the beginning of the 13th administration."

Not Kept by Outcome of JCPOA Talks

Regarding the necessity of MOP's focus on energy security at national level given the declining level of inventories, he said: "With efforts made in all areas, especially efforts made by the National Iranian Oil Refining and Distribution Company (NIORDC), we managed to enhance the volume of reserves by 25 to 30 percent so we were able to pass behind last winter without any gas shortages and this summer without electricity outages."

Emphasizing that had MOP waited for the outcome of the JCPOA talks, people would have faced gas and electricity cuts last winter and this year as well, he said: "The enemy had targeted our exports and FOREX earnings, and the oil industry is at the receiving end of these assaults. But thanks to the efforts made by the petroleum industry workers and the support of the armed forces in the maritime security sector, we were sure of sending our shipments and the enemies were defeated."

Owji clarified: "If we wanted to wait for the outcome of the negotiations in Vienna and the JCPOA, there would undoubtedly be problems in guaranteeing energy security last winter and this summer."

Operation of Sohrab Joint Field Soon

Mohsen Khojastehmehr, the CEO of the National Iranian Oil Company (NIOC), while addressing the ceremony said that the operation of the Sohrab joint field in the West Karoon region would begin soon. He also said that the NGL 3200 project in the West Karoon

region would come on-stream by the end of the current Iranian calendar year, which began on March 21.

The NIOC CEO further said that the licensing rounds for collection of flare gases worth \$65 million in Masjid Suleiman region were awarded to three domestic contractors, adding: "Previously, \$1.1 billion worth of associated petroleum gases (APG) had been collected by Bid Boland Persian Gulf Company and about 600 million cubic feet per day of APG worth \$1.1 billion are being collected."

Planning for \$5.5b Investment

Emphasizing on the 75% share of the National Iranian South Oil Company (NISOC) in NIOC's crude oil output in 1400 and 1401, Khojastehmehr added: "The investment in NISOC is about 45.5 billion, and we have planned to develop 16 gas reserves of Khami Group to be developed by the company in order to provide feedstock for the downstream petrochemical industries."

He emphasized: "To implement these important operations, we must use the maximum power of domestic contractors in the construction sector."

The NIOC CEO went on to add that based on the Minister's instruction, in the Board of Directors of NIOC we approved that NIOC can order goods for

a five-year period worth \$4.6 billion. It is noteworthy that the share of NISOC will be 60% of the above figure."

The following are the projects whose implementation operations started under the instruction of the Petroleum Minister:

\$400m Investment in Development of 2nd Phase of Yaran Field

The duration of the contract for the second phase of the Yaran joint field development project is 10 years and based on the new pattern of upstream oil contracts; the party to the contract is the Persia Oil And Gas Industry Development Company. Based on the articles of the contract, 39.5 million barrels of additional crude oil will be produced from this field. NIOC CEO has announced the investment value of the second phase development of the North and South Yaran joint fields at \$400 million. With the implementation of the second phase of the project, oil production from this field will reach 36,000 barrels per day.

The development of the first phase of the Yaran joint field has been defined in the two north and south sections, and has already completed, said Seyed Hossein Mohseni Zonouzi, operator of the Yaran oil field development

project at the Petroleum Engineering and Development Company (PEDEC), adding: "The crude oil production in this field is about 20,000 b/d and 45% of it is via using downhole pumps."

Zonouzi stated that the volume of in-place crude oil in the field is estimated at 1.7 billion barrels, and said: "With the implementation of this stage of the project, the recovery rate of the field is expected to increase from the general average of 4% to 7.3%, and the production rate in the field will reach 36,000 b/d at most."

The official further stated: "With the implementation of this development plan, additional cumulative production in the field will be about 40 million barrels of crude oil and the revenue from its sale will be about \$4 billion."

He emphasized that for the first time in this field, downhole pumps were used and one of the new technologies of improved oil recovery (IOR) and enhanced oil recovery (EOR) will also be

piloted in the field.

1st Phase of Bilal Field Development Project Complete Early Next Year

The contract for the development of the Bilal joint field in the east of the South Pars gas field is worth about \$ 440 million dollars. Based on the planning, the project will be implemented in two stages, the development of the first stage will be completed by mid-2023.

The Bilal joint field development plan has been awarded to Petropars Company, the implementation of this project will begin with drilling an appraisal-exploration well worth \$28.4 million, but the credit allocated to the entire field development plan is \$500

million.

Currently, drilling operation of the Bilal gas field has started by an Iranian developer; at the same time, other activities such as construction of the field jacket are on the go in Sadra Company's yard in Bushehr, southern Iran.

Ehsan Mohammadi, the operator of the Bilal joint gas field development project in Pars Oil and Gas Company (POGC), has announced that the enhancement of production capacity and stabilization of sustainable production rate is one of the important concerns of NIOC and president Raisi's administration since it took office, adding: "During this period, the development of new



gas fields, especially joint ones, are among the priorities of the Petroleum Ministry, which have accelerated with the implementation of guidelines of the Minister of Petroleum and the NIOC CEO."

6k b/d Surge in Gachsaran Nargesi Field's Output

The project for development and production maintenance of Nargesi field has been awarded to Dana Energy Company under a 41-month contract. In this project, 6,000 barrels of oil are supposed to be produced from the Nargesi field on a daily basis, and it will generate more than \$500 million in revenue for the administration.

Mehrdad Kahkesh, the CEO of Gachsaran Oil and Gas Production Company, said: "Well No. 13 of Nargesi field has reached production stage

in the framework of the 28-reservoir development project, and oil production from Bangestan reservoir of this field has become possible for the first time."

