

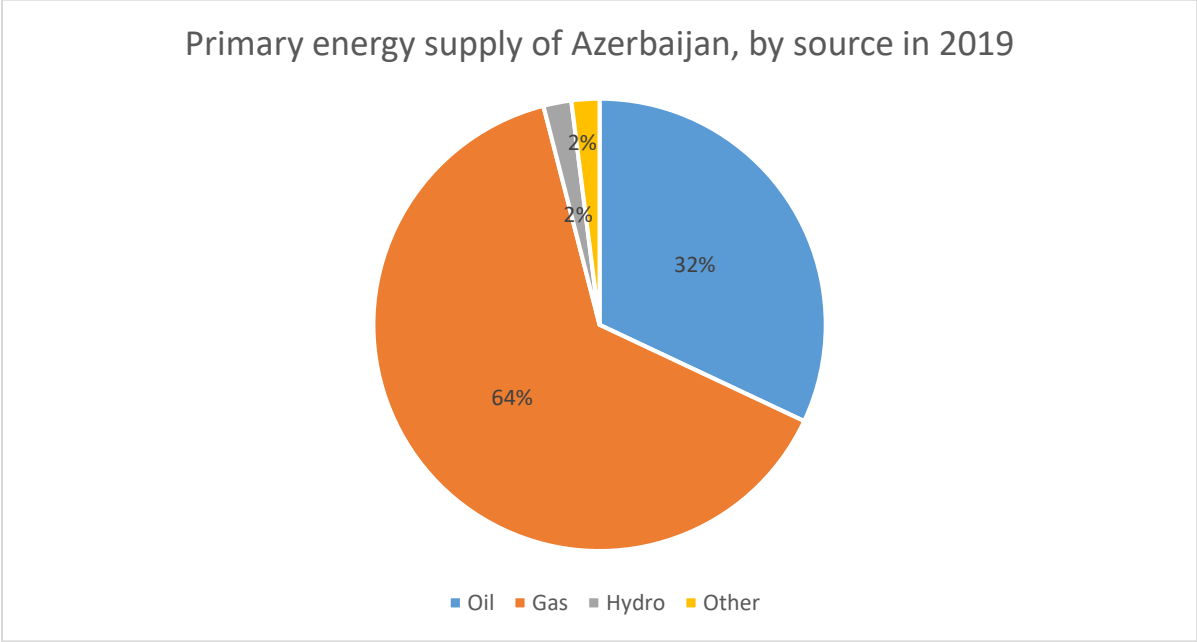
ENERGY POLICIES AND STRATEGIES OF AZERBAIJAN

Azerbaijan is rich in oil and gas resources. The country holds 7 billion barrels of oil reserves and 2.8 trillion cubic meters (tcm) of proven natural gas reserves. Shah Deniz is the largest natural gas and condensate field with 1.2 tcm of gas and 2.2 billion barrels of condensate reserves. Gas production is expected to continue contributing significantly to the economy in the coming decades. Azerbaijan can cover entire energy demand from domestic production, which is currently based on the use of its hydrocarbon reserves, namely oil and natural gas.

Given that Azerbaijan's oil industry has undergone a great development after restoration of state independence, it is necessary to analyze the policies and strategies adopted by the country during this period. Furthermore, oil and gas revenues played a significant role in social and economic life of the country, as well as development of the non-oil economy. Thus, it is of vital importance to examine energy outlook of the country, while analyzing the progress in energy sector during the past 26 years.

