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Iran Oil Reached 17 Destinations Despite Ban

Iran Set to Be Regional Gas Hub

Fresh Horizons in Iran-Russia Ties

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The 13th administration believed that most problems in the country had domestic causes, but it never neglected foreign policy, maximum use of regional nations' potential and expansion of ties with neighbors. This issue was highlighted time and again by the late president Ebrahim Raeesi. To that effect, the Ministry of Petroleum specifically took valuable steps.

Due to its major role, the petroleum industry was prioritized for broadened cooperation with neighbors.

During his three years in office, Mr. Raeesi visited 24 countries, mainly discussing energy ties. Oil and gas cooperation with Tajikistan and Uzbekistan, as well as revival of gas cooperation with Turkmenistan was the most important case in point.However, expansion of cooperation with Russia saw a new chapter, particularly in the energy sector. The most important reasons for this development were the history of ties between the two nations and most recently Russia's war on Ukraine and subsequently worsening of ties between Russia and the US and Europe. As soon as taking office, Raeesi met with Russian President Vladimir Putin to discuss energy cooperation. Over the past three years, Russian-Iranian Business Council has held 17 meetings, leading to memorandums. Iran and Russia enjoy great potential for economic cooperation. The energy sector remains an influential sector in economic ties between the two nations.

National Iranian Oil Company (NIOC) signed a $40 billion MOU with Russia's Gazprom, which finally led to MOUs for the development of seven Iranian oil fields by Russian companies. Russia is currently accounting for 230-250 tb/d of Iran's 3.6 mb/d oil output.

The most important example of cooperation between Iran and Russia occurred in the final days of the 13th administration in office. Under NIOC-Gazprom deal, Russia would deliver gas to Iran to be consumed domestically and also be transited to neighboring nations.

The key economic and geopolitical achievements of this agreement can be profound cooperation between Iran and Russia, Iran becoming a regional gas hub, as well as gaining financial profits.

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COVER

Evergreen Golestan

44

Shifting From Imports to Manufacturing

16

Petchem Value Chain Towards Completion

22

RIPI Develops 11 Strategic Catalysts

32

Impact of Iran-Russia Gas Deal

08

Iran Oil Reached 17 Destinations Despite Ban

US sanctions targeting Iran's petroleum industry have been aimed at bringing Iranian oil exports down to zero. However, since taking office three years ago, the 13th administration's Ministry of Petroleum has brought national oil production capacity to 3.6 mb/d from 2.1 mb/d. Meanwhile, Iran exported oil to 17 countries.

Minister of Petroleum Javad Owji has said that most oil refineries across the globe have modified their processing systems at costly prices in a bid to be able to treat Iranian crude oil. Iran's natural gas exports have grown 15% over this time.

Noting that Iran's oil production capacity would reach 4 mb/d by next March, Owji said: "We are close to the conditions we were in before unjust sanctions were imposed and we have no problem with the settlement."

US officials have said that more than 600 rounds of sanctions have been adopted against Iran's oil and petrochemical exports over the past three years in an attempt to remove Iran from the global energy market.

Iran holds the world's largest hydrocarbon reserves (oil and gas combined), and it would not be easy to eliminate it from global energy trading. The US sought in vain to reach this objective. When the Ministry of Petroleum started work under the 13th administration it faced numerous challenges including a sharp decline in crude oil sales, gas condensate parked on vessels, and foreign companies' pullout from Iran for fear of US penalties.

In addition to increasing oil sales, it has diversified its oil destinations. Crude oil and gas condensate sales have grown two-fold over the past three years. The Ministry has managed to sell 87 million barrels of condensate parked on water. The revenue from crude oil, gas condensate, natural gas, petroleum products, and petrochemicals has increased 278% over this time.

Minister Owji said necessary measures were taken for exporting oil, petroleum products, and petrochemicals under the 13th administration, adding that no US administration would be able to block Iran's exports.

No Cut-Price Oil

Iran's increased oil exports have given rise to rumors of big discounts in oil sales. Minister Owji has strongly denied such rumors, saying that the 13th administration has adopted new initiatives like trans-territorial refineries to increase oil sales.

He said oil, gas, and petrochemical sales earned Iran $30 billion in the calendar year to 2021, adding the figure reached $65 billion three years later. Over the past three years, 155 oil projects have become operational in Iran, valued at $32 billion. Implementation of these projects has led to enhanced oil and gas production capacity. The Ministry of Petroleum has struck $23 billion worth of oil deals under the 13th administration.

Over this time, for every 100 barrels of oil produced, about 87 barrels have been those that have been discovered. Moreover, five oil and gas fields in northern, northeastern, and southern Iran have been discovered.

Gas Exports Up 15%

The Ministry of Petroleum has increased national gas production capacity by 44 mb/d over the past five years. Iran is currently treating more than 1.087 bcm/d of natural gas. The biggest gas recovery belongs to the massive South Pars gas field where the natural gas recovery rate has reached 710 mcm/d. Therefore, Iran's natural gas and LPG exports have increased respectively 15% and 21%, over this period. Chief among other measures taken in the past three years are signing a gas swap deal with the Republic of Azerbaijan, renewing the gas-for-electricity deal with Armenia up to 2030, boosting gas exports to Iraq by 20%, and settlement of Iraqi debts, clearing debts to Turkmengaz which led to the resumption of gas imports from Ashgabat, signing several petroleum product swap deals and Iran's first catalyst exports.

Minister Owji has cited Gas Exporting Countries Forum (GECF) data, saying Iran's average gas production has grown 5.2% annually despite sanctions, up from the global 2.5% rate.

Iran Set to Be Regional Gas Hub

Minister of Petroleum Javad Owji, who recently visited "Sistan and Baluchestan" Province in southeastern Iran to inaugurate three major gas projects and five compressor stations, said projects valued at $34 billion had become operational since the 13th administration took office three years ago. He noted that these projects had resulted in a 60% hike in oil output, a 50 mcm/d surge in gas production, and a 270 ml/d increase in refined petroleum products. Furthermore, 11.5 mcm of flare gas had been captured.

Owji said the late president Ebrahim Raeesi was concerned with gas supply to Sistan and Baluchestan Province. Mohammad Mokhber is currently serving as Iran's acting president, following Raeesi's martyrdom in the helicopter crash.

Owji said over the past three years 155 incomplete and new projects, worth $34 billion, had come online. He added that construction of 50 new projects worth $47.5 billion had begun.

He added that 4.5 mcm more associated petroleum gas (APG) would have been gathered in the coming months.

The minister said more than 1,800 km of new pipeline had been launched for gas transmission, while 370 km more is coming online. By next March, he said, 1,000 km of pipeline would be inaugurated for petroleum products conveyance, 400 km of which is expected to become operational before the outgoing administration bows out. Meanwhile, 6,700 villages, 50 cities, 22 power plants, 16 industrial units, and 6 compressor stations have been connected to the national gas grid over the past three years. The oil and gas industry has experienced 20% growth, the highest rate in the economic sector.

Owji said "enemies" of Iran had acknowledged Iran's oil export hike since the United States imposed sanctions on the country following its unilateral withdrawal from the 2015 nuclear deal.

"Over these years, the US has imposed more than 600 counts of sanctions against Iran's petroleum industry; however, it failed to cut our oil exports even for a single day," said the minister. Underscoring the need for gas supply to the Chabahar power plant and challenges to liquid fuel supply to this facility, he said: "By gas supply to this power plant, 4.5 ml/d of petroleum products would be freed up for export."

Gas Pipelines Homegrown

Reza Noshadi, the CEO of Iranian Gas Engineering and Development Company (IGEDC), has said: "Today, for the first time in the history of Iran's gas industry we are launching five gas compressor stations simultaneously. That is new for the National Iranian Gas Company (NIGC)."

He said that gas compressor facilities were sourced locally at 92%, while gas pipelines were manufactured domestically.

"I promise to launch and complete the second phase of the Ilam gas refinery, using a homegrown control system," said Noshadi.

The Iranshahr-Makran-Chabahar-Konarak gas transmission pipeline has been operated by IGEDC with an investment of $420 million. The 200-km-long pipeline is the third largest gas project in Sistan and Baluchestan Province after gas supply to the cities of Zabol and Khash. Before that, the Zahedan-Zabol and Iranshahr-Palizan-Khash-Mirjaveh gas pipelines became operational to supply gas to the north and east of the "Sistan and Baluchestan" Province. With the inauguration of the new project, gas has reached southern cities in the province and the Gulf of Oman coast, which would be instrumental in upgrading the quality of life and facilitating livelihood, not to mention economic prosperity and tourism development in the province.

In addition to meeting energy needs for petrochemical and power plants, this strategic project would create opportunities for maritime trading to set the stage for balanced and sustainable development in southeastern Iran. That would also motivate economic, industrial, and tourism actors to invest in this province. The Chabahar power plant, which was fed with liquid fuel, is now running on clean energy, and Makran industrial facilities will be powered by this strategic project. The project has been operated in four 25 km, 20 km, 45 km, and 200 km sections with 16, 20, 42, and 56 inches in diameter respectively by four contractors simultaneously. That has accelerated the project.

The Iranshahr-Makran-Chabahar-Konarak project is the third major gas supply project in southeastern Iran to have come to fruition. The Shahid Baqeri (Khour Mowj), Shahid Helisaei Brothers (Dorahan), Shahid Rafeirad (Aradan), Shahid Seifoleslami (Nourabad), and Shahid Shirvani (Pol Kalleh) gas compressor stations were launched via videoconference by Mokhber. Investment in these projects totaled $294.5 million.

IGAT-10 Chain Completion

The Aradan gas compressor station was among the prioritized projects of the Ministry of Petroleum. It was built on the trunkline carrying gas to the north and northeast. This station has been built in Semnan Province with an investment of $45.5 million, which can increase the transmission capacity of gas to northern and northeastern provinces by up to 10 mcm/d. The Aradan station incorporates three turbocompressors and has a 2+1 array. The station's power is 75 MW with the possibility of transmitting 60 mcm/d of gas. Local factories have supplied 90% of their equipment including control systems, power systems, and actuators.

The Khour Mowj station has come online with a $72 million investment to boost pressure by 107 mcm/d. Installed on Iran Gas Trunkline-10 (IGAT-6), it can direct the gas coming from Assaluyeh to the southwest and then west to consumers. In addition to boosting gas pressure in the west and southwest, IGAT-6 is planned to export gas to Iraq at the rate of 40 mcm/d. The Khour Mowj and the following station are to boost pressure on the IGAT-6 line. The turbocompressors have been arranged at a 3+1 array to save time and cost, to give a high yield. Furthermore, due to local manufacturing in the control system, it is the second compressor station after the Aradan station to use a locally-built control system.

The Dorahan compressor station has been built with a $64 million investment. Four turbocompressors manufactured by MAPNA are installed with a 3+1 arrangement. It is installed on IGAT-10 in Chahar Mahal and Bakhtiari Province. Having a capacity of 90 mcm/d and 100MW power, it significantly empowers the gas grid.

The Nourabad compressor station is located in Fars Province and installed on IGAT-10. Due to the strategic nature of this trunkline, it is highly instrumental in the national gas grid. It has been built with a $62 million investment in Fars Province. It can carry 90 mcm/d of gas. The three turbocompressors of the trunkline are working together. If any of them breaks down for any reason whatsoever, it would be replaced immediately to guarantee sustained gas supply.

The Pol Kalleh gas compressor station is built on IGAT-10. It is an auxiliary ring to be used when there is gas oversupply or undersupply. Therefore, in case IGAT-2 and IGAT-3 face gas shortages in cold months, IGAT-10 would be used. In summer, it would save gas. This compressor station is the last station on IGAT-10. It was built with a $51 million investment in Isfahan Province. With a 2+1 array, it may carry 60 mcm/d of gas. If IGAT-2 and IGAT-3 installations experience any problems, the Pol Kalleh station units may serve as replacements to compensate for the gas shortage. That matters specifically in cold months.

IGAT-10 cuts through the Fars and Isfahan Provinces and extends as far away as Qom. Therefore, the projects built along this pipeline may supply the gas needs of central and western Iran. Therefore, IGAT-10 has been completed with the launch of the Nourabad, Pol Kalleh, and Dorahan gas compressor stations by IGEDC.

Impact of Iran-RussiaGas Deal

The strategic agreement between Iran and Russia for gas transmission is among the major achievements of Tehran-Russia cooperation over recent years. Both countries would benefit from such an agreement that could offer a bright perspective to both nations. Whereas Iran and Russia hold more than 60% of global gas reserves, their cooperation in the gas sector can give rise to significant changes. Iran and Russia have already founded the Gas Exporting Countries Forum (GECF).

Shuaib Bahman

No details have emerged of the amount of Iran's planned gas imports from Russia under the newly signed deal; however, there is already sufficient infrastructure for taking in 30 bcm a year of Russian gas. Therefore, it could be argued that importing Russian gas would enable Iran to follow up on gas exports and take a further step ahead towards becoming the regional gas hub. Here are some key points about the aspects of the Iran-Russia gas deal.

Economy and Geopolitics

Deepening Iran-Russia strategic cooperation: Over recent years, significant efforts have been underway to expand Tehran-Moscow cooperation, a key aspect of which pertains to the energy sector. Developing oil fields by using Russian firms' potential that increased Iran's oil output by 230-250 tb/d was a case in point. Following that came the issue of equipment manufacturing including downhole pumps. Russian gas transmission to Iran has taken up significance more than ever. Under this agreement, Russian gas technology would be transferred to benefit Iranian companies in exchange for exporting technical and engineering services.

Financial Benefits: Such an agreement would lift Iran's trading share in the energy sector. Owing to its infrastructure and gas transmission pipeline, Iran can receive Russian gas. Given Iran's infrastructure in the gas industry – 40,000 km of gas network, 400,000 km of urban and rural gas distribution network, and 92 gas compressor stations – Tehran would be able to yield significant benefits with minimum investment. Meantime, as most gas reserves lie in southern Iran, this agreement would benefit the energy supply to northern Iran, which would finally cut transmission costs. Furthermore, by importing 10 bcm a year of Russian gas, Iran would end gasoil burning in its power plants, which would earn the country $4-5 billion from exporting gasoil.

Regional hub status: Russian gas transmission to Iran would bring an end to the energy imbalance in the country and create an opportunity for Iran to receive Russian gas to be delivered to Turkey, Iraq, Pakistan, Armenia, and Persian Gulf littoral states. That would be highly beneficial to Iran, let alone promote Iran's status in the eyes of neighbors because their access to gas would depend on security in Iran, and therefore imposing sanctions on Iran would not be so easy. The deal would also enable Iran to outdo some of its regional rivals like Turkey. One should keep in mind that Turkey has been striving for years to build a gas transit line to Europe via its territory.