The Nargesi package is one of the eleven packages of the project to maintain and increase the production of 28 reservoirs, in which three wells with a total capacity of 6,000 barrels per day have been drilled, and construction of a new manifold and a pipeline have been provided by the capable and skillful domestic forces.

Kahkesh stated that implementation of the package started in March 2019 by Danakish Drilling Company as the contractor of the project, and is now ready to come on-stream, adding that the total production of Gachsaran Nargesi field will increase from 20,000 to 26,000 b/d.

Implementation of PDH Plan with \$950m of Investment

In the Propane Dehydrogenation (PDH), about 700,000 tons of the propane output of Bid Boland Persian Gulf Refinery will be converted into 600,000 tons of valuable polypropylene. The investment made in this project is \$950 million and the return on investment will be 23.2%.

Morteza Shahmirzaei, the CEO of the National Petrochemical Company (NPC), while inviting all investors to develop a value-creating and risk-free petrochemical industry, said: "Currently, the production capacity of the industry is over 90 million tons per year, and the sales value of its products last year hit \$25 billion."

"The export of petrochemicals

is expected to generate roughly \$18 billion for the country this year," the NPC CEO added, saying that in the strategic plan of NPC, in the 10-year horizon of the petrochemical industry, there are 35 plans to produce propylene products with a nominal capacity of about 13 million tons per year.

According to Shahmirzaei, in the plans being implemented in the petrochemical industry, in the 10-year horizon, about 78% of the propylene produced will be used for production of polypropylene products, and about 14% of it will be used for production of other items of the propylene chain.

Stating that the current production capacity of propylene in the petrochemical industry is about one million tons per year, he said: "Currently, all the propylene produced in the petrochemical industry is consumed in downstream units, but the amount required by the propylene consuming units is more than the production

capacity of 1 million tons per year."

Pointing out that currently about 95% of the propylene supplied in the petrochemical industry is used for polypropylene production and only 5% of it is used for production of other products in the propylene chain, Shahmirzaei said: "In 2021, about 68% of the propylene produced in the world was used for production of polypropylene and 32% of it was consumed for production of other products of the propylene chain."

According to the NPC CEO, the production capacity of propylene, assuming the elimination of the shortage of production complexes due to the surplus of propylene by 2033, will reach 14 million tons per year, of which about 81%, i.e. 11 million tons, will be used for production of polypropylene products and 19 percent of it, i.e. 3 million tons, will be consumed for production of other products of the propylene chain.



Chile Drives Sky-rocketing Growth in Argentina Gas Exports

Argentina gas exports increased 544% year-on-year in August, according to regulator Enargas. Firms piped 6.20Mm3/d (million cubic meters a day) across the border, with main buyer Chile accounting for 5.91Mm3/d, up 799%. Favorable prices and domestic transport restrictions – along with a push to build firm, year-round exports – are making Chile blink brightly on the radars of Argentine producers, chiefly those operating in the Vaca Muerta formation. Other local factors can help explain the increase in August exports, such as stronger gas output and an improvement in hydrological conditions that has eased demand on thermoelectric plants, Luciano Codeseira, co-director of Universidad Austral research unit Instituto de Energía, told BNamericas.

Midland

Oily Permian Players Take a Dip into Gas-Rich Plays

A handful of Permian Basin producers known for their oil output are moving to test the Barnett Shale and other gassy zones on their acreage as stronger commodity prices support delineation. Most recently, Pioneer Natural Resources CEO Scott Sheffield said last week the company would begin testing the Barnett and Woodford formations deep in its Midland sub-basin acreage next year.

Taiwan Needs U.S. Help on Energy Security

Since the visit of U.S. House Speaker Nancy Pelosi to Taiwan, China has shown increasing belligerence toward the independent island state, including with implicit threats to blockade it. Unfortunately, Taiwan depends desperately on energy imports to fuel its advanced economy. In 2021, it imported almost 98% of its total

energy supply, mostly in the form of sea-borne fossil fuels. Such reliance gives China leverage over Taiwan, as demonstrated most recently in Chinese navy patrols of sea-lanes, military overflights in Taiwanese airspace, live-fire missile flights over and near the island, and drone incursions over Taiwanese islands near the mainland.

Japan

Taiwan

Japan's August Fuel Oil Imports Rise on Utility Demand

Japan's fuel oil imports rose to near four-year highs in August, as utilities emerged to buy the fuel as a power generation alternative to higher priced LNG. The country's fuel oil imports hit 306,600t (64,000 b/d) in August, the highest since at least October 2018, according to Vortexa data. Imports in August comprised about 67.5pc low-Sulphur fuel oil (LSFO) and 32.5pc high-Sulphur fuel oil (HSFO), mostly originating from Singapore with the rest from Malaysia, South Korea and the UAE.

Australian

Tamboran Raises \$89 Million in Big Bet on Australian Shale Gas

MELBOURNE, Sept 19 (Reuters) - Tamboran Resources (TBN.AX) said it attracted strong interest in a A\$133 million (\$89 million) sale of new shares on Monday to pay for a majority stake in a promising Australian shale gas prospect and help fund its development. The acquisition of the 77.5% stake in the Beetaloo joint venture from Origin Energy (ORG.AX) in a 50-50 partnership with its top shareholder, ex-Parsley Energy CEO Bryan Sheffield, turns Tamboran into the dominant player in a sub-basin seen as comparable to the biggest U.S. gas field, the Marcellus Shale.

