

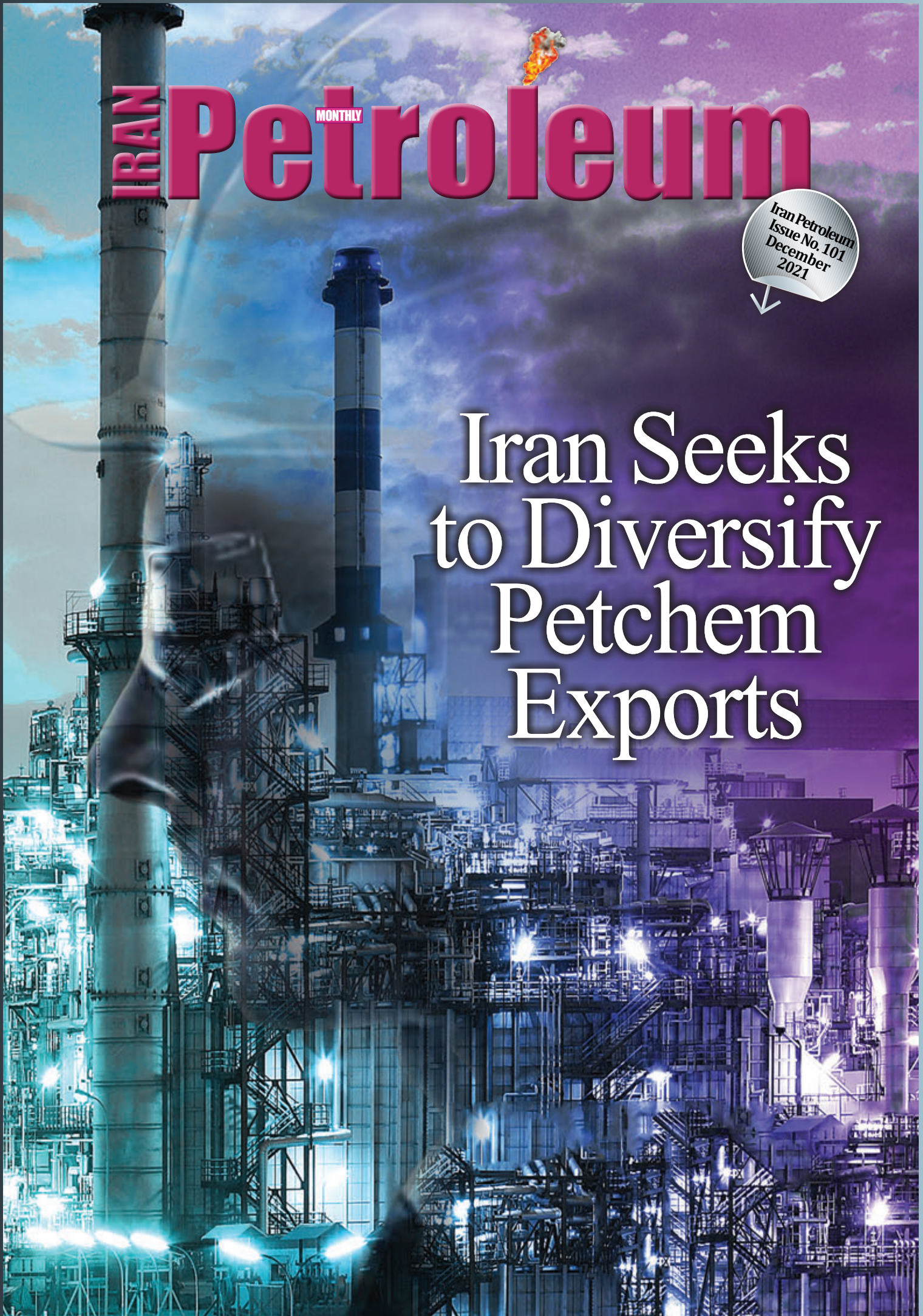
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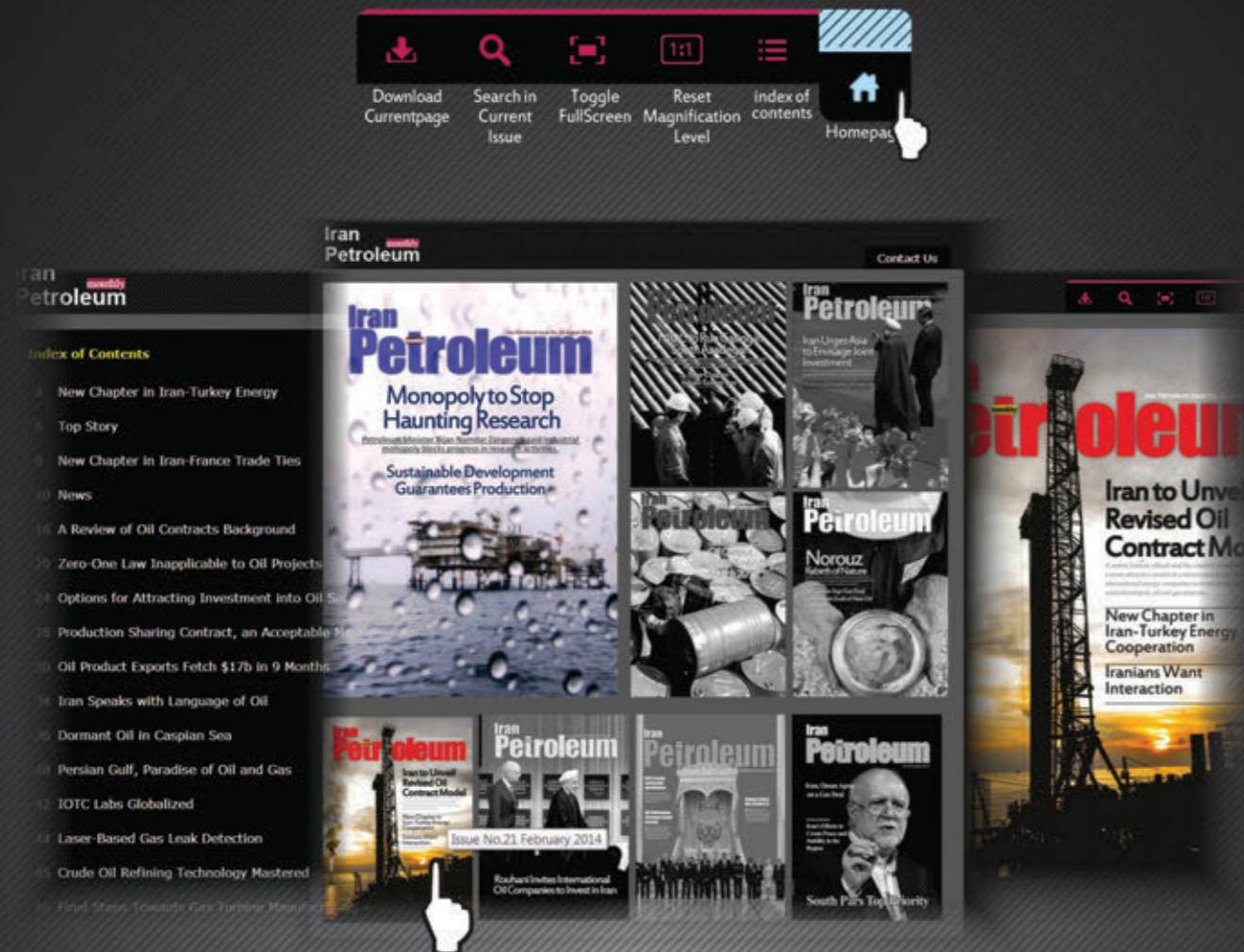
Petroleum

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Iran Seeks to Diversify Petchem Exports





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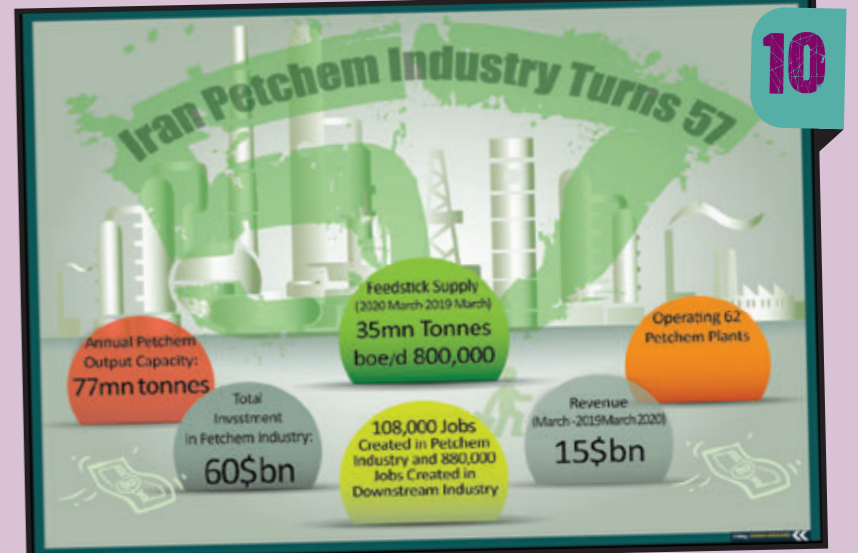
Iran Petchem Jumps 50-Fold in 50 Years

Kasra Nouri
Director General of Public Relations

December 28 marks National Petrochemical Day in Iran. The petrochemical industry began in Iran 57 years ago. In 1977, Iran had brought its petrochemical production to 3 million tonnes. Following the 1979 Islamic Revolution, the country made plans to gradually bring an end to crude oil selling, making the petrochemical industry a priority for development. Industrial renovation, structural reforms and optimal production along with attention to local manufacturing and development of technical knowhow were among the major topics of petrochemical industry development over 40 years. Over these years, the petrochemical industry has been subject to toughest ever sanctions in the oil and gas sector; however, official data shows that Iran has managed to overcome all obstacles and create an opportunity for self-sufficiency and self-reliance and develop local petrochemical technology. An outcome of this opportunity development reliance on local forces along with interaction with international companies has led

to jumps in the petrochemical industry, thereby increasing the production capacity in terms of diversity, marketing and exports. Iran's output has now reached 77 million tonnes, which would soon reach 100 million tonnes. The figure forecast for the petrochemical production to reach by 2025 is 133 million tonnes. It is also forecast to reach 150 million tonnes by 2027. Iran's petrochemical development is pursued based on the four elements of feedstock, market, capital and technical knowhow. The petrochemical production is forecast to be valued at \$44 billion by the end of the 4th National Development Plan. Then Iran would become a petrochemical hub in the world. Iran's top position in the petrochemical sector must be seen against the backdrop of unjust and irrational US sanctions. In the global village of the 21st century, there is no place for bullying. The countries that have imposed sanctions should not sacrifice the future for their illegitimate desires and steer from unfruitful attempts aimed at stymieing progress by Iran.

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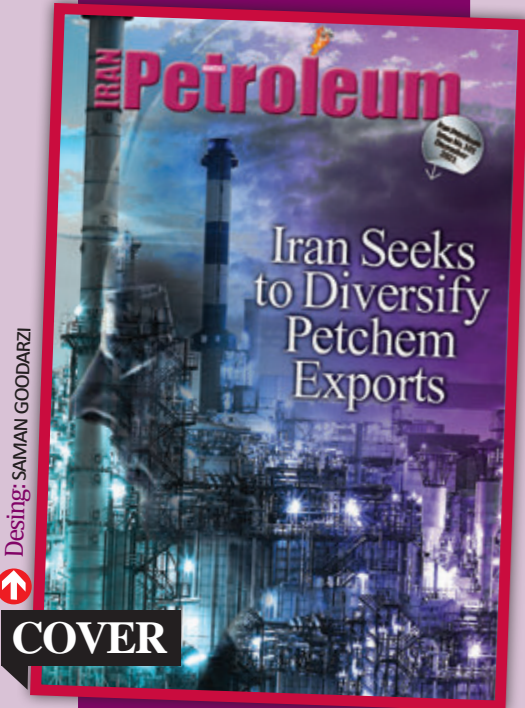


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Iran Energy Ties with Russia, Azerbaijan, Armenia



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Desing: SAMAN GOODARZI

COVER

Iran Energy Ties with Russia, Azerbaijan, Armenia

A high-ranking delegation from Iran's Petroleum Ministry recently met with senior officials from Russia, Azerbaijan and Armenia with a view to broadening energy cooperation. During the meetings, Iran's energy ties with the three countries as well as the latest oil market developments were discussed. Iran's Minister of Petroleum Bijan Zangeneh, leading a high-ranking delegation, said upon arrival in Moscow he would exchange views with Russian officials on the world oil market conditions. "During this visit, we will have meetings with Russian state officials and oil companies, but our most important issue would be to study the latest developments in the world oil market that is currently in sensitive conditions," said the minister. "Along with OPEC member states and allies, Russia has been instrumental and constructive over recent years," he added. Zangeneh met with Russian Deputy Prime Minister Alexander Novak and Russian Energy Minister Nikolay Shulginov. They exchanged views on energy cooperation between the two nations and the prospect of global markets.

Need for Energy Cooperation

Zangeneh and Novak insisted on deeper cooperation between the two nations, particularly in the energy sector.

The Iranian minister highlighted Russia's important and positive role within OPEC+, saying: "Cooperation between the two nations in the energy sector is daily growing." "Under the present circumstances, in light of unjust US sanctions on Iran and Russia, upgrading convergence and cooperation between the two nations would be significant and influential," he said. Zangeneh said Iran and Russia have, over recent years, had close cooperation in the oil and energy sector, adding: "We want deeper cooperation in order to neutralize the consequences of sanctions." Noting that major developments had transpired the international scene, he said: "Under any circumstances, Iran-Russia ties will not change and Tehran is determined to strengthen its ties with Moscow."

Iran-Russia Ties

For his part, Novak expressed pleasure with the growing trend of ties between Tehran and Moscow, saying: "Russia is undoubtedly calling for further convergence with Iran in all fields, particularly in the oil and energy sector." He said: "Over recent years, consultations between OPEC member states and the OPEC+ alliance have been effective, and Russia has sought to play a constructive role." "Iran and Russia have always had close and growing cooperation in the oil and energy sector and this cooperation will keep rising," he added. Iran and Russia also sketched out a roadmap for developing cooperation regardless of international political events, while calling for the implementation of agreements in the

energy sector within the framework of joint business forums.

Iran Open to Russian Investment

Zangeneh described Russia as Iran's strategic partner, saying: "We welcome Russian companies' investment in the petroleum industry." In his meeting with Shulginov, Zangeneh said: "We discussed and exchanged views on the world oil market." Noting that Russia has, over recent years, played a decisive role in the stability of oil market in the world, the minister said: "During this meeting, in light of serious cooperation within the framework of OPEC+, we talked to each other. Our views were close to each other." Zangeneh touched on the OPEC+ ministerial meeting scheduled for January 4, saying: "Both sides noted that these meetings are instrumental in preserving world oil market stability and possible scenarios in the future in this sector."

Bilateral Cooperation

Zangeneh said he discussed development of cooperation between Iran and Russia, adding: "We have good cooperation with Russian firms. We intend to continue cooperating with them in the oil and gas sector and equipment manufacturing." Zangeneh continued as saying that Russia was Iran's strategic partner, and Tehran-Moscow partnership would not be affected by international developments. "In case Russian oil and gas equipment manufacturers intend to operate in Iran they have to comply with the law on "Maximum Use of Domestic Potential". They would have to work in partnership with Iranian companies," he said. Zangeneh said that Iran and Russia were cooperating also within the framework of the Gas Exporting Countries' Forum (GECF). "The GECF has no role in

the global gas market prices because the structure of gas markets is different from the structure of oil markets," he said.

Iran-Azerbaijan Oil Ministers Meet

Upon return from Moscow, Zangeneh received Azerbaijan's Energy Minister Parviz Shahbazov in Tehran to discuss the recent developments in the region and the global oil market. Zangeneh underlined Azerbaijan's positive role as one of the members of the alliance between Organization of Petroleum Exporting Countries (OPEC) and non-OPEC members and stated: "Iran has close relations with Azerbaijan and the oil cooperation between the two countries is under the framework of the OPEC+." Shahbazov for his part mentioned the close political and economic relations between the two countries and expressed gratitude for Iran's significant role in OPEC+ constructive decisions, saying: "As part of this coalition, we were able to resolve the crisis of the oil market in April." "The OPEC+ mechanism is a good tool for amending the oil market in the current situation, but for it to be more effective, this coalition must be developed. It is true that we are taking action, but the crisis still remains," Shahbazov stressed. Referring to the country's need for natural gas as fuel for its power plants, the Azeri energy minister said: "I hope we can use Iranian gas, and I also appreciate the Iranian exports of gas to Nakhichevan."

Iran-Armenia Gas Talks

Iran's Deputy Minister of Petroleum for International Affairs and Trade Amir-Hossein Zamani-Nia received an Armenian delegation led by Hakob Vartanian, Armenia's deputy minister for local government and infrastructures. During the talks, the two sides



agreed on the expansion of long-term energy cooperation. After the meeting, Zamani-Nia, who is Iran's deputy oil minister for the international affairs, said the talks on some technical issues of gas export and gas-for-electricity barter were postponed to the near future, after which a long-term contract will be signed. Vartanian, for his part, said, "We have been negotiating with Iran for a year and a half about gas export and the extension of the gas-for-electricity deal; today's meeting was one of the most constructive negotiations in this regard." Emphasizing that in the meeting the basic points were agreed upon, and the solution of some minor and

technical points were postponed to the near future, he said: "The two delegations in this meeting tried to take into account the mutual interests of the two countries." Iran and Armenia signed a gas-for-electricity barter deal in 2004, based on which, for a 20-year period, Iran would export gas to Armenia to be consumed by the country's power plants, and in return, Iran imports electricity from Armenia. Armenia has started importing gas from Iran since mid-2009. Iran and Armenia have been cooperating for years in gas and electricity swap, and two-way economic and political ties have grown in tandem with an increase in trade.

Petchem Projects Started Up in Western Iran

On December 24, President Hassan Rouhani remotely inaugurated three petrochemical projects in 3 provinces: Ilam, Hamedan and West Azerbaijan. The projects were the olefin and desulfurization unit of Ilam Petrochemical plant, the potassium sulfate unit of Urmia Petrochemical Plant and Hegmataneh Petrochemical Plant. They lie within the category of projects envisaged for the second jump in the petrochemical industry. Their startup would bring Iran's annual petrochemical production capacity to 77 million tonnes. Completion of the value chain of petrochemical projects and business prosperity in the petrochemical sector are among the outstanding features of these projects, which are key to Iran's access to world markets. A total of 17 petrochemical projects are expected to become operational by the end of the current calendar year, i.e. 21 March 2021. That would bring the petrochemical production capacity to 90 million tonnes.

Petchems Double in Value

Rouhani said in a speech that commissioning three petrochemical projects worth over IRR 280,000 billion in a single day was indicative of the strength of Iran. "The 11th and 12th administrations take pride in the petrochemical industry. We managed to double petrochemical products in terms of both value and weight compared with 2013," he said. "Even if the government had not done anything during these years of sanctions and economic war, the two-fold increase in the petrochemical production would be considered a breakthrough," he added. Rouhani said Iran had brought its petrochemical output from 50 million tonnes to 100 million tonnes since 2013, with its value rising from \$11 billion to \$25 billion. He said 10 petrochemical projects had been inaugurated under his administration, which would total 17 by the end of the calendar year. "That is while the industry and its managers had been sanctioned by a wicked person like [US President Donald] Trump," he added. Rouhani said Iran had enough raw materials for petrochemicals production. "We are also making progress in terms of technology and our domestically manufactured products are being supplied on world markets." Rouhani said the Petroleum Ministry made a breakthrough in exporting gasoline, adding: "The enemy imposed restrictions on the oil sector in

a bid to curb our hard currency revenue. As the Supreme Leader said, the first step was to blunt the impact of enemy sanctions. The next step was to defuse the sanctions. In a bid to neutralize the impact of sanctions, the government compensated for oil revenue by exporting petroleum products, including petrochemicals. With the commissioning of remaining petrochemical projects up to the end of the calendar year (20 March 2021), Iran's petrochemicals would be worth \$25 billion."

Jump in Petchem Output

Iran's Minister of Petroleum Bijan Zangeneh also said at the ceremony the three projects were worth nearly \$1 billion, adding that these projects were aimed at bringing prosperity to western Iran. He said \$11.4 billion would be invested in more petrochemical projects with a capacity of 25 million tonnes in the current calendar year. He told Rouhani that two petrochemical megaprojects were also planned to become operational within the framework of the third jump in the petrochemical sector. Zangeneh said the two megaprojects would be bigger than the Bandar Imam Petrochemical Plant in terms of size and value. "The feedstock for these two megaprojects has been supplied, and investment and allotment has been arranged," he added. The minister said the Persian Gulf Petrochemical Industries Company and



the Parsian Oil and Gas Company would operate the megaprojects. Each of these projects would include more projects, he said, adding that a propylene pipeline was under way.

1st Olefin Unit

The olefin and desulfurization units of Ilam Petrochemical Plant came on-stream during the ceremony. Earlier in 2014, the high-density polyethylene unit of the petrochemical plant had come on-line.

The olefin unit of this petrochemical plant is the first olefin unit in western Iran with a total capacity of 765,000 tonnes. PGPIC has built the unit with an investment of 866 million euros. Ilam gas refinery would provide feedstock for this olefin unit. The desulfurization unit of Ilam Petrochemical Plant is tasked with sweetening the input feedstock of the olefin unit to supply ethylene, propylene, pyrolysis gasoline and liquid fuel. The ethylene produced by the olefin unit would be used as feedstock for the HDPE unit and the remaining products would be sold. Currently, the West Ethylene Pipeline (WEP) is feeding the HDPE unit. In case the olefin unit reaches 100% capacity,

there would be an extra 153,000 tonnes of ethylene to be fed into WEP.