Inefficacy of Sanctions: Iran and Russia have been under tough US sanctions for years. Now cooperation between Tehran and Moscow in the gas sector would imply the ineffectiveness of sanctions. By delivering its gas via Iran's territory, Russia would show that it would no longer be willing to directly pump gas to Europe, which would pose a challenge to the Europeans for their energy supply. On the other hand, by transmitting Russian gas, Iran would show that the West has failed to bring Iranian energy exports down to zero and even deliver gas received from other countries to buyers. For this purpose, Russian gas delivery to Iran would be a major step towards boosting the political and economic power of the Islamic Republic.

Iran Status

Iran's geographical position has unrivaled features that could help the country become the intersection of global interactions. Among varieties of transit, gas transmission is the best option for Iran's energy diplomacy to make the country a regional energy hub as the importance of oil is dwindling and the share of gas in the global energy mix is rising. Benefitting from Iran's endowment would be necessary for Russia to take effective steps. Lying amid major holders of oil and gas reserves and proximity to big energy markets in its east and west, Iran enjoys certain privileges. Transforming Iran into the regional energy hub would bring about political, economic, and security intertwinement with neighboring countries and reduce the risk of exposure to sanctions. Therefore, Iran becoming a regional energy hub can bring about key benefits. Undoubtedly, Russian gas transmission to Iran would be an achievement for Iran. Although this agreement was adopted as a result of Russia-Ukraine tensions, gas export to Russia is largely restricted, and Iran's active and smart diplomacy in the energy sector should not be ignored easily.

Trans-Iran Gas Swap to Boost Energy Market Status

Iran and Turkmenistan have struck an agreement to deliver 10 bcm of Turkmen gas to Iraq. The Turkmen Foreign Ministry announced without providing any details about pricing. It also said Turkmenistan's economy is highly dependent on natural gas exports, noting that it would increase its gas supply to Iran to 40 bcm a year. However, no timeframe has been set for the planned gas delivery hike.

The Iran-Turkmenistan gas swap deal is years-old, but its volume has been meager. Recently, the two countries have signed an agreement under which Turkmenistan is to pump 10 bcm a year of natural gas to Iran. Iranian companies would also build a 125 km gas pipeline, fitted with three compressor stations, on the Turkmen soil to quadruple Turkmen gas export capacity to 40 bcm a year. Iran has already swapped Turkmen gas to the Republic of Azerbaijan in 2022 and 2023. Iran owns the world's second-largest natural gas reserves and is the third gas producer globally. However, due to growing domestic demand, Iranian gas exports has been restricted. Therefore, a gas swap with Turkmenistan would empower Iran to make good on its export commitments.
A significant portion of the world's natural gas reserves lies in the Central Asia and Caucasus region, but gas-rich states are all landlocked. Therefore, it would be vital for them, including Turkmenistan, to find secure routes for their gas conveyance and transit. Iran is designated as an attractive route in Turkmenistan's gas export roadshow. Iran is a vast country with climate diversity behind a 35% difference in gas consumption between some regions in different seasons. That is why for some reasons, Iran is a net importer and in some others a net exporter of gas. Therefore, it would be important for Iran to have long-term gas contracts with neighboring nations, including Turkmenistan.

In some periods, this gas is consumed domestically while in some other periods, it is swapped and exported. It means that Turkmenistan considers Iran to be a Plan B option for exporting natural gas to Western countries. Iran offers an attractive, low-cost, and quick route, but there are concerns over sanctions on the country.

Gas Swap Background

Having a glance at the history of gas swap with Turkmenistan, one would reach 25 years ago when the issue of Turkmenistan's gas swap with Azerbaijan via Iran was brought about. However, the deal never materialized. In November 2021, five years of talks about restoring the Iran-Turkmenistan gas swap deal came to fruition and a trilateral agreement was signed. Minister of Petroleum Javad Owji said Iran and Turkmenistan suspended gas interactions in January 2017, but the agreement was a step forward in energy ties between the two nations. The most important aspect of this agreement is the resumption of gas cooperation with Turkmenistan. These two countries embarked on their gas cooperation in 1996 by signing a 25-year agreement. Importing natural gas from Turkmenistan was profitable for Iran due to its price.

In 2007, Turkmenistan suddenly requested that the price be multiplied. Then Iranian officials opposed and Turkmenistan reconsidered its request. Iran-Turkmenistan ties went ahead smoothly, but in 2016, Turkmenistan cut its gas exports to Iran. When the 13th administration took office, Turkmengaz's CEO held intensive talks in Iran, which led to an agreement for Iran to receive 10 mcm/d of gas from Turkmenistan. As mentioned, under the 13th administration, a trilateral agreement was signed between Iran, Turkmenistan, and the Republic of Azerbaijan, under which Iran would carry 1.5-2 bcm a year of gas from Turkmenistan to the Republic of Azerbaijan. This gas would be transited to the Republic of Azerbaijan via Iran's territory with Iran taking its gas needs for five provinces as transit fee. This agreement took effect in December 2021 without any time limitation. The five Iranian provinces are Khorasan Razavi, North Khorasan, South Khorasan, Golestan, and Semnan.

Iran is a leading gas producer in the world, but due to high domestic consumption and the probability of pressure fall-off for Northern provinces, this agreement can bring about stability in the gas network, particularly in cold seasons, for the northern and northeastern parts of the country.
Gas supply to northern Iran, particularly during cold days, would be the advantage of this agreement. Mohammad Ali Khatibi, a former deputy CEO of National Iranian Oil Company (NIOC), said at the time: "Under circumstances of pressure fall-off in gas production in the country, such agreements can guarantee sustainable gas supply to the provinces lying in cold areas, specifically because due to infrastructure challenges, shifting to an energy efficiency pattern would not be possible in the short term.

For years we imported gas directly from Turkmenistan, the sudden suspension of the gas supply ramped up pressure on the national gas network

Any agreement that would help Northern provinces experience fewer cases of pressure fall-off would be useful for the country. For years we imported gas directly from Turkmenistan, the sudden suspension of the gas supply ramped up pressure on the national gas network. In the meantime, it is forecast that during the current calendar year to 20 March 2024 and with the current trend of consumption, we will face shortages in gas supply. In any case, supplying winter gas needs and preventing shortcomings, particularly for Northern provinces can show the efficacy of this agreement." Under the deal, Iran would receive 1.5-2 bcm a year of gas from Turkmenistan via Sarakhs to be delivered to the Republic of Azerbaijan via Astara.

Usefulness

Under the present circumstances and given insufficient infrastructure for gas export, gas swap can give rise to ideal conditions for the country in the global gas market. It would also contribute to the gas network stability, particularly in northern and northeastern provinces. However, some details should be taken into consideration. One key point is that having a glance at the history of the swap, it comes out that such interaction with neighboring countries has been subject to changes under various administrations and has never been regular and stable. On the other hand, with sanctions and restrictions in effect against Iran, other countries may find it appropriate to show off in terms of gas swap and exports, which would deny Iran the chance to be present in the market. Another point is the infrastructure and nature of the swap underway in Iran, which some experts say, is different from what is underway in European markets.
Afshin Javan, Iran's national representative to OPEC, told Iran Petroleum: "For the stability of the gas network in north and northeast, particularly during peak shaving, our local demand could be met by gas received from Turkmenistan. Such conditions would bring about prosperity in the Iranian gas trade without Iran exporting any gas. That is a strong point of this agreement. The structure of swap in gas trading in our country is different though. What we are experiencing in Iran is bilateral exchange while swap should be based on inquiring about the market price before making purchases and risk coverage. Therefore, it could be argued that a certain type of swap is in effect in Iran, which is different from what is underway in European markets. In other words, it is not financially profitable and further focuses on the network stability." Javan also said that the advantage of the Iran-Turkmenistan-Azerbaijan gas swap deal is the development of regional gas trading on the one hand, which would finally result in market prosperity for the production and export of gas, and bring about stability for the gas network in northern and northeastern Iran on the other. "The key point is to know how long it would continue because in a gas hub in Europe or the US, the point is its continuity and that is a long-term issue. But in Iran it is different and we don't know how long it can be in effect because there is no mechanism for the continuation of swap in Iran and its opposite parties," he said. Javan said one infrastructure for gas swap in global standards would be the development of gas storage. "On the other hand, the development of financial electronic systems in the region is a key factor that could not be considered now as Iran is cut off from international financial systems due to unilateral sanctions. Therefore, swap is often carried out periodically. The main issue with the swap should now be its continuity. If a proper structure is created for swap and contracts are permanent, transparent, and stable, more significant achievements would follow for the country."

The key point is to know how long it would continue because in a gas hub in Europe or the US, the point is its continuity and that is a long-term issue. But in Iran it is different and we don't know how long it can be in effect because there is no mechanism for the continuation of swap in Iran and its opposite parties

Iran Remains OPEC No. 3 Producer

Iran's 13th administration was short-lived. It failed to serve its four-year term in office. However, it made significant achievements, particularly in production and export and local equipment manufacturing in the oil and gas sector. One key achievement was Iran's maintenance of its position among fellow OPEC member states. According to OPEC's June report, Iran remained the third producer with 3.251 mb/d output, just behind Saudi Arabia (8.934 mb/d) and Iraq (4.189 mb/d). The secondary sources have reported that Iran produced 3.251 mb/d in June, up 13 tb/d from May.

The Organization of the Petroleum Exporting Countries reported in its March report that Iran was supplying 3.148 mb/d, ranking third after Saudi Arabia (8.980 mb/d) and Iraq (4.571 mb/d). The data shows that in addition to raising its output, Iran has been trying hard to preserve its standing within OPEC.
Data analytics provider Vortexa reported that Iran's oil production and export have been always affected by international tensions and the country's political conditions. It particularly highlighted sanctions restricting Iran's flex-muscling in the global oil and gas market. Iran has left behind Nigeria and Kuwait to become OPEC's third-largest producer.

OPEC and Iran

Oil has been a turning point in many international events and continues to play an important role in civilization and industry and of course global economy. Since the major oil-rich countries in the world are located in the Persian Gulf, policymaking for this valuable strategic commodity has become significant. Accordingly, OPEC was established as a specialized intergovernmental organization by 5 founding members in 1960. Its founding members are Iran, Iraq, Saudi Arabia, Kuwait and Venezuela. OPEC member states account for less than 5 percent of the world population, but they hold nearly 82% of proven oil reserves in the world. They contribute 40% to global crude oil production, thereby remaining instrumental in securing the energy supply and global economy.OPEC has been through ups and downs since its establishment. Iran's 1979 Islamic Revolution was one of them. As Iran's revolution was nearing victory, sanctions began taking effect, leading to energy export restrictions and even a halt. That caused a big shock in the oil market to the extent that oil prices rose from $13 a barrel to $39 and even $45 a barrel in the free market in one year. Then, the imposed war in 1980 that lasted up to 1988. As Iraq was a founding OPEC member, new challenges came up.
A couple of months after the start of the war, Iran and Iraq saw their output down 4-5 mb/d as they struck each other's oil production facilities. Challenges repeated themselves, leaving deep impacts on OPEC's circumstances.
A variety of factors affect oil prices, the most significant of which are political, economic, social, cultural, military, geographic, and even climatic nature. Having proper and timely knowledge of these factors can be of help in oil price forecasts while serving as a pressure lever by industrialized consumers and oil exporters.
By reviewing oil price fluctuations ever since OPEC's establishment, it would be easy to realize that these fluctuations as well as the performance and position of many OPEC states have been caused by political factors rather than other factors.

Iran Firmness

Despite all these challenges, Iran remains a key member of OPEC. Despite international pressure and sanctions, the global market pays special attention to Iran's oil production and export capacity.
OPEC's 2016 annual report shows that Iran makes up 11% of OPEC's population and 12% of its area. Iran's GDP per capita is less than that of OPEC's average and equals 9.9% of the producer body's total GDP.
According to OPEC estimates, Iran's proven oil reserves reached 158.4 billion barrels in 2015. Iran comes third after Venezuela and Saudi Arabia in terms of oil reserves. Iranian oil reserves, which had already been reported at 157.5 billion barrels, have been up 0.6%. The number of oil rigs operating in Iran was announced to be 130 in 2015, down five year-on-year.
Iran accelerated its oil production as soon it struck a landmark nuclear deal with 5+1 in 2015. But when in May 2018, the then US President Donald Trump pulled out of the deal, sanctions were reimposed. But Iran was striving to maintain its OPEC status.
Although Iranian oil reserves were on the decline from 1947 to 1983, they were on the rise from 1984 to 2015. OPEC estimates that Iran's proven oil reserves reached 158.4 billion barrels in 2015, which placed Iran behind Venezuela and Saudi Arabia as the largest holders of oil reserves in the world.

Third Rank

Iran's oil production started an upward trend with the beginning of the 13th administration to the point that in August 2023, with the efforts made by the oil industry staff, the production of Iranian crude oil, according to the OPEC September report, increased to 3 mb/d, surpassing Kuwait and the UAE to regain the third position after Saudi Arabia and Iraq.
In addition to Iran's oil production data published among OPEC members, as stated in the latest reports, Iran exported 1.560 mb/d between January and May this year. Up 250 tb/d compared with Kuwait and Nigeria, thus raising Iran's position in the ranking of the largest OPEC crude oil exporters to fourth place. Earlier, OPEC's annual data released in July 2023 showed that Iran's 2022 oil exports crossed $42 billion, up from $25.500 billion in 2021, $7.900 billion in 2020, and $19.400 billion in 2019. Crude oil exports at more than $42 billion for Iran indicate that following oil cargo sales, this figure was nearing $60.500 billion registered in 2018.

Iran, 2nd Liquid Fuel Producer

Iran, which in recent years was able to outdo the UAE and Kuwait and rank third in OPEC in terms of crude oil production, has recently overtaken Iraq in total production of crude oil and condensate to become the second largest liquid fuel producer among OPEC fellow members. It also produced 14% of all OPEC members' liquid fuel in 1Q 2024.
According to Vortexa, Iran's oil and gas condensate exports have now reached the highest level since Trump's maximum pressure against Iran (August 2018). In this report, Vortexa noted that Iran's oil and gas condensate exports comprise 9% of OPEC's total crude oil and gas condensate exports. Between January and May of this year, Iran exported 1.560 mb/d of oil, which is 250 tb/d more than that of Kuwait and Nigeria, thus placing Iran in the ranking of the largest OPEC oil exporters to the fourth place.
Therefore, despite the current sanctions imposed on Iran, it has managed to increase its crude oil and gas condensate export in May to 1.7 mb/d, which is the highest volume of Iran's crude oil export in five years.

Sustained Growth

In all the years following the victory of the 1979 Islamic Revolution, there have always been numerous and sometimes breath-taking sanctions against Iran, especially in oil production and export, during the presidency of Donald Trump, with his decision to withdraw from the JCPOA in May 2018, these sanctions increased significantly. Although in some periods, Iran saw its oil production and export drop, it never halted and it has been back to pre-sanctions levels. These sanctions were aimed at reducing oil revenues and ratcheting up pressure on Iran's economy, and not only did they fail to limit the export markets, even by seeking new avenues to increase oil exports, they presented new opportunities to Iran's economy. Bloomberg has reported a 50% growth in Iran's oil and condensate exports since early 2023.