VIEW



Chile

VIEW



VIEW



JCPOA Revival Return of Iran oil to Market

Shuaib Bahman

The West is getting closer to the promised time: the hard winter. The arrival of the cold season for European countries means lack of time in energy supply. The war in Ukraine has caused Europe to worry about the possible use of energy as a weapon by the Russians on the eve of the cold season. For this reason, Western countries are looking for new sources of oil and gas and injecting them into the world markets to prevent a significant hike in prices and to provide part of their energy needs. In the meantime, Iran, as one of the largest holders of oil and gas resources in the world, may compensate for a part of the supply shortage in the world markets in the winter, but there is still a fundamental problem in this regard, and that is the remaining bans against Tehran. Now, more than ever, Western countries have realized that sanctions against Iran mean imposition of sanctions of the West itself. Because it is not Iran that has major concerns on the eve of the cold season. For this reason, European countries have started an unprecedented movement in order to bring the negotiations related to the revival of the JCPOA agreement to a definite end and to address some of their concerns with Iran's return to the oil market. Although the

US keeps showing serious intransigence, Europeans hope that this agreement will be revived by winter.

Supply Challenge and Western Blockage

According to OPEC's August report, it seems that the demand outlook in global markets will continue to be bullish in the foreseeable future, although the oil market has overcome the psychological shock caused by Russia's attack on Ukraine. However, what can worsen the situation again is the arrival of the cold season and the possibility of reducing or even halting the gas flow from Russia to European countries. Therefore, the issue of supply and demand remains an important equation in the global markets. The fact is that the efforts of Western countries, particularly the United States of America during Biden's visit to Saudi Arabia to convince this country to increase oil production have not met with a very positive response from Riyadh. Of course, the Saudi government has announced that if needed, it can ramp up its oil output by about 1.3 million barrels per day and bring its total production to 12 mbd. However, the conditions for such an increase on the part of Saudi Arabia are not ready. Because, first, Saudi Arabia must adhere to the agreements made in OPEC and OPEC+, and if it wants to drive alone, it will face the distrust of other producers and lose its status in these bodies. On the other hand, it is unlikely that

Mohammed bin Salman will simply agree to increase Saudi oil production without taking a big concession from the West. This is while public opinion in Western countries is still sensitive given Jamal Khashoggi's murder. As a result, Saudi Arabia cannot be considered a very reliable partner in this critical period of history for the West.

In addition to the war in Ukraine and the political activities of Saudi Arabia, there are other issues that can transform the global markets in the cold season. For example, the failure of JCPOA talks may lead to tension in the Persian Gulf and disrupt the safe transportation of oil. Also, Saudi Arabia's military aggression against Yemen may create disruptions in the export of oil through the Bab el-Mandeb Strait. At the same time, the exhaustion of some oil industries in some producing countries such as Venezuela and the ongoing unrest in countries such as Libya and Iraq are also factors that will affect the flow of oil in the coming months. Therefore, Western countries cannot undergo all the risks caused by the above-mentioned possible developments and just be satisfied with increasing the limited output of Saudi Arabia and the UAE.

Iran's role in market stability

Iran holds one of the largest oil resources in the world and its presence or absence may play a decisive role in the market; especially

when the global supply of oil has decreased or at least there is a fear that in the coming months, there will be a supply slump in some countries. At the same time, the conclusion of the JCPOA negotiations and Iran's return to the world markets may partially compensate for the lack of supply.

According to some estimates, Iran's floating reserves range around 100 million barrels, almost half of which being crude oil and the rest gas condensate. Add to this amount, Iran's land reserves of oil and gas condensate. In such a situation, Iran's return will flood the market with oil and gas condensate. Although this amount of supply may cause a significant shock to the market in a very short period of time, it will not have a long-term impact on prices. In fact, what determines the long-term impact of the return of Iranian oil on the market is the amount of oil that Iran can sustainably supply to the markets on a daily basis. The experience of lifting oil sanctions in 2015 and current estimates show that Iran will probably increase its production to the pre-sanctions level within 3 months after the lifting of sanctions. This amount could be increased to the capacity of 3.7 mb/d within 6 months. As a result, Iran has the possibility of seriously affecting the global energy markets in three and six-month intervals. Of course, the traditional customers of Iran's oil will cope with the new conditions with a little

delay. Because, now India is receiving more oil from Russia rather than its traditional suppliers. South Korea and Japan also supply oil and gas condensate from other sources, and Saudi and the UAE oil in southern Europe has replaced Russian oil. However, it seems that China and other East Asian countries such as South Korea and Japan will continue to be big customers of Iranian oil.

Golden Opportunity

It is very likely that the return of Iranian oil to the world markets bring the market to normal trends prior to the start of the psychological aspects of the Ukraine war. Estimates show that more oil supply from Iran may keep oil prices in the range of \$80 per barrel. Therefore, the removal of the sanctions against Iran and its return to the world markets can be considered as a golden opportunity to eliminate some of the concerns of the West. First of all, the West can be sure that with the revival of the JCPOA, the Persian Gulf will not become tense and there will be no major disruptions in the oil supply. Secondly, Iran's oil supply to world markets prevents any kind of shock from the possible reduction of oil supply by Russia or any other market player. Of course, to what extent Iran can increase its oil production capacity without sanctions is a very important component in this equation.

Energy Prices Hammering UK Economy

■ The British economy has faced many challenges over recent years. Among many other factors, Brexit and the coronavirus pandemic have caused the economy to shrink about 20% compared to 2020. At the same time, recently the global problem of high energy prices has become a double whammy for Britain. Notwithstanding the UK does not rely heavily on gas imports from Russia, the energy supply decline in the world caused by the Ukraine war has created a dire situation in such a way that the hike in energy prices has not only affected many industries in the country, but has also had a wide impact on the people's everyday life.

