

COUNTRY ANALYSIS BRIEFS

Caspian Sea

Last Updated: January 2007

Background

The Caspian Sea region, including the Sea and the states surrounding it, is important to world energy markets because of its potential to become a major oil and natural gas exporter over the next decade.

The Caspian Sea region has become a central focal point for untapped oil and natural gas resources from the southern portion of the former Soviet Union. Beginning in May 2005, oil from the southern sections of the Caspian Sea began pumping through a new pipeline (built by a BP-led consortium) to the Turkish seaport of Ceyhan. The 8-year effort of Western capital, technology, and diplomacy had aimed to decrease reliance on Middle Eastern oil. Although oil reserve growth in the Caspian region has not met levels that had been expected in the 1990s, European countries are paying special attention to the natural gas resources that could lie beneath the Sea as a way to diversify their sources of gas imports.



This report defines the Caspian Sea as an area including the Sea's littoral states of Azerbaijan, Kazakhstan, and Turkmenistan, as well as parts of Russia and Iran. Uzbekistan, although not a littoral state, is the region's largest natural gas producer and is therefore included in the region for the purposes of this analysis.

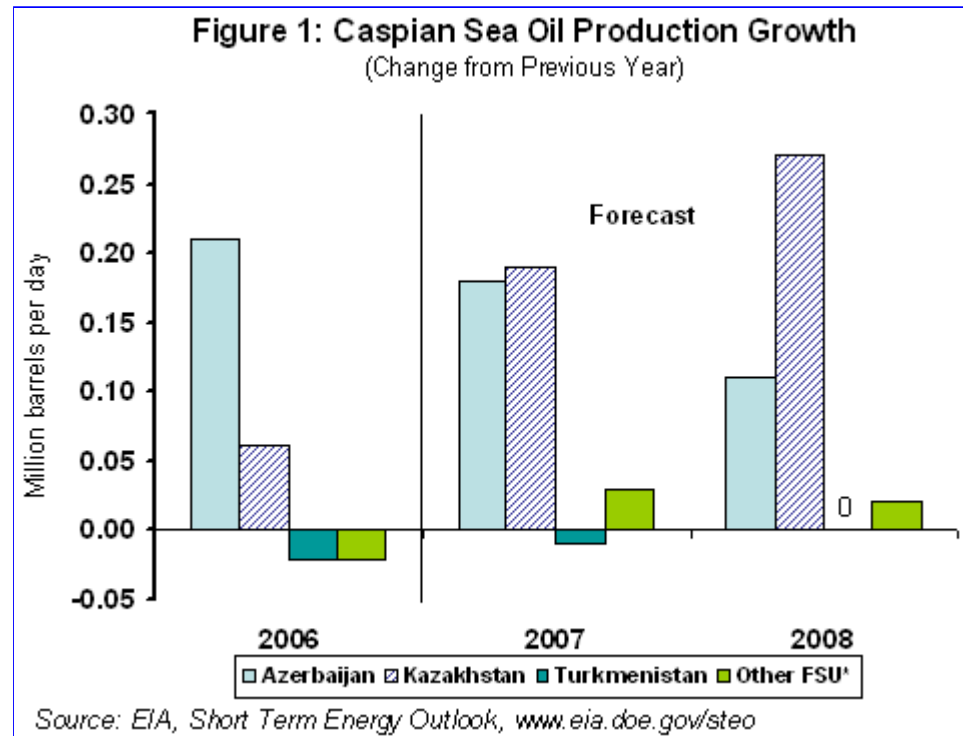
However, several factors threaten to complicate the region's potential, including a lack of adequate export infrastructure, disagreement over new export routes, and border disputes between the littoral states.

At the moment, the countries of the Caspian Sea region are relatively minor world oil and natural gas producers, struggling with difficult economic and political transitions. Following the collapse of the Soviet Union, the countries' economies languished as regional trade collapsed. In the last couple years, GDP levels in the primary oil and natural gas producing countries have surpassed levels before independence. Moreover, in the region's two biggest oil producers, Azerbaijan and Kazakhstan, 46 percent and 26 percent of the populations, respectively, lived below the poverty line in 2005. Improving these conditions depends, in large part, on the successful development of the region's oil and natural gas potential.

Oil

The Caspian Sea region contains roughly 17-49 billion barrels of oil. Oil production growth from the region will come largely from Kazakhstan and Azerbaijan in the next decade.

Estimates of the Caspian Sea region's proved crude oil reserves vary widely by source. For this reason, EIA estimates proven oil reserves in the region range between 17 and 49 billion barrels, which is comparable to OPEC members Qatar on the low end, and Libya on the high end. In 2006, regional oil production is expected to total 2.3 million bbl/d, comparable to annual production from South America's second largest oil producer, Brazil. During 2007, EIA expects over 200,000 bbl/d of annual production growth, comprised mostly of growth from Azerbaijan. By 2010, EIA expects the countries of the Caspian Sea Region to produce between 2.9 and 3.8 million bbl/d, which would exceed annual production from South America's largest oil producer, Venezuela. (For more information, see: [Caspian Sea Region: Key Oil and Gas Statistics](#)).