Shifting From Imports to Manufacturing

Amid accelerated technological changes in the petroleum industry, paying attention to knowledge-based and technological companies would take up added significance in this industry. Therefore, in line with the "National Manufacturing and Services Maximum Use Act", the Ministry of Petroleum has bolstered its support for Iranian commodities and expanded its ties with knowledge-based companies.

Amir Eftekharipour

Vahid Reza Zeidifard, deputy minister of petroleum for engineering, research, and technology, tells "Iran Petroleum" that the 13th administration has been a leading supporter of knowledge-based companies. The following is the full text of the interview he gave to "Iran Petroleum":

What measures have been taken about adopting necessary laws for a knowledge-based petroleum industry under the 13th administration?

As soon as the issue of the development of knowledge-based activities was raised under the 13th administration, all ministries were served with the bylaws on knowledge-based manufacturing and job creation. After being adopted by the Council of Ministers, it served on the Ministry of Petroleum in the calendar year to March 2023 to set the roadmap for the petroleum industry. In the meantime, in a bid to broaden and develop knowledge-based issues, some proposals were passed on to the Ministry of Petroleum to complete the previous bylaw. The proposals in the form of a bylaw considered a variety of obligations for the petroleum industry including drawing up instructions for the development and upgrading of innovative and technological ecosystems in the petroleum industry, drawing up technological strategy documents at the Ministry of Petroleum, revising the structure of research in the Ministry of Petroleum, drawing up and serving instructions on criteria for the evaluation of knowledge-based companies, drawing up instructions for spin-offs, instructions for capacity building in technical knowhow and manufacturing.

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Besides knowledge-based companies, what has been done to update the long list of the Petroleum Ministry for supplying the sector's needs?

We've got a long list of suppliers and manufacturers in the petroleum industry, which is the reference for companies willing to cooperate in procuring necessary equipment. When the 13th administration took office, 150 knowledge-based companies cooperated with the petroleum industry in supplying the required equipment for this industry. After defining mechanisms to encourage companies in this list to become knowledge-based and facilitate the entry of knowledge-based companies into this industry, the number of companies cooperating with this ministry now stands at 676. In the past, the suppliers outnumbered manufacturers, while now there are 2,500 manufacturing companies and for the first time, the number of manufacturing companies has overtaken suppliers in the Ministry of Petroleum's list, which is a source of honor for the petroleum industry. In the meantime, a large number of companies are completing the process of cooperation with the petroleum industry.

How is the Office of the Deputy Minister of Petroleum for Engineering, Research and Technology interacting with science parks, universities, and scientific centers inside and outside of Iran?

Science parks are important centers that have been assisting the petroleum industry specifically over the past three years. The parks are in fact where knowledge-based companies get together. Therefore, it was decided that we interact further with the parks that would have more capacity to help the petroleum industry. To that effect, numerous memorandums and agreements have been inked with the companies set up in the science parks in the provinces of Isfahan, Khorasan, Bushehr, Fars, and Khuzestan as well as the Pardis Technology Park.

Has the support of knowledge-based companies been instrumental in making the petroleum industry knowledge-based?

The strategy that we have pursued for a knowledge-based petroleum industry and the special support we have provided to companies involved in the petroleum industry is tangible for us. Over the past three years, we have made significant progress in terms of supporting knowledge-based companies and building petroleum industry equipment at the levels of both ordinary and high-tech equipment.

We have also become largely self-sufficient in producing catalysts, while we used to import them in the past. Thanks to the National Petrochemical Company (NPC), 90% of necessary catalysts for this industry are sourced domestically, while catalysts for other sectors like refining and gas are produced to a large extent and are close to self-sufficiency. Our progress in catalysts has been such that we have managed to export catalysts, which are a technological product, to top nations. That is a source of pride for our country.

Given that the most important concern of knowledge-based companies is to create permanent markets, what have you so far done for market-making at the national and international levels?

As far as market-making for knowledge-based companies is concerned, key measures have been conducted both at home and internationally and we have tried to make sure they would enter this market with relative certainty. Regarding the development of domestic markets for knowledge-based companies, we have used the capacity of Iranian Oil Industry Ventures (IOIV), using some initiatives thereof like opening letters of credit and commodity liability insurance so that domestic knowledge-based and manufacturing companies can do their

key measures have been conducted both at home and internationally and we have tried to make sure they would enter this market with relative certainty

work comfortably. Furthermore, very good measures were taken to export equipment, as well as technical and engineering services. For instance, we exported several million items of domestically manufactured equipment to Venezuela to build a refinery there. We also set up a joint working group with the Office of the Deputy Minister of Petroleum for International Affairs and Trading to facilitate the involvement of knowledge-based companies in our friendly countries, as well as countries with which we intend to interact.

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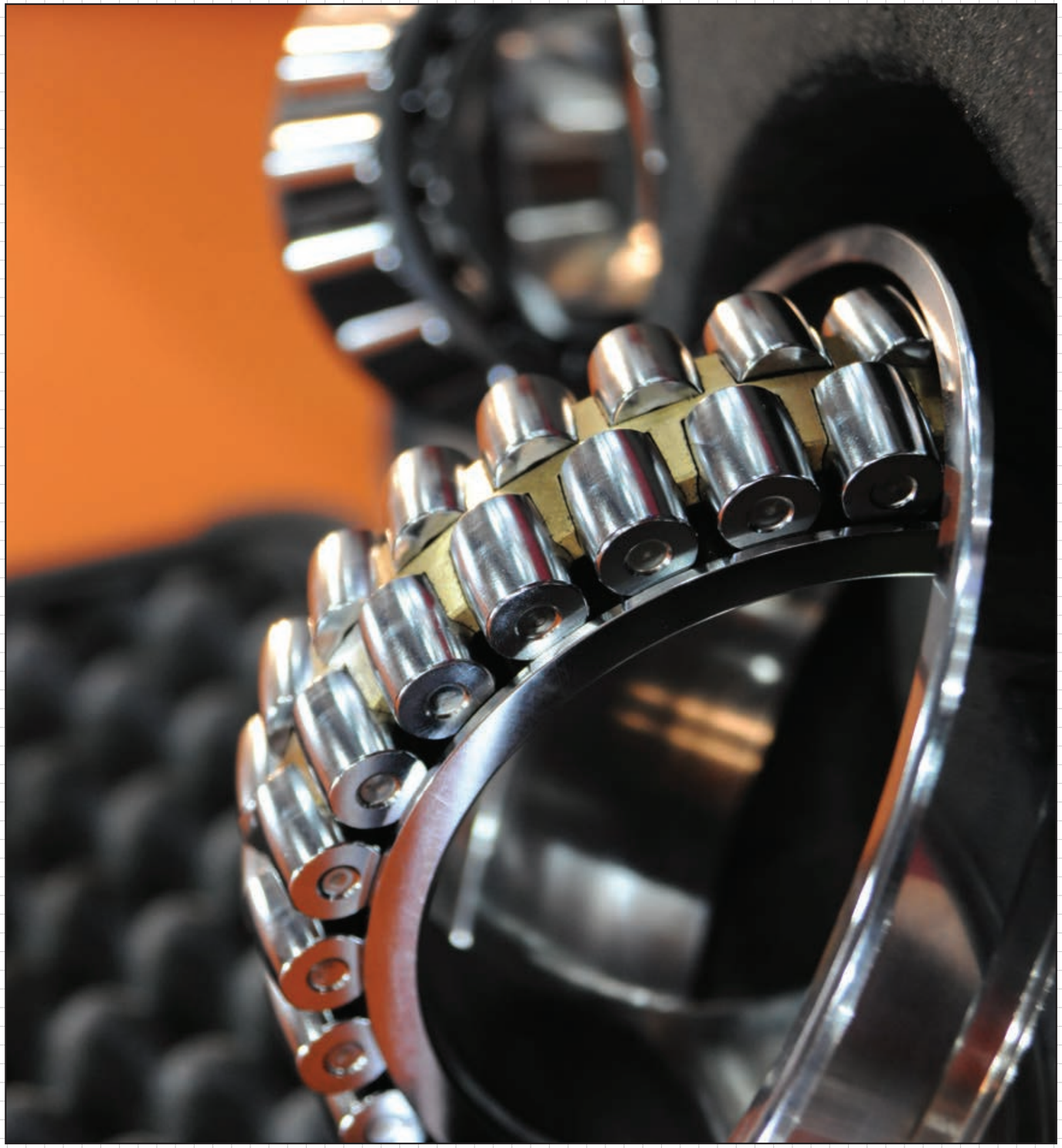
What has the Ministry of Petroleum done under the 13th administration to identify E&P contractor companies?

The E&P companies' list had remained unchanged for a long time and it had to be updated. When the 13th administration took office, we decided to reconsider the list of these companies that are the main ones involved in exploration and production. Therefore, we established a working group joint with the National Iranian Oil Company (NIOC) and invited potential companies to submit their request. Finally, we listed 19 companies as E&P.

Over recent years it has been tough to meet international standards and obtain certificates for Iranian-made equipment; therefore, Iranian commodity quality certificates have been defined. Given the strategic and risky nature of the petroleum industry, how are such certificates issued for locally manufactured products?

The Office of the Deputy Minister of Petroleum for Engineering, Research, and Technology has a division dealing with standards. The IPS standards that currently exist at the Ministry of Petroleum as national standards have been adopted through collaboration between this Office and the four main subsidiaries of the Ministry of Petroleum. These standards need to be updated from time to time due to



new developments and technological advancement. That is why under the 13th administration, the number of local standards rose from 56 to 173 and nationalized standards from 29 to 123. Meantime, concerning the nationalization of standards, we have had extensive cooperation with the National Standards Organization to nationalize domestic standards of the petroleum industry so that these standards would be used outside the petroleum industry, too. In recent years, a body was also established under the Association of Petroleum Industry to set up standards for the quality of equipment. Any entity in charge of delivering permits needs confirmation from a higher body. We have received permits from international bodies delivering quality certificates to deliver our standards in other countries. That would encourage local knowledge-based and manufacturing companies to export technical and engineering services.

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How many agreements have so far been signed with domestic knowledge-based and manufacturing companies to support them?

To support local knowledge-based and manufacturing companies, 70 agreements have so far been signed for first-time manufacturing, worth $145 million. Furthermore, more than 1,600 agreements for manufacturing and services, worth $917 million plus IRR 160 trillion, have been assigned to knowledge-based companies. Facilities worth IRR 42 billion have been granted to knowledge-based companies. Meantime, IOIV is the financial arm of the petroleum industry and has assisted knowledge-based companies by recapitalizing itself up to IRR 5 trillion, offering IRR 6.18 trillion to 240 knowledge-based companies as a contractual guarantee, offering IRR 7 trillion to 25 knowledge-based companies as facility guarantee, signing two guarantee agreements worth €3.3 million, signing two commodity liability insurance agreements, factoring of IRR 2.7

trillion to 24 companies, signing the first LC worth IRR 50 trillion for knowledge-based companies. Moreover, a capital venture worth IRR 2.5 trillion is invested in seven projects related to artificial intelligence in the petroleum industry.

During the 28th Oil Show, most agreements and memorandums have been signed with knowledge-based companies. How many of them have been finalized?

Upon the insistence of the Minister of Petroleum, we concentrated our efforts entirely on removing obstacles ahead of transforming memorandums into contracts. One of our measures was to set up a working group for first-time manufacturing in the petroleum industry in collaboration with the Office of Vice President for Science, Technology, and Knowledge-Based Economy, which has been of great help to the petroleum industry and knowledge-based companies. Thanks to this working group, the Ministry of Petroleum won the top ranking for three consecutive years for supporting local knowledge-based and manufacturing companies.

In light of support for knowledge-based companies, have they met the Ministry of Petroleum's expectations?

Due to the Ministry of Petroleum's support for domestic knowledge-based and manufacturing companies, more than 80% of the main equipment needed by this industry is manufactured domestically. Cold boxes and three-phase pumps are among the equipment made during the past three years.

Both are high-tech equipment that has helped the petroleum industry meet its needs. Meantime, another issue the petroleum industry has been grappling with is LNG production. With Iran being the second owner of gas reserves in the world, it is expected to play a more active role in gas trading with the development of the LNG industry. Since the 2000s, several LNG production projects have been defined in partnership with foreign companies and some South Pars phases have been earmarked for that purpose. But as soon as sanctions were imposed, the projects halted. From the very beginning of the 13th administration, the minister of petroleum emphasized LNG production, for which two routes were chosen. One method was to use domestic potential, and the other one was to transfer technology from proprietors of technology that has been obtained by domestic companies. In addition to that, we have cooperated with foreign companies to transfer cutting-edge technology.

Currently, a steel manufacturing company has started building a mini-LNG facility in partnership with a foreign company in return for the transfer of technology. Under this agreement, the transfer of technology is supervised by the Research Institute of Petroleum Industry (RIPI).

What has the Ministry of Petroleum done to prevent the immigration of petroleum industry graduates and the elite?

The Petroleum University of Technology was established to train manpower for the petroleum industry. However, due to some regulations, this university has distanced itself from its raison d'être and students were less motivated to enter PUT. However, the 13th administration moved to absorb top graduates of petroleum universities of technology. Of course, our efforts have been mainly concentrated on removing legal obstacles through consultation with the Office of Deputy Ministry of Petroleum for Management and Human Resources Development, as well as external organs.

We hope to be able to take the necessary action to absorb students who graduated from this university before the 13th administration's term ends. Every measure we have done in support of industrial and knowledge-based companies has been in favor of manufacturing.

Now, 843 requests have been filed demanding petroleum industry equipment. We support all natural and legal persons and knowledge-based companies that may help us meet these needs.

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Petchem Value Chain Towards Completion

National Petrochemical Company (NPC) has released data about the three-year track record of the 13th administration in the petrochemical sector. The data show that more than 127 petrochemical projects are either under construction or close to operation. During this time, more than 15 main projects have come on line including feedstock supply infrastructure, utilities, storage and export of petrochemicals. What is exposed as the petrochemical industry's track record in project development, knowledge-based activity, domestic manufacturing of catalysts and technical knowhow for equipment manufacturing are only a small segment of the capabilities of this sector despite crippling sanctions in recent years. Here we review some petrochemical projects that have become operational in the past three years.

November 2021: The second unit of Air Separation Unit-2 (ASU2) and the 230/400 KV substation of Damavand Energy Company (DECO) in Assaluyeh came online, using state-of-the-art technology and the most sophisticated machinery. This unit has capacity to produce 72,500 normal cubic meters (nm3) of oxygen, 11,000 nm3 of nitrogen, 700 nm3 of instrument air and 3,400 nm3 of service air.

February 2022: The first petrochemical project that came on-stream under the 13th administration was Ibne Sina Petrochemical Co's maleic anhydride project. It was complementary to the butane feedstock value chain. With annual capacity to separate 80,000 tonnes of butane, it is operational in the Mahshahr Special Economic Petrochemical Zone.