Shuaib Bahman

Shattered Economy

According to the available statistics, the British economy has faced very wide challenges. Although some estimates of the economic collapse of the country are a little bit exaggerated, the growing costs in various economic sectors, most of which caused by the hike in energy prices, may severely impact the British society.

Recently, the International Monetary Fund (IMF) reported that the impact of the energy crisis on British households was harder than that on the people of other Western European countries. The report highlights that the difference in the cost burden between low-income and wealthy households is much greater in the UK than in other parts of Europe. This is due to Britain's heavy reliance on gas for heating homes and generating electricity during price rise episodes. Accordingly, it is expected that the surge in gas prices will bring inflation in

England to around 22%.

Alongside the massive economic pressure on British households over recent months, estimates show that one in four people in the UK do not turn on their heating systems in winter. This is while the UK has the lowest number of energy-optimized homes in Western Europe. The cold challenge for the British public is intensifying as the average British household is expected to lose 8.3% of its total purchasing power in 2022 due to higher energy bills. Meanwhile, in Germany and Spain, the figure is expected to be 4 percent, and only households in Estonia and the Czech Republic are expected to face a higher impact than that of the UK all across Europe.

According to the IMF, the poorest 10% of the UK households are expected to spend 17.8% of their income on energy this year, while the richest 10% will spend just 6.1% of their income on energy. This 11.7-percent difference is by far the biggest difference among the 25 European countries evaluated by

the IMF. Rising costs of other goods are also expected to cut another 2% of UK household budgets in 2022.

The skyrocketing energy prices in the UK have coincided with growing prices of most other commodities over recent months. Food and car fuel have shattered price records. Britain's annual inflation rate reached 10.1% last July, the highest level since February 1982, under the influence of rising food prices. According to the Office for National Statistics, the general price level rose by 0.6% in July alone, and the annual inflation rate of food hit a record 12.6%, the highest since 2008. Bread, milk, cheese as well as ham, bacon, vegetables and pastries were among the food items that reportedly saw the biggest price rise in July, according to the Office for National Statistics. Likewise, the impact of the jump in the food basket of British households on the double-digit rate of inflation exceeded the hike in energy prices, which is affected by the Russian military invasion of Ukraine.

This situation caused the British central

bank to accede to increasing the base interest rate by 0.5% and change its cap to 1.75% in response to the 9.4% inflation registered in June.

The sixth consecutive surge in the basic interest rate in the UK has taken place while on the one hand this rate has reached the highest level in the last 27 years and on the other hand it is predicted that the country's economy will enter a recession in 4Q22 and this recession will continue throughout 2023. As a result, there is a possibility that the British central bank will have to raise interest rates again. Now, the decision of the Bank of England to increase the bank interest rate has increased the monthly installment of the mortgage for British households.

Pervasive Crisis

The electricity and gas rates have been always on the rise in the UK for three decades, but this trend has become more intense in the last year. The body in charge of energy price regulation in the market of England, Wales and

Scotland every 6 months introduces the price ceiling by reviewing the rates, the purpose of which is to protect customers against price fluctuations in the energy market. Now it is feared that if the Russian gas export to Europe is reduced or halted and global prices increase, the price of energy in the UK will soar dramatically. For this reason, the head of the British Central Bank said that the country is now facing the biggest price shock in the energy market since the 70s. While the British government is imposing these exorbitant costs on its people, it has actually played a major role in the current situation. Britain, along with the United States, were the most important countries that made the situation in Eastern Europe tense so that the war in Ukraine started. In the post-war period, Britain has been always in the forefront in imposing sanctions against Russia. The Britons are paying for their government's aggressive policies against Russia by tolerating hike in all their expenditures.

Geopolitical tectonic plate of world energy changing

Fereydoun Barkeshli
Energy Market Analyst

Over six months into Ukraine crisis, the world energy ground-plan seems to have changed forever. In my view, that's just the beginning. The inevitable transfer of power and center of gravitation away from the West is leading to an extreme surge in America's violation of international laws, named fancifully as sanctions. I mean the Ukraine war is changing the geopolitical tectonic plates of the 21st century at an astonishing speed and depth with immense repercussions already at hand.

The US options of financial containment are exhausting, as Russia bristles through the last obstacle to its substitution of the US dollar with ruble.

Imposition of harsh monetary and financial limitations over a number of countries of which Russia is the latest has emboldened the countries in the East to address the issue of own currency and safe

transactional corridors more vigorously. Members of the BRICS, Shanghai Cooperation Organization, ASEAN and other Asian and newly industrialized nations have raised the issue of an independent monetary system. Iran is currently pursuing an active economic and trade diplomacy in order to expedite the process of world economy free of the US sanctions tradition that has led to poverty and energy scarcity and injustice around the globe.

European Energy Crisis in Making

Europe has lost the energy war. After decades of financial austerity, Europe seems to begin experiencing a new era of energy complexity that was never thought of. Germany, the largest economy in Europe has introduced strict energy saving rules and even rationing. Cooling and heating systems have been turned off, warm water in public buildings and spaces are banned, illuminating the cities for national ceremonies and international occasions have been halted. Germany relies on Russian gas for more than 60 percent of its energy consumption. Economic structure is highly energy intensive. Germany imports raw materials and some items for manufacturing goods from China and countries in Africa or Asia, and exports industrial products. All industries are energy intensive and require high volumes of energy. As such the economy cannot afford to carry on business as usual without energy. Governments in Europe

are contemplating a choice between citizen's winter warmth and

well-being versus industrial activities in a way not to impact GDP growth negatively. Most countries in Europe try to establish balance between heating and eating. However, the problem if persists won't be for this winter. Gas and oil products reserves are nearly full for now but gas and refined products are used up in winter, and hence have to be refilled. As such the problem will move on to 2023 and beyond.

