Energy Information Administration www.eia.doe.gov

COUNTRY ANALYSIS BRIEFS

Uzbekistan

Last Updated: Jan. 19, 2012

Background

Uzbekistan has abundant natural gas reserves. However, several factors such as lack of sufficient foreign investment and inadequate transportation infrastructure have deterred the country from becoming a major energy exporter.

Uzbekistan has a highly energy-intensive economy as much of the infrastructure is inefficient and needs upgrading. Uzbekistan holds sizeable hydrocarbon reserves, mostly natural gas, yet faces a myriad of challenges in bringing those reserves to world markets. Uzbekistan is geographically far from end-use markets and is landlocked on all sides. The country lacks sufficient pipelines to export more hydrocarbons and suffers from an inefficient and older energy infrastructure. Uzbekistan's tight regulatory environment on investment inflows has significantly slowed the necessary foreign technical and financial assistance to develop reserves and upgrade the country's infrastructure systems. Also, other hydrocarbon-rich Eurasian states with more favorable investment climates and greater access to markets pose competition for Uzbekistan. The country has taken steps to monetize its gas reserves in recent years through forging partnerships with Russian and Asian firms for oil and gas production.

Consumption of total primary energy for Uzbekistan reached 2.353 quadrillion Btu in 2008, approximately 80 percent of which came from natural gas, while petroleum products made up 0.302 quadrillion Btu or 13 percent of the market share. The remaining fuel sources are small quantities of hydropower and coal used for electricity generation and industry. Natural gas, the key fuel source for the country, accounts for 70 percent of the electric generation and 90 percent of heat production in 2008. The government policy intends to increase the share of coal-fired power over the next two decades.

Oil

Oil production from Uzbekistan has declined since 2003 due to lack of new investment and technological capacity to bring new oilfields online as well as a greater interest in the larger gas potential of the region by energy companies.

The *Oil and Gas Journal (OGJ)* estimates that Uzbekistan had 594 million barrels of proven oil reserves in 2012, 171 discovered oil and natural gas fields, 51 of which produce oil and 17 of which produce gas condensates. Uzbekistan's petroleum production consists of roughly 60 percent high-sulfur crude and 40 percent condensates from natural gas fields. Existing oil and gas fields are depleting faster than new discoveries are coming online, spurring the need for further investment.

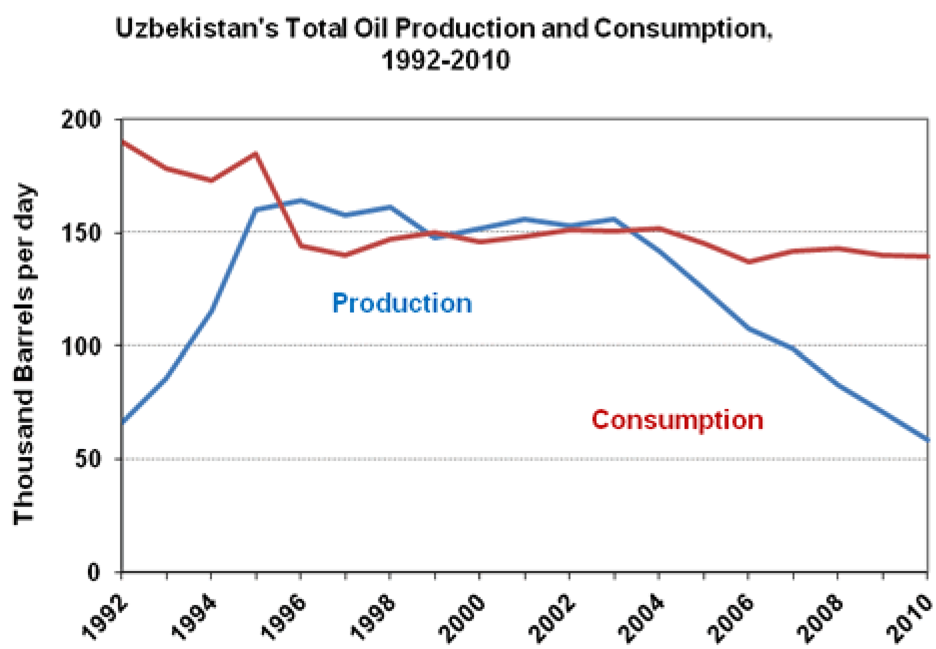
The majority of the known oil reserves in Uzbekistan are in the Bukhara-Khiva region in the southeast of the country, and most fields are small apart from the sizeable Kokdumalak field. Other oil- and gas-rich areas are the Ustyurt Plateau/Aral Sea region, Southwest Gissar, Surkhan-Darya, and the Ferghana Valley. The Ferghana Basin, bridging Uzbekistan, Kyrgyzstan, and Tajikistan, reportedly contains and total recoverable oil of 4 billion barrels including 3 billion barrels of undiscovered reserves according to the U.S. Geological Survey (USGS).

