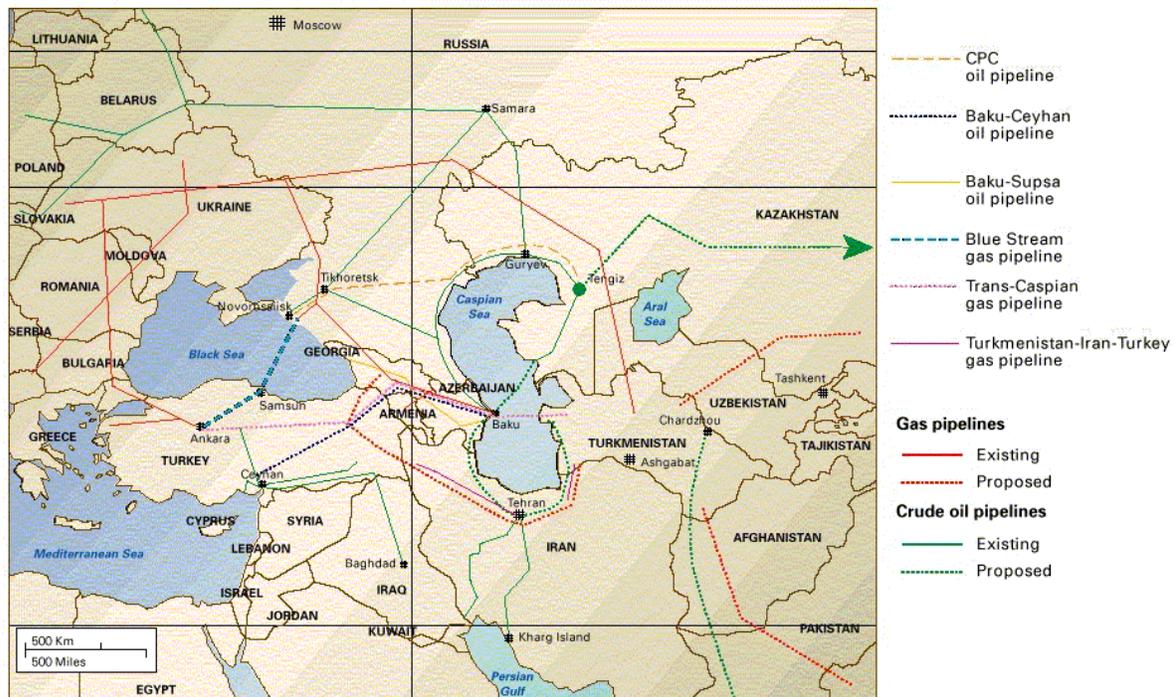


## Trans-Caspian Gas Pipeline<sup>1</sup>

Despite its 101 trillion cubic feet of proven gas reserves, Turkmenistan's gas exports are not significant. Its two main export routes through Russia and Iran provide limited access to markets. The Trans-Caspian Pipeline project, which would open a third route through Azerbaijan and Georgia to Turkey, was never built despite advanced publicity and negotiations in 1997-99. Thus, Turkmenistan remains unable to monetize a larger portion of its gas reserves.

- What were the major hold ups in the Tran-Caspian Pipeline project implementation?
- What, if anything, could Turkmenistan have done different to secure the investment?

### GAS, CRUDE-OIL PIPELINES AROUND CASPIAN SEA



### Background

Turkmenistan has a population approaching 5.5 million people. Its area is 488,100 square kilometers. The country is rich in gas and oil resources, with gas reserves being the fifth

<sup>1</sup> This case study was prepared using publicly available information.

largest in the world. Agriculture also plays a significant role in the country's economy with cotton as its primary product.

Following the decline after the breakup of the Soviet Union, Turkmenistan's economy has shown some positive results over the last few years. GDP in 1997 dropped by around 25% due to discontinued gas exports. GDP has shown an increase of 18% in 2001 due to renewed gas exports, but this is still only 70% of Turkmenistan's GDP in 1991. These numbers, however, are questionable as they are produced by a state organization and can not be verified.