France has been the least affected by Russian sanctions. There are 103 nuclear energy plants in Europe of which 56 plants are in France. After COP 25 Summit, France shut down 23 of its nuclear plants. Several other plants are also being overhauled. As such France can handle sanctions on Russian gas with little difficulties. Germany; however, remains the most vulnerable major economy in the continent. For decades, Germany has been the engine of EU growth.

This scenario applies to all European countries in varying degrees regardless of the size of the economy. Big European countries- Britain, Italy and France- as well as smaller countries like Austria, Hungary or Bulgaria, all rely on imported energy from Russia which is now under sanctions. Earlier, Europe had a broader choice of energy supply sources such as Iran or Venezuela. Europe opted to follow US sanctions policies and limited itself to one source; namely Russia. Under the United States' foreign policy, almost 50 percent of the world's total oil and gas reserves is under sanctions.

Let's be even clearer: by 2024-25 possibly half of European countries could fully or partially deindustrialize if the current sanctions regimes on Russia and Iran remain in place. This will be a self-sanctioning by the Atlantic alliance of the United States and Europe. Issues such as an energy curfew is being discussed. There's a growing discomfort amongst European countries on the ways and means to cope with sanctions. European Council has introduced a variety of measures to address the energy crisis. These measures are part of an EU-wide gas reduction plan, titled Save Energy for a Safe Winter, to reduce gas consumption in Europe by 15 percent until spring oil 2023. There is a provision that Brussels, the EU Commission headquarters, may impose penalties for non-compliance if they note that the energy crisis is escalating dangerously. All of this comes amid growing fears that Russian gas supply may plunge the continent into an energy crisis this coming winter which is already round the corner.

Natural gas spot prices have surged to unprecedented levels in the international markets. In most other European and non-European countries electricity prices have risen accordingly. Current electricity prices in Europe are about ten times more than January 2022. Energy-led inflation is on the horizon. Energy disruptions, due to sanctions, have caused inflation to a double digit in some countries. Such inflation rates squeeze people's income. This is an energy poverty crisis. By energy poverty I mean that there's abundance of sources of energy but not accessible by people, as a result of absurd and foreign policies.

This energy poverty phenomenon is unique in recent human economic development history. Shortage of energy leads to supply chain disruptions. As such, many of those people that were employed due to productivity in various countries within the supply chain cycle begin to experience the disruptions and lose their jobs and income. This again may possibly lead to inflation-led depression that was twice experienced in recent history during 1920's and then in 2007-2008.

European Council decided to take measures to crush demand by monetizing gas market. Moscow announced that it has



halted gas supply via Nord Stream 1 due to disruptions in maintenance as a result of sanctions. Monetization of gas market means adoption of severe interventionist policies that was once condemned by the West. The United States and Europe constantly accused other countries and OPEC members of market intervention and disruptions in liberal performance of the market. As gas supply shortages is here to stay for Europe that would mean that one of the fundamental principles of market economy will change.

As for the British, we must still wait for the dust to settle as the new ultra conservative prime minister forms her government.

Supply-Demand Equation

The combined impact of rising prices, lagging demand (internally and externally), as China resumed lockdown

and falling production and investment is already causing economic growth on the continent to grind to a halt. While institutions such as the European Commission and the IMF, despite significant downward revisions of their impactful reports, still forecast real GDP in the EU to grow around 2.5 percent this year, though several analysts consider these figures overly optimistic.

To make matters worse, the ECB's decision to raise interest rates will do little or nothing to curb inflation caused by energy crisis, but will possibly further depress economic activity, making it harder for states to mobilize resources needed to cushion the impacts of the energy crisis. Furthermore, even though the EU has sensibly-for once- proposed to keep the EU's fiscal rules suspended for another year, several countries, led by Germany, have announced their intention

to embrace austerity, once again.

To touch upon the heart of the matter, Europe has to admit that the age of abundance of energy is over. This could eventually lead to the possibility of European unity flailing. A weak Euro against dollar and other major currencies and a continent caught in a severe winter will not be something that Europeans could have thought of when they formed the European Union and adopted a single currency. Germany is commonly held responsible for wishful thinking towards abundant and relatively cheap energy supply from Russia. I remember very well the time when Europe supported a US move to exclude Iranian gas from the pipeline then called back «Nabucco» in early 1990's. Iranian delegation raised the issue during a session and called on European representatives that it would be in their own interest to diversify their

sources of energy and gas supply.

I have to acknowledge the fact that current instability in international oil market is not all about Ukraine war. In fact, crude oil production has been running out of steam for quite some time now. There is hardly any excess capacity with major oil producers. Sanctions and lack of investments is the main obstacle.

Environmental protection issues have kept oil companies- both IOCs and NOCs- to distance from investment. Banks and financial institutions do not want to invest in a business that is doomed to be out of context in two decades. Europe has to admit that handled green energy and environment too badly. Most European countries are currently out there beginning for any source of energy. From coal to nuclear and wood to oil and gas. Europe is holding Germany responsible for the problems.

