

## **National Iranian Oil Company, National Development Structure**

Since its inception in 1951 as the second largest oil company in the world, and the main member of OPEC, the National Iranian Oil Company has always tried to develop exploration, drilling, oil production and production in the world's regional and global partnerships in the Middle East. Gas, research and development, refining and distribution of oil, gas and petroleum products as well as exports, has established its unique and historic role as a company with a history of 66 years in the field of production and export in the region.

With huge hydrocarbon reserves, the company is among the largest oil companies in the world, with currently estimated liquid and gas recoverable hydrocarbons of about 159 billion barrels and 34 trillion cubic meters, respectively. In the meantime, the South Pars gas field with 13 trillion cubic meters of gas reserves alone, accounts for half of proven gas reserves in Iran.

### **Iran's contribution to the world's hydrocarbon basket**

British Petroleum has outlined the state of the oil and gas industry in 2016 in its sixty-sixth annual report, the 2017 World Energy Outlook, which is one of the most credible reports from the world energy sector.

### **The fourth holder of oil reserves and the world's first holder of world gas reserves**

According to the latest estimates by the British company, Iran's proven oil reserves could equal 158.4 billion barrels in 2015 and 2016, and Iran holds 9.3 percent of the world's proven oil reserves and is still the fourth largest owner Oil reserves are world-wide.

Accordingly, Iran's gas reserves will total 33.5 trillion cubic meters in 2015 and 2016, and Iran accounts for 18 percent of the world's total gas reserves, and is still the largest holder of global gas reserves.

### **The fourth oil producer and third largest gas producer in the world**

Iran's oil production, along with gas condensate, reached 4.6 million barrels per day in 2016, which represents an increase of 703,000 barrels per day or 18 percent of Iran's oil production compared to 2015. According to the report, Iran's oil production in 2016 would be equivalent to five percent of the total world oil production, and our country was the fourth largest oil producer this year. Iran was the seventh biggest oil producer in 2015 with a daily production of 3.897 million barrels.

According to the latest estimate by the British company, the amount of gas produced by Iran in 2016 is estimated at 202.4 billion cubic meters, which is up 6.6 percent from 2015.

Meanwhile, the National Iranian Oil Company is currently working to maintain its position in the region and in the international arena, its policies in the joint oil and gas fields, increasing the withdrawal rate, injecting gas into oil fields, and increasing the withdrawal of The areas that are in the second half of their life are centered.

On the other hand, technological progress and the complexity of economic and political relations have led the oil company to place national and regional policies and work with major industrial countries on energy supply and stability in the global oil markets.

### **Perspectives and Mission of the National Iranian Oil Company**

The National Iranian Oil Company is a pioneer among the national oil companies of the world with a commercial and integrated function in upstream operations, marketing and international oil and gas operations. The company is present in the domestic and international market more and more effectively in the international arena (International Trade in Hydrocarbons and Technical Knowledge) and will protect the national and international interests of the country in the long run.

The mission of the National Iranian Oil Company is to define the goals defined in the framework of doing business in a profitable way both inside and outside the country, in order to meet the needs of customers and assist in the development process of the country.

### **Major Oil Industry Policy at National Iranian Oil Company**

Together with the development of the 20-year vision of energy diplomacy in the country, macroeconomic policies of the oil industry were also defined, and the identification of all hydrocarbon resources in the territory of the land was prioritized by common reservoirs.

Further, increasing production capacity in the oil and gas industry with the aim of increasing or at least maintaining Iran's share in the global oil and OPEC markets, in line with the increasing global demand for oil, as well as to achieve prospect goals and prevent the loss of hydrocarbon reserves through increased Recycling coefficient, increasing the share of gas in the energy basket of the country through the replacement of consumption of liquid petroleum products with natural gas, as well as efforts to export natural gas to neighboring countries through pipelines and to other countries of the world and the Far East through natural gas production Liquid was introduced as a major political indicator of the oil industry.

To overcome the détente and enhance the level of cooperation with other countries of the region and OPEC members in order to play an effective role in providing energy, as well as to stabilize the world oil market and earn fair income from other areas.

Further, given the importance of synergy and joint activities, other policies on interacting with countries and companies that have advanced technologies in oil extraction, to attract technology and external resources, and to support the acceptance of foreign investment in the development of oil industry, Gas and petrochemical industries, as well as strengthening the attitude of economic management and reforming the structure of oil companies, the regulation of regulations to increase the productivity and modernization of oil, gas, refining and petrochemical companies in the country and promote them to the level of active and competitive international companies in these sectors. And also accurate determination of Rob The financial relationship between the government and the oil and gas sector was defined according to the principles of commerce and business methods.