Sizeable oil production growth has come primarily from the north Caspian states of [Kazakhstan](#) and [Azerbaijan](#). The country briefs for [Kazakhstan](#) and [Azerbaijan](#) provide a more detailed description of the oil resources at these fields. Development of the region's oil resources has been led by three major projects: Tengiz and Karachaganak (in Kazakhstan), and Azerbaijan's Azeri, Chirag, and deepwater Gunashli (ACG) field. Combined, these three projects produced an average of 693,000 bbl/d from Jan.-Sep. 2006, roughly 30 percent of the regional total. Development of these decade-old key projects gave rise to an influx of new investment and infrastructure development that constitutes the "second Caspian oil rush," the first having occurred in the late 1800s. Following these discoveries, major new finds were announced in Azerbaijan at Shah Deniz in 1999 ("total reserves" of roughly 15 Tcf of natural gas and 600 million barrels of condensate), and in Kazakhstan at Kashagan in 2000 (recoverable reserves estimated at 7-9 billion barrels of oil equivalent, with further potential totalling 9 to 13 billion barrels using secondary recovery techniques).

Turkmenistan and Uzbekistan

By comparison, other countries in the Caspian Sea region have not made substantial progress towards developing their hydrocarbon resources since independence. Proven oil reserves in Turkmenistan and Uzbekistan are considerably smaller than those in their neighboring states, and the political regimes in Ashgabat and Tashkent have received less favorable consideration by foreign investors. As a result, although multinational oil companies have initiated numerous large-scale projects in Azerbaijan and Kazakhstan, Turkmenistan and Uzbekistan have received only smaller-scale deals.

[Turkmenistan's](#) and [Uzbekistan's](#) leading oil projects, also listed in [Table 1](#), are significantly smaller and markedly less developed than those in Azerbaijan and Kazakhstan. Some companies have been successful in the upstream sector in Turkmenistan with Production Sharing

Agreements (PSAs). Petronas began producing around 10,000 bbl/d from the Diyarbakir field in mid-2005, Dragon Oil is produced roughly 18,000 bb/d from its Cheleken deposit during the first half of 2006, and Burren Energy is producing around 17,500 bbl/d from its onshore Nebit Dag block.

Russia

The Russian oil company, LUKoil, began exploration of the north Caspian in 1995 and is working to produce natural gas by 2008. Lukoil announced in early 2006 that it had found a large oil prospect at the V. Filanovskogo offshore field. The company plans to bring six fields in the Russian section of the Caspian Sea online with production starting at the Y. Korchagina field in 2008. Lukoil expects its six fields, which contain roughly 6.5 million barrels of hydrocarbons, to reach maximum output 140,000 b/d by 2016. One of these fields, Khvalinskoye, will be tapped by a 50:50 joint venture between Lukoil and Kazakhstan. In July 2003, LUKoil and Gazprom established a joint venture with Kazakhstan's state oil company, KazMunaiGaz, to develop the Tsentralnoye hydrocarbon structure, located on the border of the Russian and Kazakhstani offshore sectors. According to a LUKoil [press release](#), the Tsentralnoye structure holds recoverable reserves of roughly 20 Tcf of natural gas, and drilling is expected to begin in 2008.

The Kurmangazy field sits on the border of Russia and Kazakshtan, and a May 2002 agreement delineated the Russian and Kazakh sectors of the Caspian Sea and paved the way for the field's development. Rosneft and Kazmunaigaz signed a \$23 billion PSA in July 2005 to develop the 7.33- billion-barrel field. The first well was drilled in early 2006 but came up dry. France's Total had sought a 25 percent share of the project but has since suspended talks over its participation after the disappointing drilling results.

Iran

In the mid-1990s six exploratory wells were drilled in the Iranian sector of Caspian Sea, but they did not yield commercially available discoveries. During 2006, Lukoil and Kazmunaigas offered to cooperate with the Iranian Northern Drilling Company (NDC) on oil field development in the Caspian Sea. The Iranian side has 6 months to consider this proposal. NDC also signed an agreement in January 2006 with China's Oilfield Services Ltd to drill in waters over 2000 feet deep.

In December 2005, Lukoil announced it had made a major discovery on the Anaran exploration block at the Azar field in western Iran. According to Lukoil, the block could contain as much as 1 billion barrels of recoverable oil. The Anaran block includes three other structures:Changuleh-West, Dehloran and Musian. Lukoil entered into the Anaran project in 2003 with a working interest of 25 percent, while Norsk Hydro holds 75 percent. Norsk Hydro has previously said that Anaran could be producing up to 100,000 bbl/d by 2010.