The olefin unit whose capacity stands at 750,000 tonnes a year is valued at \$439 million. Seventy-one percent of the desulfurization unit and the olefin unit of Ilam Petrochemical plant, including engineering, construction, installation and equipment manufacturing, has been supplied domestically.

Medical Equipment

The Hegmataneh Petrochemical Plant was the second project that came online. It is a downstream sector's plant built in Hamedan. It is planned to produce 45,000 tonnes of medical-grade PVC, which is used in building medical equipment and devices like IV fluid and syringes.

Built with an investment of 38 million euros, the plant would gain \$35 million in annual revenue. The Hegmataneh medical plant has come online with 38 million euros through partnership between the private and sector and foreign parties for the annual production of 45,000 tonnes of PVC in the form of medical-grade granulated powder. The share of domestic manufacturing of equipment and machinery for this

strategic product stands at 70%. The medical-grade polymers market was worth more than \$23 billion in 2019, which is expected to grow 5.9% by 2025. Currently, because medical-grade PVC is not manufactured domestically, producers of medical equipment have to rely on imports for their raw materials. With the commissioning of the Hegmataneh petrochemical plant, Iran would become a major supplier of medical-grade PVC in the Middle East, which would be a top currency earner for the country.

Potassium Sulfate Ranking

The potassium sulfate and hydrochloric acid unit of the Urmia Petrochemical Plant has a capacity of 90,000 tonnes. It was also financed by PGPIC. The commissioning of this plant upgraded Iran's international ranking from 12th to 9th in the potassium sulfate production. Potassium sulfate is a valuable product used in chemical fertilizers and lab substances in addition to being a catalyst. The project would end Iran's dependence on importing this product.

The plant would bring Iran's potassium sulfate production capacity to 340,000 tonnes.

NPC Boss: Iran Seeks to Diversify Petchem Exports

CEO of Iran's National Petrochemical Company (NPC) Behzad Mohammadi recently presented a report on the activities of the petroleum industry on the occasion of National Petrochemical Day. He said eight more petrochemical projects would come online up to March 2021, adding that the petrochemical industry has managed US-imposed sanctions. He said a post-sanctions roadmap had been drawn up to be implemented, in case positive international developments occur. As Joe Biden is taking office as the new president of the United States, speculation is rife about the lifting of oil sanctions on Iran and the resumption of Iran's talks with European nations and the US. Mohammadi said it was not clear how Biden-led White House would treat Iran, adding: "However, we hope that if anything is to happen, this change would be in the sectors of technical savvy transfer and attraction of foreign investment." "We plan to raise investment attraction in this industry from \$80 billion to 4108 billion. In case foreign investment is attracted positive events will take place in this sector," he added. Mohammadi said sanctions remained effective, adding: "The new US president may bring about an overture or stick with the current situation. However, we are not so unstable to be shocked by any new sanctions."

Foreign Firms Openness

Mohammadi said some foreign companies have hinted they are ready to resume talks with petrochemical firms in Iran. "There is speculation in this regard, but we have not entered into any talks with any company. I have privately heard from some holdings that they have received positive pulses from foreign companies," he said. Asked if the US was planning to impose fresh sanctions on Iran or toughen petrochemical sanctions, he said: "We have never had any comfortable situation, but if you look at the impact of sanctions on production, capacity, diversity of products and currency generation, you will see that the valuable achievements of this industry indicate the ineffectiveness of unjust sanctions imposed on petrochemical companies and managers."

Mohammadi reiterated that US sanctions



had caused some problems for this industry; however, the financial situation has been managed effectively to generate revenue more than thought. He declined to provide any figures about petrochemical revenue.

Diversity

Touching on the diversity of export markets, Mohammadi said: "A great deal of products is currently being exported to international markets. But we have to expand our products mix in order to reduce our export dependence on some nations and broaden our markets." "Currently, Iran's petrochemical industry development follows a model that matches the world's model. In light of Petroleum Ministry's planning under the aegis of the Minister of Petroleum, we are seeking to develop the petrochemical industry in line with global markets as well as domestic demand. Otherwise, we are doomed to fail."

Petchem Feedstock

Mohammadi said rich and accessible oil and gas, used as feedstock for petrochemical plants, required development of the petrochemical industry as a pillar of national development. He said Iran's petrochemical

industry received 35 million tonnes of natural gas, ethane, gas condensate, gas liquids, naphtha and kerosene as feedstock in 2019, which was equivalent to 800,000 b/d of crude oil. Mohammadi said the petrochemical industry would receive 2 mb/d of oil equivalent as feedstock by 2027.

70% Exported

The NPC chief said the number of petrochemical plants had increased from 56 in 2019 to 64 in 2020, adding that they would reach 70 by March 2021. Mohammadi said that about 30% of Iran's petrochemical output was consumed domestically and rest was exported. He said Iran was producing 90 petrochemical products, including 18 polymer products supplied in 333 grades. "The diversity of products, as a sustainable development indicator, would reach 104 by 2025 and 124 by 2027, which proves the diversity of petrochemical mix along with development," he added.

Petchem Output Up 50%

Mohammadi said about 8 million tonnes of products had been supplied in the downstream sector in 2019, adding this volume of products would create jobs in

15,000 small and large-sized businesses in the downstream sector within the framework of 33 associations and unions. He said 27 petrochemical projects would become operational by March 2022 under the second petrochemical jump. "The petrochemical production capacity will jump 50% to increase from 66 million tonnes in March 2020 to 100 million tonnes in 2021. "With the commissioning of these projects, Iran's petrochemical industry revenue will increase from \$15 billion in March 2020 to \$25 billion next year," he added. Mohammadi also said that 28 projects would become operational by 2025 under the third petrochemical jump. "That would increase the capacity of the petrochemical industry to 133 million tonnes with a revenue of \$35 billion (based on the 2016 prices), which would upgrade Iran's ranking to the first in the Middle East," he added.

4th Step in Petchem Development

Mohammadi said appropriate planning had been made for the fourth step in the petrochemical industry development in a bid to stabilize the industry in all aspects. He said planning for the fourth development phase was based on the availability of feedstock

up to 2027. "Thirty strategic projects are envisaged for sustainable development after studying feedstock which may be received from the petroleum industry in coming years and using basic products as feedstock, as well as petrochemical imports and the needs of the downstream industry," he added.

20mt Increased Capacity

Mohammadi said the 30 strategic projects would be funded by \$16 billion to add 20 million tonnes to Iran's annual production capacity. He classified the strategic projects under the three categories of combined feedstock, propylene production and accelerative projects. "Three combined feedstock projects are envisaged for optimal use of available feedstock to supply variety of products. Licenses have been issued for that purpose," he said. Regarding propylene projects, he said they would enhance the propylene production in the country and expand the chain of this product in the country. "Currently, in the refining and petrochemical sector, 950,000 tonnes of propylene is produced and an increase to about 4.5 million tonnes would be the best news for the petrochemical industry," he said.

\$80bn Invested in Petchem Sector

Mohammadi said completing the second jump projects would bring the volume of investment in this industry to \$80 billion. He added that the figure would reach \$92 billion through the third jump and \$108 billion by 2027. "After the completion of the second and third jump projects and the startup of strategic projects by the end of the 7th Development Plan, the petrochemical industry production capacity would reach an annual 150 million tonnes with an annual income of \$44 billion. That would give this industry a prominent status in national economy," he said. Mohammadi said seven processes including those used in the production of methanol, ammonia, PP, PVM and HDPE had been nationalized, adding there would be 10 such processes by 2021. He said 85 catalysts were used in the petrochemical industry, adding: "20 have been manufactured domestically and 16 others would have been manufactured domestically by March 2022."

Iran Petchem Industry Turns 57

Annual Petchem
Output Capacity:
77mn tonnes

Total
Investment
in Petchem Industry:
\$60bn

Feedstock Supply
(March 2019 - March 2020)
35mn Tonnes
800,000 boe/d

108,000 Jobs
Created in Petchem
Industry and 880,000
Jobs Created in
Downstream Industry

Revenue
(March 2019 - March 2020)
\$15bn

62 Operating
Petchem Plants

SP11 Recovery Due in 1 Year, as Drilling Starts

In late December, operations started for drilling the first well in the development of Phase 11 of the giant offshore South Pars gas field. The drilling instructed by Minister of Petroleum Bijan Zangeneh, began on the SPD11B location. The MD-1 drilling rig is being used in this operation. The minister said recovering 500 mcf/d of gas from SP11 would start in the second half of next calendar year to 21 March 2021. He said Iran would not remain idle because of sanctions. An initial agreement for SP11 development was signed in July 2017 between a Total-led consortium comprising China's CNPCI and Iran's Petropars and National Iranian Oil Company (NIOC). But Total and CNPCI quit the deal after US President Donald Trump pulled out of the 2015 Iran nuclear deal and re-imposed oil sanctions on Iran. Finally in October 2019, the project was fully assigned to Petropars. Now this company has promised to bring the project into operation within 42 months for the recovery of 2 bcf/d of rich sour gas from the border block of SP11.

After taking full control of the project, Petropars said it had developed an initiative to realize early production from this phase- 500 mcf/d of gas- up to the second half of next calendar year to 21 March 2021. Reza Dehqan, deputy CEO of NIOC for development and engineering, touched on the financing of the project, saying due to the impossibility of financing by the foreign investor, NIOC would account for financing through issuing bonds.

\$85mn Investment

Dehqan said \$15 million had been already spent in the SP11, adding that another \$70 million would be provided up to next March. Hamid-Reza Masoudi, CEO of Petropars, said development of SP11 started this year after years of waiting. The first jacket in this phase, weighing 2,200 tonnes, was loaded out in April to be installed the following month.. Now the MD-1 drilling rig, owned by power utility MAPNA, would spud 12 appraisal-development wells in two phases.

In the first phase, five appraisal-development wells would be drilled and the SPD11B platform would be installed. The initial recovery from SP11 is estimated at 500 mcf/d or 14 mcm/d. Then, through drilling operations and completion of another seven development wells, recovery from this platform would reach 1 bcf/d or 28 mcm/d of rich gas.

Initiative and Creativity

Addressing the ceremony to inaugurate drilling



operation, Zangeneh said: "We proved during the years of sanctions that we would not be stopped. They closed every option upon us, but we showed initiative and creation to find ways in order to keep the petroleum industry running." The minister touched on the fact that Iran's oil exports were never zeroed despite pressure by the Trump administration. "We showed that we are alive and resistant, and we work forcefully. In addition to the toughest sanctions imposed on Iran on a regularly daily basis, the coronavirus erupted. "But we did our job," he said. Zangeneh said SP11 would have no refinery, adding that the gas produced at SP11 would be delivered to the refinery of SP12. One objective sought by the Petroleum Ministry has planned to bring in

foreign technology for building pressure compressor platforms to prevent any pressure fall-off in the South Pars gas field. Iran does not possess this technology.

Iranian Compressor

Zangeneh; however, said pressure compression would be vital and necessary; adding that one of the objectives sought in the SP11 development was to boost pressure. He said onshore and offshore pressure compression studies were carried out after foreign contractors pulled out of the project. "One of our decisions is that the Iranian company Oil Turbocompressor (OTC) manufacture for the first time a compressor and turbine for pressure boosting. Contracts will be soon signed with this company for

building several turbines and compressors," he added. "We estimate that these pressure compression and production maintenance projects in South Pars would cost \$50 billion in investment," said Zangeneh.

700 mcm/d Recovery from South Pars

Zangeneh said a variety of options were on the table for increased production from South Pars.

"Iran is currently recovering over 700 mcm/d of gas from the joint South Pars field, which is 2.5 times higher than that of seven years ago," he added.

Zangeneh said Iran's gas production had totaled 1,000 mcm/d, adding that gas consumption had increased these years due to the coronavirus disease.

"Each gas well costs more than IRR 10,000 billion, and gas delivery to households requires tough steps. It would be unfair to waste it away. We have to feed plants and industries," said the minister.

Zangeneh said 95% of Iran's population was under gas coverage. He said Iran had recently decided to increase gas exploration in the Persian Gulf littoral states.

"We expect Pars Oil and Gas Company and Petropars to start development of the joint Farzad and Belal gas fields," he added. Noting that development of the petroleum industry, as well as reconstruction of hydrocarbon fields would be among Iran's oil priorities, he said: "If we take no action for gas development we will face gas shortage in two years."

Growth of Domestic Companies

Masoudi said development of SP11, the last remaining phase of South Pars, by domestic companies signaled growth of domestic producers, contractors and manufacturers.

The drilling rig was installed in November, he said, adding that it had passed necessary technical tests to start work in South Pars. He said that in the first phase, drilling and completion of five wells and installation of the 3,700-tonne SPD11B platform would allow the production of 400 mcf/d of gas.

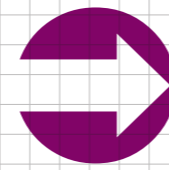
"In the second phase, with the drilling and completion of seven more development wells, total recovery from this platform would reach 1bcf/d (28 mcm/d) of rich gas," he said. Masoudi said that many agreements had been signed with Iranian manufacturers for commodity supply, adding: "The Iranian share of this project is now 97%. In fact by implementing SP11, we are trying to benefit from national capacity and make maximum use of domestic potential."

Begging of Return to Maximum Output



Marjan Tabatabaei

→
Mohammadi; however, noted that the current round of sanctions were much tougher than those imposed in the past. The following is the full text of the interview he gave to "Iran Petroleum":



Ahmad Mohammadi, CEO of National Iranian South Oil Company (NISOC), has said Iran is ready to restore maximum oil production. In an interview, he said NISOC had previously experienced return to maximum output after Iran signed in 2015 the historic nuclear accord with six world powers.

» **First of all, would you please tell us about challenges caused by sanctions?**

The main problem is that as much as oil is produced, oil is not exported to bring revenue. Sanctions are tougher and more complicated this time. Financial problems in supplying equipment exist in the petroleum industry like in other sectors. Of course, we have relied on domestic manufacturing and we have had good cooperation with domestic manufacturers. We cannot ignore the problems caused by sanctions, but we did not stay idle.

» **What activities have persisted despite sanctions?**

First, feedstock production for refineries has continued thoroughly without any halt. Additionally, our domestic companies manufactured nearly 15,000 commodities as part of our campaign for domestic manufacturing. Of course, we had problems with purchasing some foreign-made commodities. However,

the main point is that sanctions imposers failed in their objectives, and I suppose that sanctions would end in becoming ineffective. Sanctions are an all-out economic war and the objective of this economic war has been to bring Iran's oil exports down to zero. Despite all our problems we have faced, US failed in reaching its objective. Those at the forefront of oil production have worked round the clock to defuse sanctions. I believe that these frontline combatants emerged winner.

» **Do you hope that sanctions would be lifted?**

We are always hopeful. My personal analysis is that we would see a good future. We largely hope that the sanctions would be lifted in the future and we would see maximum production and exports, and we would retain our production share in OPEC.

» **Are you ready to return to maximum production?**

We have maintained our increased production in these years and we are fully ready to return to the production ceiling set by the Petroleum Ministry.

» **Doesn't NISOC have any problems for return to maximum production?**

NISOC has taken necessary measures to return to production. Of course, it is noteworthy that these measures have always been under way. Given the new government policy, this issue has been seriously taken into consideration. In fact, NISOC, regardless of production cut under sanctions, has sought to maximize production and this readiness has always been on our agenda. Based on a plan adopted by NISOC, operators and directorates, we have been following up on this issue. We are now in a situation wherein we can urgently return to maximum output level, as long as the Petroleum Ministry instructs us to do so.

» **How much oil can you supply?**

We can return to the pre-May 2018 sanctions levels in the shortest possible time.

» **Did you have any monitoring plans during the previous round of sanctions too?**

Yes, although we faced less pressure at that time, we had a monitoring scheme during the previous round of sanctions, too. Now, the petroleum industry is under tough pressure. I would like to say that this round of sanctions is unique and worse than during the imposed war. We have maintained our potential for a return to maximum production.

» **If sanctions are lifted which NISOC-run fields would be prioritized for production?**

There is no difference. NISOC will enhance output based on its capacity and plans instructed by National Iranian Oil Company (NIOC).

» **In the post-JCPOA years, we witnessed quick return to production at NISOC. How similar are these two periods?**

An important measure was taken at that time, but there are many differences. We had desirable hard currency reserves when we were sanctioned at that time because of oil sales, but now we are faced with an all-out economic war. This time, in

addition to unjust sanctions, we are faced with the covid-19 pandemic and falling demand for oil. Therefore, exports are less lucrative this time. However, production has been increasing and we are again ready to return to maximum output level.

» **Let's focus on oil production projects aimed at enhancing and preserving output levels. Can they come online next year?**

These are all capital projects that are envisaged to come online under a specific calendar. The activities pertaining to some of them have already begun and we have very good potential to enhance production over the coming two years. Some of them like the Mansouri, Kaboud and Nargesi projects would show off in the coming months. Some will come online next year and some others two years later.

» **Do you mean that some oil production enhancement projects would become operational next calendar year?**

Yes, implementation of these projects and production from other fields would contribute to enhanced output.

» **Let's go back to the 28-reservoir project. Are you happy with their progress?**

This project involves 27 packages that are all among the biggest projects of NIOC, designed to

enhance production from oil fields run by NISOC. Of course; creating job opportunities, particularly for local residents, upgrading the contractual framework in the upstream oil sector, maximum focus on domestic manufacturing and boosting domestic manufacturers, paying attention to social responsibilities and increasing national oil output are among other objectives of this project. Currently, except for the Gachsaran 1 and Gachsaran 2 packages which are currently in the stage of tender bid, all other contracts have been signed. The contractors for other packages have been named and their activities have started. Implementation of this project for the first time is some sort of modern order in upstream oil projects. Sanctions and the coronavirus slowed down the project to a large extent, but despite sanctions, NISOC staff helped finalize all the projects. We hope that these projects would be accelerated as economic conditions improve in the country.

» **Generally speaking, what percentage may be seen for the 28 reservoirs?**

It varies between 14% and 65%.

» **As some foreign companies quit the projects as soon as the sanctions started, will you welcome them back if the political atmosphere changes?**

The petroleum industry is dynamic and needs significant domestic and foreign investment. We welcome the presence of international companies and investors. In the petroleum industry, particularly upstream sector, there is great potential for domestic and foreign investment.

This project involves 27 packages that are all among the biggest projects of NIOC, designed to enhance production from oil fields run by NISOC



First, feedstock production for refineries has continued thoroughly without any halt. Additionally, our domestic companies manufactured nearly 15,000 commodities as part of our campaign for domestic manufacturing

South Azadegan Output Capacity at 140,000b/d

CEO of Petroleum Engineering and Development Company (PEDEC) Touraj Dehqani has said that the giant South Azadegan oil field is 70% developed. "The current production capacity of the field has reached 140,000 b/d. Of a total 200 wells envisaged to be drilled, more than 170 wells have been drilled with 107 of them at the production stage," he said. Dehqani said in addition to increased production capacity, South Azadegan saw for the first time in Iran prefabricated processing capacity. "This project has

been under way with minimum costs, less than \$30 million. So far, more than \$1 billion worth of oil has been processed in this way," he said. "Let's not forget that sometimes we may need eight years in order to create 100,000-barrel processing capacity; nevertheless we did it in less than a year. The project came online in 2018 exactly when the US re-imposed sanctions," said Dehqani. He also touched on the construction of the Goreh-Jask pipeline, saying it was 80% complete in its first stage. "Now we may say that Phase

1 of this pipeline would be completed by the end of the current calendar year," he said. "This pipeline involves 1,000 kilometers of acid resistant 42-inch pipe, five pumping stations, two pigging stations and a gauging station," he added. "In Phase 1, 10 million barrels would be stored in twenty 500,000-barrel storage tanks in Jask, which could be upgraded to 30 million barrels. Offshore installations include a jetty, a logistic port, loading facilities and associated pipes."

Gas Transmission Record Set at 818mcm/d

The Iranian Gas Transmission Company (IGTC)'s managing director said the transmission capacity of the national gas network has reached 818 mcm/d. Referring to the planned maintenance of 86 pressure boosting stations and more than 37,000 kilometers of high-pressure pipelines, Mehdi Jamshidi-Dana stated, "In the first eight months of this [Iranian calendar] year (March 20-November 20), 163 bcm of gas were transmitted to consumption points. In this sector, we also saw a four-percent increase compared to last year." In terms of the storage of gas in the country, Jamshidi-Dana said that in the cold season and at maximum consumption the gas storages help the stability of the gas transmission network, adding, "In the first eight months of this year we saw a 17-percent increase in the rate of gas injection to Sarajeh underground gas storage (UGS) and a 26-percent increase in the rate of gas injection to Shourijeh UGS." The mentioned storages supply gas to six northern and northeastern provinces that are far from the southern gas-rich regions, eliminating the need for importing gas from Turkmenistan.

Final Output Performance Test in Azar

Final output performance test has started in the Azar oil field as part of the development plan for the field, the chief developer of the field said. Kayvan Yar-Ahmadi said the test, which would take nearly a month, was under way with an output of 65,000 b/d.

"Construction operations associated with the Azar oil field installations and its pre-commissioning and commissioning have been done after receiving operation license and making necessary arrangements with relevant directorates at National Iranian Oil Company (NIOC) and Iranian Central Oil Fields Company (ICOFC)," he added. The agreement for developing the Azar field was signed in 2012 with a consortium of Oil Industries Engineering and Construction (OIEC) and Oil Industry Pension Fund Investment Company (OPIC) for early production. In the early production phase, 9 wells were drilled and 129 kilometers of pipe was laid. In the first phase of the project, 11 new wells were drilled while 61 km of new pipes were built.