June 2022: The Di Arya Polymer Petrochemical Plant in the city of Khomein came online with an annual capacity of 175,000 tonnes. It is also part of the value chain completion in the downstream sector. This plant supplies 17 grades of homopolymer and 11 grades of copolymer, accounting for about 17% of the polypropylene needs of the downstream industry in the country.

September 2022: Construction started for the PDH/PP project of Parsian Sepehr Refining Company with a view to value chain completion by producing 450,000 tonnes of propylene, 300,000 tonnes of polypropylene and 100,000 tonnes of acrylic acid and superabsorbents a year.

September 2022: Construction started for the PDH/PP project of Pars Petrochemical Company started with a production capacity of 600,000 tonnes of propylene and 500,000 tonnes of PP. Every year, 700,000 tonnes of propane from Pars Petrochemical Plant and 308,000 tonnes of ethylene from other petrochemical plants in the zone are used as feedstock by this unit.

September 2022: Construction started for the PDH project of Persian Gulf Bidboland Gas Refining Company with a view to value chain completion, value creation and job generation.

September 2022: The industrial catalyst production unit of Behin Polymer Aryaei Co. affiliated with the Rejal Industrial Group, the paper and cardboard production from calcium carbonate unit of Petro Nikan Jonoub Co., the benzoic acid and terephthalic acid unit of Shadbeh Afrouz Sabalan Golstar and the PVC granule and compound production unit and off-grade solid product recovery of Sina Soud Co. were the four projects that came online simultaneously.

October 2022: Construction began for the 1.65-million-tonne Fanavaran petro-olefin project. By expanding the production chain in the downstream methanol industry, 280,000 tonnes of LDPE and HDPE as well as 450,000 tonnes of polypropylene would be produced along with other byproducts.

December 2022: Construction began for the Hemmat petrochemical project with 300-million-euor investment for the annual production of 1.075 million tonnes of urea granule. This plant would use surplus ammonia from petrochemical plants inside the country and surplus CO2 from the processing vents of Pars, Parsian Sepehr and Farsa Shimi petrochemical plants. It is under construction in Assaluyeh.

January 2023: Construction began for the GTX project of Taftan Arya Petrochemical Co. for converting gas to higher-value products. Under construction in Chabahar, this project is aimed at supplying downstream products of the methanol value chain, including acetic acid, formaldehyde, vinyl acetate monomer and polyurethane chain products like butane diol.

March 2023: The Pars Glycol Petrochemical Plant was inaugurated with an annual production capacity of over 550,000 tonnes in the second petrochemical phase of the Pars Special Economic Energy Zone (PSEEZ). The production capacity of this plant totals 553,500 tonnes of ethylene glycol, including 500,000 tonnes of monoethylene glycol as the main product as well as 50,000 tonnes of diethylene glycol and 500 tonnes of triethylene

glycol as byproducts.

March 2023: The nine storage tanks of the second phase of the petrochemical green storage project of Assaluyeh came online with a storage capacity of 414,000 cubic meters of petrochemicals. They include 6 storage facilities for methanol and 3 for ethylene glycol products along with facilities needed for connection to the Pars Export Terminal.

March 2023: Construction began for the PDH/PP project of the Kangan Polymer Plant for the purpose of value chain completion. The rated capacity of this project is 600,000 tonnes of propylene and 600,000 tonnes of polypropylene a year. The 714,000 tonnes of propane needed as feedstock for this project from the South Pars gas field while National Iranian Gas Company (NIGC) would supply 1.28 mcm/d of natural gas for that purpose.

May 2023: The first phase of the Persian Gulf Hoveyzeh Gas Refinery (NGL 3200) came online with a processing capacity of 250 mcf/d. This facility is fed by associated gas achieved from crude oil production from West Karoun fields. This project was launched to capture flare gas from the Yadavaran, North Azadegan, South Azadegan, North Yaran, South Yara, Darquain, Sohrab, Sepehr, Jofair, Sousangerd and Band Karkheh oil fields.

May 2023: For the purpose of building flare gas capture installations in East Karoun, a gas pre-compression project came online, which added 100-150 mcf/d to the feedstock supply to the Persian Gulf Bidboland gas refinery. At the same time, a second gas pre-compression plant came online.

June 2023: The most Iranian olefin project at the Gachsaran Petrochemical Plant came online with an annual output of 1 million tonnes of ethylene and 84,000 tonnes of C3+. This project came to fruition after 19 years of suspension. It has been built on 157 ha of land in Kohguiluyeh and Boyer Ahmad Province. More than 83% of equipment used in this project is domestically manufactured.

August 2023: Construction began for the Ibn Sina Petrochemical Plant in Hamedan. It is aimed at producing up to 300,000 tonnes a year of ethylene oxide. The final product of this project is 11,000 tonnes a year of monoethylene glycol, 101,000 tonnes of ethoxylate, 56,000 tonnes of glycol ether and 32,000 tonnes of methyldiethanolamine.

December 2023: The ammonia recovery project at the Khorasan Petrochemical Plant came online with a view to reducing industrial pollution and improving environmental conditions. In order to separate ammonia from the waste and recycle it back into the production line, a stripper was installed for IRR 150 billion, which would result in better air quality and environment.

December 2023: Construction of the urea/ammonia project of the Golestan Petrochemical Plant started after nearly two decades of halt. After its operation, it would increase national urea and ammonia output by 1 million tonnes and 675,000 tonnes respectively over 3 ½ years. Urea and ammonia are mainly used for chemical fertilizer production and are key to the agriculture sector.

October 2023: Construction began for the Sigloo Petrochemical Plant in the Lamerd Special Economic Zone. After completion and operation, it is expected to produce 46,000 tonnes a year of MA, DMA and TMA, 24,000 tonnes a year of DMF, DMAE and Choline Chloride and 24,000 tonnes a year of higher amines.

November 2023: Construction of Besat Petrochemical Company began in Bijar. The annual production capacity of this project is 500,000 tonnes of terephthalic and 500,000 tonnes of PET for the textile industry.

January 2024: Jetty No. 17 of Phase 2 of Assaluyeh and the first cryogenic loading arm made in Iran was launched.

January 2024: Construction operations began for the Torbat-e Heydarieh polystyrene project with a view to value chain completion. The project is aimed at the annual production of 40,000 tonnes of polystyrene. In addition to supplying local needs, it would have enough to export to neighboring countries.

January 2024: The first phase of construction work on the olefin site of the Mahshahr Almas Megaproject began in the Mahshahr Special Economic Petrochemical Zone. That included piling operations in non-industrial buildings (warehouses, central yard, clinic and fire station) and storage tanks (feedstock and products). It is one of megaprojects of the Persian Gulf Holding with more than 2 million of olefin and polyolefin production.

February 2024: Jetty No. 3 of Parsian Port came online. The loading and unloading capacity of this port is 9 million tonnes a year, which is planned to rise to 40 million tonnes in the future.

June 2024: The fourth unit of industrial gas production of Damavand Energy Company (DECO) came online with a production capacity of 73,500 normal cubic meters of various grades of industrial gas. The products of this unit would meet the needs of methanol production companies and other downstream companies for high and medium-pressure oxygen, nitrogen, instrument air and service air.

June 2024: The Aryan methanol petrochemical project was completed. It lies on 7 ha of land in Assaluyeh and is planned to produce 1.65 mt a year of methanol. The plant is fed with 1,531 million standard cubic meters of natural gas and 671 million standard cubic meters of oxygen a year.

June 2024: The ammonia unknit of the Hengam Petrochemical Plant came online. With an annual production capacity of 725,000 tonnes and access to high seas and exclusive jetty, it enjoys good advantages among methanol production companies. It is fed with natural gas which would be supplied by the Damavand Petrochemical Plant.

June 2024: The paraxylene unit of Bu Ali Sina Petrochemical Company came online. With an annual capacity of 430,000 tonnes, it came on-stream with the assistance of knowledge-based companies. This unit suffered heavy fire and damage in summer 2016.

June 2024: The Nakhl Asmari petrochemical project is one of projects that had already become operational tentatively, but was now inaugurated. It is aimed at producing 31,000 tonnes a year of acetaldehyde, paraformaldehyde and pentaerythritol on site 3 of the Mahshahr Special Economic Petrochemical Zone.

June 2024: The first phase of the central waste treatment station of Bandar Imam Petrochemical Plant came online with an annual capacity of 8,300 tonnes with a view to protecting the environment and maritime ecosystem of Bandar Mahshahr and fulfilling social responsibility. The central treatment station comprises two main sections for treatment and desalination. More than 26,000 cubic meters of RO water enters the process, which would be instrumental in reducing water consumption. The petrochemical industry has seen significant changes in the past three years. More projects like Petronad Asia and Sadaf are expected to become operational. However, petrochemical companies have moved to diversify their export markets at the regional and continental levels. Efforts for the local manufacturing and export of petrochemical catalysts have also yielded significant results.

13 Chemical Parks Planned

The construction of petrochemical parks within a short timeframe is among the measures envisaged by the National Petrochemical Company (NPC). To that end, work has begun for establishing 13 chemical parks in the Khuzestan, Bushehr, Hormuzgan, and Sistan&Baluchestanprovinces.

The first phase of this project needs $1 billion in investment, which is to be provided by the Persian Gulf Petrochemical Industries Company (PGPIC). Chemical parks are developed to supply products of higher value-added, preventing raw material sales, and developing downstream and mid-stream industries. Building such parks would create competitive advantages.

One mission assigned to the Ministry of Petroleum has been value chain development in the processes associated with oil, gas, condensate, and other products supplied by this giant industry. Petrochemical parks pertain to petrochemical plants that would be built after value chain completion and technological development.

Petrochemical parks would produce items for the oil and gas value chain, which would be necessary in everyday life. The petrochemical industry turned to parks in 2000 all across the globe. In Iran, this issue has come to the limelight under the 13th administration. Last September, an MOU was signed for the construction of the first chemical park in Iran in the Nayband region of Bushehr and near Iran's gas hub. The MOU was signed between NPC, PGPIC, and the Pars Special Economic Energy Zone (PSEEZ). The idea behind this park was to lay the foundation for quitting sales of such raw materials as sulfur. PGPIC plans to establish 9 chemical parks in Chabahar, Jask, Minab, Parsian, Dashtestan, Deilam, Omidieh and Arvand.

Abdolali Ali-Asgari, CEO of PGPIC; said the Persian Gulf area was prioritized in downstream parks. He said that 300 projects had been defined, while construction had started on 60 most profitable ones. Optimization and establishment of facilities to capture flare gas in East Karoun, flare gas transmission lines from Darquain and West Karoun fields, and investing in the Maroun gas field as well as Maroun oil fields 2, 5, and 6 are among PGPIC's plans to supply feedstock to its subsidiaries.

CEO of " OfoghKhalij Fars Petrochemical Parks Co." Ahmad Shahryari has saidIran's petrochemical production capacity stood at 92 million tonnes, 14 million tonnes of which was methanol. Therefore, PGPIC eyes a methanol park with four chains. In other products like urea, PGPIC predicts a chemical fertilizer park in Chabahar and Nayband. Furthermore, planning has been made for two glue and resin parks. It is noteworthy that at petrochemical parks, infrastructure, utilities, auxiliary products, and feedstock would be supplied simultaneously, and companies would have easy access to such materials. More importantly, the final products would be marketed in the same park.

A gas refinery and a petrochemical plant in Ilam justify the construction of a polypropylene park in western Iran. This park is planned to be built in the Mehran free zone. The best spot in this free zone has been chosen to host the polypropylenepark where 90 projects are envisaged, 50 in the first phase and 40 in the second phase. This park has already been located. Due to its location in the no man's land, its products wouldbe exported to Lataquia Port and the Mediterranean.

History of Chemical Parks

Chemical park construction in Iran dates back to 15 years ago when a styrene park was envisaged to produce polystyrene. Had this park been built, 600,000 tonnes of monomer styrene produced by the Pars Petrochemical Plant would have been used to feed the first petrochemical park of Iran, but due to the decline in the styrene production capacity, no feedstock was supplied. It was followed by the location of petrochemical parks in Isfahan and Chabahar, which are expected to come online in the coming years.

Germany, China, South Korea, Japan, Saudi Arabia, and Turkey are currently developing downstream industries and parks. Ludwigshafen Chemical Park (Germany), North East of England Process Industry Cluster (NEPIC), Antwerp Chemical Park (Belgium), Houston Oil and Gas and Petrochemical Park (United States), Map Ta Phut Industrial Zone (Thailand), Jurong Islands Chemical Park (Singapore) and Al-Jubail Chemical Park (Saudi Arabia) are among the world's leading petrochemical parks. Today, there are about 60 chemical sites in Germany, 37 of which are organized and known as chemical parks. The largest chemical park in Germany and the world is located in the Ludwigshafen area and is known as BASF.This park was built on the river Rhine and includes 353 production units and eight thousand types of products with a volume of eight and a half million tonnes using only oil, rock salt, and sulfur.In China, parks are numerous and their production capacity is high, and most of their products, which are usually produced at the intermediate level, are produced to export to global markets. In China, the market is important and their goal is to export to various countries. Today, most of these parks in China have shut down due to a lack of feedstock.

Minister: 5.5mb/d Oil Output Possible

Minister of Petroleum Javad Owji has said Iran can achieve a 5.5 mb/d oil production target in four years' horizon. He said that the oil and gas sector was forecast to grow 8% under the 7th National Development Plan, adding: "With planning, we can reach the 5.5 mb/d production target in a four-year horizon." Addressing a Cabinet meeting presided over by Acting President Mohammad Mokhber, the minister said Iran's oil production had reached 3.6 mb/d by last March. He said that Iran would see its oil output reach 4 mb/d by next March, adding that the 400 tb/d output hike would increase Iran's oil sales by $10 billion annually.

"Development of joint fields, gathering associated gas, energy diplomacy, output hike, building petrochemical refineries and preventing crude sales, oil and gas group economic growth and above all gas compression at the South Pars gas field are among the measures taken by Ministry of Petroleum under the 13th administration for increased production," said Owji.

Reliance on local experts has given rise to significant changes in the petroleum industry, he said, adding: "With every additional 100 tb/d of oil production, $2.8 billion is added to national revenue per year. All this development work for increased production and export of oil materialized under tough conditions of sanctions."

Iran Oil Output Keeps Rising

OPEC, citing secondary sources, said in its monthly report released in July that its 12 member states had produced a total of 26.566 million barrels of oil during June, 80 tb/d down month-on-month.

The report showed Saudi Arabia in the first place with 8.934 mb/d of oil in June, only to be followed by Iraq with 4.189 mb/d and Iran with 3.251 mb/d.

According to secondary sources, Iran's June output was 13 tb/d higher than the previous month.

Five members of the Organization of the Petroleum Exporting Countries saw their output rise with Libya accounting for the highest hike, 24 tb/d. Along with Iran and Venezuela, Libya is exempt from the production cut agreement between OPEC and its partners, collectively known as OPEC+.