Oil Export Issues

As increasing exploration and development in the Caspian Region leads to more production, the countries in the region will have large new quantities of oil and natural gas available for export. Earning hard currency from these resources is essential to regional development plans, as well as to recouping the huge investments made by multi-national oil companies. However, for these purposes, the infrastructure left after the collapse of the Soviet Union is inadequate. Numerous new pipelines and pipeline expansions in each direction have been proposed, and some have been constructed.

A lack of export routes kept large-scale development of oil and gas resources to a minimum during the 1990s and early 2000s. Now, with the Baku-T'bilisi Ceyhan (BTC) pipeline online, the Caspian Sea's oil resources will reach world markets and will avoid the crowded Bosphorus choke point.



Oil Exports to the West

Four main pipelines, the BTC, the Baku-Novorossiysk, the Baku-Supsa, and the Caspian Pipeline Consortium (CPC) line carry or will carry the majority of the region's oil and gas resources to the West to major markets in Turkey, Europe, and the Mediterranean. The Baku-Supsa, Baku-Novorossiysk and Baku-Batumi rail routes also transport oil and gas, but these may be phased out as the larger pipelines are expanded even further. More information on these supplementary pipelines is available in the [Caucasus Regional Brief](#) and the [Azerbaijan Country Brief](#). Some proposals are currently being negotiated and studied to transport possibly sizeable oil and gas resources from the eastern shores of the Caspian Sea.

CPC

The [CPC](#) project connects Kazakhstan's Caspian Sea area oil deposits with Russia's Black Sea port of Novorossiysk. Oil loaded at Novorossiysk is then taken by tanker to world markets. Although the CPC pipeline transverses Russia and was developed in conjunction with the Russian government, the pipeline was the first to give the Caspian Sea region and Kazakhstan a viable alternative to the Russian dominated northern export routes (namely Atyrau-Samara). See the [Kazakhstan Country Analysis Brief](#) or the [CPC Consortium's website](#).

One downside to additional Caspian oil exports through the CPC pipeline is higher export levels will increase congestion in Turkey's Bosphorus Straits, which connect the Black Sea to the Mediterranean. Oil flows through the Bosphorus range from 2.8 - 3.1 million bbl/d. The CPC expansion could add an incremental 750,000 bbl/d of oil through the Strait.

Turkey has raised concerns about the ability of the Bosphorus Straits, already a major [chokepoint](#) for oil tankers, to handle the additional tanker traffic, since most of Russia's existing oil export pipelines also terminate at Novorossiysk. Turkey has stated its environmental concerns about a possible collision (and ensuing oil spill) in the Straits as a result of increased tanker traffic from the launch of the CPC's pipeline. As a result, there are a number of options under consideration for oil transiting the Black Sea to bypass the Bosphorus Straits.

Baku-Tbilisi-Ceyhan (BTC)

The Baku-Tbilisi-Ceyhan (BTC) pipeline, is exporting Azeri (and possibly up to 600,000 bbl/d of Kazakhstan) oil along a 1,040-mile route from Baku, Azerbaijan via Georgia to the Turkish Mediterranean port of Ceyhan. This will allow oil to bypass the Bosphorus Straits (see map above). A BP-led consortium (see table below) will operate the pipeline. Construction of the 1-million-bbl/d BTC pipeline was completed in May 2005, with the first tanker deliveries began in June 2006. Oil exports via BTC averaged roughly 210,000 bbl/d from June-September 2006, and volumes are expected to climb to 500,000 bbl/d by early-2007. The capacity will be upgraded to 1 million bbl/d sometime between 2008 and 2009.

Tariffs for members of BTC to transport oil from the Sangachal terminal to Ceyhan, including loading in Ceyhan, will be as follows: \$3.3 per barrel during the first phase (2005-10), \$4.6 per barrel during the second phase (2010-16) and \$5.5 per barrel during the third phase (2016-29).

BTC/AIOC Project Shareholders		
Company	AIOC Share	BTC Share
BP	34.1%	30.1%
SOCAR	10.0%	25.0%
ChevronTexaco*	10.3%	8.9%
Statoil	8.6%	8.7%
TPAO	6.8%	6.5%
Total	0.0%	5.0%
Eni/Agip	0.0%	5.0%
Itochu	3.9%	3.4%
ConocoPhillips	0.0%	2.5%
Inpex	10.0%	2.5%
Amerada Hess/Delta	2.8%	2.4%
Exxon Mobil	8.0%	0.0%
Devon Energy	5.6%	0.0%
<i>*formerly Unocal shares</i>		Source: Company websites

Trans-Caspian Routes

Since volumes from the Azeri-Chirag-Gunesli (ACG) field will not be sufficient to completely fill BTC when it reaches maximum capacity and since Kazakhstan's existing pipeline routes may not have sufficient capacity for expanding oil production, Kazakhstan will also send some oil through BTC. Oil volumes from the Kashagan project will be the primary source of oil for the pipeline. Overseas shipments on the Caspian to Baku are expected to grow from around 145,000 bbl/d to around 750,000 bbl/d when Kashagan comes online as early as 2009. In the short term, oil will be transported from Baku in railcars to the Black Sea port of Batumi in Georgia. In November 2006, TengizChevroil, the operator of the Tengiz field, entered into a contract with Caspar, the Caspian Shipping Company of Azerbaijan, to transport up to 120,000 bbl/d of its oil in tankers to Azerbaijan in 2007.