Oil, Condensate Refinery Marking History in Iran

Iran's First Vice President Es'haq Jahangiri has heaped praise on the Petroleum Ministry for its record in the crude oil and condensate refining. In a letter addressed to Minister of Petroleum Bijan Zangeneh, Jahangiri said: "Mr. Zangeneh, Needless to say, figures speak louder than words. I would like to offer my sincere gratitude to you and your colleagues. These valuable measures will remain forever in history." According to a report submitted by Minister Zangeneh, the Petroleum Ministry has organized a chain of development activities in order to increase value-added in the petroleum industry, enhance production capacity and improve the quality of petroleum products to be exported. To that end, Iran has raised its refining capacity from 1.8 mb/d in 2012 to 2.2 mb/d now. As a result, gasoline and gasoil production increased respectively, from 49.8 ml/d and 94 ml/d in 2012 to 107 ml/d and 113 ml/d in 2019. Owing to measures undertaken to improve the quality of refined petroleum products, the production capacity of Euro-4 and Euro-5 grade gasoline rose from nil in 2012 to more than 76 ml/d in 2019.

Exporting 2.3 mb/d Oil is Practical

President Hassan Rouhani has said it would be possible for Iran to export 2.3 mb/d of oil.

"We have called on the Petroleum Ministry to bring the country's oil exports to 2.3 mb/d; an amount that can either be exported or sold on the domestic market," he told a press conference.

He said the coronavirus pandemic had created the most difficult days and months for the country, adding that his administration felt responsible to run state affairs under any conditions.

Rouhani added: "In the first year of my administration, i.e. in 2013, we achieved positive economic growth and reduced inflation to about 15 percent, and in subsequent years, the country's economic growth, despite being in the worst conditions of oil revenues, increased."

"Before the 11th administration, the country's oil revenue was about \$100 billion a year, and on average in 2014, 2015, 2016 and 2017; the years when our oil revenue was favorable, the country's oil revenue reached an average of about \$52 billion," he said.

Goreh-Jask Offshore Section to Start Work in Feb

The head of engineering and construction at Pars Oil and Gas Company (POGC), Rasoul Fallahnejad, has expressed hope that the first stage of commissioning and early production in the Goreh-Jask Pipeline would come online by February. "In the offshore section of this project, we are faced with very special conditions due to working in the Sea of Oman and connection with the ocean. The conditions are totally different from previous projects built in the Persian Gulf. Under such circumstances, we will be facing such phenomena as tsunami, ocean waves, storms and sea depth. The geological, geophysical, geotechnical conditions and seismic testing are totally different," he said. In parallel with construction activities, commodity supply was also on the agenda, said Fallahnejad. "Regarding commodity supply, all

necessary equipment particularly SPMs, offshore pipes, valves and joints, metering system and control system have been ordered," he added. "Based on our planning, we hope to bring the first phase into operation by February," said Fallahnejad. He said that three SPMs would be installed 7 kilometers from the shore and at a depth of 50 meters. He added that the SPMs were twice the size of common ones. He said these new SPMs would handle the loading of 1 mb/d of oil. The entire project has been awarded to domestic companies, he said, adding that the Iranian Offshore Engineering and Construction Company (IOEC) was behind the construction of SPMs and offshore pipes. IOEC has long experience in SPM and offshore pipe construction. "The necessary pipes for the first phase have been constructed and delivered. They will be transferred to the site of the project after being coated in Bandar Imam and Khorramshahr offshore installations yard," he said. Fallahnejad said necessary preparations had been made for pipe-laying, adding



that an SPM had already been tested there as part of arrangements for new SPMs.

He said the first floating SPM would be completed in April or May while the second and third SPMs would

be ready two to four months later. "In the onshore section, the Iranian company Gamma is cooperating with IOEC within the framework of a consortium," said Fallahnejad.

Jask Oil Terminal to Start work in March

The operator of the Jask oil terminal project in southern Iran said the first phase of the country's second major oil terminal will be inaugurated by the end of the current Iranian calendar year (March 20, 2021). Due to the significance of the Goreh-Jask oil transfer project, which is going to transmit Iranian crude oil from Goreh in Bushehr to Jask at the mouth of the Indian Ocean for exports, the Jask oil terminal project is being pursued seriously to be prepared for the time that the pipeline project is completed. According to Vahid Maleki, the first phase of the project includes one metering station, two 36-inch pipelines each with a length of six kilometers, various coastal facilities, as well as a single point mooring (SPM). Maleki noted that the first cargo of the mentioned 36-inch pipes which have been coated will be loaded to be shipped for Jask in the coming days. The pipe-laying operations for both six-kilometer pipelines of the terminal will be completed in the Iranian calendar month of Bahman (ends on February 21, 2021), the official said. As the country's second major oil terminal, Jask terminal is under construction by Pars Oil and Gas Company (POGC) on 60 hectares of land and with nearly €260 million of investment.

Bu Ali Sina Petchem Plant Exports Up 100%

CEO of Bu Ali Sina Petrochemical Plant Mohammad Ahmadzadeh has said that during the first half of the current calendar year the plant's regional sales was up 100%. He said that the increased petrochemical sales opened new channels for selling products through road transport. Ahmadzadeh said that the company saw its margins grow three-fold in 2019, not to mention its remarkable progress in implementing projects. The company divided IRR 11,000 billion in its margins. "Bu Ali Sina Petchem Plant has three major projects under way – light fraction sweetening, paraxylene and TK-2001C tank. They are planned to come online this year or early next year," he added. Referring to the company's margins in the first half of the current calendar year, he said: "During this time, Bu Ali Sina's net profit set a new record owing to 2.8-fold increase in production despite all problems caused by sanctions and the covid-19 pandemic." He said the company's sales had increased 20% year-on-year, adding that light products increased 39%, liquefied petroleum gas grew 25% and benzene grew 23% during the first half of the current calendar year from a year ago.

PRTC Builds 10 Petchem Catalysts in 2020

The CEO of the Petrochemical Research and Technology Company (PRTC) said his company had so far produced 10 petrochemical catalysts or had presented their production technology in the current calendar year, which began on 21 March 2020. Addressing a ceremony held on the occasion of Research Week, Ali Pajouhan said by the end of the year, "important and strategic catalysts in the petrochemical industry will be completely manufactured domestically." He said development of technical knowhow for production of petrochemical items, development of technical savvy of petrochemical catalysts, development of strategic chemical savvy and solving the problems of the units are some of the major goals of his company. The official mentioned the numerous downstream workshops, 10 laboratories, 25 pilot machines, more than 50 set-ups and bench machines in three centers of Tehran, Arak and Mahshahr as some of PRTC infrastructure, adding: "Demoplants are among the unique equipment of this company of which the most important are HDPE, PET, MTP and PP demoplants." The CEO of the Petrochemical Research and Technology Company pointed to the registration of 250 patent by PRTC, noting: "The most important patent that has been recently registered is the PVM patent or MTP, which has been registered in the European Union."

10-Month Gas Production at 203bcm

CEO of National Iranian Gas Company (NIGC) Hassan Montazer Torbati said Iran's natural gas production had reached 203 bcm since the beginning of the calendar year. He said the figure showed a 10 bcm increase year-on-year. "BTU-wise, this amount of gas production is significant. So far, 7 bcm has been consumed by the household sector and 3 bcm at power plants. We saw increased gas supply to both the household and power plants sectors," he said. Montazer Torbati said gas production during the last month of autumn on the Iranian calendar year was up from a year ago. "Gas production during the same month increased 52 mcm/d year-on-year. Meanwhile, household gas consumption increased 46 mcm/d and power plants consumed 9mcm/d more gas year-on-year," he added. Montazer Torbati said the figures showed that the household sector was a major consumer of gas, calling for energy efficiency measures to curb gas consumption. He said the increased natural gas consumption was partly due to the annually increasing number of subscribers. "We are developing the gas supply and some 15-20 mcm of the 55 mcm/d increase is due to the fact that new households have been connected to the gas network. The rest comes from increased consumption of hot water due to the outbreak of the coronavirus," he added.

Zangeneh: We Need nobody's Permission to Lift Oil Output

Iran's petroleum minister has said the country could export 2.3 mb/d of oil, noting that it would seek nobody's permission to produce more.

"Iran is entitled to increase its oil production and it will get nobody's permission for that purpose," Bijan Zangeneh said. "If sanctions are lifted and financial restrictions, caused by sanctions, are lifted, we may revive wells and then exporting 2.3 mb/d of oil would be achievable," he said. Zangeneh said he would not say something which he knows could never come true. "Exporting 2.3 mb/d of oil is practical and there is market for it and in which case I think that oil prices will not decline," he added. "I believe that OPEC is sensitive and committed enough to preserve oil prices. The necessary mechanism is also ready. We have to see what fate would befall the sanctions. For the moment, we



can't express ourselves in this regard," said the minister. Asked to explain how Iran would be authorized by OPEC to raise its production at a time the organization

is discussing production cut to help stabilize oil prices, Zangeneh said: "There is no need for permission. It is our right to increase our oil production. We will seek

permission from nobody to increase our production. However, we need to wait." In response to a question about wooing foreign companies in case the US returns to the JCPOA and lifts its sanctions, the minister said: "Once the US returns to the JCPOA and then we will decide about it."

JMMC Not Decision-Making Body

Zangeneh said OPEC+ Joint Ministerial Monitoring Committee (JMMC) would meet soon to review compliance by OPEC member states and their allies. "They are not making any decision. They only report the compliance rate of member states. Compliance has been good. Some OPEC members rightfully expect that the nations that did not sufficiently cut their production in the past months cut their output up to March 2021. That is the most important job which JMMC should report about." Regarding development of new oil and gas fields, the minister said: "For the moment, we have no plan to develop new fields. In the gas sector we focus on the Belal, Farzad, South Pars and Kish gas fields. In the oil sector, our priority is West Karoun, Jofair, Sephehr and Ilam."

Iran

Racing Ahead Even in Covid-Stricken Oil Market

Negar Sadeqi

It is not known yet when the US would end its maximum pressure campaign, the signature legacy of President Donald Trump, to bring Iran's oil exports down to zero and drive Iran out of the oil trading market. Nonetheless, based on analysts' views, US president-elect Joe Biden is not willing to continue his predecessor's policy. Over the past two years only, Iran has experienced the toughest ever sanctions in four decades. The heavy burden of the sanctions led everyone to think Iran would fail in an unequal economic war. However, Iran's oil exports were not zeroed; rather, Iran managed to export its petroleum products to various nations despite the outbreak of the coronavirus pandemic. Minister of Petroleum Bijan Zangeneh has said time and again that Iran would return to the oil market and regain its market share, as soon as US sanctions are lifted. He has even said Iran would not shy away from retaining its share from the countries that have seized it. Iran is returning to the oil market forcefully while being exempt from the OPEC+ oil deal. During the first round of President Hassan Rouhani's administration, after Iran and six world powers signed the historic nuclear deal known as the Joint Comprehensive Plan of Action (JCPOA), Zangeneh convinced OPEC to exempt Iran from any output cut under its decision to reduce production along with allies. In the next phase of OPEC production cut, Iran's oil was already under US sanctions. Zangeneh again filed the same request. Some nations opposed, but finally OPEC+ agreed to exempt Iran from production cut in order to help stabilize prices.

Covid Price Shock

The year 2020 was not a good year for global economy and oil market mainly due to the outbreak of the coronavirus pandemic. World oil demand fell below zero and oil prices dropped to below \$20. Year 2020 is now ending against the backdrop of a historic OPEC+ deal which helped boost prices; however, the prices are unlikely to return to the pre-2018 levels. On April 12, 2020, OPEC and their partners agreed to cut 9.7 mb/d of oil from their total output for two months (May-June) as of May 1. After the two-month period, OPEC+ was to cut 7.7 mb/d from its output for six months ending on December 31. For the period running from January 1, 2021 to April 30, 2022, OPEC+ agreed on cutting 5.8 mb/d from its output. This decision helped boost oil prices which are now above \$50. The 180th meeting of the OPEC Conference and the 12th OPEC+ meeting were held while covid-19 was racing ahead. OPEC+ agreed to raise output by 500,000 b/d for one month. Of the 20 states involved in the OPEC+ deal (excluding Iran, Libya and Venezuela), 12 countries had overproduced 2.346 mb/d, which were asked to compensate by March 2021.

Iran Oil Slot

Iran is getting ready to return to the world oil market. However, the main question is to know how the market would react to Iran's return? Iman Nasseri, Managing Director of Middle East division of FGE, said: "We may just have a look at the oil supply and demand. Analyses and statistical data tell us the market need for increased OPEC and OPEC+ production in 2021 and particularly in the second half of next year is higher than the amount Iran plans to supply on the market. Therefore, there would definitely be room for Iran's oil, notwithstanding what OPEC and OPEC+ have forecast for the market balance." "Based on the OPEC+ agreement, during the second half of 2021, the market would need more oil in order to maintain its balance. Therefore, during the OPEC regular meeting, member states are likely to decide about lifting their output from the current levels," he said. Nasseri also said in case OPEC and OPEC+ intend to control the oil market balance in the long-term they should try to keep oil prices at about \$45 by keeping their output lower than their production capacity on the long-term. "Currently, oil



prices have increased to \$50 a barrel and are forecast to exceed \$50 barrel. But this price will allow the US resume its shale oil production and increase its oil output next year," he said. Therefore, when oil market balance is said to be needed, oil prices should remain between \$30 and \$35 a barrel for at least for two years in order to keep US shale oil production from having economic justification, said Nasseri.

US Shale Oil and Paris Climate Deal

The US President-elect Joe Biden favors his country's adherence to the Paris climate deal that requires nations to cut their greenhouse gas emissions. Trump's pullout from the Paris deal provided oil companies with an opportunity to increase their oil production, making the US an oil exporter. European Union leaders agreed recently to cut net carbon emissions by 55 percent in the next decade from levels measured in 1990, overcoming the concerns of nations which are still heavily dependent on coal and taking a critical step in the effort to become climate-neutral by 2050. European leaders, who are keen to position themselves as at the forefront of the global fight against climate change, had failed in October to reach a deal on an even less ambitious target of 40 percent. "Europe is the leader in combating climate change," tweeted Charles Michel, who heads the group of EU leaders. "We decided to cut our greenhouse gas emissions of at least 55 percent by 2030." Now everyone is waiting for Biden to see what decision he would adopt for his country which is among the top emitters of greenhouse gases in the world. Asked about an acceptable oil price, Nasseri said: "OPEC should look at the realities in the market. A \$45 oil would guarantee increased shale oil production,

thereby leaving no room for OPEC to raise output or even return to the 2018 levels."

2.3mb/d Oil Exports Planned

Zangeneh, in a meeting with the Planning and Budgeting Committee of parliament, has said Iran would be exporting 2.3 mb/d of oil next calendar year to 20 March 2021. Ever since the US re-imposed its tough oil sanctions on Iran, the Petroleum Ministry has refused to release any official data on oil and petroleum products exports. The minister had said on the sidelines of drilling operations for Phase 11 of the massive offshore South Pars gas field, that Iran would seek nobody's permission for enhancing its production level. He also said that without sanctions, Iran would easily reach the 2.3 mb/d export. Experts say the timing of Iran's planned re-entry to the market and the amount it hopes to bring would be of high significance. Nasseri said: "To that end, all oil and non-oil sanctions imposed on Iran must be lifted. It would not be enough for the US to say it would lift all oil sanctions. Rather, banking, insurance and shipping sanctions should be also lifted. That would be a long process." He said that the duration of this process is likely to lead Biden to grant waivers to buyers of Iran's oil so that Iran would be able to supply part of the 2.3 mb/d it has promised on the market as absorption in the market is also instrumental. Over the past two years, Iran has implemented numerous production projects in order to enhance output. It is now ready to make a comeback as soon as sanctions have been lifted. Iran would be naturally expecting fellow OPEC members to show cooperation for its return to the market next calendar year. Iran could not sell enough oil due to the sanctions and some

OPEC members replaced Iran in the market. Now they should reduce their output. Zangeneh has also said that Iran is entitled to enhance production and the market has capacity for that purpose. Asked if OPEC would cooperate with Iran, Nasseri said: "To export 2.3 mb/d, Iran has to inform OPEC members of its intention and the timing envisaged for that purpose. OPEC is likely to ask Iran to reduce its output, but we should see how Iran would compromise." "We have also to take into account the point that Iran would say it has been under sanctions and has reduced its output and exports more than others. Therefore, it would expect fellows to let it export as much oil as it can," he added. However, that's not the whole story. Based on what American analysts and Biden have said, the new US president is likely to resume talks with Iran. In a bid to convince Iran to return to the negotiating table, the US should lift all oil sanctions. That would be a good starting point for both sides. In other words, the maximum pressure campaign must be modified. The signs of such policy have been visible in the past one month. Austrian Ambassador to Tehran Stefan Scholz said during an Iran-Austria Energy Forum working group that Iran had proven an excellent performance despite tough sanctions and the outbreak of covid-19. Abbas Baqerpour Ardakani, Iran's ambassador to Vienna, said at the remotely-held meeting that Tehran and Vienna could benefit from mutual technical capabilities in the energy sector.

Iran Oil Buyers

Speculation is rife among the traditional buyers of Iran's oil about their intention to restart purchasing oil from Iran. But the question is to know if Iran would be easily

able to sell its oil in a chaotic market filled with rivalry for market share. Nasseri said: "Iran may easily sell its oil on the world markets. Many customers are ready now to supply part of their needs from Iran. They don't want to limit their oil market to several nations. They would be happy with more diversity." Iran would not face a tough task in selling 1 mb/d to 2 mb/d of oil with discounts and methods they have in mind." "The market will welcome it in terms of supplier diversity. Definitely some of Iran's oil buyers are waiting for Iran's return," he said.

Positive Record

Iran has left behind two tough and cumbersome years in the face of the US maximum pressure campaign. Now after two years, many analysts give a positive assessment of Zangeneh's performance during tough years of sanctions. Iran's oil exports have not been down to zero despite all US pressure, and Iran has been able to export petroleum products. Nasseri said: "The performance of the Petroleum Ministry was higher than expected. Neutrally speaking, I have to acknowledge that despite all pessimistic analyses about Iran, we are now witnessing Iran has managed to deal with this problem successfully." "Iran's crude oil exports were above all expectations. However, the outstanding point pertains to Iran's maximum supply of petroleum products so as to minimize the impact of sanctions. Iran even managed to export gasoline in the chaotic and covid-stricken market. That partly blunted the pressure from oil sanctions," he added. Asked about the significance of Iran's petroleum products exports, Nasseri said: "Iran has over the past seven years managed to improve the quality of its petroleum and refined products and bring into operation the Persian Gulf Star refinery, which is the largest facility fed on gas condensate. That ended Iran's dependence on gasoline imports and even made Iran an exporter of gasoline. Furthermore, the gas condensate produced in South Pars was used as feedstock." "Definitely, had Iran not been able to export petroleum products it would have to reduce its refinery run and cut its oil production," he added. President Hassan Rouhani had also said that exporting 2.3 mb/d of oil would be possible. He touched on self-sufficiency in gas, gasoline and gasoil production as the key achievements of his administrations.

To export 2.3 mb/d, Iran has to inform OPEC members of its intention and the timing envisaged for that purpose. OPEC is likely to ask Iran to reduce its output, but we should see how Iran would compromise

in case OPEC and OPEC+ intend to control the oil market balance in the long-term they should try to keep oil prices at about \$45 by keeping their output lower than their production capacity on the long-term



OPEC and Future of Oil

There are doubts about short and long-term cooperation within the Organization of the Petroleum Exporting Countries (OPEC). Based on estimates, demand for crude oil would decline in the long term, i.e. over 30 years. On the other hand, it has to be taken into consideration that the priorities of top oil producers are always changing and the share of oil will decline in their future energy mix. The main question is to know until when OPEC can continue to work. Homayoun Falakshahi, a senior oil analyst at market intelligence firm Kpler, maintains that as oil production costs of OPEC and Persian Gulf states are lower than non-OPEC states like Brazil and the United States, OPEC MCs would be the last remaining states to be producing oil. "I believe that by the end of the age of oil, OPEC member states would be the only nations to be still producing oil," he said.

Negar Sadeqi

OPEC Dilemma

Shale oil is the undisputed rival to OPEC producers and their allies. Some analysts still hope that shale oil production would become uneconomical as oil prices keep falling so that oil producers would feel relaxed. But taking into consideration the accelerated technological growth in the shale oil production and the general tendency on the part of various nations to use renewable energies, how could we express hope that shale would be gradually eliminated from the oil market under the conditions. The fact is that over the past one decade, OPEC has sought to prevent shale oil production from becoming economical. Even cooperation between OPEC and Russia-led non-OPEC was a step in that direction. At the beginning, it seemed that OPEC and non-OPEC were unlikely to reach agreement on cutting output to prevent shale oil production. However, they reached a landmark deal on production cut in 2017. Amid a tough price war between Saudi Arabia and Russia, the deal was destabilized in March 2020. Speculation was rife that the agreement would fail. However, the covid-19 pandemic changed the game. In April 2020, OPEC and their allies reached agreement to keep cutting production up to 2020 in a bid to reverse the downward trend in oil prices. Falakshahi said: "Even now some OPEC members are facing certain revenue problems and therefore budget deficit as their production has declined."