The energy sector of the country is self-sufficient. Currently Azerbaijan exports oil, natural gas and electricity. Along with the oil and gas sector, the electricity sector plays a leading role in Azerbaijan's social and economic development. Large investments in power generation and transmission since 2009 have resulted in remarkable improvements in the quality of power supply. Electricity generation is now sufficient to cover domestic demand, and the power system is capable of supplying electricity of acceptable quality to almost the entire population. In 2019, electricity generation reached 26.1 TWh, up 3.3% from 2018. Of this, 92.7% came from thermal power plants and 7.3% from other sources, mainly hydropower plants. The country has been exporting electricity since 2007 as it exported around 1.5 TWh to Georgia, Russia and Turkey. Electricity supply security improved over the past decade with modernisation of the generation system and strengthening of the west-east transmission network. The State Strategy on the Use of Alternative and Renewable Energy Sources in Azerbaijan for 2012-2020 provided key directions for the production of electricity and heat from renewables. To date, the focus in renewable energy has been on small hydro and wind power, with more than 300 megawatts (MW) of new renewables capacity in planning or development.

In 2021, total crude oil production of Azerbaijan was 34.6 million tons, while gas production 43.9 bcm. An increase in gas production is estimated due to the commissioning of Sahdeniz-2 project, as well as development of several fields including Absheron, Umid and Shafag-Asiman. The country's energy mix is heavily concentrated on fossil fuels, with oil and gas accounting for more than 96% of the total supply.



Source: BP

According to the 2016 Strategic Roadmap, the government plans to diversify energy portfolio of the country and to create an additional total 420 MW of renewable generation capacity, with 350 MW of wind, 50 MW of solar and 20 MW of biomass capacity. Thus, the share of renewable energy in the energy balance is expected to rise to 30% by 2030.

Oil industry of Azerbaijan has undergone a great and successful development over the past three centuries. However, Azerbaijan was able to fully benefit its national wealth only at the end of the twentieth century, during its independence period. After the restoration of the state independence, Azerbaijan's oil industry has developed in three stages.

1. Historical development of oil industry of Azerbaijan

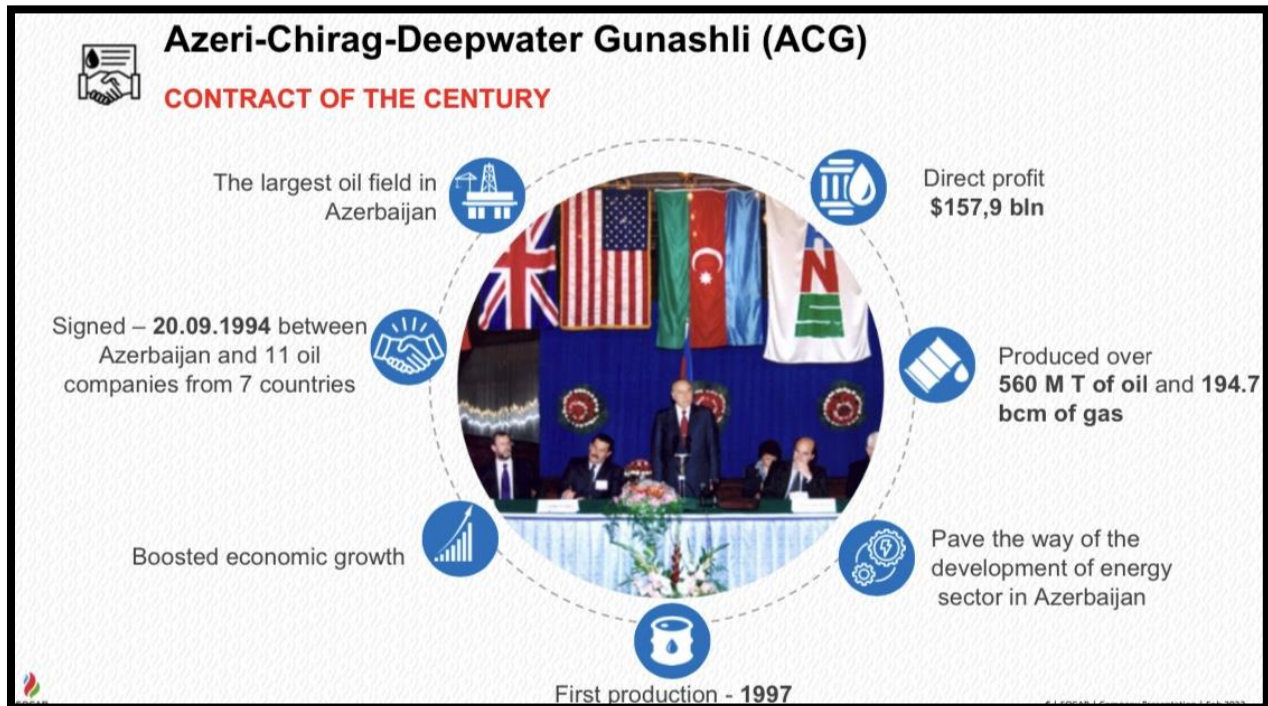
The name of Azerbaijan is related to many firsts in the world oil history. Likewise, the first industrial oil well in the world was drilled in Bibiheybet village of Azerbaijan in 1846 and oil was

