

EXTRACTION AND TRANSPORTATION OF GAS IN CASPIAN REGION

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Necessity for energy carriers are being increased in the world, and in this connection, discovering and exploitation of new hydrocarbon ate reserves are of special importance. From this standpoint, exploitation of new perspective oil and gas deposits in the Caspian region caused increasing of large-scale foreign oil companies in this region. As a result of this, large-scale capital stream is ongoing in the offshore countries. For instance, \$60 billion of foreign capital was invested on oil and gas industry of Kazakhstan and \$40 billion was invested on Azerbaijan for last 10 years.

If oil industry was the chief field in Caspian region for last 20 years, then the raise of gas industry is being expected for next decade. Changing of the situation in this direction can be explained by many reasons. The followings can be included here of course:

- Discovery of deposits with large reserves in shelf zone of the Caspian Sea and surrounding zones;
- Increasing need for natural gas in the world market;
- Support by foreign capitalists for the initiatives on creation of multi-field gas-pipe line nets;
- Providing the sustainability of gas transportation into the world market regardless the influence of various factors;
- Each of the Caspian Sea region countries supports the determination of directions of natural gas exportation in conformity with its economic and geopolitical interests.

Main-pipes lines were built in some directions from Caspian-offshore regions to the world market under the influence of above mentioned factors within the last years. It is interesting that, present economic and geopolitical condition in the Caspian region had great influence on choosing of the directions of each main-pipe line. In connection with it, oil and gas pipe lines were laid in various directions from the Caspian region countries.

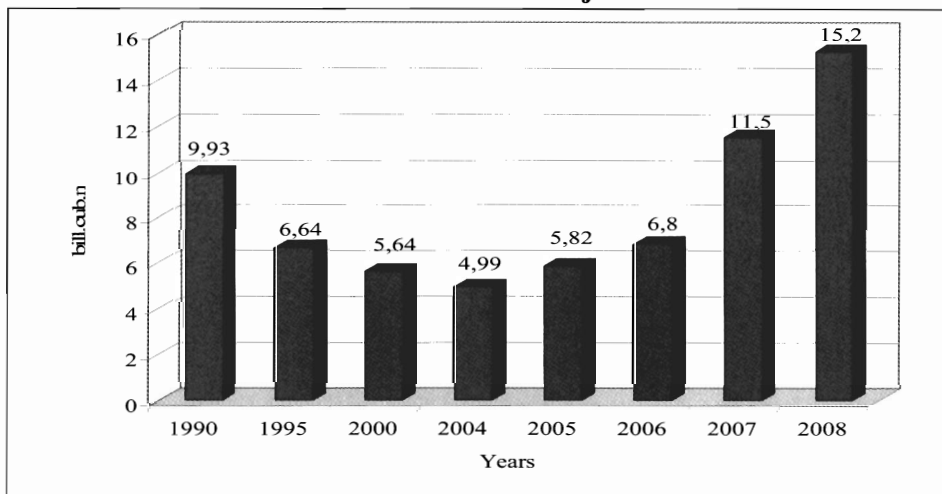
Extraction and transportation of gas to foreign countries in Azerbaijan

Along with oil extraction, rich gas reserves are also exploited in Azerbaijan. Maximum capacity of gas extraction in the Republic was observed during 80s years of last century. Gas extraction made 14,9 billion m³ in that period

and 11-12 billion m³ of that capacity that was the remained part within the republic were transported to neighborhood Southern Caucasus republics. The main part of the produced gas fell into the share of Bahar deposit in the sea: However, gas extraction in the republic gradually decreased in the following period. Import of gas is already started through Mozdok-Baku pipeline from Russia to meet demands of Southern Caucasus republics.

After Azerbaijan gained its independence, attention was increasingly paid to the strengthening of exploration and boring work in the sea shelf to provide energy supply of the republic. Capitals of foreign companies with necessary capacity directed to prospective gas deposits played stimulant role in development of gas industry in the republic. It should be noted that Azerbaijan imported 2-4 billion m³ natural gas from Russia during 2002-2006. However, nearly twicely increase of gas price (1m³ -\$235) imported to Azerbaijan from Russia in 2006 made the republic reject this offer. In comparison with it, Russia exported its gas to Armenia for \$80, Belarus-\$120, Tajikistan-\$90 and the Baltic region republics-\$170-180 that had strained relation with Russia. Such step of Russia against Azerbaijan can be explained definitely by its willing on putting economic and political pressure on our republic. Russia's such kind of attitude influenced on the intensification of work in gas extraction field of Azerbaijan. As a result of this, gas extraction increase cold in the republic (Fig. 1).