He also touched on dilemma OPEC

is faced with on either increasing or decreasing its output. "If oil prices hike, oil production will become uneconomical for non-OPEC. Meantime, since OPEC and allies are faced with production restrictions, non-OPEC producers will make maximum investment and capacity building for increasing production and subsequently their revenue," he said. Falakshahi said: "The coronavirus crisis in 2020 caused a sharp decline in world oil prices. Saudi Arabia saw its March-April revenue drop \$50 billion, which constituted 10% of the country's total hard currency reserves. Therefore, they were forced to cut their production in order to boost prices."

Political Pressure and Shale Output

What should be done then to make shale oil production uneconomical? Falakshahi said: "Oil prices should remain low over a period of 4-6 months for shale oil production to become uneconomical for US oil companies." He added that although OPEC and non-OPEC allies made gains from the April 2020 agreement, the biggest winner of the OPEC+ agreement was US shale whose production became economical to save the US economy thanks to political pressure exerted by the Trump administration on Saudi Arabia. In other words, OPEC is the loser; if prices drop they will be faced with budget deficit and if prices grow shale oil will become economical. What is the best policy OPEC and allies may adopt at a time they have emerged as loser?

"There is nothing specific OPEC can do. It has to bring stability to the market in

the long-term for prices to reach a level that outside OPEC there would be no huge investment," said Falakshahi. In case oil prices exceed \$50 a barrel, shale oil production will become economical. However, if oil prices remain within the range of \$40 investment in shale production would have no economic justification. That is why many analysts recommend OPEC to have a price band of \$40-\$50 a barrel.

UAE, Main Violator of OPEC+ Deal

Due to their budget dependence on oil revenue, some OPEC member states have supplied more than quotas set for them. In the closing statement of the 12th meeting of OPEC+ it was noted that 12 out of 20 states involved in the April 2020 agreement would have to cut totally 2.346 mb/d from their oil output to compensate for their overproduction until the end of March 2021. All eyes have turned to Iraq and Russia for quota violations. From May to October, Iraq supplied 610,000 b/d more than its quota while Russia's overproduction reached 531,000 b/d. "More than anything else, we need to look at oil trading rather than domestic production capacity," said Falakshahi.

Iraq's overproduction is virtually overshadowed by the decline in its exports over recent months. All oil producers are apparently trying to honor the agreement. Although Iraqi oil production is under control of Western companies that seek their own profits, it would be a tough task to convince them.

However, Falakshahi said the United Arab Emirates was the main violator of

the OPEC+ agreement without having been highlighted by media. “Compared with October and November 2018 when the basis for calculations was the OPEC+ output cut, we see that Abu Dhabi has not honored its commitments to cut its output,” he said. “If we take a look at the average exports in October and November 2018 we see that the UAE saw its October 2020 exports decline. The UAE seized this opportunity to claim in the November meeting that it had remained committed to the OPEC+ agreement without having committed any violations. That is while Abu Dhabi’s November exports rate grew in November. He said that the UAE exported 2.8 mb/d of oil in August, thereby not being fully compliant with its commitments to cut output. “Coincidentally, Abu Dhabi has supplied more than envisaged, showing its firm determination to highlight its clout with OPEC and influence in the region. Meantime, it has to be taken into account that the UAE’s regional policy has taken up added significance in recent years,” said Falakshahi. For Falakshahi, the UAE’s foreign policy behavior in recent years shows that it is willing to follow in Saudi Arabia’s footsteps in foreign policy and economy. Within OPEC, it is building capacity with a view to push ahead with its oil barrels and become an influential OPEC member state. However, this country knows that even if it can iron out its differences with Saudi Arabia, it will have to deal with a longtime rival: fellow OPEC member, Iran.

Iran Comeback

Ever since the US re-imposed oil sanctions on Iran in 2018, rarely could anyone imagine that Iran would be able to blunt the impact of sanctions that largely restricted oil production and export for Iran. However, Iran managed to disappoint Donald Trump who had imposed the sanctions. Now with Joe Biden the US president-elect, Iran and the US are likely to reach agreement in coming years. “The UAE knows quite well that after Donald Trump’s departure, Iran, Europe and the Biden administration would reach agreements for Iran’s oil to be supplied once more on the market. It is natural for the UAE to think of strategies to increase its market



share from now,” said Falakshahi. It remains unknown when the US would lift oil sanctions on Iran. Iran’s Minister of Petroleum Bijan Zangeneh has recommended patience. The minister has, however, noted that Iran would seek nobody’s permission for increasing its production as there is market for Iran’s oil. “Iran had experienced the previous round of sanctions and when it returned to the market it won exemption from any production cut. Even when OPEC+ reached agreement on production cut, Mr. Zangeneh won production cut exemption for Iran,” said Falakshahi. “If we want to draw a parallel between the present circumstances and what was under way five years ago, I should say that the world was not faced with the coronavirus crisis at that time. Even a couple of months prior to Iran’s comeback to the market, global oil prices declined sharply. Everyone imagined that oil prices would fall again if Iran returns to the market. However, the market showed no negative reaction to Iran, as

there was room for Iran’s oil,” said the analyst.

Zangeneh , Technically and Politically Right

Falakshahi said Minister Zangeneh was right “both technically and politically”. “Technically speaking, Iran’s oil is heavy and semi-heavy, which Asian markets has experienced shortage of this type of oil in recent years. Even Indian and Chinese refineries have been designed and built in recent years to process heavy crude oil. Politically speaking, China and India intend to expand their relations in the Middle East and therefore they are looking for balance in the region through increased economic cooperation. Iran is playing a significant role in this regard due to its energy resources,” he said. “I think that OPEC would also agree with Mr. Zangeneh about Iran’s oil production unless the world experiences a third or fourth wave of the coronavirus or the vaccines developed for the coronavirus turn out to be ineffective. Meantime,

in light of a recent agreement between the UAE and [the Zionist Regime], it seems that Saudi Arabia would show no opposition to Iranian increased production within OPEC in a bid to be able to get closer to [the Zionist Regime],” added Falakshahi.

Iran Remains Influential

One may ask if Iran is still an influential OPEC member state. The answer is negative if it is to be answered based on oil production and ranking of oil producers. Due to sanctions, Iran has so far failed to adjust its export with its production capacity although it claims the top spot in terms of hydrocarbon reserves. “It is true that Iran’s clout with OPEC has declined, but one has to take into account the fact that Iran is a founding member of OPEC and is the top holder of oil and gas together in the world. Until several years ago, Iran was the second largest OPEC exporter, but its influence has declined due to the sanctions imposed on Iran over the past

decade. However, Mr. Zangeneh is highly respected among OPEC member states and Iran is respected by fellow members,” said Falakshahi. “Based on evidence from OPEC meetings, I am sure that as long as Mr. Zangeneh is serving as minister of petroleum in Iran, he will continue to defend Iran’s OPEC stance in the best possible manner.

We saw that during the previous round of sanctions, he managed to change the game in Iran’s favor without being supported, thanks to his knowledge of OPEC and the market. Iran was finally exempted from production cut,” he added. Falakshahi said Zangeneh remained an influential OPEC minister, adding: “If we want to measure the weight of all OPEC ministers in terms of experience and presence within this organization, Mr. Zangeneh alone is as senior as the rest altogether.” “I am sure that Iran’s voice is louder within OPEC thanks to Zangeneh’s presence. If Iran returns to the oil market, as long as Zangeneh is there, no adverse action could be taken against Iran.”

Democrats, Republicans Both Favor Nord Stream 2 Sanctions

Amir Alizadeh, The Managing Director of the Association of Iranian Banks in Europe (AIBE), has said the Nord Stream 2 gas pipeline would allow Russia to pump 55 bcm of more gas to Europe, specifically to Germany. In an interview, he said that the US imposed sanctions on the project. Alizadeh explained that Democrats and Republicans both favor US sanctions on the Nord Stream gas pipeline.

Seyedeh Ameneh Mousavi

» Russia has long been a major gas supplier to Europe, particularly Germany. Nord Stream 1 and Nord Stream 2 have been built in line with that policy.

Yes, that's true. Nord Stream is a corporate whose main shareholder is Russia's Gazprom. In other words, Gazprom is the largest gas company in the world to have the majority of Nord Stream's shares. The project is registered in Switzerland with European companies accounting for 50% of financing. Five companies, each holding 10% of shares – Nord Stream, Royal Dutch Shell, Austria's OMV, France's Engie and Germany's Uniper and Wintershall – are financing the project. Gazprom delivers gas from the North Sea and Russia to Europe. Although Nord Stream pipes have reached their maximum capacity, Europe needs more gas. That is why in parallel with the Nord Stream activities, the Nord Stream 2 pipe-laying began with a 10-billion-euro investment. The project has had 94% progress now and the remaining 6% is under the impact of US sanctions. Once operational, the project would let Russia deliver 55 bcm more gas to Europe, particularly to Germany.

» Why is Europe such dependent on gas resources?

Europe's dependence on gas stems from EU energy and environmental policies. Based on EU objectives, greenhouse gas emissions must mitigate significantly in coming years. The EU has set some criteria for member states, requiring that all coal-fired and nuclear power plants be shut down quickly as possible. Germany has already shut down coal-fired power plants. But each country has its own plans and policies. In the wake of the Fukushima Nuclear Power Plant explosion in 2009, Germany is determined to halt the operation of all of its power plants on schedule. However, you may know that it would be difficult for European nations, particularly 80-million-strong Germany with no fossil resources. Germany is currently generating 45% of its electricity from renewable energies, but this figure has reached its peak and is no longer cost-effective. Renewables should supply all such need. Gas is a key element. The EU's daily increasing demand for Russia's gas and new pipelines like Nord Stream 1 and Nord Stream 2 are due to the same reason. With sanctions effective against Nord Stream 2, this project could no longer be operated. The White House has adopted a law about Europe's energy security, which drew harsh criticism from European nations. The Europeans maintain that Europe's energy security policy should be adopted within the continent itself

and not in Washington. However, the White House law which targets Nord Stream 2 is similar to US sanctions imposed on Iran. The US is firm about sanctions on the Nord Stream 2 project and is likely to keep the project from moving ahead despite 94% progress. Unlike the JCPOA which Democrats favor the US's return to the deal, Democrats and Republicans both support sanctions on Nord Stream 2.

» Has the US sanctioned Nord Stream 2 for political or economic reasons?

First and foremost, the US does not want Europe to be more dependent upon Russia. Currently, Russia is supplying one-third of Europe's energy needs. Meantime, a new source of income is being created for the Russians to invest in their defense sector, which goes against US interests. These are the political aspects of opposition to the Nord Stream 2 project from Democrats and Republicans. And economically speaking, the US has become the world's largest shale gas producer and is willing to export gas to Europe. The US has in a way or other forced Germany to build infrastructure for LNG terminals. Germany also agreed in a show of compromise to say it was building two terminals aimed at diversifying its energy mix. One LNG terminal is under construction in northeast and another one is in northeast Germany. US oil lobbyist

Senator Ted Cruz is following up on this issue seriously.

» Weren't Germany's concessions convincing enough to dissuade the Americans from sanctioning the Nord Stream 2 project?

No compromise was reached. Of course, the Germans first thought the White House would let the project ahead in return for their concessions, but the US was basically opposed to the Nord Stream 2 project. When Trump came to power, all comprises including the Nord Stream 2 project and even the JCPOA were hindered and we have such experience. Another reason for the halt in the Nord Stream 2 project was the poisoning of Russian opposition figurehead Alexy Navalny. Navalny survived after he was moved to Germany. The opposition in Germany called for the government to sanction Russia. The EU imposed sanction on Russia; however, the Nord Stream 2 project was not specifically sanctioned. Debates are also under way in the European Parliament on whether or not the Nord Stream 2 project could be used as a foreign trade tool. Many journalists believe that this infrastructure project has

to be looked on in the long-term because it would not be easy to create a safe business environment in Europe.

» Will the Nord Stream 2 project become operational amid opposition from both Democrats and Republicans?

Responding to this question is not so easy. Now, this project has had 94% progress. Europe currently needs the gas resources of this project, but many European companies fear US reprisal. To compare it with the JCPOA, it is noted that European firms left Iran immediately after the US quit the JCPOA, but in Germany, some companies are still resisting pressure against cooperation with Russia because of economic interests. These companies have also influential lobbies within the US. Of course, East Europe nations like Ukraine and Poland have no good ties with Russia and are already critics of the Nord Stream 2 gas project and they are making efforts to stop it because with Nord Stream 2 they would be put aside from Central Asian and Russian gas exports to Europe. The delivery of Central Asian gas to Europe would have to stop, once Nord Stream 2 becomes operational.

» Are the Germans after diversity in their energy mix?

Germany has already started diversifying its energy mix, including nations from the Middle East, Central Asia, Russia and the US, in a bid to reduce its dependence. Azerbaijan and Kazakhstan are currently among exporters of oil to Germany. Regarding LNG gas terminals, Qatar has invested abundantly.

7 Petro-Refineries Up for Investment

Javad Asghari

Iran hopes to support petro-refinery construction with public investment so that investors would be able to provide at least 30% of necessary capital initially needed.

The rest would be provided through issuance of bonds, capital market and bank facilities. Under the current conditions with sanctions in effect, rather than exporting crude oil to other nations and building refineries, Iran may turn to building petro-refineries and export products with high value-added. Today, the world is moving towards integrating refining and petrochemical industries by building petro-refineries which would be more economical than oil refineries. Crude oil processing at a petro-refinery would convert crude oil to oil products including gasoline, gasoil, jet fuel and fuel oil. But at the same time, products such as LPG and naphtha may be used for developing the petrochemical section of these facilities to supply dozens of petrochemicals. With the inauguration of the Persian Gulf Star refinery, Iran has become self-sufficient in all refined products including gasoline. Iran has long been an exporter of fuel oil, but regarding other products, in light of increased recovery from the South Pars gas field in recent years and feeding power plants with gas, there is enough gasoil for export.

Iran has also become a kerosene and LPG exporter after connecting all villages to the gas network. Therefore, new petro-refining units will not have to sell their products at subsidized prices and they can export their products at economical prices. Therefore, they would no longer be loss-producing like old refineries. Furthermore, petro-refineries have a

good regional market. Iraq, Afghanistan, Pakistan and India are major buyers of products such as gasoline. Therefore, petro-refineries would be lucrative.

Petro-Refineries Defeat Sanctions

At petro-refineries, crude oil is transferred to processing units as feedstock in order to produce core petrochemicals and fuel. That would require special processing units. The growing tendency for petro-refineries in the petroleum industry is such simultaneous capability which would raise profitability and enhance power of competitiveness in the oil markets. Building petro-refineries would help circumvent sanctions, generate value-added, create jobs and earn shareholders big profits. Many developing nations and non-oil nations are focusing on the development of petro-refineries and they have allocated necessary capital and facilities for that purpose. In Iran, where the petroleum industry has been active since long time ago and there is necessary feedstock and infrastructure, construction of such plants has been assessed, and necessary planning has been made. Whereas over recent years the petroleum industry, particularly the petrochemical sector, has faced tough US sanctions, the issue of petro-refineries was highlighted in order to convert more oil into refined products for the generation of value-added. In 2018, the Iranian parliament adopted a motion on the construction of refineries with public investment. In fact, Petroleum Ministry hopes to provide 30% of necessary capital for the petro-refineries from public investment.

Regarding the positive impact of this method on Iran's international financial issues, it is noteworthy that this

method would further broaden trade communications with regional nations. Then, this problem may be resolved by adopting such methods as barter trade. The effective way to deal with sanctions would be converting crude oil to products at petro-refineries in the country rather than selling crude oil. The refined products would be then exported. Crude oil is often exported in huge volumes and therefore oil cargoes are monitored and sanctioned more easily.

IRR 16,000,000 bn Money Unused

An equivalent of IRR 16,000,000 billion has remained idle in the country. That can be a good source for financing such projects. For instance, the Persian Gulf Star refinery has managed to absorb IRR 3,000 billion by issuing parallel "salam bonds" for gasoline. Demand was 80 times higher, showing general inclination for investment in this sector.

Makran petro-refinery in Jask is one of the first petro-refining plants that received authorization to work. It may serve as a model for the start of other petro-refining projects. Behzad Mohammadi, CEO of National Petrochemical Company (NPC), had said license was issued for one petro-refinery in Jask, but in fact it was not enough and the project had to be turned into a commercial model to be lucrative. "We are in fact looking for models to be attractive to investors," he said. Regarding feedstock for such projects, Mohammadi said: "A refinery whose products would be directly used for petrochemical production would be highly attractive. We have liquid feedstock at refineries and wherever there is such feedstock, products would be diverse." Aromatics could be produced and that is a big advantage. A section of

the petrochemical industry produces a single product and it converts natural gas to methanol and urea. The idea is now to diversify products by using diverse feedstock. That would make the petrochemical industry more resilient and more attractive.

High Demand for Petro-Refineries

The petroleum industry has shown strong willingness for petro-refineries. Minister of Petroleum Bijan Zangeneh said recently that 1.5 mb/d of oil may be processed at petro-refineries. According to the minister, those building petro-refineries sooner than others would be exempt from paying for feedstock and he would then settle with the National Development Fund of Iran (NDFI) on a rescheduled basis. All demands for petro-refinery construction have had technical and economic justification. There has been a total demand of 1.5 mb/d - 1.22 mb/d for crude oil and 240,000 b/d for condensate. They include the Lavan petro-refining project with 120,000 b/d of oil, Ghadir Investment with 300,000 b/d, Shasta with 300,000 b/d, Palayesh ParsianTadbir, Morvarid Makran, Jask Port with 300,000 b/d and a private entity with 200,000 b/d.

Saudi Policy in Oil Market

Ehsan Jenabi

Saudi Arabia has long been a swing producer in OPEC. In fact, it has traditionally used its spare capacity and market share to impose its policies on the oil market. Over recent years, the increase in production of unconventional crude oil along with the decline in demand has led to an increase in excess supply in the world oil market, which has resulted in a sharp decline in prices and structural changes in the oil market. At first, Saudi Arabia made efforts to maintain its interests and position by increasing its market share and the price war in the oil market. However, Saudi did not manage to reach its goals in recent years, so it has inevitably changed its traditional methods of monitoring and controlling the oil market. Some of the most important factors that caused Saudi Arabia to feel its position is threatened in the oil market and has led the country to change its market surveillance approach are: the reduction of US imports from the country, domestic economic problems, rising costs and declining foreign exchange reserves. Thus, in Saudis' view, unconventional crude oil is a severe barrier to price hike. Therefore, given these conditions, in order to ensure the security of demand for crude oil produced and to maintain its income stability, Saudi Arabia took some measures. Chief among them are: accepting production cut and cooperating with OPEC and non-OPEC countries to increase the price level, considering the volume of OPEC member countries the crude oil exports along with paying attention to production volume to enhance the effectiveness of the production cut agreement, acquiring the shares of refineries across the world, investing in refineries in China, Malaysia and Indonesia, Selling part of Aramco shares and internationalization of its oil sector proportionate with the emerging structure of the global oil economy, attracting foreign investment and gaining



market share, liberalizing capital to expand investment in projects with higher-priority in the upstream sector; reducing state subsidies through enhancing energy efficiency via privatization, concentrating on domestic consumption reduction to maintain export capacity, enhancing the use of natural gas (along with oil and unconventional gas) in the energy basket, using renewable energies and nuclear energy. Over recent years, in parallel with increasing US tight oil production, US oil exports to West Asia has increased, although the share gained by US in this has not been considerable. This, in turn, has led to the reduction of the share of other exporting countries, especially the export level of Persian Gulf region countries. Saudi Arabia's policy aimed at reducing US tight oil production through price cuts over recent years has failed on one hand, and its domestic economy has faced severe budget deficit. Over recent years, Saudi Arabia has seen a decline in its oil exports share to the United States, China and South Korea. Of course, in some months Saudi's export to China has increased, but has not lasted and it has sharply decreased in late 2019. Since 2016, US oil exports has begun to grow significantly. In 2017, the country's exports figure exceeded 1 mb/d. In early 2020, the US exports level reached more than 3.5 million mb/d, and over recent months, it has decreased to less than 3 mb/d. Meanwhile, the share of US exports to Asian countries such as China and

South Korea has increased and has led to decline in the share of Persian Gulf exporting countries. The breakeven price of crude oil to balance Saudi Arabia's financial status is estimated at about \$ 84 per barrel, while the breakeven price of US crude oil and shale oil is in the range of \$ 40- \$ 50 per barrel, which is expected to decrease over the years as productivity increases through utilizing modern technologies. Of course, Saudi Arabia is trying to restructure its budget and increase the share of taxes something like 6%, in order to lower breakeven price for oil in the budget; however, under current situation, it is not able to combat shale oil. Russia is in a better position compared with Saudi Arabia, and needs \$ 52 oil per barrel to balance its budget. The UAE, Iraq and Kuwait compared with Saudi Arabia, enjoy a better status. Saudi Arabia has complied more than 100 percent to its OPEC Plus production cuts in recent months in a bid to restore price stability.