On the other hand, current energy crisis is all about gas and not oil. International oil market is gas-led rather than being oil-related. As such supply-demand equation, is priced and based on availability and consumption of gas. In fact all in all Europe's BTU-wise energy consumption is some 65 percent gas equivalence.

Current gas-indexed pricing is a unique opportunity for gas producing countries to develop gas sector.

American Energy Adventurism: Managing Global Oil Flow

The United States has frequently politicized energy and used it as a weapon. Oil, gas, nuclear or coal have been weaponized against countries that are not regarded as US allies and friends. India's nuclear energy projects was sanctioned and deprived from accessing vital parts and equipment when New Delhi opted to engage long term contract to buy Iranian natural gas under Iran-Pakistan-India known as IPI project back in 2009.

Huge reservoirs of Iranian oil and gas have remained under US sanctions for some four decades now. US adventurism and weaponized policies has now reached Russia. War is not justified, but sanctions hurt people around the world. Individuals, families and economies are hurt by energy sanctions. I would like to draw your attention to the fact that

around 60 percent of globally traded oil is transmitted through three straits:

- Strait of Hormuz, 21 Million barrels per day;
- Strait of Malacca, 11 Million barrels per day; and
- Strait of Singapore 19 Million barrels per day.

The US Navy is present and active in all the three straits, mainly to control the flow of oil using military force. The US has maintained its biggest naval presence in locations that oil and refined oil products pass through. In fact, oil and militarism are interwoven in the fabric of the US foreign policy. Sooner or later America may possibly impose sanctions on major oil buying countries.

America is, so far, the winner of the Ukraine crisis as far as energy market and pricing equation is concerned. For US shale oil producers, a price range of \$85 to \$95 per barrel is fine, provided that it could persist well into 2023 and 2024. On the other front, US LNG exports to Europe has doubled since Europe agreed to impose sanctions on Russia. Europe's dependence on the United States for imported LNG is already more than any other supplier. In the meantime American gas exports price is more than twice than that of Russia's gas exports price.

Price Cap Dilemma for Russian Oil

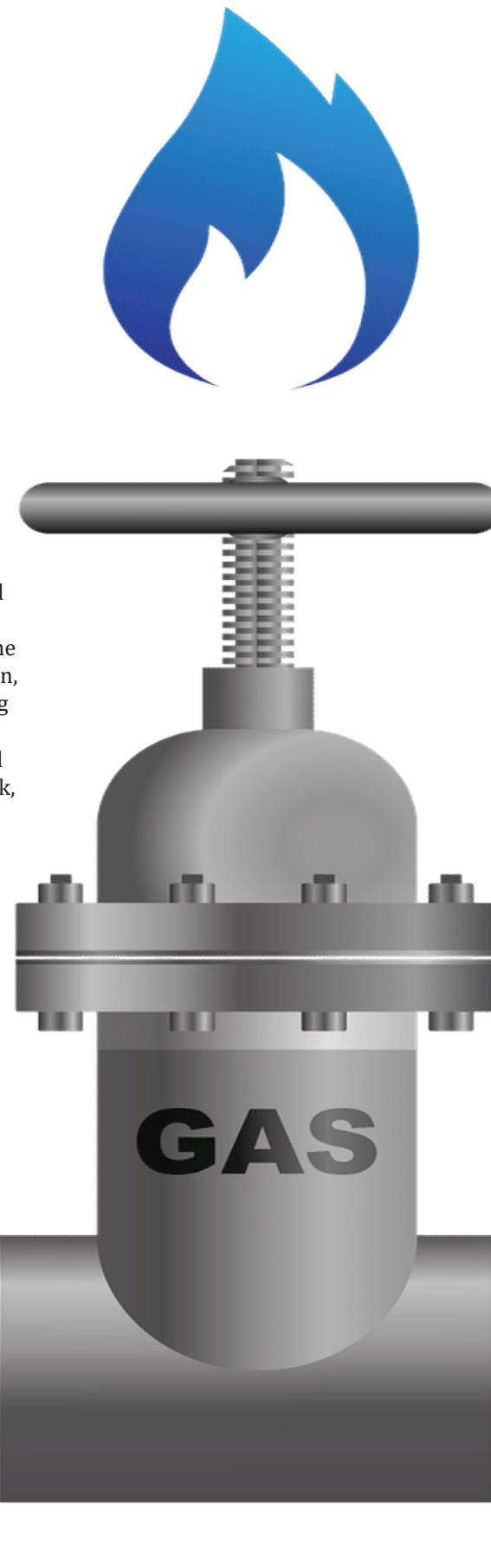
America has now come up with the notion of a price cap on Russian oil that causes concern to any other oil exporters. The rationale for a price cap is that sanctions prevent Russia from additional earnings due to higher oil prices. However, this looks like a symbolic

move by the US-led Western alliance. In fact, since Russian oil is already under sanctions, a price cap doesn't make sense, unless America is convinced that other countries will buy oil from Russia regardless of sanctions.

Nevertheless, the issue could have consequences for the international oil market. Russian volumes can only clear out of European markets to Asia via large discounts to countries that do not take part in the sanctions regime. China and India are already buying around 65 percent of Russian oil. Nevertheless, neither China nor India consume all those additional volumes for their own consumption. Their refineries run at maximum capacity. Products are then exported to different destinations in several countries including Europe and the United States.

A formal cap assumes that Russia would still prefer monetizing its oil rather than leaving it under the ground. As long as the cap covers its marginal cost of production, factors in the opportunity cost of refining the crude versus selling it, and allows for profit. The cap would be set at a fixed price and not pegged to an oil benchmark, and would be reviewed periodically.