In the medium term, Kazmunaigaz, Kazakhstan's national oil company, plans to build a 590-mile long oil pipeline from Isgene (in Atyrau area) to the port of Kuryk with an oil loading terminal by 2010. Kazakhstan also announced it has begun building a new class of Caspian tankers to replace the existing vessels that currently carry much of the region's maritime oil trade. Up to 150,000 bbl/d of the crude oil may reach international markets through the Baku-Supsa pipeline and the Bosphorus straits.

Exports to the East

Questions remain regarding whether Europe is the optimal market for Caspian oil and natural gas. Oil demand over the next 15 years in OECD Europe is expected to grow by little more than 200,000 bbl/d. Oil exports eastward, on the other hand, could serve Asian markets, where demand for oil is expected to grow by roughly 8 million bbl/d over the same timeframe. In particular, [Chinese](#) oil consumption is projected to increase by over 4 million bbl/d by 2020 according to [EIA's Annual Energy Outlook](#). Construction on an \$850 million, 613-mile-long pipeline from Atasu, in northwestern Kazakhstan, to Alataw Pass in China's northwestern Xinjiang region was completed in December 2005 and marks the first steps to meet this demand. The 200,000-bbl/d Kazakhstan-China pipeline, when all three stages are complete, will span almost 1,860 miles from its start in Atyrau to Alashankou in China. See the [Kazakhstan Country Analysis Brief](#) for more information on the Kazakhstan-China Pipeline.

Iranian oil exports and swaps

Turkmenistan and Kazakhstan have initiated low-volume oil "swap" deals with Iran, delivering oil in tankers to refineries in Iran's northern regions in exchange for similar volumes of crude at Kharg Island in the Persian Gulf. The different types of Caspian crude are blended together at the Caspian port of Neka and then swapped, after payment of a fee that is in the range of \$1.50 to \$2.00 per barrel. All the swap contracts are handled by Naftiran Intertrade Co. (Nico), National Iranian Oil Company's (NIOC) Lausanne-based subsidiary. The largest of Nico's contracts is with Kazakh state oil company Kazmunaigas, which is supplying up to 70,000 bbl/d of different types of crude to Neka. Dragon Oil, a UAE company which operates in Turkmenistan, is sending over half (or 9,000 bbl/d) of its crude oil output to the Neka port. Nico also receives shipments of gasoline and gasoil from Turkmenistan at its smaller terminals of Bandar Nowshar and Bandar Anzali.

During early 2004, Iran completed efforts to upgrade its domestic distribution network and to the Neka seaport to allow swap capacity to increase from roughly 50,000 bbl/d to 150,000 bbl/d. Mohammad Reza Nematzadeh, a deputy oil minister, was quoted in October 2006 as saying that the capacity of the pipeline will be expanded from around 150,000 bbl/d to 250,000 bbl/d by the end of the month and, with the installation of new pump stations, will reach a capacity of 500,000 bbl/d by the end of March 2007.

According to Nematzadeh Iran plans to construct a 250,000 bbl/d refinery close to Neka. Iran is also developing its Tabriz and Tehran refineries so that they can refine up to 500,000 bbl/d of Caspian crude oil. Since 2004, swap levels dwindled to 35,000 bbl/d during the winter of 2004-2005 and have now increased slightly to around 147,000 bbl/d.