Saudi oil revenues and budget

Saudi oil revenue in 2019 stood at around \$ 200 billion. According to a Rystad study, assuming oil prices are below \$ 40 per barrel in 2020, the country's oil revenues will be reduced to less than \$ 100 billion, which is currently estimated at \$ 92 billion. Saudi Arabia's budget deficit reached \$ 29 billion in the second quarter of 2020, as oil prices fell and Saudi oil production reduced under the OPEC Plus agreement. Saudi's oil revenues

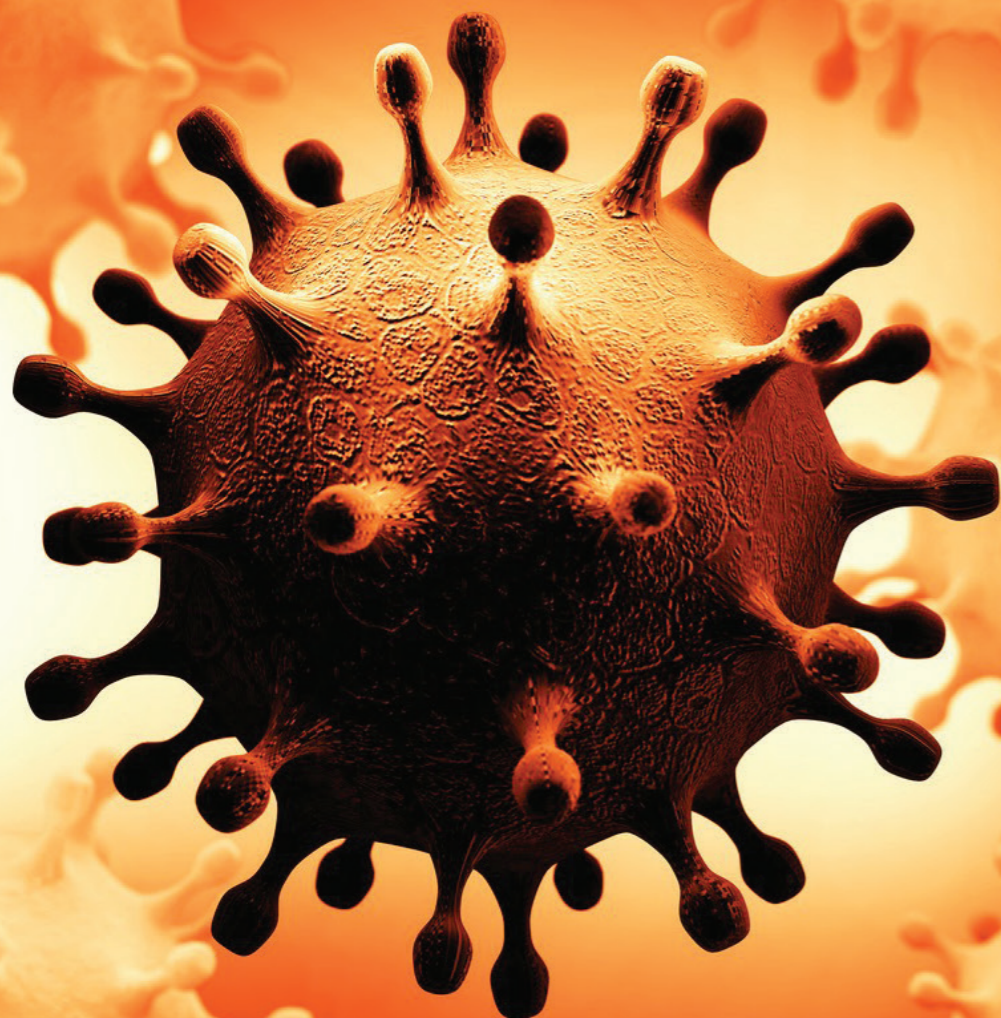
in the second quarter of 2020 decreased 45%, compared with the previous year and \$ 25.5 billion; and since the beginning of the year in total reached \$ 36 billion and decreased 49%. This development urged the Saudi government to draw \$ 13 billion in foreign exchange reserves, and borrow about \$ 10 billion from domestic sources. Due to the worsening trend of the budget deficit, the government decided to raise VAT and reduce current expenditures. In the third quarter of 2020, the deficit widening trend slowed to \$ 77.40 billion. Third-quarter revenue compared with a year earlier rose to \$ 57.5 billion, due to 15% increase in the value-added tax. Given the tax increase and the significant increase in tax revenues, the Saudi economy will show more resilience in the face of low price levels. Saudi Arabia is to set the 2021 budget based on the \$ 50 per barrel price. As the Saudi Ministry of Finance has forecasted the price to be around \$ 50 per barrel for the next three years, so the price of oil in the budget of the country is set at \$ 50 per barrel until 2023. However, the International Monetary Fund estimates that Saudi Arabia needs a higher price (\$ 66 per barrel) to balance the budget. The Saudi government tends to have a conservative view of crude oil prices in its budget planning and usually does not disclose its assumptions; therefore, the only way out to analyze the prices is estimating oil prices in the budget, using other forecasts. The Saudi government seeks to stabilize its revenue level in the medium and long term through controlling budget deficits and adopting appropriate fiscal policies to improve fiscal performance. Saudi Arabia aims to gradually reduce its budget deficit in the medium and long term to reach 4% of GDP by 2023. This will be achieved through efforts made to enhance productivity, reduce expenditures and achieve financial discipline while continuing to support and empower the private sector through the Saudi National Development Fund and the Public Investment Fund. In fact, Saudi Arabia's strategy is to diversify its financial instruments by issuing bonds and "sukuk", and in the same time seeks new markets for its products to facilitate financing government spending.

Aramco role in the Saudi economy
The net income of the Aramco, which has been declining since 2019, will reach a minimum in 2020. This has created some problems for the company in two ways:

payment of dividends and investment in the oil and gas sector. The director of Saudi Aramco Amin Nasser stated that Aramco's investment volume for 2021 will be significantly less than that of previous plans. The company had previously announced that it would invest about \$ 40 billion to \$ 45 billion in 2021. According to him, Saudi Arabia is increasing its maximum sustainable production capacity from 12 to 13 mb/d. In total, in 2020, the company's investment costs will be something like \$ 27 billion. Saudi Arabia's state-owned oil company intends to cut its capital expenditures to \$ 25 billion or less than that by 2021, i.e. about half of what was originally planned. Almost until 2023, the investment volume of the company will not increase significantly. A major portion of Aramco's new investment projects have been delayed due to falling oil prices. On the other hand, the company tends to pay the previously considered profit to the shareholders without applying any adjustment and without considering the reduction of the company's income level. The only way out to fulfill this is to sell a portion of the company's assets and bonds to make the desired profit. In conclusion, it could be argued that Saudi Arabia's oil policy is generally influenced by three components: relations with the United States, oil market share, and domestic funding. Under pressure by Trump administration, Saudi government did not accept to make any voluntary commitments apart from those in the OPEC Plus. It seems that Biden's administration will not follow the same approach with regard to putting Saudi under pressure to take some more voluntary measures. Saudi Arabia's budget is to be balanced at \$ 84 a barrel in 2020 and now is facing a huge budget deficit of 12 % of GDP. Saudi Arabia criticizes the non-fulfillment of the pledges of other countries such as Iraq and Russia in the OPEC Plus agreement. Saudi Arabia has implemented strict fiscal policies in 2020. It has reduced domestic spending and increased taxes, so that the country's budget deficit in the third quarter of 2020 has experienced a better situation, and based on this, and has set its 2021 budget based on \$ 50 oil. Although Saudi Arabia is attempting to prevent oil prices from falling down, the market conditions could be highly impacted by the status of oil production and export in Iran, Libya, and Venezuela and to some extent Nigeria.

Saudi Arabia's budget is to be balanced at \$ 84 a barrel in 2020 and now is facing a huge budget deficit of 12 % of GDP

According to a Rystad study, assuming oil prices are below \$ 40 per barrel in 2020, the country's oil revenues will be reduced to less than \$ 100 billion, which is currently estimated at \$ 92 billion



COVID-19 and Investment in Oil and Gas

Ehsan Jenabi

C COVID-19 has had multiple impacts on oil and gas markets. It has reduced prices and government revenues, significantly lowered demand, and inflated stockpiles of crude and petroleum products. The uncertainty emanated from reduced consumption in various sectors especially transportation and industry sectors has also urged oil and gas companies to cut capital expenditures (capex) in a bid to shore up their balance sheets. Even though, natural gas plays an important role in the transition period, the existing circumstances have had a significant impact on investment in gas sector, as well. It seems that low (capex) levels is not sufficient to meet oil and gas needs to maintain market stability. The past experience shows that greater investment will be essential to avoid a future of higher prices and increased market volatility. Inadequate investment would definitely set off another wave of unwanted price volatility. Governments and industry leaders set up the International Energy Forum (IEF) producer-consumer dialogue—whose fundamental aim is to enhance energy market stability, sustainability, and transparency—to avoid this outcome and to support the health of the global economy. As producing countries are facing economic problems emanated from chaos in their financial systems, they do not see investment an essential measure to be taken. In case investors feel safe to invest in oil and gas projects, taking into account the good news on COVID-19 vaccine production, prospective investment is expected to be rising. Having a glance at the OPEC and IEA outlooks, one may conclude that demand will not rebound at least in the next ten years. Although the two bodies have different views on the pace of demand recovery after the pandemic, both believe that another 27 million to 30 million barrels of oil equivalent (mmbobe) will be needed by 2022 to close the gap between production declines and demand levels. Although the market is filled with ambiguity due to the outbreak of COVID-19 and its impacts on demand, especially in the transportation and

industry sector, it seems that investment in the petroleum industry will have to rise over the next three years by at least 25% yearly from 2020 levels to stave off a crisis. In other words, substantially greater sums will be needed by the end of the decade to ensure sufficient production to guarantee market stability. Undoubtedly, adverse economic consequences of the pandemic would have an undeniable impact on the global demand. Therefore, with the rollout of an effective vaccine, global demand has the potential to recover rapidly. The example in case is China—one of the major drivers of world economic growth—which has already seen a quick rebound in demand. However, it is noteworthy that such a recovery would accelerate the impact of any investment gap. In addition, higher and more volatile prices would reduce the number of people who could afford the various fuels they require, and volatility would further enhance uncertainty for companies and governments. Another important point which is necessary to be taken in consideration is that spending cuts by oil and gas companies on upstream projects, along with the price rises that would ensue, would expedite the trend of energy transitions toward low-carbon sources.

Higher fuel prices may lead consuming countries to increase their reserves and boost domestic oil production in a bid to strengthen energy security. Such actions might increase global upstream investment so to escape any shortage. However, given the pledges of countries reflected in their submitted NDCs, they need to pay more attention to the level of greenhouse gas emissions resulted from consuming fossil fuels. In other words, countries need to adopt policies to comply with COP approvals in order to avoid any challenges with regard to environmental issues. Meanwhile, many governments are using the COVID-19 pandemic to accelerate responses to climate change, create new opportunities for employment, and achieve global sustainable development goals in which social equity plays a central role. In line with materialization of pledges stipulated in NDCs, more than 120 countries have adopted ambitious, forward-looking policy agendas aimed at achieving net-zero greenhouse gas emissions, as have international, national, and independent oil and gas companies in Europe, Asia, and the US, either as members of the Oil and Gas Climate

Initiative (OGCI) or independently. But deep investment cuts and project deferrals by oil and gas companies risk undermining policymakers' long term post-COVID-19 goals and industry strategies.

Since its outbreak, COVID-19 has claimed more than 1 million lives worldwide and is responsible for income losses exceeding those of any previous non-wartime recession over the past 100 years. Even before the pandemic, an estimated 1.3 billion people worldwide had no access to electricity; 2.8 billion were deprived of clean cooking fuels; 800 million lived in extreme poverty, with a daily income of less than \$1.90 as measured in 2011 international prices; and air pollution inside buildings caused 4 million premature deaths annually (exceeding current COVID-19 mortalities), according to UN figures. COVID-19 will significantly worsen these numbers and widen generational, gender, and income divisions. Beyond the loss of life and livelihoods and the worsening dilemma of the world's poorest that the coronavirus has caused, its negative economic impact exceeds that of the 2008 financial crisis. Global growth will decline to -4.4% in 2020, according to International Monetary Fund projections. People employed in the informal economy, self-employed people, and lower-skilled workers are most affected by the economic downturn.

Against this backdrop, reduced upstream spending by oil and gas companies and tighter investment constraints will make achieving global goals such as affordable access to modern energy services and healthy living conditions more costly and more challenging, increasing social disparities worldwide. It could be argued that lack of incentives for producers to increase investment shortly after this stagnancy will delay and weaken the restoration of market balances that are necessary for promoting global economic recovery and support global sustainable development and greenhouse gas emissions reduction goals. Therefore, timely and adequate investment could be a proper tool to overcome the adverse impacts and challenges emanated from COVID-19 outbreak. On the other hand, lack of investment would likely lead to supply shortages and price volatility, which may result in emergence of problems in the economy of both producing and consuming countries and may jeopardize energy security worldwide.

Europe Prospect for Greenhouse Gas Emissions Mitigation

The petroleum industry has always been an attractive sector for investment by big companies. However, the attractiveness and high profitability of this industry have been affected over recent years. Some imagine that in light of the daily-growing tendency of some countries to use clean and renewable energies, investment in the petroleum industry is likely to decline. Most green parties support this idea, particularly in European nations, that the world has to brace for renewables and curb oil and gas production. Such groups whose supporters have been increasing in number, over recent years, have managed to convince some politicians in European nations to focus on the use of clean energies, and at the same time reduce investment in fossil energies. Under such circumstances, a basic question may arise: "To what extent can adoption of renewable energies affect the future of investment by big companies in the petroleum industry?"

Shuaib Bahman

Oil or Environment?

Based on the 2015 Paris Agreement, all the signatories are required to specify their goals for reducing fossil fuels consumption and pollutant gas over coming decade. The European Union has called for a 50% reduction in greenhouse gas emissions, instead of the 40% set initially in 1990, up to 2030.

No consensus has been reached by European nations on this issue yet. EU members in their latest meeting held talks on this issue, but they failed to reach an agreement due to challenges for the implementation of the project. However, some estimates show that European nations are likely to reach agreement, soon. The Europeans have in recent years taken big steps towards capping greenhouse gas emissions. The latest environmental report by the EU shows that greenhouse gas production by member states has been down 24% from 1990. The bloc is determined to take necessary measures to bring down to zero the level of pollutants by 2050.

The European Commission has noted in its part that a quick revival of economic activities may significantly increase pollutant gas production. Therefore, the only preventive solution would be to direct economic and investment incentives to cleaner production and consumption. The EC will no longer invest in fossil fuel production, as noted in its post-covid economic revival policy.

The question that may arise here is to know how Europe would act to realize its 2050 objectives and bring its pollutant gas production down to zero. Will reduced investment in fossil fuels production be enough for the EU to reach this objective? Is the EU essentially able to replace fossil fuels with clean energies?

Oil Dependence

For the EU, secure, clean, sustainable and accessible energy supply is one of priorities that would preserve the competitiveness of the Union. In fact, the EU is seeking to drive member states to joint energy policymaking rather than individual policymaking in the energy sector. However, under circumstances where green

parties and environmentalists are trying to warn politicians across the world about the dangers of continued use of fossil fuels, several global trends are likely to avoid reduced investment in the petroleum industry. The first trend is the shift in global economic balance from West to East. In coming years, China will surpass the US economically to become the world top economic power. But there is no sign of decline in China's oil demand yet. China, the biggest prospective economy, will see its energy demand keep growing. Meantime, China becoming the top economic power in the world would shift the center of gravitation for energy demand and trade to Southeast Asia. The important point is that no Southeast Asian nation is seen shifting towards reduced use of oil. Therefore, big economies will continue to use oil as the major source of energy. The second trend is the US's accelerated move towards shale oil production and exports in global markets. The US move, backed by macro energy strategies, shows that the country is willing to play a role in the global energy markets. Quite high level of

investment in shale oil, which is less economical than conventional oil, shows that the US is pursuing a long-term strategy in this regard. Therefore, the US is forecast to stick with shale oil production, particularly because this issue is directly linked with job creation in the US amid growing unemployment. The third trend is that oil producing nations continue to remain dependent on energy revenue. Most nations known as traditional oil producers will depend on petrodollars to run their economy. Therefore, no change will be seen in the oil strategy of these nations. As long as there is demand for crude oil, traditional producers will continue to export oil. Given the trends described here, despite the Europeans' willingness to reduce investment in the petroleum industry, this sector remains the key source of energy in the world due to demand. Under such conditions, in case the Europeans insist on non-investment in the petroleum industry, they will just impose losses on their dependent oil companies because in the absence of these companies, Chinese or even the US giants will overtake their European rivals.

OPEC+ Russia-Saudi Cooperation



Saudi Arabia agreed on a new cooperation roadmap, which will be signed in the first half of 2021. This will add to an existing list of 30 projects worth \$2.5 billion, including 24 initiatives in oil, gas and nuclear energy

Shuaib Bahman

A major development in the oil market over recent years has been the formation of OPEC+, which brings together OPEC producers and partners. OPEC+ is a joint consultative and policymaking mechanism set up by OPEC member states and 10 Russia-led oil producers. The idea was not merely to cut output; rather, it was aimed at adopting a joint policy for market regulation. However, OPEC+ compliance with obligations has always been put to butts and ifs. Some analysts attribute disruption within the OPEC+ mechanism to non-compliance by some oil producers, while some others lay the blame on individual policies

or dependence of some members on big powers like the US. Despite all challenges the mechanism is faced with, OPEC+ has managed to regulate the market in some sensitive periods. In some other periods, due to the emergence of discrepancies between key members, the mechanism has failed to regulate the market. Russia and Saudi Arabia are the two nations whose names are highlighted in the midst of cooperation and discrepancies. In one case, Russia-Saudi cooperation led to agreement within OPEC+, while in another case discrepancies between the two sides pushed oil prices down below zero.

Agreement on Stability

OPEC+ removed about 10 mb/d

from the market to hit a record. If the supply trend in the world went on as before, this level of oil production could have given a big shock on the energy markets and driven up prices significantly. However, against the backdrop of the coronavirus across the globe, a 10mb/d decline in oil production gave no shock to the market and it did not help push up prices either. In light of the decline in oil demand, if oil producers are determined to increase prices, they should move towards further reducing supply. But most producers have no such tendency and some favor production hike. The policies pursued by Russia and Saudi Arabia and negotiations between Moscow and Riyadh are of higher significance because in terms of oil production and

exports, Russia represents non-OPEC and Saudi Arabia is a key OPEC producer. Saudi Arabia's Abdulaziz bin Salman and Russia's Alexander Novak announced following their latest talks that OPEC+ may prolong its current strategy to manage oil markets until the end of 2022 in order to keep speculators "on their toes".

"The OPEC+ deal has been with us for almost nine months and will continue until April

2022, but it can be extended until the end of 2022," Prince Abdulaziz said, adding that market skeptics and speculators will remain "on their toes". Saudi and Russia began 2020 at loggerheads over strategy in a dispute which threatened

to collapse the OPEC+ alliance and tip global producers into a damaging price war before the COVID-19 pandemic hit global demand.

Additionally, Russia and Saudi Arabia agreed on a new cooperation roadmap, which will be signed in the first half of 2021. This will add to an existing list of 30 projects worth \$2.5 billion, including 24 initiatives in oil, gas and nuclear energy.

"We have 74 new initiatives and we will show what we achieve it at our next meeting at the end of March," Prince Abdulaziz said. However, the world market remains largely unstable, and oil demand requires short-term monitoring. Therefore, OPEC+'s agreement for member states to increase crude oil production by 500,000 b/d in January 2020 and then decide every month about whether to increase or decrease their output, may run into challenges in the future. OPEC+ was initially supposed to increase its oil production by about 2 mb/d, i.e. 2% of global oil consumption, as of next January.

Fragile Cooperation

A significant part of Russia-Saudi energy equations follows no economic rules. In fact, the level of Riyadh's compliance with US policies has always been decisive in Saudi-Russian cooperation. Currently, in light of presidential power transition in the US, Saudi Arabia depends on Russia's cooperation more than it did four years ago. Unlike Donald Trump, Joe Biden will not support Saudi energy policy. Under Trump, an alliance was formed between Saudi Arabia and the US so that they would

not interfere with each other's export destinations, while trying to sideline rivals. In light of such unity, Russia realized that Saudi Arabia and the US intend to challenge their presence in the global markets. In fact, the crisis triggered by strained ties between Russia and Saudi Arabia in the world markets that pushed prices below zero, was a result of this same policy. The Russians practically told the Saudis and the Americans that Moscow could not be eliminated from international energy equations or at least any such step would be costly. In addition to political issues, the special conditions dominating the oil market following the coronavirus pandemic will significantly affect Russia-Saudi cooperation. This disease is an external factor in the market mechanism, but it has heavily affected supply and demand in the oil market. Therefore, the future of dealing with this pandemic can largely be indicative of future cooperation between Moscow and Riyadh. Should the world find a way to uproot this virus, everything will be back to normal and energy consumption will rise in various nations. Under such conditions, daily-increasing demand for energy will lead some nations like Russia and Saudi Arabia to increase production. Whereas, Moscow and Riyadh, among OPEC+ nations enjoy higher capacity their efforts for overtaking others may stir up discrepancies between them. Russia-Saudi cooperation within OPEC+ will continue as long as it would benefit both sides. As soon as either party feels its profits have declined, this cooperation will become fragile.

OPEC+ was initially supposed to increase its oil production by about 2 mb/d, i.e. 2% of global oil consumption, as of next January

Petrobras Offers Campos Basin Fields for Sale

Petrobras has started the opportunity disclosure stage (teaser) for the sale of 50% of its stake in the Marlim, Voador, Marlim Leste and Marlim Sul concessions, jointly known as Polo Marlim, in the deepwater Campos basin. Petrobras will remain the operator of the fields. The Marlim and Voador fields occupy an area of 339.3 sq km (131 sq mi) in a water depth ranging between 400 m and 1,050 m (1,312 ft and 3,445 ft). Located about 150 km (93 mi) from Macaé, the fields share the production infrastructure. Between January and October 2020, they produced an average of 68,900 b/d of oil and 934,000 cu m/d of gas. The Marlim Leste field is about 107 km (66.5 mi) from Cabo de São Tomé in a water depth ranging between 780 m and 2,000 m (2,559 ft and 6,562 ft).