extracted from a depth of 21 meters. The first oil refinery was built in 1837 and the first kerosene plant was constructed in 1863 in Azerbaijan, thus the refrigerator was used for the first time in the oil refining process in the world. Mass production of oil started in 1871 using the derrick drilling method. However, the oil transportation was expensive and the technology was old which prevented increasing of the production. In this context, the first pipeline of Eurasia with 12 km length was laid between "Balakhani and Black city" in 1878 in Azerbaijan. In addition, the world's first oil tanker "Zorastr" was built in Sweden and put into operation in Azerbaijan in 1878 with the order of the Nobel brothers in order to transport oil to the world markets. Thus, oil production in Azerbaijan soared and the peak of the first "oil boom" experienced between 1892-1913. As a matter of fact, Azerbaijan produced 11.5 million tons of oil in 1901, surpassing the USA and became the world's largest oil producer.

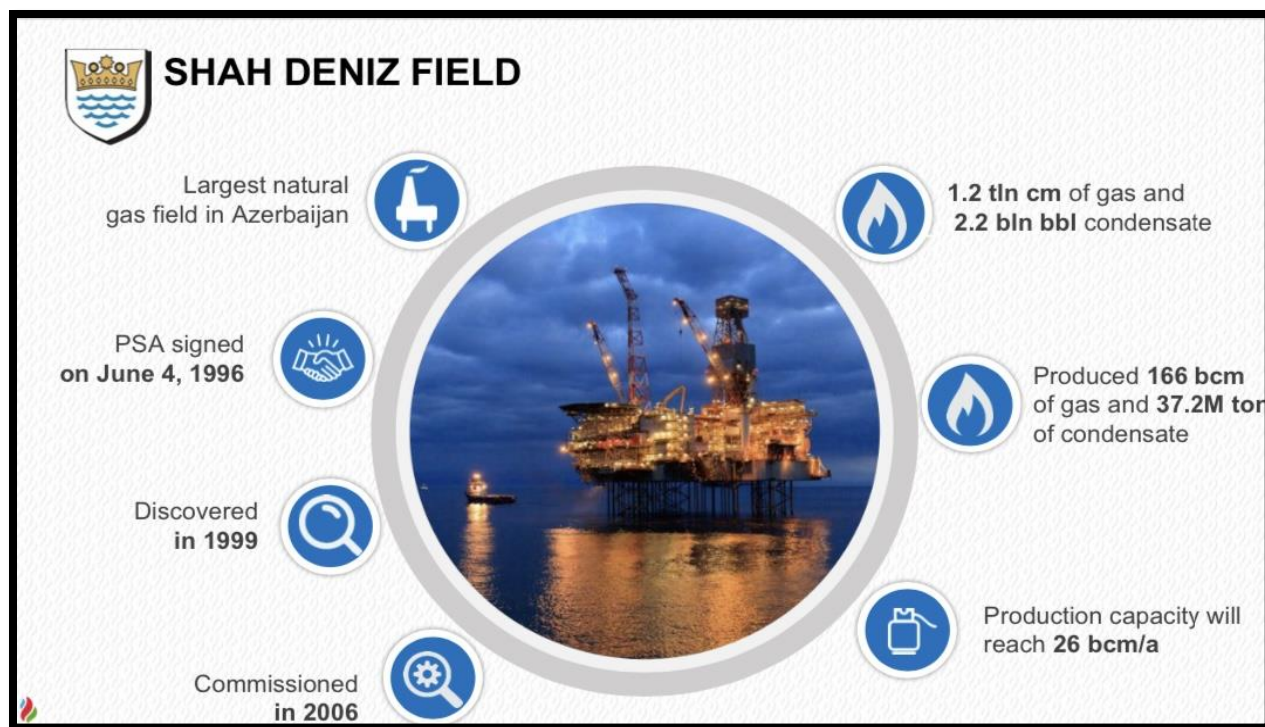
2. Energy policy of Azerbaijan between 1991-1997