Exports to the North and Northwest

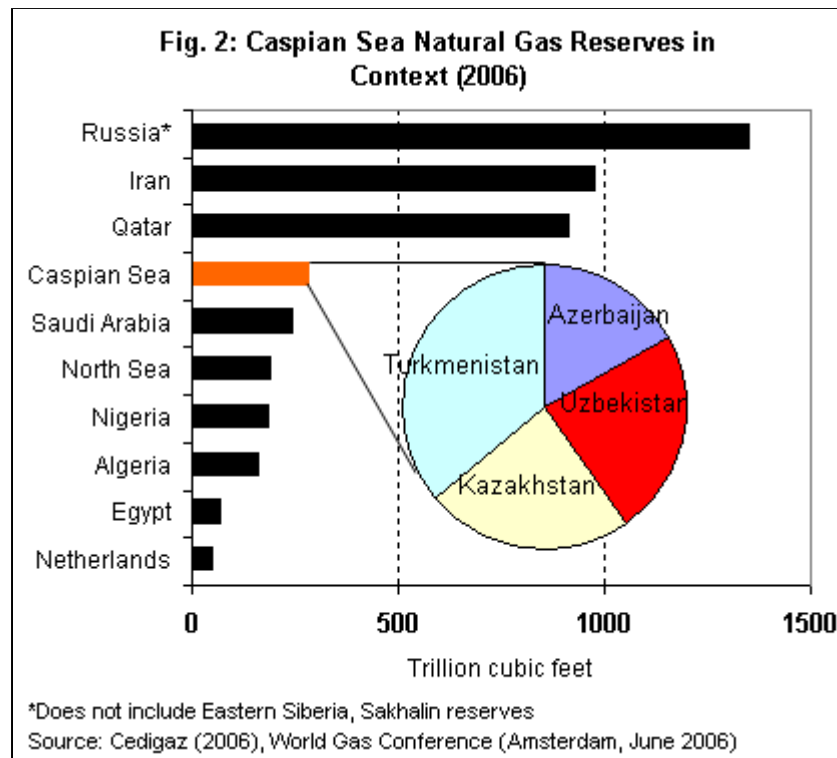
For its part, Russia has proposed multiple pipeline routes that utilize its existing and proposed infrastructure. Shortly after independence, two new northwesterly pipelines were constructed, known as the "Northern" and "Western" Early Oil Pipelines. These extend from Baku to Novorossiysk (Russia), and Baku to Supsa (Georgia), respectively, and have a combined capacity of roughly 245,000 bbl/d (see [map](#)). Also, an existing northbound pipeline from Atyrau in Kazakhstan to Samara in Russia has been upgraded, but is expected to become relatively less significant if throughput at CPC increases.

Natural Gas

The Caspian Sea region's natural gas potential is, by some measures, more significant than its oil potential. Regional proven natural gas reserves are estimated at 232 trillion cubic feet (Tcf), comparable to those in Nigeria. Natural gas production from Azerbaijan, Kazakhstan, Turkmenistan, and Uzbekistan in 2005 was approximately 5.2Tcf, comparable to three quarters of Canada's production. Turkmenistan and Uzbekistan are the region's largest natural gas exporters, but Kazakhstan has exported smaller volumes due to a lack of export infrastructure. The Caspian region's leading oil producers.

In coming months with the commercial start of the South Caucasus Pipeline (SCP), Azerbaijan will be able to send gas exports to the West. Still, with only one major foreign investment focusing primarily on natural gas (Azerbaijan's [Shah Deniz](#)), the region will need considerable investment in upstream projects and export infrastructure before its full potential can be realized.

Europe is looking towards the natural gas assets of the Caspian Sea as a way to diversify its sources of imports. The region contains roughly 230 trillion cubic feet of natural gas.



Turkmenistan

Since the early 1990s, gas production from the Caspian has been characterized by modest annual increases from [Uzbekistan](#), and by a dramatic collapse (then partial recovery) from [Turkmenistan](#) (see Fig. 3 below). After 1991 these fluctuations occurred because natural gas from the Caspian Sea region, mostly from Turkmenistan, became a competitor with Gazprom, the Russian state natural gas company. Since all of the pipelines connecting the region to world markets were owned by Gazprom and routed through Russia, Turkmen natural gas was squeezed out of the market. As a result, Turkmenistan's incentives for increasing its production of natural gas disappeared. The country's output dropped throughout the 1990s, plummeting from 2.02 Tcf in 1992 to just 466 billion cubic feet (Bcf) in 1998 when the country was locked in a pricing dispute with Russia over the export of its natural gas. In 1999, a Turkmen-Russian agreement took hold, and in 2000, production skyrocketed to 1.64 Tcf before reaching 2.3 Tcf in 2005 (see Figure 3).

Natural Gas Exports to Russia and Ukraine

After a pricing dispute which halted Turkmenistan's natural gas exports in late 2004, Turkmenistan re-negotiated a 2003 agreement on the quantities and prices of its natural gas exports to Russia and to Ukraine. Turkmenistan's September 2006 agreement with Russia guarantees initial natural gas exports of 212 bcf in 2005, increasing to 1.8 Tcf in 2007, and remaining at 2.8 Tcf from 2009-2028.

The exact volumes in the agreements are not transparent, although press reports indicate deliveries to Gazprom (Russia) will range from 2.1-2.5 Bcf in 2007, 1.5-1.8 Bcf of which will go to Ukraine. Under current agreements, Turkmenistan supplies Ukraine with natural gas at \$2.83 per million cubic feet (mmcf), or \$100 per thousand cubic meter (mcm), a 54 percent increase from previous levels. Turkmenistan is not supplying gas to Ukraine directly in 2006 but rather to RosUkrEnerg, the intermediary in the Russia-Ukraine gas deal reached in January 2006. The company has already signed contracts for 1.5 Tcf of gas with Turkmenistan, 300 Bcf with Kazakhstan, and 247 billion cubic feet with Uzbekistan for 2007.