Perenco Tightens Grip on Gabon Block

Operator Perenco has exercised its rights to acquire Sasol's 40% interest in block DE-8, pre-empting VAALCO Energy's planned entry. However, VAALCO has been cleared to purchase 27% of Sasol's equity in the offshore Etame Marin block, after the other partners decided not to apply their pre-emptive rights. CEO Cary Bounds said: "Based on production performance in November, our production capacity, including volumes acquired from Sasol, would be over 9,000 b/d of oil..."

Energean Applies for Offshore Greece Gas Storage

Energean has submitted a bid to the Greek government for a concession to operate a gas storage facility in the depleting South Kavala field offshore northern Greece. South Kavala, discovered in 1972, was developed via a single-well jacket tied back to the offshore Prinos field facilities through a 12-

in. pipeline. The field's 1 bcm of sweet, lean gas was used as fuel both at the Prinos field center and at the associated onshore process plant. During the 1990s wellhead compression was added to the jacket to maintain production, and the field currently has two producer wells. Energean took over as operator in 2007.

China Fueling Asian Offshore Wind Market Growth

From almost no offshore wind farms in 2015, Asia's operational capacity has grown to more than 6 GW today. Fueled by China's growth, the continent's installed base is expected to rise six-fold by 2025, when it will reach 52 GW and be almost on par with Europe, the global offshore wind leader, according to Rystad Energy. China has contributed more than 94% of Asia's current operational offshore wind capacity. The country now accounts for 5.9 GW of the continent's 6.3 GW of offshore wind capacity, having already surpassed its target of 5 GW by 2020. The Chinese government will phase out its imposed feed-in-tariffs after 2021, which means many projects in the pipeline aim to reach this deadline.

Australia Gas Scheme Approvals Challenged

The Conservation Council of Western Australia (CCWA) has initiated court action against environmental approvals related to gas field developments offshore northwest Australia. According to Woodside Energy, the CCWA has decided to serve notice on the state government and the company of a legal challenge in the Supreme Court of Western Australia concerning authorization to process gas at the North West Shelf and Pluto LNG facilities.

VIEW



VIEW



VIEW



Nord Stream 2 Pipeline Faces New Sanctions

The United States is urging European allies and private companies to halt work that could help build the Nord Stream 2 natural gas pipeline and is preparing wider sanctions on the Russian project in coming weeks, senior Trump administration officials said. The outgoing Trump administration is readying a fresh round of congressionally mandated sanctions “in the very near future” that it believes could deal a fatal blow to the Russia-to-Germany project led by state gas company Gazprom, three officials said. “We’ve been getting body blow on body blow to this, and now we’re in the process of driving a stake through the project heart,” said one of the officials, who spoke to Reuters on the condition of anonymity. Russia this month resumed building the \$11.6 billion (9.5 billion euro) pipeline, which is 90% complete, after a one-year pause prompted by existing U.S. sanctions.



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New work has been centered on a 2.6 kilometer (1.6 mile) stretch in shallow waters of Germany’s Exclusive Economic Zone but not yet in the deep-water sections off Denmark that comprise most of the unfinished 100-km stretch.

Washington says the project, which will increase European reliance on Russian gas,

will compromise European energy security. Russia says the sanctions amount to “unfair competition” aimed at helping U.S. liquefied natural gas producers, and insists it will finish the pipeline. The feud may not die down once President-elect Joe Biden takes office on Jan. 20, foreign diplomats say.

NEWS



S. Korea Restarts Three Naphtha Crackers

Three naphtha crackers in South Korea, one of Asia’s largest petrochemical centers, are to resume operations in December and January after months of maintenance and outages, company officials said. As the companies prepare to ramp up production, they have purchased large volumes of spot naphtha, lifting prices in the region to their highest in months, trade sources said. [LDIS/A] “There is more demand (for naphtha). All these crackers are recovering and returning to the market,” one of the sources said. Petrochemicals producers across Asia are increasing output on the back of strong margins, the sources said. Lotte Chemical began test runs at its 1.1 million tonnes per year (tpy) cracker in early December and plans to resume commercial production later this month, a company official said. The plant has been shut since March after a fire.

3

NEWS



Pemex, Talos to Keep Talking Over Major Shared Oil Find

Mexico’s energy ministry has approved a 60-day extension for talks between state oil company Pemex and a private consortium led by U.S.-based Talos Energy Inc over the future of a massive shared crude deposit, Talos chief executive Tim Duncan told Reuters. The energy ministry’s previous deadline for a deal on an initial so-called unitization agreement for the offshore Zama discovery would have expired by now. The country’s energy ministry has agreed to let the parties continue negotiating through March 25, Duncan said, which would determine who runs the potentially lucrative project as well as a preliminary split of the reservoir, among other development details.

4

Russia Backs OPEC+ 500,000 b/d Output Hike

Russia expects to support an increase in oil production by the group, known as OPEC+, of another 500,000 barrels per day (bpd) from February at next month’s summit of the leading global oil producers, Russian Deputy Prime Minister Alexander Novak said. Oil prices are trading above \$50 per barrel, after coming under pressure this week from concerns new fast-spreading variants of the coronavirus will lead to reduced fuel demand. In comments, cleared for publication, Novak also said that Moscow views an oil price between \$45 and \$55 per barrel as the optimum level to allow for recovery of its oil production, which has been significantly reduced as part of the OPEC+ supply deal. Russia, other leading oil producers and the Organization of the Petroleum Exporting Countries, a group known as OPEC+, agreed to reduce output to support the global oil market as the COVID-19 pandemic has weakened fuel demand. Since the agreement on a record global supply cut in



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April, OPEC+ has progressively reduced the cuts and is expected in January to release an extra 500,000 bpd into the market. The group holds its next online summit on Jan. 4, when it is expected to discuss whether to release another 500,000 bpd in February. “If the situation stays normal and stable, we will support this position (increase

by 500,000 bpd),” Novak told reporters at a briefing held in the government’s headquarters. He said Russia supported a gradual production rise to avoid jolting the market. OPEC+ had initially agreed to increase its production by 2 million bpd starting from January, but decided on a smaller increase at its meeting earlier this month.

NEWS



Italy Firms to Help Drive Energy Transition

Energy companies Eni and Snam are joining forces with Italian state-lender CDP to work on energy transition projects aimed at cutting carbon emissions. The three groups said in a joint statement that they would team up to produce, transport and market green hydrogen as well as to use the gas for rail transport. Italy is targeting investments of around 10 billion euros (\$12.2 billion) in hydrogen by 2030 as part of its strategy to decarbonise the economy as it moves to phase out fossil fuels. Cassa Depositi e Prestiti (CDP), controlled by the Italian Treasury, is the main shareholder of oil and gas major Eni and gas infrastructure group Snam.

5

NEWS



Citgo Sanctions Waiver Extended

The U.S. Treasury Department has extended a measure barring transactions related to Venezuelan state oil company Petroleos de Venezuela’s 2020 bond until July 2021, amid heavy U.S. sanctions on the South American country. The move effectively bars PDVSA creditors from seizing shares in the parent company of U.S. refiner Citgo Petroleum Corp, a PDVSA subsidiary, which were used as collateral for the bond - for the next seven months. A previous measure was set to expire on Jan. 19, the day before U.S. President-elect Joe Biden is set to be sworn in. President Donald Trump’s administration in early 2019 sanctioned PDVSA.

6

US Shale Oil Pain Could Bleed Into 2021

U.S. oil and gas shares and drilling activity are edging higher, but a disastrous year for the energy industry means the go-go days of the shale boom may be gone for good. Deep spending cuts that came with the collapse in fuel demand and oil prices due to the COVID-19 pandemic have ended an era that put the U.S. atop the ranks of the world's biggest producers. The shale industry will ring in the New Year pumping 7.44 million barrels per day (bpd), down nearly 20% from the beginning of 2020. Shale producers were hit hard after borrowing to expand production and slashed spending and output to cut losses. Shale wells' quick development made it the first choice at larger firms to impose cuts. Rising demand for cleaner fuels means global consumption may never return to its prior peak. As growth resumes, OPEC and allies plan to increase their output, undercutting efforts to restart some shale fields.



7

"We are just going to keep slogging through everything," said J.R. Reger, chief executive of Iron Oil, a Montana oil and producer said in an interview. His outlook for shale in 2021 is "stagnant." Company outlays next year will reach \$54 billion, up slightly from 2020 but well below 2019's \$104 billion, estimates data provider HIS Markit. Top independent shale

producers Pioneer Natural Resources, Diamondback Energy and ConocoPhillips forecast output flat to slightly above current levels. Until this year, "there has never been a straight week in my whole career where I haven't had a rig drilling somewhere," said Robert Watson, CEO at Abraxas Petroleum.

NEWS



US Crude, Fuel Stocks Dip, Refining Runs Slow

U.S. crude stocks, gasoline and distillate inventories fell last week, as refineries reduced runs ahead of the year-end, the Energy Information Administration said.

Road fuel demand improved marginally in the most recent week, and analysts said steadier fuel consumption in 2021 will depend on whether COVID-19 vaccines become readily available and support an economic rebound. Crude inventories fell

by 562,000 barrels in the week to Dec. 18 to 499.5 million barrels, compared with analysts' expectations in a Reuters poll for a 3.2 million-barrel drop.

That follows a surprising 3-million-barrel jump in inventories reported by the American Petroleum Institute, an industry group. Refinery crude runs fell by 169,000 barrels per day in the week, EIA said. Refinery utilization rates fell by 1.1 percentage points. U.S. gasoline stocks fell by 1.1 million barrels, compared with expectations

for a 1.2 million-barrel rise. "It was good to see gasoline demand back above 8 million bpd, which is supportive and shows people are getting back on the road a bit," said Phil Flynn, senior analyst at Price Futures Group in Chicago.

Gasoline demand as measured by product supplied by refineries rose modestly in the most recent week, but is down nearly 14% over the last four weeks when compared with the year-ago period.

Fuel demand has been soft all year due to COVID-19, down 13% in 2020.

9

Gas Price Rally Buoy North American LNG Developers

North American LNG exporters are sounding more confident about the prospects for new projects in 2021 due to a sharp rally in prices driven by surging Asian demand, even as most industry analysts expect next year to be another difficult one. Natural gas futures in Europe and Asia have climbed to their highest levels in more than a year due to a sharp increase in demand late in 2020, especially out of China, where buyers have scrambled to secure supply. Asian nations have driven record growth in liquefied natural gas (LNG) as they seek to replace dirtier coal plants and fuel growing energy consumption. Numerous projects slated for groundbreaking in North America were put off in the last two years due to historically weak prices and worries about oversupply. That concern has dissipated after production dropped this year in Australia, Malaysia, Norway and Qatar, some of the world's largest



8

LNG producers.

With spot prices in Asia hitting a six-year high, LNG operators are seeing greater interest in long-term supply deals that would allow developers to build new export plants. Tom Mason, general counsel and president of LNG at Energy Transfer LP, which is developing an export plant at its Lake Charles import

facility in Louisiana, said the rise in prices "has translated into a pickup in traction with customers for long-term commitments for LNG purchases." At the start of 2020, a dozen or so developers said they planned to make final investment decisions (FIDs) to build new projects in the United States, Canada and Mexico by the end of this year.

NEWS



Cairn Energy Wins Over \$1.2bn from India

Cairn Energy said it had won an international arbitration case against the Indian government over a tax dispute that had caused concern among investors over retrospective tax claims on companies. The tribunal ruled unanimously that India had breached its obligations to Cairn under the U.K.-India Bilateral Investment Treaty and awarded Cairn damages of \$1.2 billion plus interest and costs, the company said in its statement. For India, this is the second

setback after losing another international arbitration case in September against Vodafone Plc over a \$2 billion retrospective tax dispute. The government said it will consider all options, including legal remedies. A government official told Reuters that the award in Cairn's case is so big, "we don't think we can give that away without challenging it," he said, adding that a final decision will be taken by the Prime Minister's office. "We will have to challenge both cases as we will otherwise give a wrong signal to investors,"

said the official, who declined to be named due to not being authorized to speak publicly. If the government decides to appeal, it will keep the problem alive and create nervousness for investors, said Anuradha Dutt, partner at Indian law firm DMD, which represented Vodafone in its case against India. "Tax certainty and rule of law are very critical for investors to come to a destination and both have been violated here which will have an impact, especially at a time when India wants to attract investment," she said.

10

How South Pars Eased Iran Circumvention of Sanctions

Phase development of the giant offshore South Pars gas field defeated hypotheses of toughened US sanctions against Iran's petroleum industry. Iran's oil and gas has overcome many challenges in the way of energy exports and diversified refined petroleum products with a view to neutralizing the sanctions. Silent endeavor by the Petroleum Ministry in realizing oil revenue from energy exports does not allow it to release official information about energy market. But observers believe that despite tougher ever sanctions targeting its oil, gas and petroleum products, Iran has managed to find a way out in the face of US-led economic war in a bid to make acceptable revenue from exports. Creation of an industrial civilization in the strategic coasts of the Persian Gulf and heavy investment in the world's largest gas reservoir despite rounds of sanctions has further intertwined South Pars with national economy. That has given rise to a special status to Iran's political, economic and international standing amid unwelcomed sanctions. This article seeks to discover the new footprints of South Pars stakeholders outside Iran's territory and offer a small introduction to the vital role of Iran's energy exports under the aegis of South Pars development.

Sahar Saeedian

Gas Exports Grow 93%

Recovery rate from the world's largest independent gas reservoir has reduced Iran's dependence on gas imports from neighboring nations. Apart from that, it has cleared the way for enhanced exports owing to increased production from the South Pars field. Iran is exporting gas to Turkey and Iraq. Both have won US sanctions waivers. Iraq is OPEC's second largest oil producer, but it depends on Iran's gas to feed its power plants to generate electricity. Iran is also drawing up a plan to export gas to Afghanistan. This project would be handled by the private sector. Iran exported 17.4 bcm of gas to neighboring nations last calendar year, up from 9 bcm in the calendar year to March 2014. That indicates over 93% growth in seven years. Apart from supplying household, industrial and power plant gas needs, National Iranian Gas Company (NIGC) has announced that it is exporting on average 70 mcm/d of gas to neighboring nations. The figure is far from objectives set out in Iran's 6th Five-Year Economic Development Plan due to historic US sanctions and lack of cooperation on the part of Iran's rivals, it remains a significant achievement.

Feeding Gas to Power Plants

Over recent years, due to climate change, water shortages and subsequently the low-profile of hydraulic dams in power generation, the number of thermal and combined cycle power plants has increased owing to increased gas production from South Pars. Currently, natural gas claims the top spot in supplying feedstock to power plants in the country. More than 90% of Iran's power generation is being done by thermal power plants which are fed by natural gas. One may wonder how gas supply to power plants would contribute to increasing Iran's energy exports. The most significant achievement of increased power generation in the country would be the possibility of electricity exports to neighboring nations and providing the ground for establishing a regional hub of electricity among neighboring states.

A review of Iran's electricity exports status shows that statistically speaking, Iraq, Afghanistan and Pakistan remain the main destinations. Iran is also exporting electricity to Armenia, Republic of Azerbaijan and the Autonomous Republic

of Nakhichevan. Therefore, increased gas production from South Pars would indirectly contribute to higher electricity supply to neighboring nations.

Meantime, increased gas supply to power plants in recent years, has reduced the share of liquid fossil fuels (gasoil and fuel oil) in the power plants' energy mix from 43% in 2013 to 10%, now. Add to that less environmental pollution and the possibility of exporting gasoil and fuel oil. CEO of NIGC Hassan Montazer Torbati has said that gas supply to power plants since 2013 has saved the country \$75 billion.

"Without a 2.5-fold increase in the South Pars gas production over this period of time, at least 150 billion liters of liquid fuel would have to be consumed by power plants. Therefore, by increasing gas supply to power plants, \$75 billion was saved and Iran turned from an importer of petroleum products to an exporter of such products," he said.

Gasoline Exporters Club

With the construction of the giant

Persian Gulf Star condensate refinery that supplies 40% of Iran's gasoline needs, the condensate recovered at South Pars is integrated into the value-generating cycle. A major buyer of the oil products is Venezuela. Iran used to be an importer of gasoline to meet its daily needs. Now it has joined gasoline exporters' club, and Iran's refining industry is now credited with exports. With 25 operational refining phases in Assaluyeh and Kangan, the South Pars Gas Complex is supplying 780,000 b/d of gas condensate, thereby delivering significant amounts of feedstock to the refining facility. Currently, in light of a sharp decline in the number of travels following the outbreak of the coronavirus, gasoline consumption has fallen to an average 70 ml/d. Iran's gasoline production capacity stands at 110 ml/d and therefore 40 ml/d is now extra, which Iran can export by land or by sea. The director of the Persian Gulf Star refinery has announced that marketing activities for selling refined petroleum products in East Asia have increased. The refinery exported more than 800,000 metric tons of four products – light naphtha, intermediate naphtha, heavy fraction and solvent 402 – in the first half of the current calendar year to 21 March 2021. It was up 120% year-on-year.

2nd, 3rd Petchem Jump

The network of South Pars products' buyers does not end here. Midstream and downstream industries, particularly petrochemicals fed with gas condensate,

natural gas, ethane and LPG, have been instrumental in the development of this energy hub in the heart of the Persian Gulf. Iran's petrochemical industry, as a value-generating industry, has been instrumental in earning Iran hard currency in the nonoil exports sector. Thanks to South Pars gas, the petrochemical industry is now endowed with a competitive privilege compared with regional and world nations.

This industry owes its life and demise to feeding petrochemical plants. Undoubtedly, an increase in the production capacity of gas and other products from South Pars has been instrumental in drawing a roadmap for the petrochemical industry with a view to the realization of the 2nd and 3rd jumps in the petrochemical industry by 2025. That is why a large number of petrochemical projects have been launched over years. Iran is determined to complete and launch 27 petrochemical projects with an investment of \$17 billion to bring the number of petrochemical plants to 83, which would be fed with 62 million tonnes of crude oil a year, or 1.4 mb/d. Therefore, Iran's petrochemical industry would reach an output capacity of 100 million tonnes a year with an investment of \$70 billion. The products will be worth more than \$25 billion. Therefore, despite all economic problems Iran is dealing with due to sanctions, the country has seen a historic jump in petrochemical production. This sector has served Iran a powerful tool in dealing with sanctions and earned Iran hard currency. The CEO of National Petrochemical Company has said Iran would earn a record \$25 billion from the petrochemical sector by next calendar year. The figure would reach \$34 billion following the 2nd and 3rd jumps.

South Pars with a record of less than four decades has been instrumental either directly or indirectly in helping the country achieve its transnational interests.

SP14 Development, Iran Oil Industry Priority

■ There are a total of 13 refineries at the giant offshore South Pars gas field which Iran shares with neighboring Qatar. So far, 12 refineries have become operational and all offshore platforms, except for the SP11 platform, are producing at maximum capacity. The SP14 refinery is the last one. Due to financial shortages, it was not prioritized. Now that all prioritized refinery projects have been completed, development of the SP14 refinery has started. Over the past seven years, the Ministry of Petroleum has prioritized South Pars development phases for maximum recovery, particularly along border blocks. SP14 lies in the northernmost block near Iran-Qatar borders. South Pars is currently producing 700 mcm/d of gas, accounting for 75% of Iran's gas needs.

Profitability Cycle Running

Mohammad Meshkinfam, CEO of Pars Oil and Gas Company (POGC) which runs the South Pars field, recently said that the SP14 refinery was profitable. He said: "The offshore section of SP14 has been developed entirely and the gas produced at SP14 is transferred to the SP12 refinery to keep the profitability cycle running." The reservoir and natural conditions of SP12 are such that one-third of this block cannot produce gas and practically this phase is facing 1bcm feedstock shortage. Now, if the SP14 refinery is completed, the gas produced from this field had to feed this same refinery while one-third of the SP12 refinery is inactive. Therefore, the SP14 production was moved to the SP12 refinery to keep the profitability cycle running. The offshore section of SP14 was developed sooner than SP13, SP22 and SP24, in early 2018. Therefore, it would be senseless to speak about non-profitability because it was a correct decision made by the management to deal with financial restrictions with sanctions in effect. It was necessary to specify priority projects and the SP14 refinery was no priority because the refinery of a neighboring phase, which had already been completed and was ready to come online, was facing feedstock shortages. Therefore, it was in the best interests of the project to consider acquiring maximum profit. That is why the gas produced at SP14 was moved to the refinery of SP12.

SP14 Supplying Sour Gas

Ever since gas production started from

SP14, more than 22 bcm of gas has been recovered from this phase. The first section of the SP14 refinery is to come online this calendar year while the three other sections would become operational early next calendar year. The manager of SP14 development project has highlighted some measures undertaken in the offshore section of SP14 as follows: upgrading the steering consortium structure, reforming the management and executive structure in contracting, ordering necessary commodities and benefiting from the potential of consortium members to defeat international restrictions particularly in the commodity section. The secondary units of the SP14 refinery are to come online by the end of the current calendar year in order to operate the first train of gas processing. One reason why the SP14 refinery has been delayed was change in planning. The two offshore platforms of SP14 were finally installed to allow for the recovery of 1bcf/d of sour gas from the South Pars reservoir. The third platform of SP14 was installed in June 2019, but production started in January 2020. The fourth and the last platform of this phase of the South Pars field became operational in March 2020.

Minister Defends Prioritization

The involvement of some state-owned companies as members of the SP14 consortium led these companies to receive bank guarantees in compliance with the requirements of bylaw on government tender bids. In light of



prevailing conditions in the country, foreign companies were not able to offer such guarantees and therefore options had to be found to circumvent sanctions. Therefore, the process of commodity supply was delayed and the project did not come online as initially scheduled. Minister of Petroleum Bijan Zangeneh told MPs that the four platforms of SP14 were ready and gas was being carried onshore through two pipelines.