Eighty percent of the budget is based on the oil and gas industry proceeds. The government has not acted sufficiently to diversify its economy to decrease dependence on the oil and gas exports. There are only a few companies currently operating in Turkmenistan. Major oil companies (ExxonMobil, Shell, Unocal) have terminated their operations in the country. Foreign investment has slowed down due to insufficient market oriented reforms implemented by the government and autocratic rule of the President. Privatization has been limited to non-critical assets of the country, and is not planned for the oil and gas sector at all.

#### *Energy Profile*

The oil and gas industry in Turkmenistan is the major sector in the economy. Turkmenistan's oil production, which declined significantly between 1991 and 1995, has been increasing in the last several years. From 81,000 barrels (4 MT/year) a day in 1995 it doubled to 161,000 barrels a day (8 MT/year) in 2001. Turkmenistan plans to increase its oil production to one million barrels a day (50 MT/year) by 2010.

Turkmenistan owns 101 Tcf (28.3 tcm) of natural gas. Similar to oil production, gas production has decreased after the collapse of the Soviet Union, but recovered in 2000 when production went up to 1.64 Tcf (45 bcm). Gas consumption remain quite steady over the last 10 years in the range of 14 – 20 Tcf. With such significant gas reserves, Turkmenistan's gas production could be increased significantly. However, the main problem still remains to be the diversification of export routes.

#### **Oil and Gas Reserves, Production and Consumption in Turkmenistan (2001)**

	Proved Reserves	Production	Consumption
Oil	74.5 million t. (546 million b.)	8 MT/yr (162,000 b/d)	2.4 MT/yr (48,000 b/d)
Natural Gas	2.83 tcm (101 tcf)	47.9 bcm/yr (4.9 bcf/d)	12.9 bcm/yr (1.2 bcf/d)

Sources: Energy Information Administration, BP World Energy

Turkmenistan's oil and gas industry needs about \$25 billion in foreign investments to bring oil and gas production to the forecasted levels. However, business climate has not been very attractive to the foreign companies.

#### **Existing Gas Export Routes**

Turkmenistan has not been able to fully realize the benefits of owning such huge gas reserves. The country's export opportunities are very limited. Its output in the 1990s dropped significantly due to unpaid gas exports to Ukraine and other Soviet countries. From the times of the Soviet Union until now Turkmenistan has been almost entirely reliant on the Russian pipeline network for gas exports to foreign markets. Turkmenistan was forced to sell its natural gas to ex-Soviet states that either could not pay fully in cash or were tardy with payments for supplies already received. Gas output levels will continue to be

influenced by relations with Russia and conflicts over tariff rates. The fall in production and exports was also caused by insufficient funding of exploration and development and lack of a sizeable domestic market.

Currently, Turkmenistan has only two export pipelines for natural gas -- one that goes through Russia, and a newer and smaller pipeline to Iran. Turkey has received gas supplies through Russia for some time, and in the days of the USSR a good deal of it came from Turkmenistan. Although all of the gas coming to Turkey from Russia is currently Russian gas, with the Blue Stream pipeline coming online some Turkmen gas may find its way into Turkey again. This may take a while as Turkey recently postponed the delivery of Blue Stream gas

Since 75%-80% of Turkmenistan's hard currency inflows come from export of oil and gas, any obstacles to using the existing networks pose a significant threat. This has been the case with Russia. In 1997, for example, Gazprom, the Russian gas monopoly, once again blocked all access of Turkmen gas to its export pipelines, limiting the Turkmenistan's exports to only the CIS markets and offering a low price of \$36 per 1,000 cubic meters. Russia sees Turkmen gas as a rival. In Gazprom's view, Turkmen gas is just "a reserve for Gazprom's supplies to the former Soviet Union."

Regardless of the number of occasions when Turkmenistan was cut off the Russian infrastructure or when Russia forced Turkmenistan to deliver gas to countries that were unable to pay in hard currency, Turkmenistan has continued negotiations with Russia and has recently agreed to a long term cooperation contract with Russia.

Exports to Iran started in 1997. However, they have fallen short of predictions partially due to disagreements on the prices. Turkmenistan currently exports around 5 bcm of gas to Iran. If Iran – Armenia pipeline is built, Turkmen gas will also flow to Armenia in the amount of 2 bcm per year.

Iran, however, like Russia, has high reserves of natural gas, and, therefore, it is a key competitor in the region for gas exports, especially to Turkey. So, in the long term, Iran may not be favorable to exports of gas from Turkmenistan. For the present, however, Turkmenistan appears to have found a short term economic solution to exporting at least some of its natural gas.