According to the OPEC report, Iran's heavy crude oil traded 0.6% lower month-on-month. Iran sold its heavy crude oil at $83.65 per barrel in June, about 48 cents lower than that of the previous month.

Iran's heavy crude oil averaged $83.45 in 2024. OPEC Reference Basket (ORB) price reached $83.22 a barrel in June, down 0.4% month-on-month.

Full Preparation for Winter Gas Supply

The latest status of production, refining, conveyance, storage, and distribution of gas and petroleum products in Khorasan Razavi Province was reviewed.

Abdorrahman Keshvari, deputy head of the Civil Defense Authority (CDA) for energy affairs, referred to the importance of gas storage, saying: "One of our priorities for resolving the imbalance crisis is surface and underground storage."

He said that CDA would be engaged in any plan, adding: "Everywhere you plan to implement a project, engage CDA therein."

He said that plans should meet demands. "In line with a national development plan, we can cut the energy consumption by 8%. We should be ready to manage gas consumption in winter and from now on, we have to make planning," he added.

Yahya Feizi, the CEO of Shahid Hasheminejad Gas Refining Co., said: "There is constructive and close cooperation between the Shahid Hasheminejad gas refinery and the provincial energy supply chain, the outcome of which has been making such achievements as gas storage record last calendar year."

Defeating the Energy Imbalance Crisis

Vahid Reza Zeidifard, deputy minister of petroleum for engineering, research, and technology, has said that knowledge-based companies could help save energy and make up for energy imbalance.

"However, we should not focus on fossil fuels and we can also add renewables to the energy mix of the country," he said.

Zeidifard said energy efficiency was a top priority for the country, adding: "Ever since 2010 when the Supreme Leader signed off on energy consumption pattern policies, numerous cases have been highlighted concerning energy imbalance and energy efficiency."

He said the country would not be as it is, had the consumption pattern policies promulgated by the Supreme Leader been implemented properly. "Today, everyone is feeling the danger of energy imbalance. The country would face deep crises should it be ignored," he added.

Zeidifard said that the late President Ebrahim Raeesi was the only president who always attended the High Council of Energy. He added that Raeesi was always following up on energy efficiency.

Sustainable Gas Supply to Small Power Plants

Majid Chegeni, the CEO of the National Iranian Gas Company (NIGC), has promised a sustainable gas supply to small-sized power plants during winter.

Referring to high energy consumption in the country, he said: "We guarantee that in the cold season, combined heat and power plants (CHP) would not face gas restrictions."

Reiterating the need for moving towards electricity efficiency and highlighting the inevitability of gas use cuts, he said: "Under legal obligations enshrined in the 6th and 7th development plans, infrastructure ministers are required to move towards energy efficiency."

He said that some valuable measures had been undertaken at the Ministry of Petroleum, including granting a certificate of saving. "That is the second step in energy efficiency and it would ensure investors about investment in this sector," he added. "The output of power plants in Iran is lower than global standards and we have to use the capacity of small-scale CHP power plants in order to boost their efficiency. By launching the steam section of these power plants, gas would be used more optimally," said Chegeni.

Masoud Pezeshkian Elected Iran President

Masoud Pezeshkian won the runoff presidential vote on 5 July to become the 9th president of the Islamic Republic.

Pezeshkian secured more than 16 million votes to defeat his rival Saeed Jalili in the second round of the election.

It was the 14th presidential election held in Iran since the 1979 Islamic Revolution. The first round of voting was held a week earlier, during which no candidate won the required absolute majority.

Pezeshkian, 69, was born in Mahabad in West Azarbaijan Province. He's a cardiac surgeon.

He had already served as deputy minister of health in the 7th administration, minister of health in the 8th administration, and MP representing the Tabriz, Azarshahr, and Oskou constituencies in the 8th, 9th, 10th, 11th, and 12th parliament. He was elected deputy spokesman of parliament in the 10th parliament.

The snap presidential vote was held following the sudden death of former president Ebrahim Raeesi in a helicopter crash.

Petchem Value Chain Completion in 7 Years

The CEO of the National Petrochemical Company (NPC), Morteza Shah-Mirzaei, has announced that the value chain of petrochemical production would have been completed in seven years. “A balanced development of the industry and value chain completion is among one of the strategies of this industry. Within seven years, we will see the value chain of petrochemical production be completed,” he said.
He added that the Ministry of Petroleum’s policy was to prevent selling crude products and complete the value chain of the petrochemical industry, as demanded by the Supreme Leader. Noting that Iran’s petrochemical industry is more than 6 decades old now, he said: “Iran’s petrochemical industry production capacity has crossed 95 million tonnes a year, offering a variety of products.”
Shah-Mirzaei said the petrochemical industry provided the main items of non-oil export mix. He added that the recent inauguration of 6 petrochemical projects and the planned startup of 15 more projects up to next March would bring Iran’s annual petrochemical output capacity to 100 million tonnes. He said sustainable feedstock supply to the petrochemical industry to eliminate the current imbalance would be a key element of the full realization of petrochemical production objectives. “Energy efficiency and optimal use of available resources would help overcome the imbalance to free up more feedstock to the industry.”

Hydrocracker Added to Abadan Refinery

CEO of the National Iranian Oil Engineering and Construction Company (NIOEC) Farhad Ahmadi has announced the operation of processing units to upgrade the quality of products in the second phase of the Abadan oil refinery shortly. “The largest hydrocracking unit in the Middle East and West Asia came online in this project to produce light products of higher value,” he said. He announced the commissioning of a new 42,000 b/d hydrocracker at the 390,000 b/d-capacity in Abadan refinery in Khuzestan Province. The new unit comes as part of the ongoing upgrade of the century-old facility and follows the recent addition of a new 210,000 b/d CDU and 100,000 b/d VDU to reduce fuel oil yields from 40% to 20%. More secondary units will be installed over the coming months.Ahmadi said the new unit will convert heavy ends to high-value products including LPG, naphtha, and jet fuel at Euro V specifications.
“The quality upgrade processing units in the second phase of the Abadan refinery expansion project include a 75 mcf/d hydrogen unit, 17 mcf/d amine unit, 2,168 tonnes/day sour water unit, and 580 tonnes/day sulfur recovery unit,” he said, adding that it would make up for fuel shortage in the country and help increase exports.
“The second part of the Abadan refinery development project is to come online in 42 months,” he said.Ahmadi said more than 7,000 persons from Khuzestan Province were employed during the Abadan refinery development project. “This massive project has been launched in the heart of the city of Abadan and has inevitable environmental concerns.

Energy Saving Capacity at 300 mboe/y.

Mohammad Esmaeil Kefayati, director of Innotech Park, said there is potential for saving 300 million barrels of oil equivalent (mboe) in energy consumption.
“Every day, we are consuming 7 mboe of energy in the country. Implementing energy efficiency projects, we can save 300 mboe /y,” he said. He said under an order by the late President Ebrahim Raeesi on engaging knowledge-based companies in energy efficiency programs, they were invited to offer their proposals.
“Sixty-five companies responded to the call. In the first assessment, 38 companies were cleared. After final assessment 7 companies were awarded the golden emblem, 10 received silver emblem, and 7 others bronze emblem,” he said. Kefayati noted that the key issue of energy efficiency had to be examined from various economic, cultural, social, technological, and innovative aspects. “Saving energy consumption partly pertains to cultural and social issues. Cultural entities are required to work on this issue and help energy saving by carrying out necessary tests,” he said. The tests may simply pertain to residential buildings and small industrial units or relate to energy efficiency at refineries and power plants. Kefayati said that energy efficiency at power plants would save natural gas amounting to two phases of the South Pars gas field.
“As the chain linking knowledge-based companies and the industry, Innotech is expected to see more companies engaged in the future in order to empower us to work more effectively in favor of energy efficiency,” he said.

Russian Gas to Reach Iran

Russia’s agreement to supply gas to Iran would be a key step towards transforming Iran into a regional gas hub. Russia’s gas transmission to Iran would help Northern provinces meet their needs while the surplus gas in the south would be exported to neighboring countries. Russia’s gas may enter Iran via Turkmenistan or Republic of Azerbaijan. Turkmenistan may supply gas to Iran via the Dowlatabad-Sarakhs-Khanigran pipeline in northeastern Iran or the Korpeje–Kordkuy pipeline off the Caspian Sea with a total capacity of 20 bcm/y. Russia transmits gas to Turkmenistan via the Central Asia-Center (CAC) pipeline with a capacity of 90 bcm/y.
There is also the Kazi Magomed-Astara gas pipeline connecting Iran and Russia via Republic of Azerbaijan. This pipeline can handle 10 bcm/y. Northern Iran receives gas from southern Iran via the national trunkline. Given Iran’s area, the gas reaches north from the south via a long distance. During cold months, for a variety of reasons like pressure fall-off, gas halt occurs occasionally. With Russian gas transmission to Iran, such need would be supplied partly while transmission costs would be cut significantly. Geographically speaking, Iran lies in an area where most neighbors do not have significant gas reserves and mainly depend on imports. Turkey, Pakistan, Iraq, and the United Arab Emirates (UAE) are cases in point. Proximity with these gas importers has given rise to appropriate conditions for Iran’s gas exports, so Iran can export its surplus gas to these countries and, in addition to economic benefits, also benefit from the political and security advantages of gas contracts.

Oil Output Hike Facilitated

The 13th administration facilitated efforts made to enhance oil, gas, petroleum, and petrochemical products output capacity to help the private sector grow more rapidly.
Oil sanctions against Iran have always been among the toughest economic sanctions. That has caused a strain on Iran’s oil production and exports and subsequently hindered Iran’s access to oil revenue.
Various administrations tried their best to keep oil exports running despite sanctions. But the undeniable fact is that the US’s withdrawal from the 2015 nuclear deal posed challenges to Iran’s oil exports which fell in some periods to below 500 tb/d.
In addition to restricting Iran’s oil revenue, the sanctions left more than 100 million barrels of crude oil and condensate parked on water. That is why the 12th administration was planning to buy very large crude carriers.
However, the 13th administration moved to make arrangements for oil sales in a bid to strike a balance in the national economy.
The first attempt was to find a way to bring an end to the costly stocking of crude oil and gas condensate. The solution was to change the consumption pattern and find access to export markets. Iran managed to sell 87 million barrels of gas condensate stocked onshore and offshore within months.
By building new capacities for oil export like unknown markets and overseas refineries, the 13th administration sought to increase oil exports. To that end, a crude oil production hike was envisaged. Minister of Petroleum Javad Owji has said Iran’s oil production jumped to 3.6 mb/d, up 60% from the beginning of the 13th administration.
He said that oil, condensate, petroleum products, and petrochemical exports earned Iran $10.8 billion in 2019, which increased to $36 billion in 2023.
Owing to such an approach the petroleum industry in the 13th administration reached 20% growth in 2023. A three-fold jump in crude oil and condensate exports, setting a record in exports since 2018, 23% growth (6.5 million tonnes a year) in petrochemical exports in 2023 compared with 2020 and annual revenue of $17 billion from petrochemical exports have been achieved.
Gas exports earned Iran $4.7 billion in 2021 and $8 billion in 2022, up from $1 billion in 2020. Iraq also settled $2.6 billion of its debts to Iran for gas imports.

RIPI Develops 11 Strategic Catalysts

Iran's Research Institute of Petroleum Industry (RIPI) has, in recent years, made achievements in terms of technical know-how for sponge coke, and needle coke, as well as 11 strategic catalysts for the petroleum industry, thereby contributing to supply national needs. Mehdi Rashidzadeh, deputy head of RIPI's Downstream Industry Research and Development Division, tells "Iran Petroleum" that RIPI has recently developed the RCD catalyst which the private sector is churning out.

The following is the full text of Iran Petroleum's interview with Rashidzadeh who is also acting director of RIPI's Center for Nanotechnology and Carbon Research.

What activities are underway at RIPI's Downstream Industry Research and Development Division?

RIPI has three divisions: the Upstream Oil Industry Division, the Downstream Industry Research and Development Division, and the Energy and Environment Division. The Downstream Industry Research and Development Division comprises five research units, two research centers, and a gas processing institute. It is known as the largest research division there in terms of manpower and infrastructure. A center has been also set up in Kermanshah, working on oil technologies research and development in line with this division's activities. The division is involved in designing refining processes and developing technical know-how for chemicals, catalysts, and absorbents. For many assessments and awarding of certificates and licenses, RIPI is the reference body in the oil, catalyst, and some specific analyses. The Ministry of Petroleum considers RIPI to be reliable. Furthermore, the Downstream Industry Research and Development Division is equipped with a sophisticated analysis center, which is instrumental for the Islamic Republic of Iran Customs Administration.

Supplying 400,000 tonnes of coke a year to fully meet the aluminum industry, offering licenses to all processing units based on local catalysts

You had signed an agreement with the Bandar Abbas refinery for sponge coke production.Could you update us on that?

The Bandar Abbas refinery is in the phase of commercialization and signing a contract with a contractor for launching this processing unit. As this refinery is producing sponge coke needed by the aluminum manufacturing industry, Iran is joining the group of seven top nations producing sponge coke in the world. Supplying 400,000 tonnes of coke a year to fully meet the aluminum industry, offering licenses to all processing units based on local catalysts, reducing fuel oil production by 45 tb/d, and providing technical knowhow to more than 10 sponge coke processing units are some of the outcomes of launching this processing unit at the Bandar Abbas refinery.

You also signed an agreement with the Imam Khomeini refinery for needle coke production. Can you tell us about it?

It is close to completion. RIPI has been introduced as a contractor, while Tarh-O-Palayesh Engineering Company (T.O.P.) has been introduced as a management advisor in the PMC project. Once operational, this project would produce 90,000 tonnes a year of calcinated needle coke with up to 0.55% sulfur content. The main objectives of this project include developing graphite electrodes for continued manufacturing in the steel industry using electric arc furnaces (plan to produce 55 million tonnes of steel while 94,000 tonnes of graphite electrodesare needed annually), cutting fuel oil production while generating higher value-added for the refinery. By implementing the needle coke project at the Imam Khomeini refinery, fuel oil production at this refinery, which is currently less than 10%, would be down to zero. Needle Coke is among the sanctioned products. It is a specific form of petroleum coke produced with sophisticated technology. The bulk of delayed coke is known as sponge coke due to its similarity to black sponge and porous and irregular form.

What percentage of catalysts are being produced using RIPI's technical know-how?

Since Iranis among the world's top oil and gas reserves holders, these catalysts and absorbents are largely used in our oil and gas refineries. We used to import most of these catalysts and absorbents. The technical know-how for more than 11 catalysts has been given to the private sector. The naphtha reforming process, Claus aromatics, RCD, naphtha hydrotreating, and A3 zeolite catalysts are among the catalysts produced and loaded onto industrial reactors. The RCD catalyst belongs to the gasoline production line. It was first loaded in the Imam Khomeini refinery in January 2023. Refinery officials have said it functions better than foreign prototypes. It is the 11th catalyst whose technical savvy has been developed by RIPI and churned out by the private sector. In January 2023, more than 500 tonnes of the RCD catalyst was produced and delivered to the Imam Khomeini refinery after necessary checks and then used without causing any problems.