Optimizing energy consumption along with decreasing energy intensity in all economic sectors of the country through the management and investment necessary to reduce the domestic consumption of hydrocarbons and increase the proportion of exports to production, train specialist and efficient manpower especially in the upstream of the oil industry (such as engineering courses of reservoirs Oil, drilling, exploration and management of reservoirs) Carrying out researches of the oil industry, especially in the field of recycle reservoirs and production of technical know-how of oil products manufacturing processes, and maximizing the value added of the country's oil and gas industry through co-financing of comparative advantages with the development of investment in oil and gas resources and refining, petrochemical industries, industries Energy industry and its supporting engineering services (including related maritime industries and services) are among other aspects of Iran's major petroleum policy policies at the National Iranian Oil Company.

Other pillars of these policies can be support for the creation and strengthening of the private sector in the country's oil industry, especially in the oil and gas sector, as well as in the downstream industries, oil and gas industry and support services, contracting and engineering services aimed at the presence of companies Iran in regional and global markets, as well as the centralization of the attraction, production, transfer and promotion of the new technologies of oil, gas, refining and petrochemical industries in the Persian Gulf region through constructive engagement with countries and companies active in supplying oil and gas technology in global markets and strengthening Research, scientific, technical, and development institutions for active R & D centers Oil, gas, refining and petrochemicals using information and communication technology and expanding the cooperation of companies with international scientific and research institutions.

Supporting joint ventures with regional countries or merging related companies in the petrochemical and oilfield sectors of the oil with the aim of creating large-scale global companies, the participation and development of regional and international cooperation in the exploration, exploitation and exploitation of oil and gas reservoirs and Participation in various upstream and downstream investment projects abroad, with priority for the countries of the region and Asia, with the aim of securing the market and strengthening international engagement with other policies adopted in line with the horizons of 1404.

The Ministry of Oil and the National Iranian Oil Company are also working to achieve the goals defined in the horizons of the landscape, to establish the center of financial services, monetary markets, capital, insurance, stock exchanges, equipment and facilities for the oil and gas industry, and to provide the necessary services through these markets for The countries of the region, as well as the establishment of an investment attraction center and financing required from the world markets, have been established with the establishment of joint financial institutions.

### **Priorities of the National Iranian Oil Company in the Sixth Development Plan**

The National Iranian Oil Company, in its 5th Development Plan, aims to increase its daily oil production capacity to 4.7 million barrels, with a daily gas production capacity of 1.3 billion

cubic meters, and a capacity to produce liquids and gas condensates of 1.1 million barrels per day. Put in the app.

At the same time, efforts to achieve the new technologies and the localization and commercialization of these technologies in the oil and gas industry and the support of the social assignments of the National Iranian Oil Company are among the other goals of the Sixth Development Plan at the company; Based on this, the increase in the potential of oil exports and the increase in the rate of gas and water injection into the fields is also targeted at this program.

At the same time, other nationally-owned subsidiaries of the National Iranian Oil Company have defined priority projects that will be used to benefit the vast number of oil and gas fields in the country. On the other hand, the review and creation of flexibility in organizational structures on the one hand and the attraction of foreign capital and technologies of the world on the other hand are on the agenda.

### **Iran's potential for oil and gas production**

Iran, as the energy pole in the Middle East, has significant reserves of hydrocarbon resources, with currently more than 712 billion barrels of oil reserves in the country and an estimated 101 billion barrels of residual oil reserves.

Iran's natural gas reserves account for 16.6 percent of the world's reserves, 49 percent of Middle East reserves and 38 percent of reserves in oil exporting countries. At the same time, aggregation of Iranian gas and oil reserves reflects the fact that Iran holds the first place in the world's hydrocarbon reserves.

There are currently 184 fields comprising 390 reservoirs in the country, of which 171 are either developed or under development, and 209 reservoirs have not been developed.

Iran's oil reservoirs are classified into three groups of Asmari, Bangestan and Khamay formations, among which the major reserves of oil in Iran are over 300 billion barrels in the Asmari Formation, of which about 50 billion barrels of Removable Reservoir remained. Meanwhile, the average recycling rate for this formation is 37%.

In the Bangest Group, there are 280 billion barrels of oil on site, with a recycling rate of less than 15%, and thus only 33 billion barrels of retained reserves remain, although it is expected to be utilized by harvesting methods the recovery coefficient of the reservoirs of this formation is increased.

At the same time, crude oil storage at Khami Formation is over 126.5 billion barrels and the recycling rate is 17.15 percent.

The amount of oil can be withdrawn from the country's reserves while the average recycling rate for oil reserves in the country is estimated at 24.6 percent. Of this amount of recycling, only 4.4% of it comes from the use of extraction methods.