In the early years of independence, serious macroeconomic imbalance occurred in Azerbaijan and the country suffered from major financial problems. Industrial production in the country had decreased by 60%, while inflation rate exceeded 1000%. Azerbaijan could only restore its economic stability by developing oil and gas resources. However, the country did not have financial resources and high technology to develop its natural resources. At that time, Azerbaijan could only produce oil in the shallow waters of the Caspian with the existing technology. However, most of the resources were located in the deep waters of the Caspian sea and modern technology was needed for the development and production of these resources. This, of course, could only be done by international energy companies. As a matter of fact, Azerbaijan was able to attract international energy companies for investing the largest oil field of the country, namely Azeri-Chirag and Deepwater Gunashli (ACG). In this context, the production Sharing Agreement (PSA) was signed for joint development of ACG field on September 20, 1994 with the participation of 11 international oil companies from 7 countries. The Agreement was later named the "Contract of the Century" given its importance and a scale. Thus, the Contract of the Century laid the foundation of social and economic development of the country, while providing basis for major energy and infrastructure projects. As a matter of fact, Azerbaijan signed 30 oil and gas agreements with 41

energy companies from 19 countries in the following years. In this context, almost 41 billion dollars have been invested in ACG fields over the last 27 years.



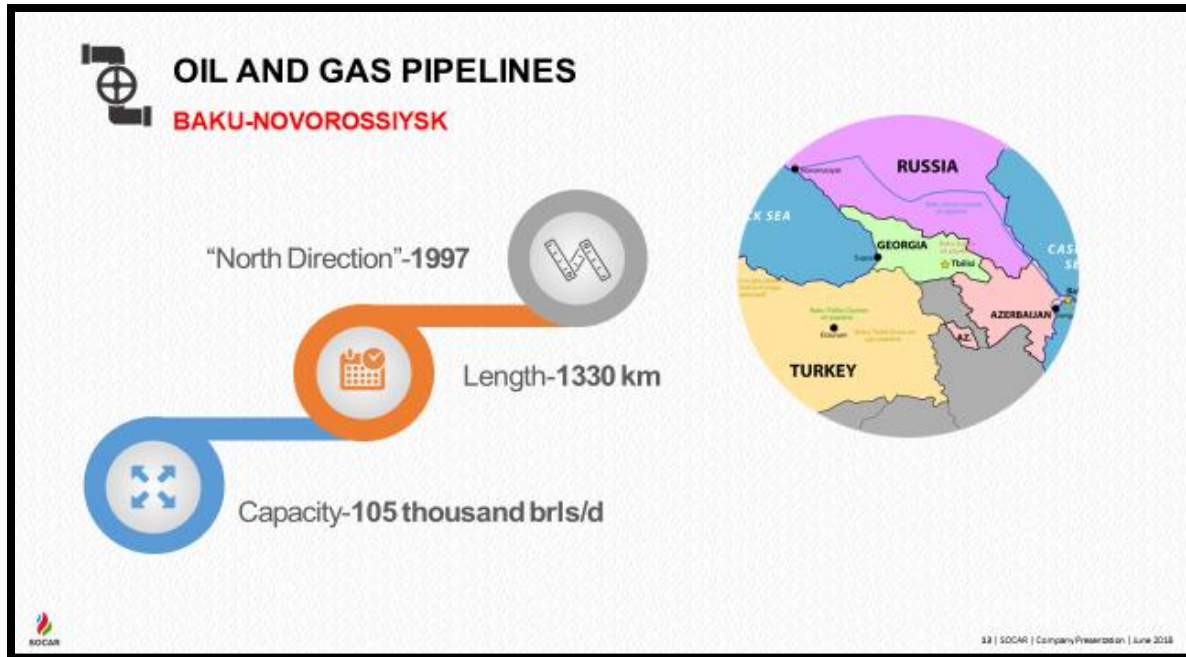
The second most important event of this period was the signing of PSA for Shahdeniz field in 1996. Thus, Shahdeniz, the largest natural gas and condensate field of Azerbaijan discovered in 1999. The field has been developed in two stages. The first phase was commissioned in 2006 and since then, Azerbaijan started to produce 10 billion m³ of gas and 50 thousand barrels of condensate every year. In this way, Azerbaijan transformed from a natural gas importing country to an exporting country in 2007. The second phase started for development in 2013 within the framework of Southern Gas Corridor and commissioned on June 30, 2018. Up until now, 166 billion m³ of natural gas and 37.2 million tons of oil has been produced from the field.