How is technical know-how offered to the private sector?

RIPI has adopted a new method for giving technical know-how to the private sector. Under this method, RIPI, serving as the developer of the know-how, forms a full chain with the manufacturing company and final consumer. RIPI receives a license fee in return for having developed the catalyst to be able to develop new ones.

What share of Iranian catalyst needs is supplied by locally developed ones?

More than 70% of catalyst needs are supplied by local know-how. RIPI is not alone. It is active alongside some other bodies like Petrochemical Research and Technology Company (PRTC) and a handful of knowledge-based companies. The catalysts whose know-how RIPI has provided are all strategic and important catalysts of the petroleum industry.

There has recently been talk of using nanofluids for enhanced recovery from oil wells. Is RIPI involved in such projects?

RIPI has an effective agreement with Iran Offshore Oil Company (IOOC). Feeding this nanofluid into the reservoir enables us to see a significant increase in production. We plan to inject 18,000 barrels of nanofluid into the producing wells of the Belal field in the Persian Gulf. That has proven successful in the pilot scale, enabling us to carry it out on an operational scale.

What has been studied in this project?

In this project, a wide spectrum of nanostructures (metal, carbon, and hybrid oxides) has been studied while the stability of nanostructures under saline conditions, as well as the reservoir pressure and temperature, have been examined. Acquiring technical know-how for stabilizing nanostructures under saline conditions and at high temperatures is an achievement of this project. Reviewing lab results and simulating nanofluid injection on the field and the single-well scale showed that adding nano additives to the water injected into the reservoir may significantly enhance the recovery rate when compared with water injection without nano additives. This project had been defined in four phases: Phase 1 included synthesis, formulation, and development of technical savvy to use nanoparticles for preparing stable emulsions for enhanced recovery on the lab scale; Phase 2 comprises a simulation of nanofluid injection to the Surmeh reservoir of the Belal field; Phase 3 included preparing nanofluid on the semi-industrial scale for enhanced recovery tests to be injected into the Surmeh reservoir of the Belal field; and Phase 4 pertains to implementation on the single-well scale in one of the injection wells of the Belal field.

RIPI was said to have applied the ANG method for the first time in the gas industry in Iran. Can you tell us more about it?

ANG (absorbed natural gas) is a process to store natural gas. In this process, specific absorbents like active carbon at room temperature and 3.5-3 megapascal pressure are used. This method of storage may be used for gas transmission or vehicles. Gas storage is done in specific carbons. To that end, carbon bricks have been made at RIPI to storenatural gas before being released slowly and consumed by vehicles. It has already been done as a pilot plan and won approval. We are currently in the stage of standardization.

Feeding this nanofluid into the reservoir enables us to see a significant increase in production

Has any foreign prototype already existed?

Yes, it is used in the US.

Can this method be used for gas storage?

Yes, sure. It may be used for gas storage. During some periods of the year, some areas in the country may experience pressure fall-off. This method may be helpful. If we see pressure fall off in an area, we can use this method alongside gas compressor stations. In this technology, gas is absorbed by carbon compounds. In case of pressure fall-off, this gas may be used. We have signed an agreement with the National Iranian Gas Company (NIGC) to implement it in Lamsk around Mazandaran and Gorgan provinces. This is the first project of this kind to be used in the country.

COP29 Baku Azerbaijan

Can COP29 Forge a Regional Climate Alliance?

COP29 Baku Azerbaijan

The 29th Conference of the Parties (commonly referred to as COP 29) will be held in Baku, the capital of the Republic of Azerbaijan from 11 to 22 November 2024. The decision to hold the COP29 in Baku was taken on December 2023 during COP28 held in the United Arab Emirates. The decision on the location of COP meetings is taken based on the geographical priorities and distributions of the Conference of the Parties unanimity. Based on geographical priorities, the location should have been in Eastern Europe. However, because of the war in Ukraine and the hesitation of the East European countries due to logistical limitations, Baku was selected to hold the next summit. The 28th COP in UAE was a historical one, in that for the first time an oil-producing country hosted a COP meeting. The Republic of Azerbaijan will be the second oil-producing country to host COP in a consecutive term. This will add to the weight of oil-producing nations to arrive at an inclusive and just pathway towards the net zero emissions strategy.

Fereydoun Barkeshli
Energy Market Analyst

Background

The initial forming of the COP should be traced back to the adoption of the UNFCCC in 1992 at the Earth Summit in Rio de Janeiro, Brazil. The delegation of the Islamic Republic of Iran was headed by the then Vice President and Iran was among very few oil-producing countries and OPEC members that was a signatory to the Earth Summit. The UNFCCC gave birth and legitimacy to the first COP meeting in Berlin, Germany, in 1995. Since then, the COP meetings have been held annually in different host countries. Over the years, the meetings have led to significant milestones in global climate action protocols, including the adoption of the Kyoto Protocol in 1997 and the Paris Agreement in 2015.

Fast forward to the present and as we are already barely four months to COP29 in Baku, the Republic of Azerbaijan has been actively involved in the international climate negotiations and is making significant commitments to mitigate its GHG emissions and to fulfill a low carbon economy. The country is making strides in addressing climate change and has set ambitious targets for reducing its carbon footprints. In the meantime, COP29 will provide an opportunity to come together and strengthen their climate commitments, exchange best practices, and enhance cooperation on climate finance and transfer of technologies among all the Caspian Sea littoral States.

As the 28th COP in the United Arab Emirates served to attract international focus on the countries of the Middle East and the Persian Gulf, the Baku COP should also be supported in its objectives and attract global attention to the neighboring states of the Central Asian countries and the Caspian Sea region. Iran will not hesitate to support the Republic of Azerbaijan in the journey to a successful COP29.

COP21 Accord

I cannot leave this background review to the COP without referring to the COP21 of December 2015 held in France that led to the Paris Climate Accord.

According to the Paris Agreement, participants represented by Western industrial countries and without meaningful participation by the oil-producing nations agreed on the following:

1- All the participants are required to curb their carbon dioxide emissions to 2 degrees Celsius by a date to be agreed upon and decided upon for their national advantage, but not later than 2045.

2- The participants are asked to do their best to mitigate their carbon dioxide emissions preferably to 1.5 degrees Celsius. This is critical to stop global warming to a relatively satisfactory level.

3- Countries are urged to strengthen their ability to adapt to the impacts of climate change, with developed countries, providing financial support to developing nations.

A framework for monitoring and reporting progress towards climate goals was established.

4- A framework and mechanism for maximum transparency for data gathering and reporting towards global climate goals was established.

5- Rewards and penalties to be worked out for countries' compliance and non-compliance to be worked out and implemented in the following COP meetings.

I will get back to Paris COP21.

Instrument of Energy Transition

In essence, COP is designed to lubricate and facilitate the energy transition both in concert and in practice. Energy transition has been with us for many decades and centuries. Societies have consistently moved from one source of energy to another one. Every single phase of energy transformation or transition has left behind a legacy of its own but has rarely gone away entirely. As such the term transition suggests that we are taking one step towards the journey that has been going on for a long time. It is intriguing to note that the recent energy transition that is framed by international institutions underlies a different, much more forceful, and aggressive approach than the natural and gradual transitions of the past. The previous energy transitions unfolded over many years and did not entirely source out the previous sources of energy. Oil overtook coal as the major source of energy in the early 1960's. However, coal did not disappear. In fact, in 2022, the world used three times more coal than the 1960's. Today, COP21 and the consequent COP's want to undo oil and gas production and consumption within a quarter of a century.

Having said that, moving too quickly and without a valid and unbiased methodology on all principles of macroeconomics there is an obvious risk of an unprecedented supply shock that could sabotage the entire path of the past couple of centuries. The current media projection of climate change and the consequent energy transition is entirely electricity-based. It is needless to say that human civilization does not solely rely on electricity to survive and flourish.

As such, while many nations intensify their efforts towards zero emissions and de-carbonizing which is good news, they notice that global oil consumption is growing at a rate not yet seen after the pandemic in late 2019 and then 2020. According to data released by the Organization of the Petroleum Exporting Countries, demand is expected to grow by 2.3 mb/d in 2024. The figure released by the International Energy Agency shows a lower demand figure of about one mb/d. However, even by the IEA estimates, a demand growth of 1.3 mb/d indicates that the world will run out of oil in less than a decade if there is no significant investment both in upstream and downstream sectors. I would like to mention that some reliable internationally acclaimed sources like Wood Mackenzie, forecast a demand figure of 1.5 mb/d for 2024. Accordingly, as mentioned by major National Oil Companies, including Aramco, NIOC, and ADNOC, a total investment ranging between $22 and $25 trillion is required for the oil industry to be able to cope with global demand by 2030.

Energy Poverty

As the big zero show begins to fade slowly, countries that are getting closer to the proceedings were widely noticed in the UAE during late November 2023 and early

December 2024, when the alarm bells were triggered by an audience who had been captivated by net zero during the last decade. COP 28 noted that the world GDP will grow at 2.2 percent per annum from 2024 through 2050. That means the world economy will almost double in size to $170 trillion by 2050 (World Bank Report, 2022, at constant dollar rate 2015). China and India will account for 43 percent of the global GDP growth from 2024. At such a growth rate of global GDP, the volume of oil consumption will stand at 127 mb/d in 25 years, before it reaches a flat peak curve. COP 28 successfully achieved its goal of shedding light on the misinformation practices of hardliners who advocate net zero without a responsible solution for future generations.
OPEC member countries took an active role in bringing up the issue of energy poverty. OPEC Secretariat presented a report showing that today approximately one billion people around the world mostly in Africa and Subsaharan countries have no access to basic forms of energy. Around 2.3 billion people have no access to clean cooking fuels.
As such instead of indulging in disinformation practices, consumers and producers must unite and advocate for supporting a unified agenda of elimination of energy poverty. Talking of hydrogen and satellite energy converters to people who are exposed to dehydration and lung diseases due to inhalation of animal waste as cooking fuels is inhumane. As mentioned earlier, the Paris Climate Accord was forged at the junction of time when OPEC was displayed and victimized as the sole culprit in the room. Oil producers were cornered to the extent that they were blamed for all the climate catastrophes and had to be responsible before future generations. The same old story that the entire industrial civilization of the twentieth century was built upon. The tyranny of narratives against fossil fuels was in full swing against oil and gas producers.

Towards COP29

COP29 in Baku will have a less cumbersome task in that an inclusive transition is established at COP28 in UAE. The debate over inclusivity is over. However, building and cementing the path towards a just and equitable supply and distribution of energy will still require a long way to go. The debate over the role of oil and gas in the energy transition is not merely a technical or economic issue. It is structurally about the future we want to create.
COP29 will first and foremost address the issues related to transition finance. Enormous financial resources are needed to get anywhere close to net zero. The most conservative estimates by the independent consultancy firm Center for Economics and Business Research (CEBR), estimated $2.5 trillion annually over the next decade. This is a large sum of money for which no established and credible source exists. This volume of investments is in addition to the amount of investment required to be made in fossil fuels, namely oil and gas. COP28 left the issue of financial aspects of carbon emissions almost ignored. There was a pledge by the summit of some investment figures in the order of $70 billion per annum much too far from what is anticipated. Hence for the COP29, the most pressing issue is finance. Advocates of rapid zero emissions are greenwashing the issue by falsifying claims of being environmentally sustainable. There is a huge amount of greenwashing taking place. The extreme pressures led to the weaponization of zero carbon emissions. Companies were finger-pointed and blamed for not caring about climate and the environment. As such many companies changed names or logos to pretend that they are supporting transition and that they are environmentally friendly.
The other principal issue for the Baku climate conference is the legality of the environmental rules and regulations. That is about penalties that the Western countries contemplate imposing on countries that might be blamed as having violated environmental rules and exceeded their carbon emissions allocation. If neglected, the legally binding principles of international rules-based penalties can prove to be too harsh and costly for developing nations as well as oil-producing countries.

Urgent Need for Cooperation

As the world approaches the November summit in Baku, the Caspian Sea littoral states and Central Asia countries need to coordinate their stance and shape up a unified position in COP29. This will enhance and strengthen their respective countries' position.
The Caspian Sea littoral states with a total population of around 300 million and a huge landmass have great potential in the regional and global climate issues. All the countries are oil and gas-rich with high volumes of reserves. If stand together, they will pose as a force that will have a bigger impact on the COP29 success.
This venue can serve as a prospective coordinator between the economies of the entire Caspian Sea region. Russia, aside from all the Caspian Sea littoral states are members of The Economic Cooperation Organization (ECO). As such they are in a position to engage on environmental issues even more forcefully and over long periods. Undoubtedly zero emissions policies require the participation of private and public sectors. Therefore, ECO will be able to play a pivotal role in the success of the COP29 in Baku, Republic of Azerbaijan.
It is also important to note that the next COP will be held in Brazil. Another important venue in so far as the presence and the influence of the Global South cooperation is concerned.
It is timely for the South in general and the BRICS in particular to move ahead with their own climate accord.
Creating a Caspian Climate Action Group is the first step toward achieving a common regional environmental policy in the region.
A comprehensive global climate policy is an extension of a just and equitable regional climate and carbon reduction diplomacy.

ABS to Class 2 FPSOs for Petrobras

Seatrium has announced that it has awarded the American Bureau of Shipping (ABS) a classification contract for the P-84 and P-85 FPSOs that will be built for Petrobras. These are the first FPSOs to be awarded for classification following ABS and Seatrium's Technology Collaboration Agreement. The goal of that agreement is to promote increased decarbonization, digitalization, and innovation in the offshore industry. Both FPSOs will incorporate technologies that aim to enhance operational efficiency and reduce environmental impact. Features will include zero routine flaring and venting; variable speed drives; and measures to control emissions and capture CO2, including an all-electric concept.

VAM Connections for Angola Deepwater Wells

TotalEnergies has contracted Vallourec to provide nearly 5,000 metric tons of oil country tubular goods (OCTG) and services for the deepwater Kaminho project wells in Block 20, which is 100 km offshore Angola.Vallourec will supply VAM connections, CLEANWELL coating, and tubular management services, which involve the inspection and preparation of tubes before they depart for the drilling platform, and also on their return to the storage area.

The company will make the products at its factories in France, Brazil and Indonesia.

Hydrogen Process Trials Offshore Wales

ERM initiated offshore trials earlier this month in southwest Wales, UK, to test elements of its Dolphyn Hydrogen process.

Tests are taking place in a floating marine environment in Pembroke Port.

The process combines electrolysis, desalination, and hydrogen production on a floating wind platform. Produced hydrogen is sent to shore via a pipeline for use in power generation, transport, industrial applications, and heating.