Uzbekistan

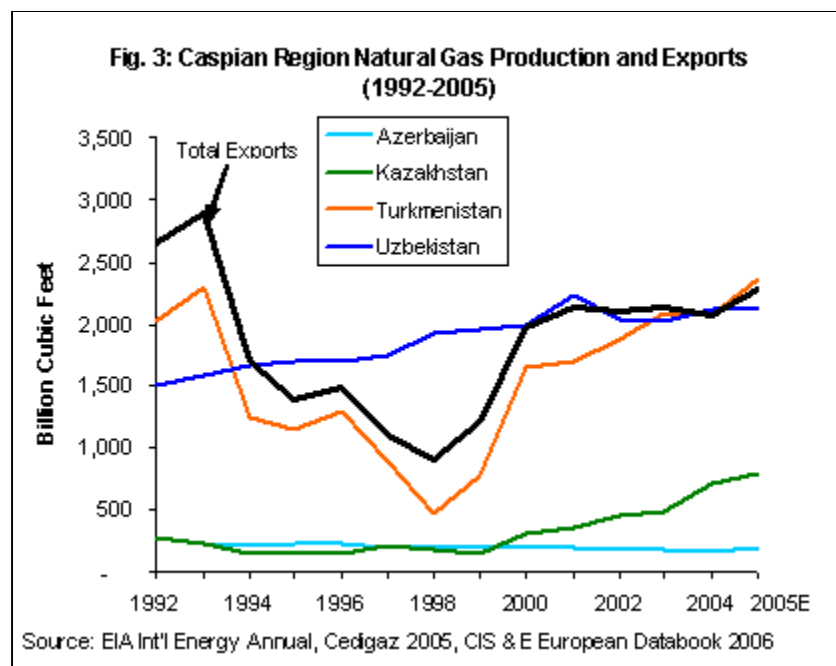
In contrast, Uzbekistan has maintained natural gas production growth by avoiding Russia's pipeline system and by concentrating on the domestic market and on exports to its immediate neighbors. Uzbekistan is the third largest natural gas producer in the Commonwealth of Independent States and one of the top ten natural gas-producing countries in the world. Since becoming independent, Uzbekistan has ramped up its natural gas production by nearly 50

percent, from 1.51 Tcf in 1992 to 2.1 Tcf in 2005 (see graph). Uzbekistan's exports of natural gas to Russia increased by 14% in 2005 to around 290 billion cubic feet, and are expected to stay roughly the same during 2006. Uzbek exports of natural gas to Russia are expected to grow from a \$1.5 billion Gazprom investment program to develop gas condensate fields in the Ustyurt region. Gazprom also will take part in the reconstruction of the Central-AsiaCenter pipeline.

Azerbaijan and Kazakhstan

Azerbaijan and Kazakhstan plan to increase their own natural gas production significantly by 2010 in order to become net natural gas exporters. Azerbaijan's major natural gas production increases in the future are expected to come from the development of the aforementioned Shah Deniz field. Kazakhstan's natural gas production increases are expected to come primarily from associated natural gas at Kazakhstan's three largest fields: Tengiz, Karachaganak, and Kashagan (consult the [Kazakhstan Country Analysis Brief](#) for more details).

More detail on prospective offshore natural gas projects in the Caspian Region can be found in the natural gas sections of the following three region/country analysis briefs: [Azerbaijan](#), [Kazakhstan](#), and [Central Asia](#).



Major Natural Gas Pipelines

South Caucasus Pipeline (SCP)

The South Caucasus Pipeline (SCP), also named the Baku-Tbilisi-Erzurum pipeline, will run parallel to the BTC oil pipeline for most of its route before connecting to the Turkish gas infrastructure near the town of Erzurum. At a cost of roughly \$1 billion, the 550-mile long South Caucasus pipeline is designed to carry natural gas from Azerbaijan's Shah Deniz field, and have an initial capacity of 0.8 bcf/d by the first quarter of 2007. Slow construction in the Turkish section of the pipeline's route has repeatedly delayed the project.

SCP & Shah Deniz Project Shareholders	
Company	Share
BP	34.1%
Statoil	25.5%
SOCAR	10.0%
Total	10.0%
Lukoil	10.0%
OIEC of Iran	10.0%
TPAO	9.0%

The pipeline will be expanded to 1.5 bcf/d depending on market conditions, and eventually to 3 Bcf/d. Roughly 610 million cubic feet per day (MMcf/d) of the Shah Deniz gas will be sold to Turkey, 145 MMcf/d to Azerbaijan, and up to 77 MMcf/d to Georgia. Early June 2005, Georgia offered Azerbaijan to buy an additional 290 MMcf/d of gas. However, this will only be possible in the second phase of the project.