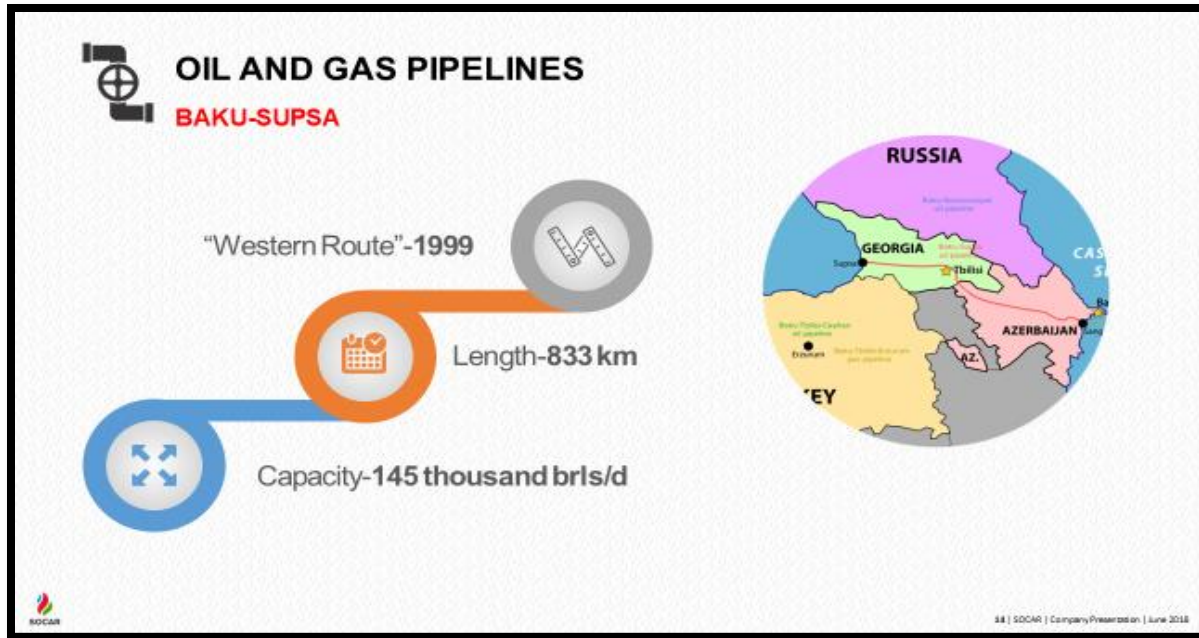
As is seen, Azerbaijan has managed to attract international investors to the largest oil and natural gas fields in this period, making significant progress in terms of the future development of the country.