No electrical connection is needed, and the process is said to open a path to low-carbon energy generation without associated grid constraints or consumption of energy from other renewable energy sources.

UK

Malaysia Jerun Delivers First Gas

Sapura OMV Upstream has started gas production from the Jerun Field in Block SK 408, 160 km northwest of Bintulu, Sarawak.

The joint venture discovered the field in 2015 following the drilling of multiple exploration wells, and it took FID on the project in 2021.

Jerun is producing through an integrated central processing platform, with the gas exported through a new 80-km pipeline to the E11RB production hub, for onward delivery to Bintulu and Malaysia LNG.The platform is designed to produce up to 550 MMcf/d of gas and 15,000 bbl/d of condensate during peak production.

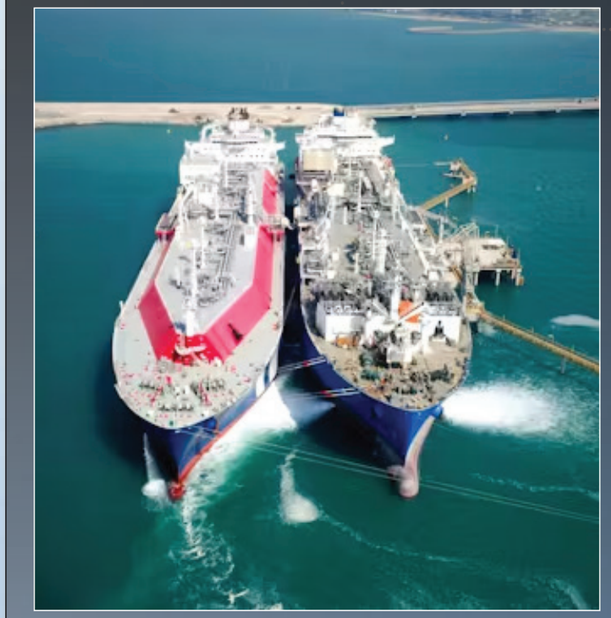
Malaysia

Brazil

Angola

Australia

VIEW



VIEW

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Wood to Manage Brownfield Services for Prelude FLNG

Wood has won a six-year contract to provide brownfield engineering, procurement, and construction management services for Shell's Prelude FLNG vessel offshore Western Australia. Wood CEO Ken Gilmartin said the company would apply its global LNG capability. The global FLNG market is revving up, spurred on by lower unit costs, standardized designs, and growing demand for quick-to-market LNG supply.

A report issued by Wood Mackenzie last fall indicated that 8.5 million tonnes per annum (mmtpa) of FLNG capacity had been sanctioned in 2022 and that as of August 2023, there was 10.0 mmtpa of FLNG projects under construction.

Challenges to Turkmen Gas Supply to Turkey

Shuaib Bahman

An agreement has been recently reached on the transmission of natural gas from Turkmenistan to Turkey via the Republic of Azerbaijan and Georgia, which would then be delivered to Europe. This agreement is of high significance, as Turkey has over recent years strived to diversify its energy resources and become a regional energy hub. Turkey has operated infrastructure projects like the Baku-Tbilisi-Ceyhan pipeline, the Baku-Tbilisi- Erzurum pipeline, and the Trans-Anatolian Natural Gas Pipeline over recent years. For Turkey, these pipelines have benefited both Turkey and the Republic of Azerbaijan while contributing to regional and European energy security. It is the central part of the Southern Gas Corridor, which connects the giant Shah Deniz gas field in the Republic of Azerbaijan to Europe through the South Caucasus Pipeline and the Trans-Adriatic Pipeline. The pipeline is of strategic importance for both Azerbaijan and Turkey. It allows the first Azerbaijani gas exports to Europe, beyond Turkey. It also strengthens the role of Turkey as a regional energy hub. Turkey is now willing to receive 2 bcm of gas from Turkmenistan in the first stage.

Gas Lines

Despite the attractiveness of this project for Turkey, the Republic of Azerbaijan, Turkmenistan, and even European countries, there are still serious questions about its quality. The most important question is about the route to transfer this gas from Turkmenistan to the Republic of Azerbaijan. Given the geographical location, gas transfer from Turkmenistan to the east of the Caspian Sea is possible only through three routes: The first route is the northern route, according to which Turkmenistan has to travel north of the Caspian Sea through Kazakhstan and Russia to transfer its gas to the Republic of Azerbaijan or Europe. The second route is crossing the south of the Caspian Sea or using Iranian soil, which has been re-established in recent years by the swap agreement between the parties. The third route is the construction of a pipeline from the Caspian Sea bed, which Turkmenistan and its partners had proposed many years ago, called the Trans-Caspian pipeline.Although construction of this pipeline has always faced serious opposition from Iran and Russia due to environmental reasons, according to the Capsian Sea legal status convention, littoral states are entitled to lay their pipelines through the seabed. Of course, there are still some major problems in this regard.

Challenges

First and foremost, Iran has accepted the Caspian Sea legal status convention, but it requires parliamentary approval before becoming law. Therefore, Iran has not officially approved this convention and it can cause an obstacle in the way of Turkmenistan building the pipeline.
The second and more serious problem pertains to Russia's opposition to this project. Turkmenistan's gas delivery to Europe would mean removing a significant part of Europe's dependence on Russian energy imports. For Russia, which is at war with Ukraine, it would not be favorable to see Europe resolve its energy supply issue. Therefore, Russia is unlikely to give the go-ahead to this project. Therefore, the only viable option for Turkmenistan and Azerbaijan would be to deliver gas by LNG carriers. This option would face no obstacles, but it would face many restrictions. First of all, the infrastructure and refueling terminals for such vessels need to be established. Then, these vessels should enter the Caspian Sea. Russia can block the entry of these vessels because the only canal for vessels to sail through into the Caspian Sea – the Volga-Don Canal – belongs to Russia.
Despite the difficulties and challenges in the way of implementing this agreement, it still has special attractions for a country like Turkey. Because, on the one hand, it turns Turkey into the center of energy transfer to Europe, and on the other hand, it helps advance Ankara's geopolitical projects, such as the construction of the Zangzur Corridor. However, it seems that the best route to transfer Turkmenistan's gas to the Republic of Azerbaijan or Turkey is the southern route through Iran. As the Turkmenistan-Azerbaijan gas swap through Iran had significant benefits for Ashgabat, now the advancement of this project through Iran can have both significant financial benefits and increase the connection between the countries of the region.
Geo-economically speaking, such an agreement will be of fundamental importance for all participating countries. Because it can diversify Turkmenistan's gas export market safely and stably. At the same time, the Republic of Azerbaijan and Türkiye can also get the gas they need through Iran. In the meantime, Iran plays its role as the center of energy transmission from East to West and can enjoy economic and geopolitical benefits.

Oil Agreements Review

Bakhtiari and North Oil Concessions

In 1905, British Consul to Isfahan Preece and D'Arcy's representative Reynolds signed an agreement, negotiated by Britain's reliable mediator in Iran Haji Amin al-Sharia Isfahani, with Bakhtiari tribal chiefs (Najaf Qoli Samsam al-Saltanah, Haj Ali Qoli Khan Sardar As'ad, Gholam Hossein Khan Shahab al-Saltanah and Nasir Khan Sarem al-Molk). The provisions of the agreement were as follows:

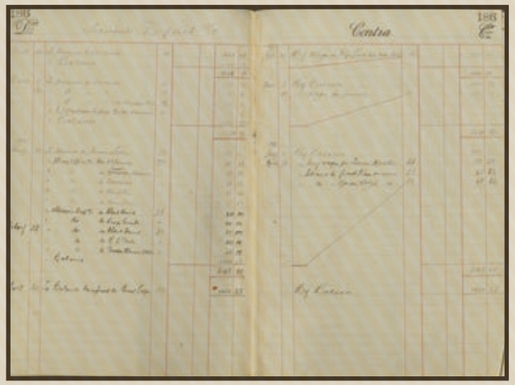
1. The Agreement was to remain in force for 5 years. All required land was to be handed over by the Khans "at the fair price of the day". Non-arable land was to be free.
2. The Company was to pay the Khans 2,000 Pounds per annum (subsequently increased to 2,500 Pounds) in quarterly installments, in return for the guards furnished by the latter. .... Before the finding of oil, the Khans were to furnish two bodies of guards to protect the two places where drilling was to be done. After the finding of oil, the Khans were to furnish as many bodies of guards as would be required to protect the various spots where drilling would be carried out.
3. In the event of sufficient oil being found in Bakhtiari territory, the terms of the Agreement were to remain binding as long as the D'Arcy Concession continued in force.
4. On the pipeline being constructed, the Company was to increase the guarding subsidy to 3,000 Pounds per annum.
5. After the formation of one or more companies to work the oil in the Bakhtiari country, and after oil had been passed through the pipeline, the Company was to grant the Khans 3 percent of all the ordinary shares issued by such company or companies, the said shares to be fully paid.
6. Should the employees of the Khans fail in their duties, the Company would have the right to ask for compensation for any loss.
7. On the expiration of the D'Arcy Concession, all buildings that belonged to the Company were to become the property of the Khans.

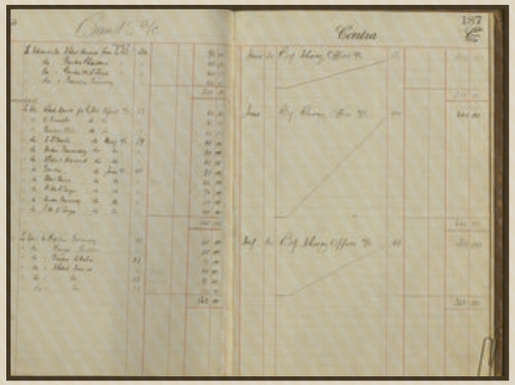
North Oil Concession

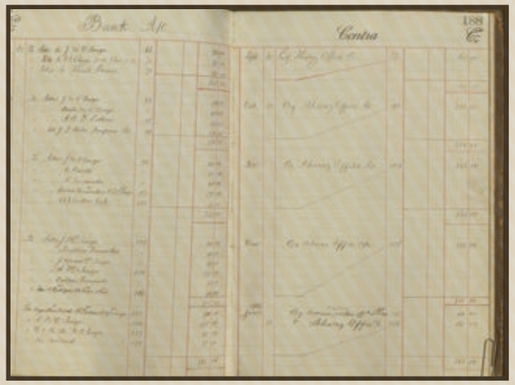
In 1916, under pressure from Russia, Ahmad Shah Qajar agreed to an oil agreement to be signed between then-prime minister Mohammad Vali Khan Khalatbari and Akaki Khoshtaria, a Russian businessman from Georgia. Khoshtaria was granted an oil concession for the provinces of Guilan, Mazandaran, and Astrabad for 70 years. This concession was partly based on a decree granted in 1896 and was generally known as the 'Khoshtaria concession'.

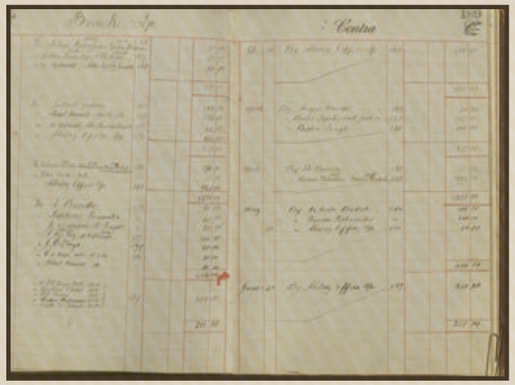
The Minister of Foreign Affairs acting under instructions of the Persian Government on the one side and Mr. Khoshtaria, a Russian subject, on the other side have agreed as follows:

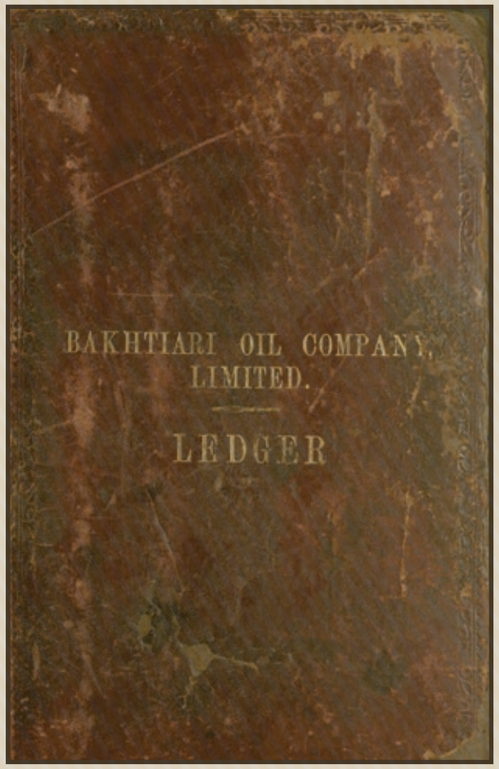
Art.1 The Imperial Government by this concession grants to Mr. Khoshtaria for seventy years the exclusive right of exploitation of petroleum and natural gas found in the districts of Guilan, Mazandaran, and Astrabad. The districts which, under the instructions of His Majesty, on Shaban 1313, were given to Mohammed Vali Khan Sepahsalar are not included in this concession.











For seventy years from the signing of this concession, the right of boring and exploitation of mines in the above-mentioned districts is given to the grantee.

Art.2 The Imperial Government authorizes the owner of this concession to form any company desired, but with the condition that he should fully inform the Ministry of Public Works as regards regulations, location of offices, and the amount of capital. Besides, he is required to present the name of the manager of the company to that same Ministry. In that case, the company formed has the same rights as the owner of the concession, and has to fulfill the same conditions.

Art.3 The owner of the concession is also authorized to build all necessary roads, tanks, stores, and any other building needed for boring and transporting the petroleum.

Art.4 The Imperial Government will give all the arid land which the engineers of the owner of the concession think necessary for the investigation of boring the wells, without charge. In case the land is not arid or belongs to somebody else, the owner of the concession has either to buy or rent the land at a normal price. Land[s] belonging to shrines are an exception to this article.

Art.5 The owner of the concession is obliged to inform the Ministry of Public Works of any discoveries by a special report with a map, on the scale of one ten-thousandth. If the owner of the concession finds the mines beneficial to himself, he shall pay one hundred thousand roubles in cash and present one hundred thousand [sic] roubles in capital stock to the Ministry of Public Works. This payment is to be made but once and at the time of discovery.

Art.6 The owner of the concession shall make an annual payment of 16% of his net income to the Imperial Government and present his balance sheet in duplicate.

Art.7 The Imperial Government has the right at any time to inspect the books of the owner of the concession. A representative will be appointed by the Government to assist the owner of the concession and to give him all the information required. The owner of the concession shall give an annual salary of six thousand roubles to the said representative.

Art.8 Except for the engineers, all employees engaged by the owner of the concession shall be Persians.

Art.9 The importation of all machines and utensils needed by the owner of the concession shall be exempt from Customs duties.