Central Asia Center Pipeline

Countries east of the Caspian Sea export most of their natural gas via the Central Asia Center (CAC) pipeline, which is routed into the Russian natural gas pipeline system. Capacity will be increased to 5.2 bcf/d in 2007, from 4.4 Bcf/d currently. Natural gas is exported further to European and world markets through the Gazprom transport system. In an effort to diversify export routes, a number of natural gas pipelines originating in Central Asia are under consideration. Central Asia also has a number of internal pipelines, including the [Tashkent-Bishkek-Almaty pipeline](#), to serve natural gas customers in the region.

Trans-Afghan Pipeline

An additional way for Caspian region exporters to supply Asian demand would be to pipe oil and natural gas south through [Iran](#) to the Persian Gulf or southwest to [Afghanistan](#). The Afghanistan option, which Turkmenistan has been promoting, would entail building pipelines across war-ravaged Afghan territory to reach markets in [Pakistan](#) and possibly [India](#). With the removal of the Taliban in Afghanistan in December 2001, proposals to build a [Trans-Afghan natural gas pipeline](#) have emerged. The Trans-Afghan pipeline, also called the Turkmenistan-Afghanistan-Pakistan (TAP) pipeline, would span over 1,000 miles from a point in Turkmenistan to Fazilka (India) on the Pakistan-India border. A feasibility study, commissioned by the Asian Development Bank, was completed in 2005. The lack of an international investor, independent verification of Turkmenistan's gas reserves, and security concerns have kept construction from beginning.

Development of a southern pipeline through Iran would be problematic under the Iran and Libya Sanctions Act, which imposes sanctions on non-U.S. companies investing in the Iranian oil and natural gas sectors. U.S. companies already are prohibited from conducting business with Iran under U.S law. In 1997, however, Turkmenistan and Iran completed the \$190 million [Korpezhe-Kurt Kui pipeline](#) linking the two countries, thereby becoming the first natural gas export pipeline from Central Asia to bypass Russia. According to terms of the 25-year contract between the two countries, Iran will take between 177 Bcf and 212 Bcf of natural gas from Turkmenistan annually, with 35 percent of Turkmen supplies allocated as payment for Iran's contribution to building the pipeline.

Regional Conflicts and Legal Status

Regional conflicts and a resolution to the legal status of the Caspian Sea are the two largest barriers to safe oil and natural gas transport and for further investment in the area.

Numerous ethnic and religious groups reside in the Caspian Sea region, and continuing conflicts pose threats to pipeline infrastructure. Negotiations in in October and February 2006 to resolve the Azerbaijan-[Armenia](#) war over the Armenian-populated [Nagorno-Karabakh](#) enclave in Azerbaijan have yet to make significant progress. Separatist conflicts in Abkhazia, South Ossetia, and Ajaria in Georgia flared during the 1990s, and Russia's war in Chechnya has devastated the region around Groznyy in southern Russia. Separatist guerillas from Chechnya have begun using neighboring Ingushetia as a base, and the number of Chechen fighters on Ingush territory is now even larger than in Chechnya itself. Some of these fighters have targeted energy infrastructure to achieve political goals in previous years.

Legal Status

Although there is still no overarching agreement between the five Caspian littoral states on the

division of the Sea's resources, in August 2006 the states signed an agreement to collectively begin efforts to reverse the environmental damage that energy development has imposed on the Sea (see the [Environmental section](#) for more detail). Russia, Azerbaijan, and Kazakhstan came to a trilateral agreement on sub-surface boundaries and collective administration of the Sea's waters in 2003 that divides the northern 64 percent of the Caspian Sea into three unequal parts using a median line principle, giving Kazakhstan 27 percent, Russia 19 percent, and Azerbaijan 18 percent.

The main stumbling block on the division of the Caspian Sea is the position of Iran, which claims 20 percent of the water area. Offshore development in Turkmenistan and Iran, both of which refused to sign the 2003 agreement, could fall even further behind. Azerbaijan remains locked in disputes with Turkmenistan and Iran over competing claims to overlapping petroleum fields. In 2001 Azerbaijan and Iran came close to confrontation when an Iranian gunboat challenged a BP-operated research vessel exploring what Azerbaijan calls the Alov oilfield and Tehran calls Alborz. Since then, the field has been unexplored. For more information on the legal status of the Caspian, see Chatham House's report on [Legal Status and Regime Problems](#).

Environment

After years of misuse and mismanagement during the Soviet era, the Caspian Sea has become more and more polluted as oil and natural gas extraction activities continue. New pipeline construction will compound the region's already existing environmental difficulties.