3. Energy policy of Azerbaijan during 1997-2007

During this period, Azerbaijan focused on infrastructure investments in order to export its oil and natural gas resources to the world markets. In this context, Sangachal Terminal was established in 1997 in order to receive, process and store oil and gas resources, and then the "Baku-Novorossiysk" and "Baku-Supsa" oil pipelines commissioned in 1997 and 1999, respectively. During the Soviet Union period, the "Novorossiysk-Baku" pipeline was operational. The pipeline was built in order to refine Russian oil in refinery of Azerbaijan. However, after the Soviet Union collapsed, the pipeline remained dysfunctional. In 1996, technical studies were conducted for the reverse use of the pipeline in accordance with the agreement between Azerbaijan and Russia. In this context, Azerbaijan started to export its own oil to overseas markets through the "Baku-Novorossiysk" pipeline in November 1997.



In addition, the construction of the "Baku-Supsa" pipeline started after the Intergovernmental Agreement signed between Azerbaijan and Georgia in April 1996 and was completed in November 1998. The first oil was pumped into the pipeline in February 1999. The 830 km long pipeline runs from Azerbaijan's Sangachal terminal to Georgia's Supsa port. The implementation of the pipeline with a daily capacity of 115,000 barrels has provided several advantages to Azerbaijan. Likewise, Azerbaijan started to export its oil resources to the world markets under "Azeri Light" brand and made significant saving in transportation costs.



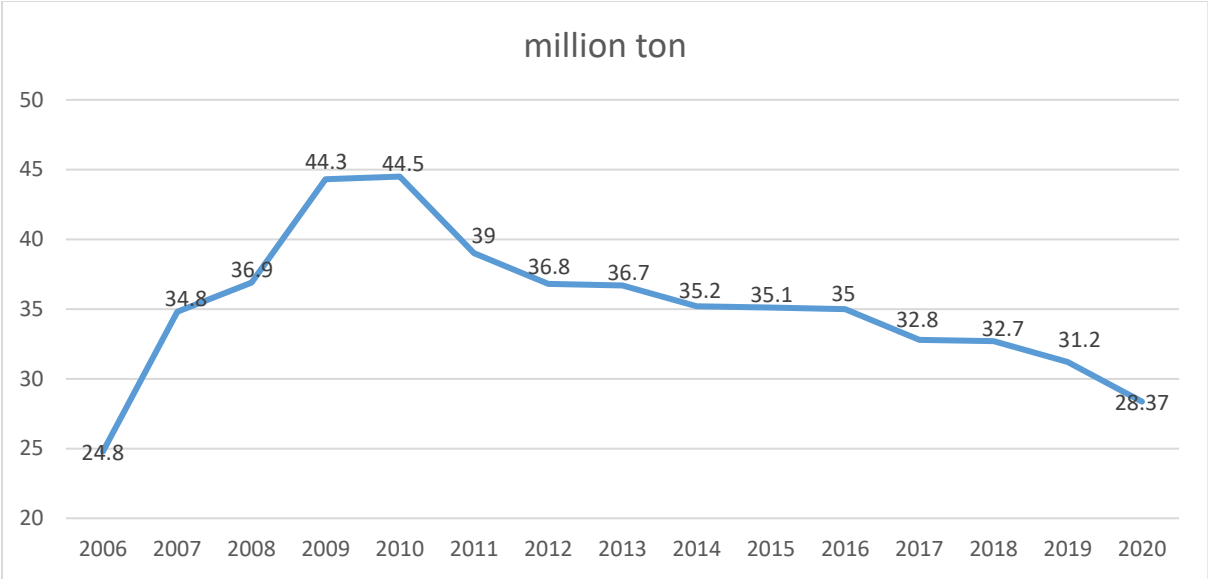
Thus, the implementation of the "Baku-Novorossiysk" and "Baku-Supsa" pipelines resulted in an increase in oil revenues of Azerbaijan. However, the country needed a larger and independent pipeline from Russia in order to meet its increasing export capacity and to strengthen its economic independence. In this context, the "Ankara Declaration" supporting the Baku-Tbilisi-Ceyhan (BTC) pipeline project signed in Ankara on 29 October 1998, with the participation of the Presidents of Azerbaijan, Turkey, Georgia, Kazakhstan and Uzbekistan, as well as the US energy minister.¹ The implementation of the project was not easy at all. International energy companies have claimed that the BTC pipeline is not economically feasible because it was the longest line among different options, which in turn increased the cost of the pipeline accordingly. For this reason, some foreign companies have offered the "Baku-Supsa" line with an annual capacity of 50 million tons as an alternative to the BTC in order to reduce the cost. Despite all difficulties, Azerbaijan's determined stance, Turkey's determination making the passage of oil tankers through the Straits difficult, and the support of the USA accelerated the construction of the BTC project. In this context, the construction of the project started in April 2003 and in May 2005 the first oil was pumped to the pipeline.² Since 2006, Azerbaijani oil has been delivered to the world markets directly from Ceyhan port via BTC. The realization of the BTC project has both accelerated the