Art.10 After the expiration of the period of the concession, all the machines, utensils, walls, buildings, and other real or personal property shall be turned over to the Imperial Government. The owner of the concession or his partners shall raise no objections to this.

Art.11 In case the owner of the concession does not begin work within five years from the date of this concession, the concession becomes null and void.

Art.12 Differences between the two parties shall be settled by a joint committee of two persons one of whom is to be appointed by the Ministry of Public Works and the other by the owner of the concession. In case the joint committee cannot settle the matter in dispute, a third person shall be appointed by the joint committee for the purpose of deciding the matter.

North Persian Oils Ltd.

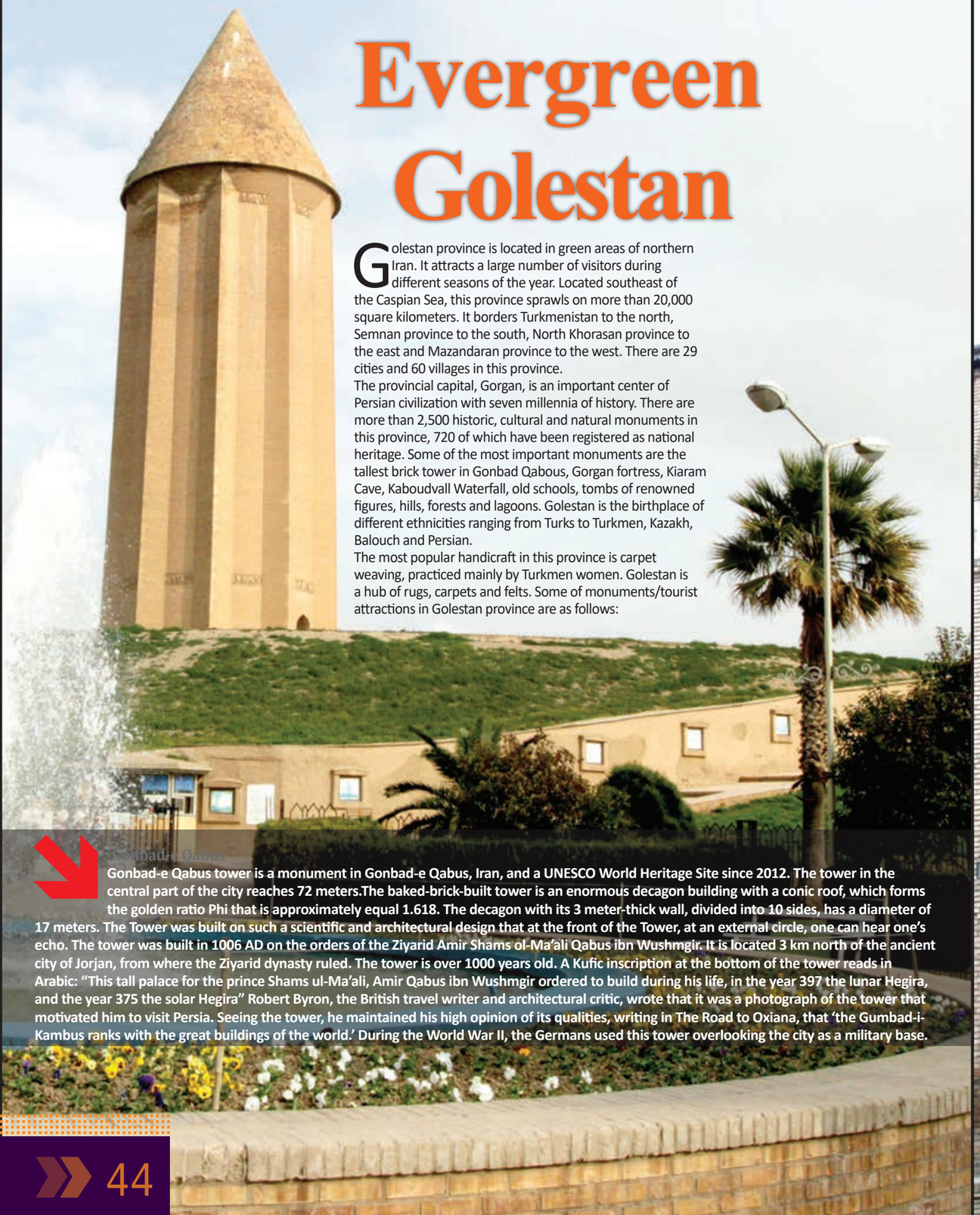
In May 1920, the Anglo-Persian Oil Company (APOC) registered a subsidiary known as North Persian Oils in London. Sir Charles Greenway, Chairman of APOC, Robert Watson, a Burma Oil Company director, and Khoshtaria sat on its Board. This new subsidiary was tasked with oil extraction from northern Iran. The Persian Government later had to invalidate it under pressure from the US on the pretext that the National Consultative Assembly had not endorsed it. It was the first case brought up by the Government of Persia against APOC. In 1924, the Ministry of Public Works announced that anyone with any concession from the Qajar period had to register it or see it become invalid.

Evergreen Golestan

Golestan province is located in green areas of northern Iran. It attracts a large number of visitors during different seasons of the year. Located southeast of the Caspian Sea, this province sprawls on more than 20,000 square kilometers. It borders Turkmenistan to the north, Semnan province to the south, North Khorasan province to the east and Mazandaran province to the west. There are 29 cities and 60 villages in this province.

The provincial capital, Gorgan, is an important center of Persian civilization with seven millennia of history. There are more than 2,500 historic, cultural and natural monuments in this province, 720 of which have been registered as national heritage. Some of the most important monuments are the tallest brick tower in Gonbad Qabous, Gorgan fortress, Kiaram Cave, Kaboudvall Waterfall, old schools, tombs of renowned figures, hills, forests and lagoons. Golestan is the birthplace of different ethnicities ranging from Turks to Turkmen, Kazakh, Balouch and Persian.

The most popular handicraft in this province is carpet weaving, practiced mainly by Turkmen women. Golestan is a hub of rugs, carpets and felts. Some of monuments/tourist attractions in Golestan province are as follows:



Gonbad-e Qabus

Gonbad-e Qabus tower is a monument in Gonbad-e Qabus, Iran, and a UNESCO World Heritage Site since 2012. The tower in the central part of the city reaches 72 meters.The baked-brick-built tower is an enormous decagon building with a conic roof, which forms the golden ratio Phi that is approximately equal 1.618. The decagon with its 3 meter-thick wall, divided into 10 sides, has a diameter of 17 meters. The Tower was built on such a scientific and architectural design that at the front of the Tower, at an external circle, one can hear one's echo. The tower was built in 1006 AD on the orders of the Ziyarid Amir Shams ol-Ma'ali Qabus ibn Wushmgir. It is located 3 km north of the ancient city of Jorjan, from where the Ziyarid dynasty ruled. The tower is over 1000 years old. A Kufic inscription at the bottom of the tower reads in Arabic: "This tall palace for the prince Shams ul-Ma'ali, Amir Qabus ibn Wushmgir ordered to build during his life, in the year 397 the lunar Hegira, and the year 375 the solar Hegira" Robert Byron, the British travel writer and architectural critic, wrote that it was a photograph of the tower that motivated him to visit Persia. Seeing the tower, he maintained his high opinion of its qualities, writing in The Road to Oxiana, that 'the Gumbad-i-Kambus ranks with the great buildings of the world.' During the World War II, the Germans used this tower overlooking the city as a military base.

Gorgan Jomeh Mosque

The original structure of this mosque is located in the "Na'l Bandan" locality of the city. Most probably, the construction of which coincides with that of the brick minaret of Seljukid period. It was expanded, ornamented and renovated later.

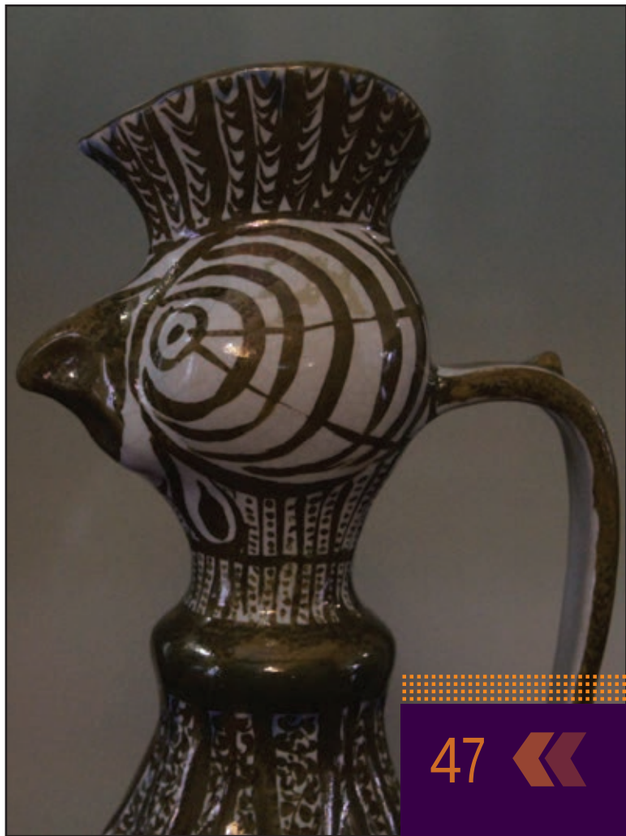
The mosque covers an area of 1,600 sqm and comprises of a large courtyard, eastern and western porches, nocturnal areas, north and south facing entrances, minarets of the Saljukid era, epigraphs, cuneiform inscriptions worked on brick and adornments of brick are some of the historical affects noted on the premises. Besides which there is the carved wooden pulpit, and engraved decrees of the Safavid and Afshar eras. The ancient engraved door of the mosque, together with some archaic epigraphs, and endowment documents are currently in the museum. These are the remnants of the Safavid and Qajar period.

Kaboudval Waterfall

Kaboudval Waterfall is located five kilometers south of Aliabad Katoul city in the middle of woods at the foothill of Mount Alborz. The water falling there is totally clean and its sound gives a sense of serenity to anyone walking in the forest. This waterfall is largely visited. One should take a long way from the forest to reach the waterfall.

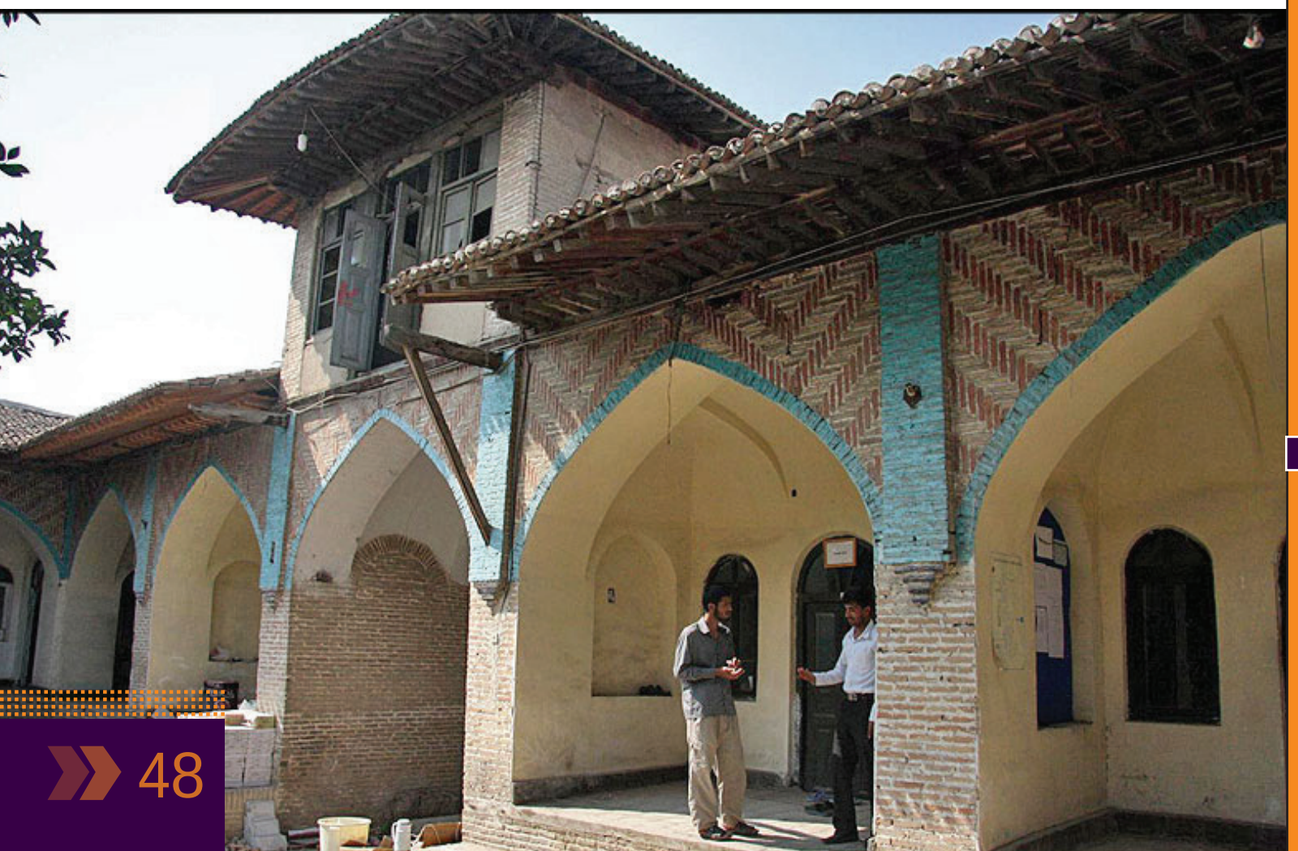
Gorgan Palace Museum

A palace in Gorgan has turned into a museum. Built in 1938 at the order of Reza Shah Pahlavi, the European-style monument was registered as a museum in 1964. Next to this museum stand a group of administrative buildings. It was the first museum in the north of Iran. The ground floor of this palace houses figurines of celebrities who lived in Gorgan. The first floor puts on exhibit vessels and decorative accessories brought in during the second Pahlavi period from France, Italy, Germany and then Czechoslovakia.



Emadieh School

Emadieh School dates back to Safavid era. The two-storey building, which has a courtyard, was active until 20 years ago. The school lost its reputation after Imam Khomeini Seminary started work. The main material used in the construction of Emadieh School is wood and bricks. Emadieh School is built near Jomeh Mosque.



Nour Mausoleum

A mausoleum where Is'haq bin Musa bin Jaafar is laid to rest was built in Gorgan under Seljukids. This mausoleum is located in the center of Gorgan.

There have been contradictory views about the background of this monument. Some say it was built in 9th century AH and some others say it was built in the centuries before.

The monument, decorated with bricks, has a gypsum-covered altar, two old doors and a priceless wooden box installed on the tomb. Verses from the holy Quran have been inscribed in Kufic script on the box.