Gas extraction in Azerbaijan for 1990-2008



Gas is mainly extracted on the account of Shah-Deniz deposit in Azerbaijan. Gas extraction is implemented in 5 wells here. The quantity of boring wells will be increased in the second stage of Shah-Deniz project. As a result of this, it is meant to extract more than 12-14 billion m³ natural gas from the deposit. Gradual increase of the extraction will provide opportunity for 15-20

billion m³ gas transportation from Azerbaijan to Europe annually during 2015-2030.

Increasing of gas extraction became possible mainly on the account of Shah-Deniz deposit in the sea. Capacity of gas reserves reaches 1 trillion m³ in this deposit. Exploitation of such rich deposit created opportunity for not only providing internal demands, but also gas transportation. As a result, Baku-Tbilisi-Erzurum pipeline started to be built. The gas-pipe line called Southern Caucasus was put into operation in the first quarter of 2007. Length of the main-pipe line is 970 kilometer and its diameter is 42 inches. 8 billion m³ of natural gas is intended to be transported in the primary stage, while later on 16 billion m³ via this route. Exploitation of Shah-Deniz deposit will be carried out in some stages. Presently, the first stage of this project is being completed. In general, \$15-20 billion capital is required for complete exploitation of Shah-Deniz deposit.

Increasing of demand to energy carriers in the EU countries caused discussion on the various main-pipe line projects. One of these projects is Nabucco project. Through this main-pipe line with the length of 3, 3 000 km, natural gas is to be transported to EU countries from Central Asia.

Nabucco project presented in 2004 provided primarily import of natural gas from Persian Gulf. But nuclear program of Iran made the realization of any international project impossible regarding this country. Therefore, attention focused on the Caspian region as the raw material source, more precisely – Azerbaijan and Turkmenistan.

According to Nabucco project, 26-32 billion m³ gas will be exported via this pipe line. Building of gas-pipe line is to be completed in 2013. Attracting issue here is extremely greatest value of this project. According to primary estimations, €7,9 billion is required for construction of this pipe line. The source of such capacity resource is not completely determined and therefore, the future of Nabucco main line remains undecided.

If Nabucco project is realized, Azerbaijan will not only become a transit country, but also will gain a chance to transport its natural gas to European market.

Turkmenistan's opportunities of gas export

Turkmenistan realizes State Program on development of oil-gas industry to provide construction and commissioning of international pipelines. According to this, gas extraction is expected to be increased from 72 billion m³ in 2007 till 250 billion m³ in 2030 in the republic. Under the program on development of gas industry in Turkmenistan, gas production is intended to be increased in 120 billion m³ in 2010. Gas export will be 53 billion m³ in 2009, and 42 billion.m³ of them will be transported to Russia, while other 11 billion m³ to Iran. Turkmenistan is interested in participating in projects on construction of gas pipe-lines in all directions like other Caspian region countries. As it is

known, natural gas is exported only in two directions from Turkmenistan in this period: Middle Asia-Central gas pipe-line in the north direction from the territories of Uzbekistan and Kazakstan to Russia and relatively small Korpeje-Kurdkuyu (Iran) gas pipe-line in the south direction. Transportation power of the pipe-lines does not provide export opportunities of Turkmenistan completely. Therefore, negotiations are carried out on projects about the construction of gas export pipe-lines of the republic, agreement is reached and treaties are signed.

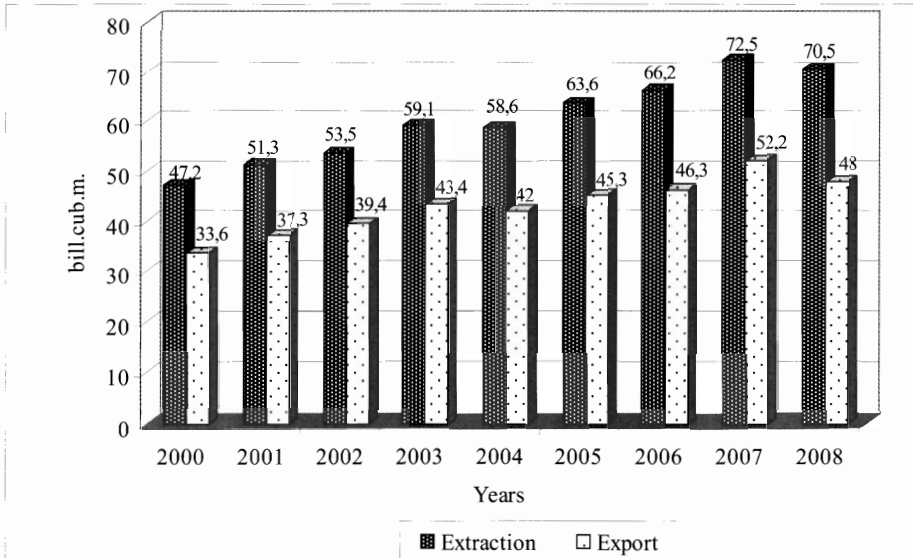
The projects causing special interest in this line are the followings:

- Transcaspian gas pipe-line
- Caspian gas pipe-line
- Gas pipe-line constructed in the direction of China.