It is still important to note that Russia will receive the income from oil sales in rubles and not dollar or euro. This by itself enhances the purchasing power of ruble against other major currencies. In fact, the feasibility of new transaction mechanism to substitute dollar in international oil transactions will be discussed by Shanghai Cooperation Council when they meet later this year. One of the options discussed by experts



includes a basket of currencies to be introduced to replace dollar.

Introduction of a price cap on Russian oil sales can be considered a blessing for any consumers. Nevertheless, major consumers of Russia's oil; China and India prefer direct negotiations and agreed prices between buyers and the seller. In fact, oil price is not decided by countries. It is decided by the market. Any intervention by governments and forceful application of price is unproductive and even destructive.

Extension of Energy War to the Pacific Region

From June 2022 to mid-August 2022, the United States, in coordination with twenty-five partner countries have been conducting naval and military maneuvers in maritime space between and around South China Sea and Indo-Pacific waters. These operations took place ahead of different American delegations that flew to Taiwan during the month of August.

The declared US policy is to make sure that the US navy should prevent and block the passage of energy from Russia and the Middle East to China and ASEAN countries.

The United States has architected several military and security pacts with countries in Asia and Pacific such as QUAD that includes the UK, Australia, India and America.

The straits of Korea, Majorca, Taiwan, Luzon and Malacca are obligatory checkpoints for the Sea Lines of Communications that interconnect

China's economic and industrial structure and energy security. Some \$3.4 trillion worth of goods passes through the above-mentioned straits. These are geographical locations that are vital to Chinese trade and economy. The entire maritime route is under US servility. This could go as far as controlling the safe passage of Russian oil to China and Indian Ocean neighboring states.

China consumed a quarter of world energy supply in 2021. Zero-Covid policy that has been in place since January 2022 has squeezed Chinese appetite for energy consumption. Though it has also cut on world oil consumption. This has somehow benefited European countries that are under stress for anything that helps to warm.

However, it has also threatened the volume of global trade and economy. It is needless to point out that China is also rich in coal. The country, in terms of coal reserves, is similar to Saudi Arabia among oil producers. China and Russia are in a position to form an organization like OPEC for coal producing countries.

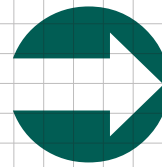
It may be of interest to know that China produces twenty percent of the world green energy. Most of the green energy technologies, equipment and machineries are also manufactured and exported from this country.

To sum up, world has entered a new and unprecedented phase of energy equation that hasn't been seen before. Changes experienced in one year, is far more significant than what which was experienced in ten years or more. For now, I only see gas versus sanctions.



Veteran Oilman Coaches Iran National Wrestling Team

We became undisputed champion



He was born in a family of athletes and engaged himself in wrestling along his uncles ever since he was a child until he gradually became interested in this field and finally followed wrestling professionally and reached championship in Asia and the world. Ehsan Amini, an employee of Jam Petrochemical Company, who is working as a fireman in the fire department, has succeeded in becoming the Asian champion as a wrestler, and later on, he has become the world champion as a coach. He is proud of being a firefighter and considers this job higher than the title of world champion.

→ The following is the full text of interview he as the head coach of the national team gave to "Iran Petroleum" on the occasion of winning the championship title in the Islamic countries' matches.

I became the runner-up in the Takhti Cup. I also became the champion in the international competitions of Poland and Russia

▶▶ **Let's begin with a biography of yourself?**

My name is Ehsan Amini. I was born in 1985 in "Islamabad Gharb" in a sports-loving family. I loved studying and I never quit my studies and now I am a student of sports management in the PhD level.

▶▶ **When did you start this major?**

I used to go to the wrestling gym since I was 8 and gradually my interest in wrestling grew stronger and stronger and finally I continued this field professionally until I was 29. After the end of my wrestling career, I also started coaching.

▶▶ **What weight did you wrestle in and what medals did you win?**

I used to wrestle at 86 kg group. I have won three gold medals of the Asian Games in the adult category.

In the category of juniors, I have won two gold and silver medals in the Asian Championship. I also managed to become the champion in three World Wrestling Cups. I became the runner-up in the Takhti Cup. I also became the champion in the international competitions of Poland and Russia.

▶▶ **When did you join Jam Petrochemical?**

It was in 2016 that I was employed by Jam Petrochemical Company in Assaluyeh and I was working as a fireman and I am proud to be a fireman. I have been working in this position for seven years now.

▶▶ **When did you become a coach?**

Officially, I became a wrestling coach in 2021.

▶▶ **Have you worked with all age groups and in which**

age group were you most comfortable?

I have coached youths and adults, but each of them is difficult for its own reasons. It's easier to work with young people, however. With adults, you have to work with the stars of Iran and the world, which is an honor in itself. You have to work alongside wrestlers like Hasan Yazdani in adults, which doubles the responsibility. In general, working with both groups is good and enjoyable.

▶▶ **What medals have you won as a coach?**

The team coached by me became the world champion in the youth category in the Russian World Championships by winning 5 golds. Then, I joined the adult national team and in the Norway World Cup, although we won 7 colorful medals, we came third in the world. I won the Asian championship in Mongolia. I also

won the Asian championship as a head coach. In the international competitions of Kazakhstan, where we participated with only 4 wrestlers, we won 3 gold medals and 1 silver.