With oil and gas production and marine transport expected to increase in coming years, the risk of oil spills and other leakages will increase. The Caspian is also a closed sea, meaning that pollution can remain in the area for decades. Petrochemical and refining complexes on the Absheron peninsula in Azerbaijan are major sources of land-based pollution, and discharges and spills from oil and natural gas drilling--both onshore and in the sea itself--have had serious impacts on the environment. Untreated waste from the Volga River, which half the population of Russia and most of its heavy industry drains its sewage, empties directly into the Caspian Sea, while pesticides and chemicals from agricultural run-off are threats to the Sea's flora and fauna. Overfishing, especially of the prized sturgeon, has caused a dramatic decline in fish stocks. Ecologists have directly related the death of seals, fish, and birds in the sea and the disappearance of unique plants to oil company activities. (For more information, see the [links](#) section and [DOE's Black Sea and Caspian Sea Environmental Information Center](#))

In addition to the existing problems, several other issues could compound the Caspian region's environmental difficulties. Oil and natural gas production in the Sea inevitably will result in the construction of pipelines and infrastructure to export these resources to consumers, raising the possibility of loss of habitats for marine life as well as the spectre of accidental spills. Also, over the past 30 years the sea level has risen by 7feet, which poses a threat to settlements and oil infrastructure. A [map](#) of hazards in the Caspian Sea is available on the [UN Environment Program Website](#).

Until recently, a lack of regional cooperation, highlighted by weak transnational environmental laws, regulations, and enforcement capabilities was affecting efforts to protect the Caspian Sea's environment. In August 2006, all five littoral states came to an agreement that basically acknowledges the environmental problems that are occurring in the region and establishes mechanisms to allow the states to rectify them. The Caspian Environment Program website contains the [text of the full agreement](#) as well as other [background information](#). Continued economic development, improved regional cooperation, and the implementation of modern technology will be required in order to improve the state of the environment in and around the Caspian Sea in coming years.

Maps

Bosporus Bypass Options (please click below for a full map)



Caspian Sea Region Fields Map (click for a high resolution version)



(Source: CIA)

[Caspian Region Oil Pipelines \(click for a high resolution version\)](#)



(Source: CIA)

Caspian Region Natural Gas Pipelines



(Source: CIA)

Other Maps:

[Oil Pipelines to China](#)

[Gas Pipelines to China](#)

Other Non-U.S. Government Maps:

[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(North Region\)](#)
[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(South Region\)](#)

[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(Legend\)](#)

Summary Tables

Caspian Sea Regional Statistics

[Caspian Sea Regional Statistics \(PDF\)](#)[\(Excel\)](#)

Caspian Sea Region Major Projects

Table 1		Caspian Sea Region Leading Upstream Foreign Investment Projects by Country		
Country	Project (Major Investor)	Proven Reserves	2006 Production	Projection
Azerbaijan	ACG Mega-Structure (BP et al)	5.4 billion barrels	450,000 bbl/d	2007: 550,000 2009-10: 1 million bbl/d
	Shah Deniz (BP et al.)	2.5 billion barrels 14-22.1 Trillion Cubic Feet	not producing	2007: 296 Bcf
Kazakhstan	Tengiz (ChevronTexaco et al.)	6-9 billion barrels	270,000 bbl/d	2007: 300,000 bbl/d 2010: 650,000 bbl/d
	Karachaganak (BG, Agip, et al.)	2.4 billion barrels	200,000 bbl/d, 547 Bcf	2010: 500,000 bbl/d, 800 Bcf
	Kashagan (ENI-Agip, BG, et al.)	7-9 billion barrels	not producing	2010: 75,000 bbl/d, 2015: 1.2 million bbl/d
Turkmenistan	Cheleken (Dragon Oil)	0.6 billion barrels	25,000 bbl/d	2010: 40,000 bbl/d
	Ilebit Dag (Burren Energy)	0.1 billion barrels	19,000 bbl/d (2005)	2005: 31,000 bbl/d
Uzbekistan	Central Ustyurt and Southwest Gissar (PSA dissolved, being renegotiated)	Reserves: 90 million Barrels, 18.7 Tcf		2007: 2,600 bbl/d 71 Bcf
	Fergana Basin redevelopment (Australia, China PSAs)	1.2 billion barrels, 5.5 Tcf NG	--	--

Links

EIA Links

[EIA: Country Information on Azerbaijan](#)

[EIA: Environmental Brief on the Caspian Sea Region \(Feb. 2003\)](#)

[EIA: Country Information on Iran](#)

[EIA: Country Information](#)

[EIA: Country Information on Russia](#)
[EIA: Country Information on Central Asia \(Turkmenistan, Uzbe](#)

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[Columbia University: Russia Subject Index](#)

[Harvard University: Caspian Studies Program](#)

[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(North Region\)](#)

[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(South Region\)](#)

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Contact Info

cabs@eia.doe.gov

(202)586-8800

cabs@eia.doe.gov