Nevertheless, the average recycling rate for oil fields is 35%, which is the difference between the current recovery rate of oil in Iran and this figure is about 10%. If the recovery ratio of 35% is reached, then 70 billion barrels will be added to our country's oil reserves. Became

Of course, it is possible to increase the refining rate by 5 to 15 percent by using EOR and IOR methods that are seriously pursued in the plans for increasing the production of the National Iranian Oil Company. At the same time, it is recommended that the companies that are applying for the development of the fields in Iran to consider a combination of methods of increasing harvesting to increase the recycling rate, and not just in a way.

At the same time, the coefficient of recycling of liquids and condensate is 51% and the average recycling rate is about 70%, which means that the total hydrocarbon recycling rate of the country will be about 40%.

Among the oil and gas fields discovered in the country, the largest and most important ones include the Changleh oil field in Ilam province, Arash oil and gas field, Kushak oilfield in the South Pars Oilfield and Azadegan oil field near Ahwaz.

The largest and most important gas fields discovered are: Gardan gas field in the south of Shiraz, Shirin Tabnak on the border of Fars, Bushehr and Hormozgan, cumin in Bushehr, Homa and Di in Fars Province, Tabnak East and South Pars gas field.

### **Iran's oil fields**

Iran's oil fields include reservoirs, basins and oilfields located in the territory of Iran's soil and water. Some of these fields are currently active, and some are inactive or under development. The ownership of all of Iran's oil and gas fields is at the disposal of the National Iranian Oil Company, which is now producing production from these fields by four subsidiaries such as the National Oil Company of the South Company, the Iranian Offshore Oil Company, the Central Iranian Oil Company and the Oil Company Arvand Gas is done.

The management of a large part of Iran's high-yielding fields is the responsibility of the National South Oil Company, which is based in the southern and western parts of the country and all of them are among the drought areas. The Iranian Offshore Oil Company is managing all of the country's squares located in the Gulf. The oil fields located in the central part of the country have been assigned to the oil company of the central regions of Iran, which are considered small and medium-sized fields of the country. The management of part of the semi-developed and undeveloped fields located in southern Iran, known as the West Karun fields, is also at the disposal of the Arvand oil and gas company. The oil and gas fields in the Caspian Sea are also controlled by the Caspian oil company, although these fields have not yet reached the stage of production.

Iran's largest oilfield is Ahvaz oilfield. With a storage capacity of 65.5 billion barrels and an estimated 37 billion barrels of storage, the field is known as the world's third largest oil field. The Gachsaran oil field, with reserves of 52.9 billion barrels and the final storage of 23.7 billion barrels of crude oil, is the second largest oil field in Iran. The third oilfield in the country is Maroon Oilfield, which is equivalent to 46.7 billion barrels of crude oil, located in

Asmari, Bangestan and Khamayi reservoirs. The Azadegan oil field, with its reserves of 32 billion barrels, is the fourth largest oil field in Iran and the largest common area of the country. This field in its main layer, Sarvak, is common to the Iraqi Majnoon Square. Aghajari oil field, with 30.2 billion barrels of crude oil on its own, is the fifth Iranian oil field. The four fields of Ahwaz, Maroon, Aghajari and Gachsaran provide a total of more than 2 million barrels of daily oil production capacity. The Azadegan field crude oil production capacity is also at an average of 40,000 barrels per day.

Iran's joint oilfields

Iran has common oil fields with some of its neighboring countries. These countries are:

Iraq

Saudi Arabia

Kuwait

Diameter

United Arab Emirates

Oman

There are currently 15 tanks and 28 oil and gas fields shared between Iran and neighboring countries in the north and south of the country. In the meantime, there are land-based tanks in the immediate vicinity of Iraq and other tanks in the Persian Gulf and the Caspian Sea.

There are 5 oilfields along the common border between Iran and Iraq, which include: Nafshahr Square, Dehloran Square, West Sustainable Field, Azar Field, Azadgan Field and Yadavaran Oilfield.

Four common areas of Esfandiar, Forouzan, Farzad A (Fars 1) and Farzad B (Fars 2) are located along the common border between Iran and Saudi Arabia.

Along the common border between Iran and Qatar, Rshadat oil field is located, and the oil layer of South Pars field is also located along the common border between Iran and Qatar.

Arash oil and gas field is located along the common Iranian-Kuwaiti frontier.

Along the common border between Iran and the United Arab Emirates, Farzam oilfield, Nosrat oil field, Mubarak oilfield and Salman oil field are in close proximity to Emirati reservoirs.

Also, the only common oil field in Iran with Oman is the oil field.