Source: IEA

Exploration and Production

Because of ageing infrastructure and a dearth of foreign investment and capital, production rapidly declined after 2003. During 2010, Uzbekistan produced 59,000 barrels of oil per day (bbl/d), a 60-percent decline from 2000 levels.

Despite having reserve levels similar to those of its neighbor Turkmenistan, Uzbekistan produces significantly less oil due to a historical lack of investment and limited export options. EIA projects that oil production continues falling through 2013.



Source: EIA *International Energy Stastics*

The Bukhara-Khiva region in the southwest region of the country accounts for about 70 percent of Uzbekistan's oil production. Uzbekistan signed several production sharing agreements (PSAs) with foreign oil companies to refurbish existing fields and develop new basins in this region along the border with Turkmenistan. Many of these fields hold both oil and gas condensates. Lukoil and CNPC hold stakes in the Southwest Gissar and Bukhara-Kiva oil basins, respectively, through agreements with Uzbekneftegaz, Uzbekistan's state oil company. Lukoil produced 1,000 bbl/d in 2009 in its Southwest Gissar basin which holds an estimated 44 million barrels, and expects to raise the level to 6,000 bbl/d by 2012. CNPC and Uzbekneftegaz are developing over 20 fields including the Umid field, containing 18 million barrels, in Bukhara-Kiva.

CNPC is exploring the Mingbulak field that is part of the Ferghana basin in eastern Uzbekistan as part of an energy cooperation agreement between Uzbekistan and China. Proven reserves are still unknown because some of the oil is located in sub-salt portions of the basin, proving challenging for exploration.

Another potential source of oil supply is from oil shale reserves in the Sangruntau deposit in Uzbekistan's northern Navoi region. Uzbekistan plans to attract $850 million in domestic and foreign investment by 2015 to explore and develop oil shale projects. In a joint venture (JV) with Japan Oil, Gas & Metals National Corporation (JOGMEC), Uzbekistan intends to process the oil shale at a new facility by 2013.

Uzbekistan's Oil Projects and Investments

Company	Development / Field	Production / Reserves	Contract Details
Lukoil acquired PSA Feb 2008 from Soyuzneftegaz	Southwest Gissar and central Ustyurt regions (7 fields)	Targeted 6,000 bbl/d by 2013; 44 million barrels reserves	36-yr PSA signed in Feb 2007, $2 billion
Lukoil	Khauzak and Kandym fields in the Bukhara-Khiva and Gissar regions	1.4 million bbl reserves	35-yr PSA signed in June 2004; Production at Khauzak began 2007; Kandym field to be operational by 2014, $1 billion
CNPC / Uzbekneftegaz	Bukhara-Khiva regions (Umid and >20 small oilfields)	Targeted 20,000 bbl/d by 2015; 18.3 million barrels	25-year JV signed in 2005 for $600 million
CNPC	Mingbulak oilfield in the eastern Namangan province		Agreement with Uzbekneftegas signed in 2008 to invest $212 million over 4 years

Sources: Global Insight, IEA, and trade press

Oil and Gas Sector Organization

Uzbekistan attracts less foreign direct investment (FDI) than other Caspian nations, and investment in the hydrocarbon industry is currently insufficient to raise oil and condensate production. However, Uzbekistan recently began easing legislation to attract foreign capital. According to the World Bank, total net inflow of FDI to Uzbekistan in 2009 was $750 million, over 4 times the amount invested in 2006.

Uzbekneftegaz, the state oil and gas holding company, is responsible for all exploration, production, and downstream operations within Uzbekistan. This national oil company was restructured in 2004 to include four subsidiaries covering various upstream and downstream operations. The government made several unsuccessful attempts to privatize 49 percent of Uzbekneftegaz.

In 2004, Uzbekistan passed PSA legislation to attract more foreign investment. Also, in 2007, the country lowered taxes on subsoil hydrocarbon extraction to give producers more incentives to reverse oil production declines.

Uzbekistan attracts most energy sector foreign investment through PSAs or JVs primarily with Russian or Asian energy companies: primarily, Gazprom, Lukoil, CNPC, Petronas, and KNOC of Korea. Lukoil, one of the largest foreign investors in Uzbekistan, announced plans quadruple its total cumulative investment in Uzbekistan to $5 billion by 2017 from the total of $1.5 billion in 2010.