¹ T.C. Enerji Bakanlığı, <https://www.enerji.gov.tr/tr-TR/Sayfalar/Petrol-Boru-Hatları> (15.05.2021)

² SOCAR Midstream, "Bakı Tbilisi Ceyhan Neft İxrac Boru Kəməri", <http://www.socarmidstream.az/az/project/btc/#cover> (15.05.2021)

economic development of Azerbaijan and paved the way for the realization of giant projects such as the Southern Gas Corridor. As a matter of fact, the Gross Domestic Product (GDP) of Azerbaijan grew 4.4 times between the years 2006-2019.³ The transportation capacity of the pipeline is 1.2 million barrels/day that the largest volume transported through the pipeline held on September 23, 2009 with 1 million 112 thousand barrels of oil. In addition to the Azerbaijani oil, Russian, Kazakh and Turkmen oil is transported through the pipeline. Azerbaijan exported 555 million tons of oil between 1997-2019 and 500 million tons of oil between 2006-2019, 482 million tons of which transported through BTC line. This shows how important and vital BTC is for Azerbaijan.

Graph 2. Oil export volume of Azerbaijan, by years



Source: AR State Statistical Committee

One of the most important events of this period was the construction of the Baku-Tbilisi-Erzurum (BTE) pipeline project. The BTE was implemented in accordance with the Intergovernmental Agreement signed between Turkey and Azerbaijan on March 12, 2001. In this context, a 15-year agreement was signed between SOCAR and BOTASH for the transportation of 6.6 billion m3 of Azerbaijani natural gas annually to Turkey. The construction of the pipeline, started on 16 October 2004 and commissioned on 4 July 2007. Until 2007, the country was supplying natural gas from

³ AR State Statistical Committee “Milli Hesablar Sistemi ve Tediyye Balansı”, https://www.stat.gov.az/source/system_nat_accounts/ (15.05.2021)

Russia through the "Mozdok-Gazimammad" pipeline. Thus, Azerbaijan has reached a position to meet its own needs and has managed to increase its income by exporting natural gas resources.

The construction of the BTC pipeline paved the way for implementation of BTE line. As a matter of fact, the part of the pipeline up to the Georgia-Turkey border has been laid on the same route with BTC. This, in turn, both accelerated the construction of the pipeline and decreased the cost. As is seen, Azerbaijan has successfully completed its infrastructure investments in this period and managed to diversify its oil and natural gas pipeline routes. By exporting its energy resources to the world markets directly, it both improved its macroeconomic balance and strengthened its economic independence. At the same time, it established the State Oil Fund on December 29, 1999 in order to use oil and gas revenues efficiently and to invest in strategic projects so that to ensure the sustainable economic development of the country. Total assets of fund reached \$45,307 billion on July 1, 2022.⁴