As is known, one of the greatest gas deposits of Turkmenistan is Dovlehtabad. Main part of the gas produced in the country is provided mainly through this deposit. However, new perspective deposits were discovered and exploited in the country during the last years. One of these deposits is Southern Elotan-Osman gas deposit. Natural gas reserves founded here is estimated at 5-6 trillion m³ capacity. Due to this estimation, Elotan-Osman gas deposit occupies the fifth place in the world.

Dynamics of gas extraction and export in Turkmenistan within last decade opens new, wide doors for construction of new main-pipes (Fig. 2). It should be noted that, 50 billion m³ of the natural gas exported from Turkmenistan in 2008 fell into the share of Russia (1).

Extraction and exportation of natural gas in Turkmenistan for 2000-2008



Turkmenistan offered Russia a joint exploitation of Southern Elotan deposit early in 2006. However, Russia's "Gazprom" company stated its unwillingness to participate in this project. For such reasons, Turkmenistan directed its interest to China. Consequently, building of Turkmenistan-China Trans-Asia gas pipe line was already started in 2008.

Gas pipe-line in China direction

The gas-pipe line constructed in China direction intends to export 30 billion m³ of gas in a year. Kazakhstan and Uzbekistan also joined Trans-Asia gas pipe project. The part of the main located in the territories of these countries, is constructed on the account of China's investment. But Turkmenistan does its construction work on its own account.

A pipeline's construction will be completed in 2010. Increasing tension between Turkmenistan and Russia regarding gas export made it urgent for Turkmenistan to sign a new treaty on gas export with China. According to this agreement, 40 billion m³ of natural gas will be exported annually to China through this gas pipe line.

Caspian gas pipe-line

Impossibility of construction of new gas pipe-lines in Afghanistan and western directions, as well as Russia-Turkmenistan positions coming closer in this sphere created a circumstance for Caspian gas-pipe line project.

With the initiation of Russia, Kazakhstan, Russia and Turkmenistan signed a joint agreement on the construction of the Caspian gas-pipe line in 2007. Via this gas main, 10 billion m³ of natural gas is intended to be exported in the Russia's direction every year. Complicacy and financing problems of negotiations concerning construction of main pipe line remain its building undecided in the future. Western European investors do not yet take interest in construction of Caspian main pipe line, whose length is 700 km.

Transcaspian gas pipe-line

Increase of gas extraction demanded widening opportunities for its export in Turkmenistan. Thus, the Russian party put various pressures upon Turkmenistan since the gas was exported mainly in north direction. Therefore, in Turkmenistan gas extraction dropped from 81, 9 billion m³ as it was in 1990, to 13, 3 billion m³ in 1998. Consequently, Turkmenistan signed relevant treaties with Azerbaijan, Georgia and Turkey on the construction of Transcaspian gas pipeline in 1999 by discussing the building of alternative gas export pipes line with foreign countries. But later its realization was impossible, because of a total agreement was not gained between the parties on this project. Despite that, the Transcaspian project is still on the agenda, and USA and EU countries

have special interest in its realization. It should be first explained as an attempt of decline of energy dependence of western countries from Russia.

Turkmenistan party does not take interest in Transcaspian gas-pipe-line project. Change of administration in Turkmenistan created conditions for the project's being again on agenda. Along with it, explosion happened in gas-pipe-line from Turkmenistan to Russia (because of Russia's fault) compels to close projects on perspective gas export of the republic from west, east and south directions.

Stability Foundation is established in the country for productive application of incomes gained from oil and gas industries and with the purpose to diminish influence of economic crisis covered the world last years in Turkmenistan.

Development program of oil-gas industry was approved until 2030 for provision of continuous development of fuel industry in Turkmenistan. According to this program, oil extraction will be increased by 110 mln ton, while gas extraction-250 billion m³ until 2030 in the country. Such capacity of the extraction will cause to the increase of natural gas and oil export. Taking it into consideration, Turkmenistan put forward a proposal to UN General Assembly on adoption of special convention on "protection guarantee of international main-pipe-lines" in September, 2008.