▶▶ **Is it harder to coach or when you were a wrestler yourself?**

When I was a wrestler myself, I used to say that coaches are happy because they have no stress, their heart beat rate never goes up, they don't have to lift weights, and they don't have to work hard like me. But when I became a coach, I realized that things are very different. At the time I was a wrestler, I was only responsible for myself, but now I have to be responsible for 10 other people. I have to take care

of 10 people, make sure they follow proper diet, train on time, stay on weight, along dozens of other responsibilities that are much harder than being a simple wrestler. But in general, I would like to say that every activity has its own difficulty. Being a wrestler, you must always be physically ready. It is difficult to maintain the ideal conditions because you must always train and keep your body in shape and ready.

▶▶ **Could you tell us about the competitions of Islamic countries? The national team won the championship, and what was the level of the tournament?**

It was a good match, and was held at a high level. Teams from Azerbaijan, Turkey, Kazakhstan,

Kyrgyzstan, etc. had participated and had good wrestlers. We took part in the tournament with a good team, and the two teams of Turkey and Azerbaijan were our main opponents. Thank God, the guys worked well and we deservedly won the championship title.

▶▶ **What advice do you have for colleagues for exercise?**

I always tell my friends and colleagues to exercise regularly. Exercising always makes them healthier. Especially in the fire department, there are conditions that we must have a healthy and ready body. In general, exercising makes and keeps people's spirits fresh and therefore you can work better.

I would like to say that every activity has its own difficulty. Being a wrestler, you must always be physically ready



Guilan;

Paddy Fields & Tea Farms

Guilan is a province in northern Iran. It sprawls on more than 14,000 square kilometers. Mount Alborz protects Guilan like a wall in the west and in the south. That is why this Northern Province has moderate climatic conditions with quite high humidity. Guilan is considered as the most humid region in Iran with its annual precipitation at more than 2,000 millimeters.

Besides wonderful woods, more than 40 rivers flow across the province. The most important one is Sefidroud (literally meaning white river). Guilan has also productive farmlands. The main products supplied by this province are rice, tea, olive, citrus, silk, dairy, meat, chicken, fish, caviar, jam and delicious cookies. Guilan is one of the most beautiful regions in Iran. Every year, it hosts a large number of Iranian and foreign visitors. Beautiful jungles, evergreen countryside, Caspian Sea coasts and Anzali lagoon are among outstanding features of this province. Tens of historic, religious and recreational centers are flooded by visitors in all season across the year. In its previous issues, Iran Petroleum reviewed Guilan province and its tourist attractions. But the province has so many attractions. In this issue, we intend to review tourist attractions in the cities of Rasht, Lahijan and Anzali in this province.



Rural Heritage Museum

Rural museums are a subset of open air museum reflecting the rural civilization and culture in a natural environment. These museums form through transferring the real scale buildings in a location similar to the primary place. Guilan Rural Heritage Museum is under construction in a 263 ha land, in Saravan forest park located on km 18 of Rasht-Tehran road. The idea of establishing the museum was formed after June 1991 Guilan earthquake in which the destruction of the traditional buildings was intensified. The primary phase of the project was completed in 2002. The architecture section of the Museum is a collection of some 150 year old buildings. The objective of the Museum is not just transferring the rural buildings but is preservation of local culture, construction techniques and unwritten knowledge living in villages of Guilan. This collection, besides the rural architecture of different regions of the province, other cultural elements of life and work tools, food, costumes, etc would be exhibited.



House of Mirza Kouchak Khan

Mirza Kouchak Khan Jangali, whose real name was Younes Ostad Saraei, was a military commander during the Constitutional Revolution. He also led what was known as the Jungle Movement. Mirza Kouchak Khan rose up against violation of Iran's territorial integrity and independence by foreign governments following the Constitutional Revolution. Mirza Kouchak Khan fought the ruling regime from 1909 to his death in 1921. The house of this combatant has become a visiting place in the city of Rasht. The house, which was facing destruction, was given to the Rasht Municipality in 2001. The reconstruction of the current house started in 2002. The two-storey house sprawls on 300 square meters. Each storey has four rooms, one veranda and two staircases. The ground floor is an exhibition of books recounting the history of Gilan and the Jungle Movement. The first floor is where Mirza Kouchak Khan's family used to live. Photos of Mirza Kouchak Khan as well as documents about the Jungle Movement's struggles are pasted over walls.



Lahijan Pond

In the eastern section of the city of Lahijan and down a green summit covered with box trees is located a large pond measuring 17 in area and four meters deep. The pond used to be a water reservoir for irrigating paddy fields. The pond was fed with water streaming from the mountain. In the middle of the pond lies a beautiful island earlier known as Mian Poshteh. The island is connected to the southern part of the pond through a long cement bridge. The pond is nearly 2 kilometers long. The pool was built at the order of Shah Abbas Safavid. He had also erected a towering palace in the island. He stayed there when he visited Lahijan. Nothing has remained of the palace.



Tomb of Sheikh Zahed Guilani

The tomb of Sheikh Zahed Guilani dates back to the late 9th century AH. It is located in Sheikhanour village near Lahijan. In the tomb, is laid to rest Sheikh Tajoddin Ibrahim, better known as Sheikh Zahed Guilani. He was one of the great sufis and one of mentors of Sheikh Safiuddin Ardebili. The tomb, which has a turquoise dome, is surrounded by paddy and tea fields and woods. The ceiling of the mausoleum has gypsum decorations adorned with colorful tiles. There is no inscription showing the builder of the mausoleum. However, some attribute it to Mehdi Bashakjani. The only inscription available in this edifice is engraved on the ancient box placed on the tomb. It is dated 832 AH, most likely the year the tomb was built. The architecture of the edifice could belong to the 8th or 9th century AH. The mausoleum was registered as national heritage in 1968.

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



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