### **Other Alternatives**

Strategically, Turkmenistan could have considered other opportunities. Although the Turkmen President often states that the country "leaves all the doors open and pursues multiple pipeline opportunities", the practice does not seem to be consistent with this view. Some proposed projects (such as the TCGP) have been considered by the government of Turkmenistan, analyzed but put away without legitimate reasons. Obstacles are created, and unreasonable conditions are put. In turn, in addition to the difficult geographical location of the country, other forms of barriers and instability created by the government makes the investment environment unattractive.

The route to Pakistan and India through Afghanistan is possible but is very risky due to instability in Afghanistan as well as troubled relationship between Pakistan and India. Even if the Afghan problem can be somehow bypassed, Pakistan does not have an immediate need to import gas in the next five to seven years. Pakistan has been increasingly successful in finding and developing more of its own gas resources. Also, gas demand stagnated as a result of recent delays in power plant development. In addition, the possibility of supplying gas to India through Pakistan seems to be even more remote than ever as the relationship between these two countries continues to deteriorate. However, in

### Summary Information for TCGP

Investment (\$ billion)	2.4
Length (miles)	
Total	1250
New Section	1250
Offshore	188
Capacity (bcf/year)	
Stage I	350
Stage II	1,050

Source: Comparative Economics of Natural Gas Pipelines in the Caspian Region, *unpublished manuscript by Teimuraz Gochitashvili, Research Fellow, Energy Institute, University of Houston and energy advisor to the Parliament of Georgia, June 2000.*

December 2002, Turkmenistan signed a three-way agreement with Afghanistan and Pakistan to build a 1,500-km trans-Afghan gas pipeline with a price tag of \$2 billion. Such development may boost consideration of other alternatives.

The Chinese market is also considered. The distance to be covered for Turkmen gas to reach potentially large markets in southeast China (over 6,400 km) is such that estimates for the cost of building this pipeline reach upwards of \$10 billion.

of Turkey, are currently targeted. The Turkish market looked the most promising in the short-run and the Trans-Caspian Gas pipeline was one of the alternatives for bringing Turkmen gas into Turkey. The failure for parties to reach a consensus and built this pipeline is demonstrative of the importance of strategic planning.

European markets, beginning with that

### Trans-Caspian Pipeline Description

#### *General Information*

The Trans-Caspian Gas Pipeline (TCGP) project was initiated in 1997. It is a 750-mile pipeline system that was planned to transport natural gas from Turkmenistan to markets in Turkey at first and Europe eventually. It was planned to be developed by a consortium of Amoco and a new pipeline joint venture owned by affiliates of GE Capital and Bechtel Enterprises (PSG), and later joined by Shell. The estimated cost of developing the pipelines was around \$2.4 billion and the term of construction was 3 years. The TCGP was to include engineering, design, procurement and construction of a gas pipeline from Western Turkmenistan, going across the Caspian Sea and ending at a point near Baku in Azerbaijan. It will then continue across Azerbaijan and Georgia to Erzurum in Turkey, where it will be linked into the principal Turkish gas transportation grid, a route similar to that of the Baku-Ceyhan oil pipeline into northeastern Turkey. The planned capacity was to be 30 billion cubic feet (840 million cubic meters) a year. The legal grounds for the project were laid down by a Framework Declaration signed by the presidents of Turkmenistan, Azerbaijan, Georgia and Turkey in November 1999. The Declaration was also signed as a witness by U.S. President Bill Clinton to demonstrate the U.S. commitment to support the pipeline construction. Working with BOTAŞ, the Turkish national pipeline company, Bechtel has completed technical and economic feasibility studies for the project.

#### *Gas Supply for the TCGP*

Initial gas supply for the pipeline was to come from the Shatlyk and Dowletabad fields in eastern Turkmenistan, and could possibly extend to other supplying fields as well. Both fields have been exploited for very long and could have a sustainable production for the TCGP for many years. Exports from these fields were more than 50 billion cubic meters (1.5 trillion cubic feet) of gas per year to Russia and Ukraine since the early 1980s.