Russia's policy in energy supply issue of Caspian and Central Asia region

Azerbaijan, Kazakhstan and Turkmenistan were obliged to use the Russian's territory in oil and gas export for many years. However, pressures put regularly upon these countries by Russia caused construction of new pipelines in other directions (ceasing oil and gas export to market because of different reasons).

At the same time, western countries directed large-scale investments and new technologies to these countries. The policy pursued by new independent states in this field and business activity of western countries in the Caspian region definitely provoked Russia and the latter was obliged to change its policy on the Caspian region to change the existing situation. Large-scale investment was required for exploitation of oil and gas deposits revealed in the Caspian region, whereas Russia did not put investments on this region as compared with western countries. In spite of is, Russia proposed to carry out some interesting joint projects to the regions countries for last years.

Except of Caspian gas pipe-line project to be built in the eastern coast of Caspian Sea, Russia forwarded two different proposals to Azerbaijan. The first of them is importing natural gas to be extracted in Azerbaijan in compliance with world market price since 2010. The second, re-exporting natural gas of the same capacity exported to the north of Azerbaijan as "swap" form in the northern part of Iran. Supposing, Russian's geo-political interests stand behind the second proposal. So, constructed Iranian-Armenian gas pipe-line is not

yet explored, since natural gas lacks in the northern areas of Iran and there is no proper infrastructure for this region in southern zones.

With such proposals Russia, at the same time, impedes participation of the pre Caspian countries in Nabucco project. It should be noted that, the European Union worked up a strategic program on energy safety till 2050. One of the most important proposals is the establishment of Caspian Development Corporation. The company will be engaged in purchase and transportation of natural gas from the Caspian region and Central Asia.

Collision of economic and political interests of Russia and western countries concerning energy export prevents construction of large pipelines. Decrease of tension over the issue will create suitable conditions for realization of various international traffic projects.

Hydrocarbon reserves of Iran in the Caspian region

Caspian part of Iran is a poorly studied field from viewpoint of existence of oil and gas resources. It occupies the fourth place for discovered oil and gas in the world, and the second- for gas resources, presently. The capacity of gas resources revealed here is 28 trillion m³. According to data of Iranian National Oil Company, 10 billion barrel of oil and 560 billion m³ of gas were revealed in deposits of the Southern Caspian. According to the prognosis of Iranian National Gas Company, natural gas extraction by increasing twicely will reach 274 billion m³ in 2012 (3).

The southern part of the Caspian Sea has not yet been studied thoroughly, since it is the deepest part of the sea and proper equipment lacks there. As is known, the specialists from Azerbaijan carried out boring-exploration work in Iranian coasts of the Caspian Sea due to Iranian side's appeal as early as in 1977-1978. Consequently, the geological-exploration work was stopped because two boring wells negatively resulted for oil and gas.

Exploration of new deposits in Caspian Sea and directing large-scale investments by foreign oil companies caused increase of the Iranian party's interest to the southern Caspian. Isolation of Iran from international projects and grand oil companies' never directing their investments to this country definitely hinder geologic-explorative work in the sea. But despite that, the Iranian party carried out a geophysical research in southern Caspian with the help of other foreign companies and revealed 16 perspective oil and gas fields as a result. Tabbas, Zabol, Zakhedan, Jaraban and Cabakhar are perspective deposits. Boring works are required to fulfill first for putting these fields into use. We can't hope for exploitation of these deposits in near future taking into account 700-metre height of the sea-depth here and perceiving importance of putting large-scale investments. Thus, foreign investors do not put investments on Iran yet and the Iranian internal financial and technical opportunities are still restricted.

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XƏZƏR REGIONUNDA QAZ EHTİYATLARININ HASILATI VƏ NƏQL EDİLMƏSİ

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Məqalədə Xəzər regionunda qaz ehtiyatlarının mənimsənilməsi və nəql edilməsinə dair vəziyyət təhlil olunur. Bu regionda neft və qaz ehtiyatlarının qeyri-bərabər yayılması bölgədə formalaşan boru kəmərləri şəbəkəsinin coğrafiyasına bilavasitə təsir edir. Region ölkələrinin geoiqtisadi və geosiyasi maraqlarına uyğun olaraq hər birində ayrılıqda müvafiq ixrac boru kəmərləri layihələrinə üstünlük verilir. Bunun əsasında Xəzəryanı ölkələrinin enerji sektorunda yeritdiyi müxtəlif siyasi və iqtisadi yanaşmaları açıqlanır. Xüsusi olaraq qeyd olunur ki, Azərbaycan, Qazaxıstan və Türkmənistan çoxşaxəli boru kəmərlərinin inşasına üstünlük verdiyi halda, Rusiya bu ölkələ öz təsiri altında saxlamağa can atır.