"Gas recovery started from the platforms of this phase in May 2018 and the additional capacity of SP12 and SP19 are used for sweetening. So far, 22 bcm of gas from this phase has been sweetened. Therefore, if there is question of loss, it pertains to offshore recovery," he said. Over the past seven years, Iran's policy has been based on developing the remaining phases of South Pars and increasing the share of natural gas in the energy mix. However, due to challenges caused by the tightening of international sanctions, access to some key items like compressors, control systems and instruments, turboexpanders and CRA pipes has faced restrictions.

The SP14 development project is aimed at the production of 2 bcf/d (56 mcm/d) of natural gas. To that end, construction and installation of four offshore platforms,

each with capacity of 500 mcf/d (14 mcm/d), was on the agenda.

8 Contractors

The consortium set up in 2010 to develop SP14 comprises eight companies led by the Industrial Development and Renovation Organization (IDRO). At first, the remaining phases of South Pars were expected to become operational over a 35-month period, but insufficient technical and financial potential did not let the five megaprojects come online. Apart from that, SP12, SP15, SP16, SP17&18 had remained incomplete. Lack of management cohesion, restrictions on contractors and a sudden increase in costs led to the failure to all projects, including SP14. The 11th administration had to handle all these projects. The main cause of delay in the construction of the SP14 refinery was the imposition of unjust international sanctions that barred access to foreign-made products including compressors, control systems, instruments and turboexpanders. Although all these items had been ordered earlier, European manufacturers refused to deliver them. Therefore, the necessary equipment was re-ordered; however, money transfer problems remained in effect.

7 Golden Years

Iran first started work in South Pars 20 years ago. So far, \$80 billion has been invested in the reservoir. But the significant fact is that gas production from South Pars has increased 2.5-fold over the past seven years. Up to March 2013, a total of 108 gas wells were operational, but over the past seven years, 228 new wells have been drilled. Currently, 336 wells are operating. Up to 2013, 11 offshore platforms had been installed at South Pars while under the administration of President Hassan Rouhani, 26 new platforms have been installed. Currently, 37 offshore platforms are producing gas. In terms of pipe-laying, 1,050 kilometers had been built until 2013, but over the past seven years, 2,160 km of pipe has been laid. Currently, 3,200 km of offshore pipe is carrying gas from sea to onshore refineries. Regarding the number of refining trains, only 20 refining trains were processing gas to be fed into the national trunkline up to 2013, but over the past seven years 30 new refining trains have become operational. There are currently 50 trains active.

South Pars was producing 28 mcm/d of gas by 2013. Its output has increased to 700 mcm/d in seven years.

Therefore, the SP14 production was moved to the SP12 refinery to keep the profitability cycle running. The offshore section of SP14 was developed sooner than SP13, SP22 and SP24, in early 2018

Apart from that, SP12, SP15, SP16, SP17&18 had remained incomplete. Lack of management cohesion, restrictions on contractors and a sudden increase in costs led to the failure to all projects, including SP14

Ferdowsi & Soroush Up for Investment

More than 112 years of prospecting for hydrocarbon reservoirs in Iran has resulted in the exploration of the supergiant South Pars gas field and Azadegan oil field. Iran sits atop over 100 oil and gas reservoirs, implying that at least one reservoir has been explored per year in Iran in the past century. In 1966, a Swiss company explored Ferdowsi oil field in the Persian Gulf, setting a record in the discovery of giant fields in Iran. The Ferdowsi giant oil field, which contains some gas in its Dalan and Kangan layers, is known to be the largest heavy crude oil field in the Middle East. The Ferdowsi oil field is located west of the South Pars gas field and near the Golshan gas field. Ferdowsi is 190 kilometers off Bushehr Port and 88 kilometers away from coastline. The first oil well in Ferdowsi was spudded in the year of its discovery in order to identify heavy crude oil layers. One year later, a second well was drilled to measure the potential of its gas layers. Based on studies conducted on the two wells, master development plan studies were carried out by Swiss Adax SA for the description of the Ferdowsi oil field whose studies signaled huge heavy crude oil there. The oil field was estimated to hold 31 billion barrels of oil in place with a production capacity of 70,000 b/d. Due to the significance of Ferdowsi's heavy crude oil reserves, the National Iranian Oil Company (NIOC) instructed the Petroleum Engineering and Development Company (PEDEC) with 3D seismic testing, drilling two appraisal wells for a more precise assessment, and taking samples from the crude oil layers in order to submit a renewed MDP. The drilling of a third well started in April 2010 with a view to assessing the oil and gas layers of the field. Initial studies showed the existence of abundant heavy crude oil with various API gravities in the five layers, known as Bourgan, Daryan, Gadvan, Fahlyan and Sourmeh.

Ferdowsi Gas Potential in Lower Layers

NIOC ordered the second well drilling (F2) in order to examine the gas potential in the Dalan, Kangan and Faraqoun layers, which proved positive. In 2005, Adax SA appraised the Ferdowsi field based on the first and second wells and estimated the in-place oil at 35 billion barrels with a recovery rate of 6%. Development of Ferdowsi oil field is under way with a

view to acquiring technology for heavy crude recovery in fractured carbonated reservoirs. It would also help find the most suitable method for heavy crude oil recovery. Full development of Ferdowsi would require five to seven years; however, due to its huge oil and gas deposits and the profitability of its development, investment for the development of this field continues to be highly attractive.

Technology Transfer

Production of heavy crude oil and development of technologies required for transmission and refining of heavy crude have been talked about for decades all across the globe. In Iran, studies started to that effect after the discovery of oil fields containing heavy crude. Technologies required for the production, transfer and treatment of heavy crude oil have been already developed in the world, although they are being upgraded. So it shows that Iran has been active. Iran's petroleum industry experts have applied various methods with regard to the production, transfer and refining of heavy crude oil on lab scale. Some of these technologies have already been applied at industrial level.

Soroush Development

Soroush oil field is known to be the largest offshore oil field in Iran. It started production in 2001 after development by Shell. Now it needs enhanced recovery technology as its production has fallen. With a 10% increase in its recovery rate, the field would see its recoverable oil output increase by about 1 billion barrels, which would be valued at \$60 billion at current market prices. NIOC named Soroush with 14 billion barrels of oil in place as one of choices for investment under the terms of the newly developed Iran Petroleum Contract (IPC). Iran hopes to use investment and technology owned by big oil companies across the globe in order to lift output from its mature fields which are mainly aged above 50. The Soroush field was discovered in 1962. After a first well was drilled in this field, it started production at the rate of 14,000 b/d from its Kajdomi layer. The field was severely damaged during the Iraqi war on Iran (1980-1988) and its production was subsequently halted. Renovation and development of this field started in early 2000. The field started production anew in early 2002. However, like most Iranian oil fields,

Soroush's output went on a downward trend in 2005.

Although known as the largest oil field run by the Iranian Offshore Oil Company (IOOC), Soroush is among the oldest. Developing this ageing field would require modern technologies. The Soroush field's crude oil is a category of crude oils produced in Iran and the world. The oil from Soroush along with the oil extracted from the adjacent Norouz field is transferred to the Persian Gulf floating terminal before being sold to customers. One of the main properties of the Soroush platform is that it simultaneously produces and exports its oil and gas. It is also among few platforms where non-flaring associated petroleum gas is under way. Before the 1979 Islamic Revolution, the Americans and the Italians intended to develop the Soroush field for oil recovery. During a conference held in Tehran a couple of years ago to introduce Iranian fields which need foreign investment and technology, Soroush had been introduced as the largest IOOC-run oil field.

IOOC recently signed an MOU with Sahand University of Technology for enhanced recovery from Soroush field. The Netherlands' Panterra was also hired as foreign partner to the project. NIOC officials say this field would have a 5% recovery rate under normal conditions, which is lower than that of other fields. Therefore, by carrying out enhanced recovery projects using the state-of-the-art technologies, Soroush recovery rate will increase by 10-15%, which would mean between 1 and 1.5 billion barrels of extra oil. Under this 10-year plan, universities will be obliged to cooperate with foreign research institutes and consultants on research work with a view to enhanced recovery. Miscible and immiscible gas injection, as well as chemical injection is envisaged to enhance recovery from Soroush field. Officials say a roadmap is being drawn up for enhanced recovery from Soroush. Iran hopes to utilize the experience of other fields with heavy crude oil and high viscosity in Soroush field.



Halegan, Salman Attractive to Investors

Halegan is among Iran's ten gas fields whose investment plan was presented to a Tehran international conference a couple of years ago. Halegan is located in Fars Province in southern Iran. It is 73 kilometers north of Assaluyeh and 25 kilometers south of Sefid Baghoun gas field. It neighbors Sefid Zakhour and Dey gas fields from north. In a bid to gain a 15% share in the world gas trading, Iran is implementing gas efficiency plans in the housing, commercial and industrial sectors and firmly seeking to increase its gas production capacity. To that effect, onshore fields are in the limelight for domestic and foreign investment due to easy access and low investment needed for their development. National Iranian Oil Company (NIOC) intends to establish a gas hub in the south of Fars Province. NIOC's gas production and refining plan involves development of Sefid Zakhour, Sefid Baghoun, Halegan and several other gas fields. Halegan was discovered in 2005 following implementation of a 2D seismic test on 1,000 square kilometers of land a year earlier in Fars Province. The seismic test ended in the discovery of Halegan and several other gas fields. Halegan is 50 kilometers long and 11 kilometers wide. It holds 12.4 tcf of gas (355 bcm) of gas reserves in place, 8.938 tcf of which is recoverable thanks to a 70% recovery rate. Such a high recovery rate is rare among gas fields in Iran. Furthermore, Halegan is estimated to hold 249 million barrels of gas condensate in place, 98 million barrels of which is recoverable. Halegan's gas and condensate deposits are estimated to be valued at \$83 billion, while discovery of this gas field had cost only \$36 million over 2.5 years. Development of Halegan would allow a sustainable output of 50 mcm/d of gas over a 20-year period. A 4,999-meter deep well was drilled in order to yield better results. Later on, several reservoir layers including Kangan, Upper Dalan, Nar and Lower Dalan, were appraised.

In the end, the field was estimated to hold 12,400 bcf of gas. The significant point with the discovery of this gas field is that all geophysical, reservoir and petroleum engineering studies, as well as reservoir layer tests were handled by the Directorate of Exploration of NIOC.

Fars province is a gas hub in the Middle East region. Some exploration studies in this province have proven the existence of huge gas reserves. Halegan is the latest gas reservoir whose existence was proven there. Compared with gas fields located nearby, Halegan has bigger dimensions.

Iran's efforts to return to its genuine standing among gas exporting countries herald a tough road ahead in coming years. An analyst with energy consultancy Wood Mackenzie has highlighted \$100 billion opportunities for investment in Iran's oil and gas industry, saying Iran needs big foreign investment.

He has highlighted the vastness of Iran's oil and gas facilities across the country, saying they require development activities on a large scale. The analyst said in addition to exploration activities needed to expand facilities by attracting fresh investment; existing oil facilities are in desperate need of renovation due to the maturity of oil wells. "With opportunities introduced by Iran for investment we need to see which companies and governments would take the initiative. These opportunities would benefit both sides," he said.

Oil Output Up in Salman

Salman oil field located in the Persian Gulf is jointly owned by Iran and the United Arab Emirates (UAE). The offshore shared field has high-pressure gas layers, too. Discovered about 45 years ago, Salman field has since been supplying oil. It is located in Hormuzgan Province and more specifically 144 kilometers south of Lavan Island.

Whereas about 70% of oil and gas layers of this oilfield is located in Iran's territorial waters and

its shared status, its development has always been a priority for Iran's petroleum industry. In the 2000s the platforms of this field that had been damaged during the 1980-1988 imposed war were renovated. In compliance with the Petroleum Ministry's policy of prioritizing development of jointly owned fields, Salman is the most important of the five fields for development. Given the history of oil production in the Salman field, it seems that the main objective of Iran's petroleum industry in such ageing fields as Salman has been to apply cutting edge technology for maximum efficient recovery (MER) and enhancing the rate of recovery from these fields. Despite the high recovery rate in the Salman field, some layers of this field have yet to be depleted. Therefore, it is possible to enhance output from this mature brownfield. Salman contains light crude oil with API gravity varying between 33 and 37. Renewed development of the Salman field allows for increased output. If enhanced oil recovery (EOR) methods are applied, a much higher output is envisioned. Salman field incorporates an asymmetric anticline which is 14 kilometers long and 11 kilometers wide. Geologically, it is composed of three oil production layers dating from the Jurassic and Cretaceous eras. Salman field also incorporates a gas layer. The field was discovered in the 1960s by Lavan Petroleum Company. The first exploration well in this field was drilled in 1956 to allow for production three years later. According to the latest data, Salman field has 44 oil and 10 gas wells. Based on studies currently

under way, gas production from Salman could rise after making some arrangements.

The field is owned 67% by Iran and 33% by the UAE. There is not precise figure on gas production from Salman whose rate of recovery stands at 51%. The oil extracted from Salman field is carried to Lavan Island via a subsea pipeline of 22 inches in diameter for final processing on onshore facilities and then exported or stored to feed the Lavan refining facility. Despite being ageing, Salman still has an acceptable level of deposits. A timely development of this field would boost its output. Five platforms are currently operating in this field. Among the three reservoirs in Salman, the one located at a depth of 10,000 meters under seabed accounts for 70% of the Salman output. A layer located at a depth of 8,000 feet accounts for 20% of the Salman output and a third layer at a depth of 5,000 feet for 10%. Salman is estimated to contain 4.5 billion barrels of oil in place. Since 1999 onwards, when a number of oil and gas fields were developed under buyback deals, studies on the Salman field were carried out under the supervision of Petroiran Development Company (PEDCO) and the Petroleum Engineering and Development Company (PEDEC).

The primary processing of crude oil is done on platform before being carried to Lavan in a 144-kilometer-long pipe for secondary processing, storage and export.

Gas produced from the nine wells in this field is carried to Siri Island via a 36-inch pipe.



Pars Jonoubi Eyes Pro League

Pars Jonoubi Jam soccer team is back to good days following its return to the first league of Iranian soccer clubs after it was eliminated from the premier league. It hopes to make a comeback to the pro league. Pars Jonoubi Jam is led by Mohammad Nostrati who has recently taken over. Nostrati, a former defender of Iran's national soccer team, has just joined the club of coaches. He hopes to bring Pars Jonoubi Jam to the premier league in a bid to set a good record for himself. The following is an interview with Nosrati about his decision to accept coaching Pars Jonoubi.

Arash Jafari

How come you accepted to lead Pars Jonoubi Jam while you had first gone to Chouka?

As you noted, I had first reached agreement with Chouka of Talesh, but after several days I saw that the ground was not prepared in Talesh and it would not be prepared any time soon. I found it difficult to work with that team and I decided to leave it. Then I was presented with a proposal from Pars Jonoubi. I had fruitful talks with Bahram Rezaian, CEO of Pars Jonoubi club, and Iraj Khorramdel, CEO of Pars Special Economic Energy Zone. I assessed the conditions and I saw that I could work with this team effectively. That is why I accepted to lead Pars Jonoubi and thanks to God you see that we have achieved good results.

Would you please explain further?

You see, Pars Jonoubi is a club in the real sense of the world. It has very good hardware and software facilities. Furthermore, it is led by qualified managers. There is also good football court for training and the club is up to standards. This team has identity. It has been a pro league team and has its own fans. The conditions are good to operate at this club and its manager himself resolves problems and therefore I focus on training and matches.

How do you see the team conditions?

The team's condition is good. Iran's football is entirely faced with economic challenges. Even big teams like Persepolis and Esteghlal are faced with the same problem. Thanks to God, we have not had any specific problems and our condition

is good. The club manager, Mr. Bahram Rezaian, and the executive manager, Mr. Cheraghi, are doing their best for the team to resolve all problems. Therefore, I have to say that working at Pars Jonoubi is good and we are happy.

Pars Jonoubi started off the league very well and it adopted a challenging stance from the very beginning.

The beginning of leagues is always instrumental in the results of teams. All teams enter matches after sufficient planning and our team is no exception. Therefore, from the very beginning we sought to dictate our power and style upon our rivals. Victory during the first days of the league gave strong motivation to the players and the team, and boosted our self-confidence. Thanks to God we are now at the top after achieving good results and we have to continue this trend.

How do you evaluate performance of the referees at the first league?

I don't want to talk about this issue, in my view experts can comment on that. In general, the performance of referees was not as good as they should be. For instance, in our last match, we lost due to the referees' error. Even in the pro league matches, referees do not have a good performance. I hope that the federation would resolve this problem this year.

Have Pars Jonoubi met your expectations so far?

I'm happy with the performance of my players in the league. Everyone knows that planning in the league is very difficult, particularly in the first weeks. My players did a lot to emerge winner in the league matches and I am grateful to all of them.

Therefore, I have to say that they are meeting my expectations. However, I should say that we have still a long way to go to become better.

Can Pars Jonoubi go back to the premier league?

The Pars club is not the only one. There are 12 or 13 other teams which are all determined to win. We're no exception. We have a combination of experienced and young players. More important than that is motivation. However, it is too premature to talk about this issue. We are just at the beginning of the way and I have to say that we have many plans for this round. We are still far from our ideal team. Our line-up will be completed as new players are set to join us and then we can think of bigger objectives. We are facing a tough road towards the first league and we have to grow on a weekly basis so that our team would find a character. I assure you that our objective is to find our way into the pro league. We can reach that objective in light of our combination. I note that we will try our best to reach this objective and we will spare no effort.

Has the club prepared necessary tools and facilities for you to win?

The club's manager has done a lot recently and he has tried his best to provide the best conditions for the team. As I mentioned, we have good hardware and software facilities at the club. We have also hired our players. Several more are to join us. Therefore, the club has had very helpful cooperation with the technical group and the team.

You have young players at your team, don't you?

We have diversity in our line-up. I think that younger players are apt to grow and progress. We have tried to hire local players and absorb talented ones. Nasseripour is an example. I have currently an 18 and a 21-year-old player. Our final objective is to introduce young players to Iranian football.

Are you happy with the continuation of matches under covid-19 condition?

Thanks to God, health protocols are largely respected at the clubs and there is no problem in this regard. We also comply with all requirements in the club so that our players and other staff would face no problem. It's not possible for people to attend stadiums. At least they can watch the matches on TV and feel happy with their teams' win. We should not deprive people of happiness. The Ministry of Health, Ministry of Sports and the Football Federation have given the nod for the matches to continue. I personally believe that we can organize matches by respecting protocols. I hope that this virus would be eradicated soon and our people can return to normal life.



The 1933 Agreement

Ali Bahrami

Much has been said about D'Arcy and his team, who adamantly remained in Iran until they discovered oil. The D'Arcy Concession marked the start of British dominance on Iran's God-given wealth and triggered a chain of developments intertwined with oil in the country. As soon as the Qajar dynasty was unseated and Pahlavi I came to power, the D'Arcy Concession was thrown into the royal fireplace. It was not the end of oil deals in Iran. In 1933, a new agreement was signed. The present piece of writing aims to draw a parallel between the D'Arcy Concession and the 1933 Concession in terms of relative strengths and weaknesses. The D'Arcy Concession was signed five years before Muzaffar ad-Din Shah, the Qajar ruler, signed off on the country's first-ever Constitution. The agreement was signed at Sahebqeranieh Palace, later renamed Niavaran Palace. Seven years after the deal was signed, oil was found in southern Iran. The discovery led Britain to focus further on Iran's huge wealth. Due to lack of modern technology, the bulk of that huge wealth had remained hidden. However, Britain had already made all necessary arrangements.



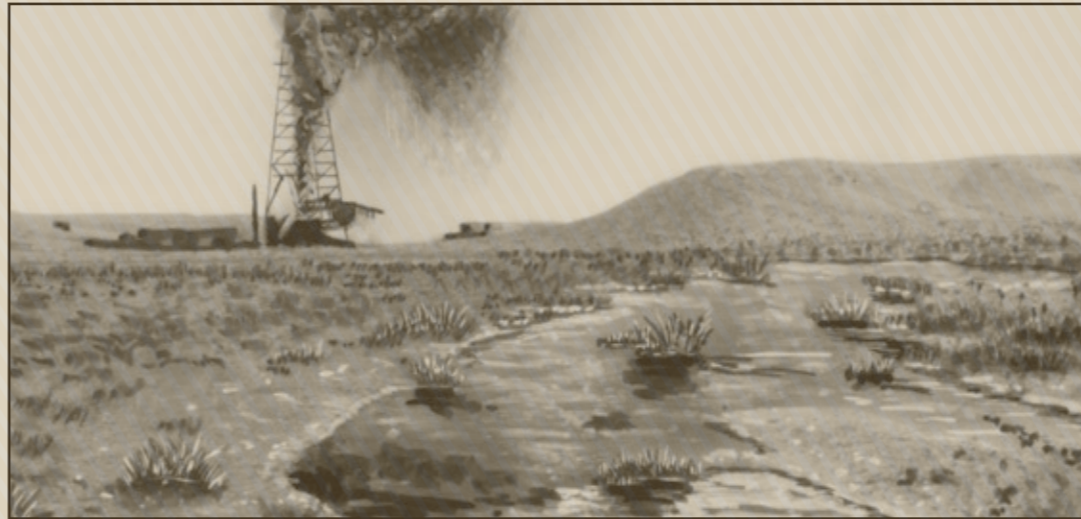
1st Oil Deal

Amid fierce struggle between Constitutionalists and Qajar loyalists, the British were extracting Iran's oil and making future plans. What was Iran supposed to gain in return for this unlimited wealth?