#### *Opposing Interests*

Russia and Iran opposed the TCGP for the same reason – building the pipeline would divert Turkmenistan from using their pipelines systems, thus the dependence will be decreased. Turkey favored this pipeline just as much as any other pipeline that could be built sooner and could start transmission of gas to its market.

Three other gas sources are positioned both strategically and economically better than TCGP: the Blue Stream pipeline, the Iran-Turkey line, and the Shah Deniz field.

*Blue Stream Pipeline* project was completed by Russia together with ENI. This will bring gas from Russia and Kazakhstan to Turkey via a pipeline under the Black Sea and will increase Turkey's dependence on Russian gas from 66% to around 80%. The sea link is technically difficult, but both partners have compelling financial interests in the project and are positioned to capture an important part of the Turkish market. The route is shorter and the source gas is unusually low-cost. The project developers have financed the pipeline on their own, as has been done with the CPC pipeline. The project is finished and gas flow started in February 2003 although Turkey does not seem to be able to take the agreed volumes in the short run as the country has contracted for more gas than the domestic demand, which has fallen even further behind the contracted volumes due to the economic crisis in Turkey since 2001.

Another line, *Iran-Turkey pipeline*, was completed in January 2002, after several years of delay on the Turkish side of construction due to a number of economic, political, and technical factors. The 1996 agreement between the two countries provides for 8 tcf of gas within the next 22 years. Although, the plans are quite big, some imports were stopped due to "quality issues," but were probably related to decreased demand in Turkey. Turkey has resumed the imports since then, but, the situation may change again.

Natural gas supplies from *Shah Deniz field* in Azerbaijan are quite promising as well. In 2001, Turkey signed an agreement with Azerbaijan to import 3.1 tcf of gas over 15 years. The natural gas supply will be done through Baku-Erzurum pipeline which will be laid alongside the main oil export pipeline of Baku-Tbilisi-Ceyhan. The technical operator of the Baku-Tbilisi-Erzurum gas main project is the British Petroleum company that is also in charge of building the Baku-Ceyhan oil pipeline.

#### *Economics of TCGP*

In the view of the available alternatives, the issue of the TCGP economics is quite controversial. Some find the route quite unattractive due to potential inability of Turkmenistan to offer competitive gas prices as the financial costs of the pipeline would be too high, and because the Turkish market is not large enough given that Turkey would be the only potential buyer (at least in the short term).

On the other hand, based on the model presented in the article "Analysis Suggests Economic Viability of Trans-Caspian Sea Gas Line" published in the *The Oil and Gas Journal*, that considered demand profiles for Azerbaijan, Georgia, and Turkey, and looked at factors influencing the economics of the TCGP, under most of the scenarios the TCGP could yield positive returns and could be beneficial for all parties involved (Turkmenistan, transit countries – Azerbaijan and Georgia, and Turkey). The calculations showed that transit countries will definitely benefit from the project (ranging from \$480 to \$608 million). Thus, in addition to collection of transit fees, they will have a diversified portfolio of supplies, which will lower the gas price in these countries. Even with the scenario when Turkey is the only buyer, under low investment and high price assumptions, Turkmenistan would get a positive net present value (\$80 million). The analysis also indicated that even if Turkey

pursued other sources of supply, if developed timely, TCGP could still be viable and Turkish market could consume Turkmen gas.

However, regardless of pressure of these factors on Turkmenistan to expedite the realization of the TCGP project, Turkmenistan kept postponing on major decisions and, instead, was creating more obstacles (some of which are described below).

#### *Other Issues with TCGP*

If the TCGP were constructed, the pipeline could start bringing to Turkey 16 billion cubic meters of natural gas per year by the end of 2002. The construction of the TCGP was not only affected by concerns regarding its economics, but other factors as well. Major problems of the TCGP project can be summarized into a few groups:

- *Opposition of Russia.* Though Moscow's official explanation for opposing the trans-Caspian pipeline is concern for the environment, Russia's motive was quite transparent. Any route under or across the Caspian would lose Russia its control over Turkmenistan's gas exports, along with the strategic influence over the country's domestic and foreign policies that such control allows.
- *Issues between Turkmenistan and Azerbaijan.* The two countries could not fully resolve payment and price issues. Both Turkmenistan and Azerbaijan were worried that they will not benefit enough from the project. The Azeri president required a 50% quota for Azeri gas in TCGP due to discovery of significant gas reserves in Azerbaijan around the same time. Turkmen President was convinced that if such a concession was made, his country would not profit enough from the project. Also, Turkmenistan and Azerbaijan had other disagreements, like the rights to offshore oil fields in the Caspian Sea. Thus, although the countries could have agreed on Azeri quota, there was no guarantee that the relation between two countries would remain stable.
- *Turkmenistan's Commitment to Other Projects.* While the preparations and feasibility studies were being conducted to the TCGP, President Niyazov made other plans to sell large volumes of gas to Russia and Ukraine leaving not enough gas for the TCGP. For example, it has signed a 50 bcm gas deal with Russia, to transport gas through the north into Russian territory.
- *"Signing Fees".* Turkmenistan President's demand to pay \$500 million upfront was creating frustration to the parties in the project. This caused two of the Western companies in the pipeline-building consortium pull out as they considered such demands not grounded and unreasonable.
- *Timing.* Other pipeline alternatives to reach the Turkish markets were being developed faster. Russia's construction of the "Blue Stream Pipeline" was already underway, and agreement between Azerbaijan and Turkey to supply gas from Azerbaijan's Shah Deniz field was in the works.
- *Region Risk.* Overall instability in the region, with every host government involved not implementing necessary policies to provide transparent, attractive basis for operation was a factor as well.

#### **Gas Monetization in Turkmenistan**

As the example with the TCGP shows, it is not enough to own large gas reserves. In order to reach its full natural gas production potential, Turkmenistan must solve the problem of getting its natural gas to consumers, as well as getting paid in hard currency. A lot of activities must be conducted in the country to attract foreign investment. Rule of law and stable and predictable legal system are mostly crucial as it is clear that in a market oriented, globalized, competitive world where capital, people, technology and ideas flow to

the best opportunities, host governments that provide most transparent, economically sound policy and regulatory frameworks will benefit most in the longer term.

#### *Legal and Regulatory Structure*

In comparison with other Central Asian countries, Turkmenistan's legal and regulatory structure are quite strong – the country has adopted internationally adopted Petroleum Law, Oil and Gas Rules and Regulations, and Model Production Sharing and Joint Venture Agreements. However, the implementation of this legislation remains a concern. The decision making remains not transparent, with the President responsible for the final decision in all deals. The government is also known for not keeping to terms of contracts. Turkmenistan does not fully relinquish its control over resources and operations, and even in the operation under PSAs or JVAs, companies meet resistance in separation of decision making and control. The regulatory agency, the Competent Body for the User of Hydrocarbon Resources, has been established in 1997. However, its functions overlap with the previously existing ministries and agencies. The agency is understaffed and inexperienced in a lot of aspects of regulating the industry. Given all this, for some oil companies, the experience has been quite challenging and unpleasant.

#### *Sector Restructuring*

The structure of the oil and gas sector overall remains problematic. State-run oil and gas concerns that are operating in the sector remain not restructured and are still run like the old Soviet enterprises:

- operations are heavily regulated; planning is production target driven, and decision-making is centralized,
- structure of the state concerns is very complicated and includes a lot of non-core activities,
- resources are not properly allocated, and most of the proceeds from the operations are diverted to others sectors, and
- entities are also not commercially oriented, and in the majority of cases do not take into account profitability of ventures.

Also, the state concerns remain outside of the rule of the Petroleum Law. The Petroleum Law puts forward strict requirements to licensing, and other aspects of operations. The Petroleum Law was adopted in 1997, but the state concerns have not yet been licensed (although the Law does not allow any petroleum activities without a license). If the state concerns have been brought under the governance of the Petroleum Law, many aspects of their operations would have been changed to comply with the Law.

International companies, like Shell, had proposals to work with the Turkmen companies through Joint Venture Agreements to produce and transport gas. This could give Turkmen partners the opportunity to upgrade their technology, equipment, and operation practices. However, the government has shown no support to allow administrative and financial flexibility to such JVs, or to create National Oil and Gas Companies that could operate based on the principles of efficient management, transparency, and could earn fair returns on their investments. Foreign companies also expressed their interest fully operating segments of Turkmenistan's internal pipelines; however, those proposals have not received much support either or operations and control issues could not be agreed upon.

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