1. Azerbaijan`s energy policy in the post-2007 period.

During this period, Azerbaijan improved its macroeconomic balance, completed important infrastructure projects and reached a position to invest capital abroad. Thus, Azerbaijan decided not to be only known as a crude oil and natural gas supplier in the world markets, but also investing in different parts of the value chain in energy projects and creating added value. In this regard, Azerbaijan has invested in many strategic projects, such as refinery, petrochemicals, oil products trading, natural gas distribution and transmission, both domestically and abroad. "SOCAR Trading", "Petkim Petrochemical Complex", "SOCAR Terminal", "Star Refinery", "SOCAR Methanol", "SOCAR Polymer", "SOCAR Carbamide" and TANAP projects can be cited as examples.

First of all, "SOCAR Trading" company established in Switzerland in 2007 by SOCAR in order to promote "Azeri Light" brand abroad. Before SOCAR Trading, Azerbaijani oil was sold abroad through third parties and part of the income was paid to intermediaries. This indirectly caused a decrease in profit margin. With the "SOCAR Trading" company, Azerbaijan started directly trading its oil resources and strengthen "Azeri Light" brand in the world which is more expensive than "Brent" oil now. Currently the company operates in 10 different countries of the world, including the USA, Turkey and Singapore and trades oil and oil products of Azerbaijan, as well as

⁴ SOFAZ, <https://www.oilfund.az/report-and-statistics/recent-figures>

the third parties'. Today, SOCAR Trading is conducting business activities in more than 100 trade centers in more than 40 countries.⁵

In 2008, Azerbaijan entered Turkish market by purchasing 51% stake of Petkim at \$2.040 billion. Being first and only integrated petrochemical facility, Petkim can meet 18% of the Turkish petrochemical demand with 3.6 million tons of gross production capacity.

In the following years, SOCAR realized giant projects such as Star Refinery, TANAP, and SOCAR Terminal and increased its actual investments in Turkey over \$17.5 billion. This amount is expected to reach \$19.5 billion after the completion of ongoing projects.⁶ In addition, Azerbaijan has succeeded in implementing strategic projects in the domestic market such as "SOCAR Carbamide" and "SOCAR Polimer" in order to develop its non-oil economy, while reducing import dependency of the country.

In conclusion, Azerbaijan has achieved many firsts in the world oil history and has succeeded in maintaining its historical mission until today. However, before independence, the country could not benefit from its natural resources sufficiently. The main reason for this was that Azerbaijan has been under the rule of the Soviet Union for many years. In the post-independence period, Azerbaijan managed to restore its economy by developing its oil and gas resources. The "Contract of the Century" has become the cornerstone of the country's economic development and laid the foundation of energy and infrastructure projects implemented in the following years. In this context, Azerbaijan was able to provide its economic development by attracting foreign capital to the largest oil and natural gas fields between 1994-1997. During 1997 and 2007, the country focused on infrastructure projects, thus diversifying its oil and natural gas pipeline routes. In 2007 and beyond, Azerbaijan was able to implement many strategic projects in Azerbaijan and abroad in order to create additional value for the economy. Different from the 90s, today Azerbaijan is able to realize major energy projects both at home and abroad with its financial power, human resources and innovated technology.

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The opinions expressed are those of the author(s) alone and they do not necessarily reflect the opinions or views of the AIR Center and its website.

⁵ Azertag, "Əfqanıstan SOCAR-ın bu ölkəyə neft məhsullarının idxalını artırmağı təklif edib", 24.05.2019, https://azertag.az/xeber/Afqanistan_SOCAR_in_bu_olkeye_neft_mehsullarinin_idxalini_artirmagi_teklif_edib-1286919 (15.05.2021)

⁶ Yeni Asır, "SOCAR'ın Türkiyə'deki yatırımları devam edecek", <https://www.yeniasir.com.tr/ekonomi/2019/05/22/socarin-turkiyedeki-yatirimlari-devam-edecek> (15.05.2021)