Perspectives on the development of the National Iranian Oil Company

The development of Azadegan oil field as one of the most important missions of the National Iranian Oil Company in the process of increasing oil production in the twelfth government is

of great importance; from this perspective, the planning of the production of more than 300,000 barrels of oil from the west of Karoon to the end Year 96 is done.

In the production and export of gas and gas condensates, effective measures have been taken and included in the program, including the completion of the development process of the South Pars gas joint field, which is currently half its full six phases, and according to the planning These developments should be completed by the end of the year.

According to the planning, if the swap operation is resumed, the North terminal with the maximum capacity already available (120,000 barrels per day) can carry out this operation. Earlier, the northern terminal managed to deliver 250,000 barrels of oil per day, using two Sadr's drainage pipelines. If the swap is boosted, Sadra can still be used at two ports of discharge.

On the other hand, the annual diversion of nearly 800 tankers at the Kharg oil terminal has provided a favorable potential for exporting our crude oil to our country.

Meanwhile, the record breaking at the same time as 10 tankers shipped 9.2 million barrels of oil was indicative of the fact that the National Iranian Oil Company would be able to export Iranian crude to high levels on the basis of the demanded amount.

### **Crude oil storage**

Storage operations are one of the important processes of the energy system with the aim of maintaining the integrity and preventing fluctuations or delays in the supply chain of energy.

In the National Company of Southern Oilfields, in order to stabilize the operational conditions of production and prevent fluctuations, the storage tanks in the operation units as well as in the pumping stations of crude oil transfer to the export terminals, especially in the facilities of large oil fields, or Is under construction.

In the offshore oil company, the crude oil produced from the sea platforms of the different regions of Kharg, Siri, Lavan, Kish, Qeshm and Bahargan is directed by the submarines to the reservoirs in the islands and in the Bahregan to the floating terminus of the Persian Gulf.

In the oil company of central regions of Iran, whose oil and gas fields are scattered over the geographical area of Iran, there are reservoirs available to cover the repair time and operation continuity, and the transmission in each region is of great importance; thus, each region has reservoirs Sufficient storage is provided.

The Kharg-Asalouye-Mahshahr export terminals in the south and the Neka terminal in the north of the country are equipped with berths for tankers to export crude oil (crude oil swap from the northern Neighborhood in Neka) or oil products To Neka-Mahshahr), and the export of liquids and condensates (from Assaluyeh to Mahshahr) and other common facilities related to ship acceptance operations, storage tanks and loading and unloading facilities.

In the area of Asalouyeh from Iran's oil terminals company, transportation of condensate to ships is carried out by floating boats (SPM). At the same time, the company is implementing

a strategic plan for the construction of oil and gas terminals in the west of Jask city as one of the national projects.

### **Drilling, the main arm of oil and gas development and production**

The drilling industry is considered as one of the important arms of oil and gas production; it is a complex of diverse technical operations that embraces many of the knowledge of the day.

Meanwhile, the organizational status and the scope of the activities of the National Iranian Drilling Company as a powerful arm of the National Iranian Oil Company in the development and production of oil and gas fields are based on drilling operations for the exploration, production and exploitation of oil and gas reservoirs, as well as Repair and repair them, create injection wells and perform all related technical services, including internal territory and continental shelf.

The National Iranian Drilling Company is engaged in providing technical and specialized services and drilling in three sections of oil and gas well drilling, specialized technical services and engineering and project management services.

In the field of drilling of oil and gas wells, the company carries out a wide range of drilling, directional drilling, quaternary drilling, air drilling, geothermal well drilling, coring and residual maintenance.

In the field of specialized technical services, the control of eruption of wells, waste management services, well logging and lattice, wellhead services, acidity and injectability, intubation, mobile brain tube, toxic gas protection, wells, well completion services, services Drilling fluid, full cementing services, full well logging services, drilling fluid flow diagrams, well surface testing, wells testing, shearing, pendant mounting and casting services are circular drilling tools from current national drilling programs.

The company is also active in the field of engineering and project management services; in this area, the MC services, cement services, well control erosion services, drill motivation services, drilling fluid services, geological services and drilling services are underway. has it.

A look at the performance of the National Iranian Drilling Company since its inception indicates the gradual increase in the number of drill rigs and the full control of the company on the development and production of hydrocarbon fields, so that the number of drilling rigs at the company in the first decade amounted to 19 units. And in the next three decades it has been upgraded to 46, 56 and 74, respectively.

The company has changed its approach from the pivotal project to the knowledge base and becoming an economic firm after launching it.

Since its inception in 1979, the National Drilling Company has drilled 4291 oil and gas wells with an area of over 9 million square meters.

At the same time, the deepest drilled well in Iran's National Drilling Company is about 7,500 meters deep.