Mohammad Qoli Majd, in his book "Reza Shah and Britain, based on US State Department Documents", highlights the 60-year agreement, saying: "In exchange, the owner of the D'Arcy concession agreement was supposed to pay Persia 20,000 liras (about 100,000 dollars), in cash as well as giving 10% share in ownership of operating company." "As soon as the Concession expired, the assets of the company (Anglo-Persian Oil Company), both inside and outside Iran, shall go to the Government of Persia," writes Qoli Majd. Despite being entirely colonialist, the agreement failed to satisfy Britain. The British took every change to modify the provisions of the agreement in their own best interest.

Time Playing in Britain's Favor

As soon as Pahlavi I came to power in Persia, the government filed objections over the payment regime and the amount of gains from the oil agreement. Objections to the agreement did not cease to increase under the influence of the Pahlavi Court. Finally, Reza Shah Pahlavi threw away the agreement into a fireplace in the presence of his ministers. This gesture showed the irreversibility of Iran's efforts to modify the text of the agreement. Sir John Cadman, chairman of Anglo-Persian Oil Company (APOC), intensified his action. Political and economic developments ensued



massively. Finally, the Pahlavi ruler sat down with Cadman at the negotiating table and signed the agreement. The 1933 Concession became the second oil deal in contemporary Iran. The Pahlavis embarked on a widespread publicity campaign about this concession. But what was the fact behind it?

The provisions of the 1933 agreement are provided in the book "Downfall: Proceedings of the First Seminar on Reasons of Pahlavi Collapse". "The 1933 agreement was stuck during direct talks between Reza Shah and Sir John Cadman, chairman of APOC. According to one article in the Concession, APOC started work in Iran on January 1, 1933. APOC was required to pay the Persian Government 4 shillings for each tonne of oil sold in Iran or exported in addition to a 20% share from extra revenue. But the total payment to Iran should not limit 750,000 liras a year." The share of Iran in the 1933 Concession was 4% higher than that of the D'Arcy Concession. That is why some people imagined that the 1933 deal was more advantageous to Iran. But when the terms of the deal are taken into account, more points are highlighted. Gholam-Reza Nejati in his book "Aggression" writes: "Many cite this agreement as a major step by Reza Shah in improving the provisions of the D'Arcy Concession. First Iran's share amounted to 16% from the total profits. Second, this 16% had decreased time and again under various pretexts. That was while APOC's revenue had increased because of higher output, and Iran's share should have increased automatically. However, Reza Shah did not

cease to describe the annulment of the D'Arcy Concession and the signing of the new agreement as big success in restoring Iran's rights. Even festivities were held to celebrate this victory. But in fact, the real winner was Britain because the agreement had brought Iran more losses than profits." Britain had a good opportunity to correct the weaknesses of the D'Arcy Concession, while making Iran believe it had achieved a big victory in its oil sector. Apparently, the 1933 Concession gave Iran a bigger share than that of the D'Arcy Concession; however, unlike the D'Arcy Concession, the new concession gave Iran no share in the operating company's assets. Furthermore, the government could not verify APOC's accounts and discounts. Iran's revenue under the new deal did not show any significant increase compared with the D'Arcy agreement. The apparent increase was the result of increased production and higher market prices.

The World Bank says in a report: "The most important clause of the 1933 Agreement which is very damaging to Iran is the one which refers to the prolongation of the period of the concession for a further period of 32 years. In the year 1961, in accordance with the D'Arcy agreement all the properties of the Company would have been left to the Iranian Government free of charge and without any compensation. The property of the Company would have therefore become the property of Iran by 1961, when the D'Arcy concession would have expired. And from 1961 to 1993 the exploitation (income) of all Iranian oil resources would have reverted to Iranian ownership: On the basis of the present state

of operation, that would yield a minimum of £150,000,000 per year in foreign exchange to the Iranian Government. By the 1933 agreement; however, Iran's income from royalties, taxes and annual profits did not exceed the sum of £15,000,000 (in that year), and would yield no more than 25,000,000 pounds annually in case the supplemental agreement had been enforced."

Protests Quelled

The Pahlavi I regime claimed to be anti-British and it always talked about its firm position. But many people noticed the catastrophic clauses in the agreement, including the incorporation of a 32-year period for its expiry. Sporadic protests were organized, which were all suppressed. Britain took benefit from the turmoil and boosted its foothold in Iran's politics and economy. This chapter in the agreement – adding 32 years to the duration of the deal – drew protests in various cities. By incorporating this clause, Britain was in fact establishing a deep state. Opponents were suppressed and government officials who did not favor Britain's influence were dismissed. Teimourtash was arrested and imprisoned. Sardar Asad and Mostofi al-Mamalek were killed. In the 1933 agreement, Britain won new rights for exploiting mines, building railroads, ports and transport vehicles without paying anything to Iran. The irony was that if Iran wanted to use these facilities for any reason like self-defense, it had to compensate APOC. Such advantages show why Britain favored the annulment of the D'Arcy Concession and the signature of a new one. Ever since Reza Shah came to power, Britain was stating the D'Arcy Concession was no longer valid and it had agreed to some concessions in return for the annulment of the D'Arcy agreement. In February 1931, the Indo-European Telegraph Line that was no longer a necessity because of the development of wireless telegraph was granted to Iran. One may imagine that the D'Arcy Concession was torched, but the trend of subsequent events and the 1933 Agreement showed it what was supposed to further serve Iran's national interests ended in harming Iranians. The 1933 Agreement was worse than the D'Arcy Concession.

Urmia, Historical City

Iran's West Azarbaijan Province shares border with Azerbaijan Republic and Armenia in the north, East Azarbaijan and Zanjan provinces in the east, Kurdistan province in the south and Turkey and Iraq in the west. Located in northwestern Iran, the province covers around 43,600 square kilometers, or 2.25% of Iran's total area. West Azarbaijan province shares 135 kilometers of sea border with Azerbaijan Republic and Armenia, 200 kilometers of border with Iraq and 488 kilometers with Turkey. Due to its geographic, environmental, cultural and historic strong points, the province enjoys great potential for investment and attraction of tourists. Urmia, the capital city of West Azarbaijan province, is a densely

populated city in Iran. According to latest census, Urmia is home to 667,499 people, which makes it the tenth most densely populated city in Iran and the second in northwestern Iran. Urmia Lake is east of this city. Thanks to its three-millennium history, Urmia is the most ancient city in northwestern Iran. It is among the 19 historic cities of Iran, registered by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Some historians in Urmia believe that Zoroaster was born in this city. During the past centuries, Urmia has experienced numerous events including occupation by Ottomans and Russians. Due to its geographically strategic position – located at the intersection of Caucasus,

Mesopotamia and Asia the Minor – Urmia has been a major trading center. Most residents of Urmia are of Turkic origin, but there are also Jews, Nestorians and Armenians in this city. As of 1921, Urmia was also called, Urumia and Urmi. During the Pahlavi Dynasty (1925–1979), the city was called Rezaiyeh after Reza Shah, the dynasty's founder, whose name ultimately derives from the Islamic concept of Reza via the eighth Shiite imam. Urmia is often nicknamed "Cradle of Water" and "Paris of Iran". Urmia's climate is cold semi-arid with cold winters, mild springs, hot dry summers and warm autumns. Precipitation is heavily concentrated in late autumn, winter, and especially spring, while summer precipitation is very scarce.

Traditional Bazaar

Urmia Bazaar is known for its variety of ware and is located in the southeastern part of the city. Although many parts of the bazaar can no longer be seen as they have been ravaged by time, yet one can still see a major part still standing here. Structures like bazaars have been always in function being used and occupied on a continual basis. That is why various sections of them may be destroyed and rebuilt. There are many landmarks near it with many different sections. The Friday Mosque can be seen in one part, the construction of which can be placed in the 12th century. Some other sections of the bazaar have been built during the Safavid period. There are beautiful bath houses, the architecture of which is reminiscent of the Zand and Qajar periods. This can be noticed by the distinct style of the constructions. Urmia Bazaar has many wings and narrow alleys and each of them are unique in their own ways. Besides these, one can also see many mosques, arcades, bathhouses and abodes in the area which indicate that the people were very prosperous here and enjoyed their lives. All these activities were in progress till a few years back when many parts of the complex were gradually ruined.

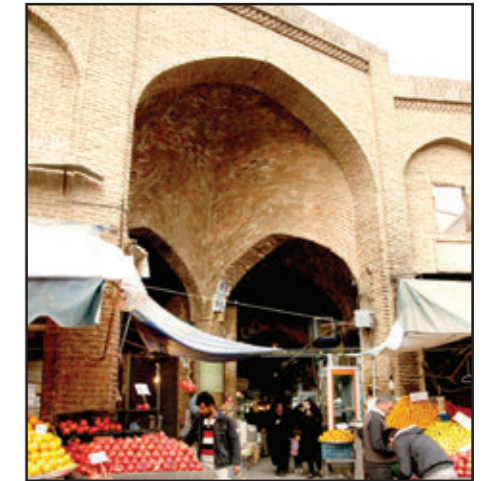
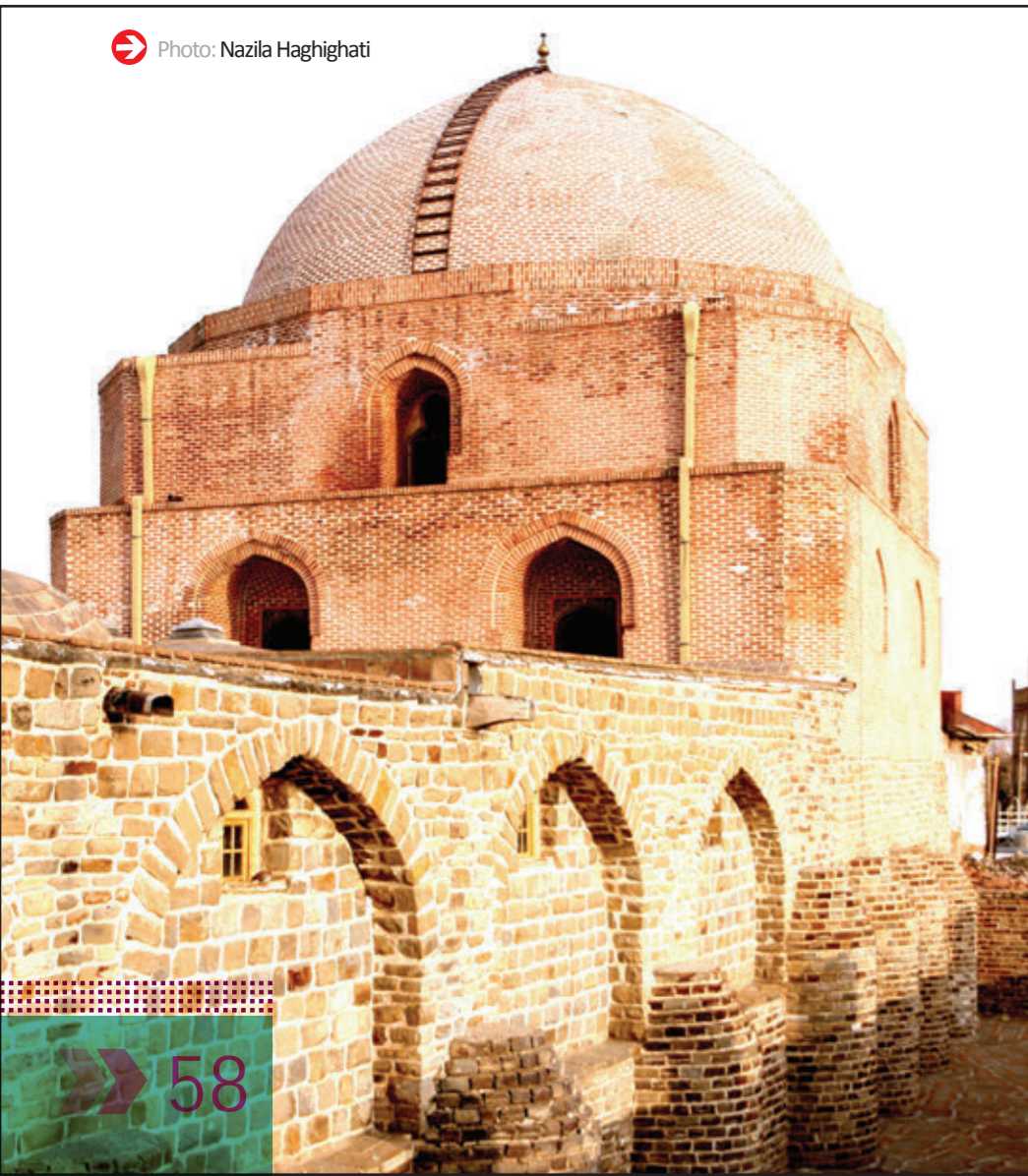


Photo: Nazila Haghighati



Friday Mosque

Urmia's Friday Mosque is one of the most ancient monuments in the city. Located near Urmia's traditional bazaar, the mosque dates back to Seljuq dynasty. Some historians believe that a fire temple used to stand there before Muslims conquered Iran. The building materials used in this mosque are stone and brick.

The history of the ancient dome of this mosque dates back to the period of the Seljuquids and its altar to the Eilkhanian era 676 AH. Evidence of broken articles found in excavations from the base of the 40 pillars in the domed nocturnal area, have further fortified this theory. These pillars have been repaired several times. There are old arcades around the courtyard of the mosque which belong to early Zandiyeh period. Its engraving also indicates the date of construction, i.e., 1184 AH.

Kufi inscriptions around the dome, and plaster molding of the altar can be accounted as special adornments of this mosque. The new parts have been constructed over recent decades.



Museum of Archeology

Urmia's Museum of Archeology is one of the most museums in this city. It exhibits 27,000 artifacts including pottery, chinaware, glasswork, stone inscriptions, jewelry and warfare. The most ancient artifacts put on display in this museum date back to 6th millennium BC and the newest ones date from Qajar dynasty.



Museum of Anthropology

Urmia's Museum of Anthropology launched two years ago is among sight-seeing destinations in this city. The museum, which is housed at a former City Hall building, showcases more than 500 objects in agriculture, animal husbandry, clothing, armament, lighting, photography and arts. They cover a period starting from Safavid dynasty.





Shams Tabrizi Tomb

The tomb of Sufi Persian poet Shams Tabrizi in the city of Khoy in West Azarbaijan province is a place for sight-seeing and homage. In 2007, he was proven to have been buried there.

Next to this tomb stands a minaret-style tower dating back to the Safavid dynasty.

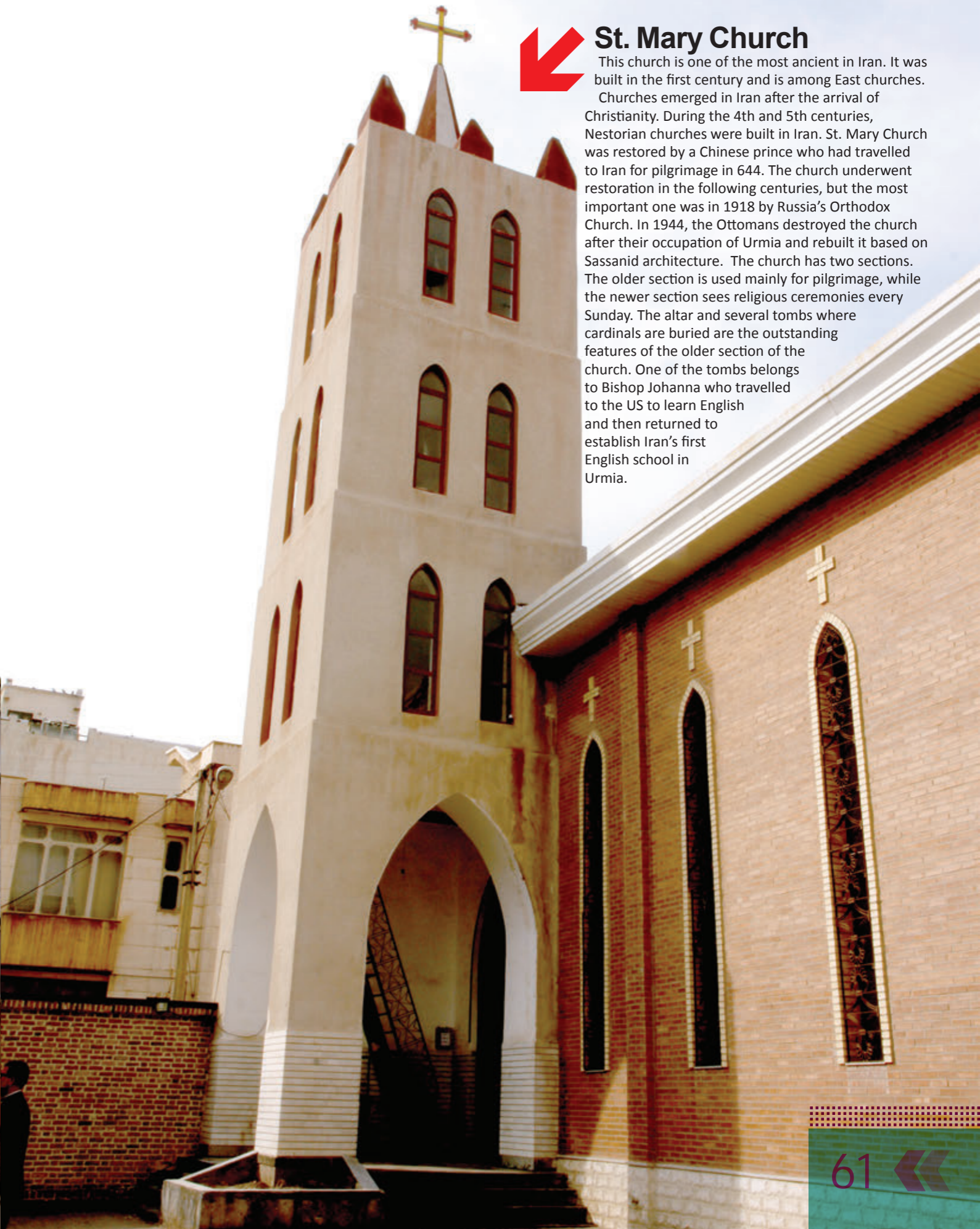
The external surface of the minaret is adorned with antlers belonging to deer hunted by Shah Esmail Safavid during his 40-day stay there. Evidence indicates that the monument was built at the order of Shah Esmail and its minaret was then decorated with antlers to show the king's brinksmanship. Miniature images show that there were initially three minarets, but due to natural events, two have disappeared. The tomb was restored in 2007 with the help of Italian architects.



St. Mary Church

This church is one of the most ancient in Iran. It was built in the first century and is among East churches.

Churches emerged in Iran after the arrival of Christianity. During the 4th and 5th centuries, Nestorian churches were built in Iran. St. Mary Church was restored by a Chinese prince who had travelled to Iran for pilgrimage in 644. The church underwent restoration in the following centuries, but the most important one was in 1918 by Russia's Orthodox Church. In 1944, the Ottomans destroyed the church after their occupation of Urmia and rebuilt it based on Sassanid architecture. The church has two sections. The older section is used mainly for pilgrimage, while the newer section sees religious ceremonies every Sunday. The altar and several tombs where cardinals are buried are the outstanding features of the older section of the church. One of the tombs belongs to Bishop Johanna who travelled to the US to learn English and then returned to establish Iran's first English school in Urmia.





St. Thaddeus Monastery

St Thaddeus Monastery is an ancient Armenian monastery located in the mountainous area of Iran's West Azerbaijan Province, about 20 kilometers from the town of Maku. The monastery is visible from a distance due to the massiveness of the church, strongly characterized by the polygonal drums and conical roofs of its two domes. There are several chapels nearby: three on the hills east of the stream, one approximately 3km south of the monastery on the road to Bastam, and another that serves as the church for the village of Ghara-Kilisa. One of the 12 Apostles, St. Thaddeus, also known as Saint Jude, (not to be confused with Judas Iscariot), was martyred while spreading the Gospel. He is revered as an apostle of the Armenian Apostolic Church. Legend has it that a church dedicated to him was first built on the present site in AD 68. Not much appears to remain of the original church, which was extensively rebuilt in 1329 after an earthquake damaged the structure in 1319. Nevertheless, some of the parts surrounding the altar apse date from the 10th century. Much of the present structure dates from 1811 when Qajar prince Abbas Mirza helped in renovations and repairs. Undertaken by Simeon,

Father Superior of the monastery, a large narthex-like western extension was added to the medieval church. This structure exactly duplicates the design of the cathedral at Etchmiadzin.

The 19th century additions are from carved sandstone. The earliest parts are of black and white stone, hence its Turkic name Kara Kilisa, the Black Church. A fortified wall surrounds the church and its now-abandoned monastery buildings. In July 2008, the St. Thaddeus monastery was added to UNESCO's World Heritage List, along with two other Armenian monuments located in the same province: Saint Stepanos Monastery and the chapel of Dzordzor. According to Armenian Church tradition, the Apostles Thaddeus and Bartholomew traveled through Armenia in AD 45 to preach the word of God; many people were converted and numerous secret Christian communities were established there. The ancient Christian historian Moses of Khorene tells the following story, considered a legend by most modern historiography. Thaddeus converted King Abgar V of Edessa. After his death, the Armenian kingdom was split into two parts. His son Ananun crowned himself in Edessa, while his nephew Sanatruk ruled in Armenia. About 66 AD, Ananun gave the order to kill St. Thaddeus in Edessa. The king's daughter Sandokht, who had converted to Christianity, was martyred with Thaddeus. Her tomb is said to be located near the Ghara Kilisa. It only has one service a year, on the Day of St. Thaddeus (near July first), which is attended by Armenian pilgrims from all over Iran and other countries.



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St. Thaddeus ←
Monastery

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