Uzbekistan also signed several energy cooperation agreements with other companies such as India's GAIL and ONGC, PetroVietnam, and ExxonMobil to attract their technical expertise and support in the country's hydrocarbon production. Despite gradual steps to improve its foreign investment climate, Uzbekistan still faces serious hurdles to develop its hydrocarbon sector.

Refining and Gas-to-Liquids

Uzbekistan has three refineries at Ferghana, Alty-Arik, and Bukhara, with a total refining capacity of 222,300 bbl/d. Because of the country's decline in oil production in recent years, Uzbek refineries are operating at only 60 percent of design capacity. The country announced plans in January 2011 to spend $200 million modernizing both refineries to increase the ratio of light products to 95 percent.

Uzbekistan's limited refined product exports move by rail and road to neighboring countries and ports on the Black Sea.

Uzbekistan plans to reduce its oil product imports by converting some of its abundant natural gas reserves to oil products using gas-to-liquids (GTL). The Shurtan GTL plant, located in the Kashkadarya region, is slated to convert 120 Bcf/y of natural gas and gas condensates to about 35,000 bbl/d of oil products. The project's current equity partners, Uzbekneftegaz (44.5 percent), Sasol of South Africa (44.5 percent), and Petronas (11 percent), completed the feasibility study at the end of 2011 and plan to bring the plant online by 2017.

Oil Exports and Imports

Uzbekistan will remain a net oil importer as long as production declines. Oil demand exceeds supply by nearly two-fold. Domestic oil consumption reached an estimated 139,000 bbl/d in 2010 and has remained relatively constant since the mid-1990s, averaging 150,000 bbl/d. However, the country's goal is to lower oil import dependence and increase exports.

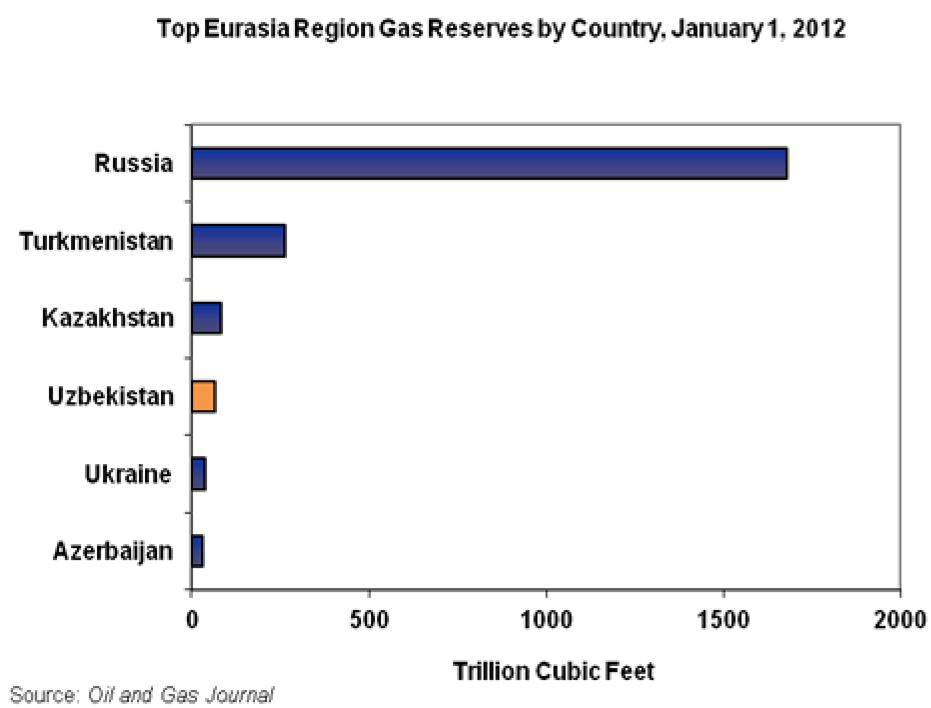
Uzbekistan imports small amounts of crude oil mainly from Kazakhstan and exports refined products. Refined products are transported by rail or vehicles to surrounding countries.

Uzbekistan has virtually no international oil pipeline infrastructure except a pipeline linking the Kazakh Shymkent refinery to the Chardzhou refinery in northeastern Turkmenistan. A smaller petroleum products pipeline linking Shymkent, Kazakhstan to Tashkent, the Uzbek capital, resumed imports in 2003 after Uzbekistan allowed oil imports to re-enter the country. Uzbekistan's only current option to export crude oil is to reverse an existing pipeline that brings oil from Omsk, Russia, to Uzbek refineries.

Natural Gas

Uzbekistan contains substantial natural gas reserves but is currently constrained by the lack of available foreign investment and natural gas export pipeline infrastructure. Uzbekistan also serves as a transit country for gas from Turkmenistan to Russia and China.

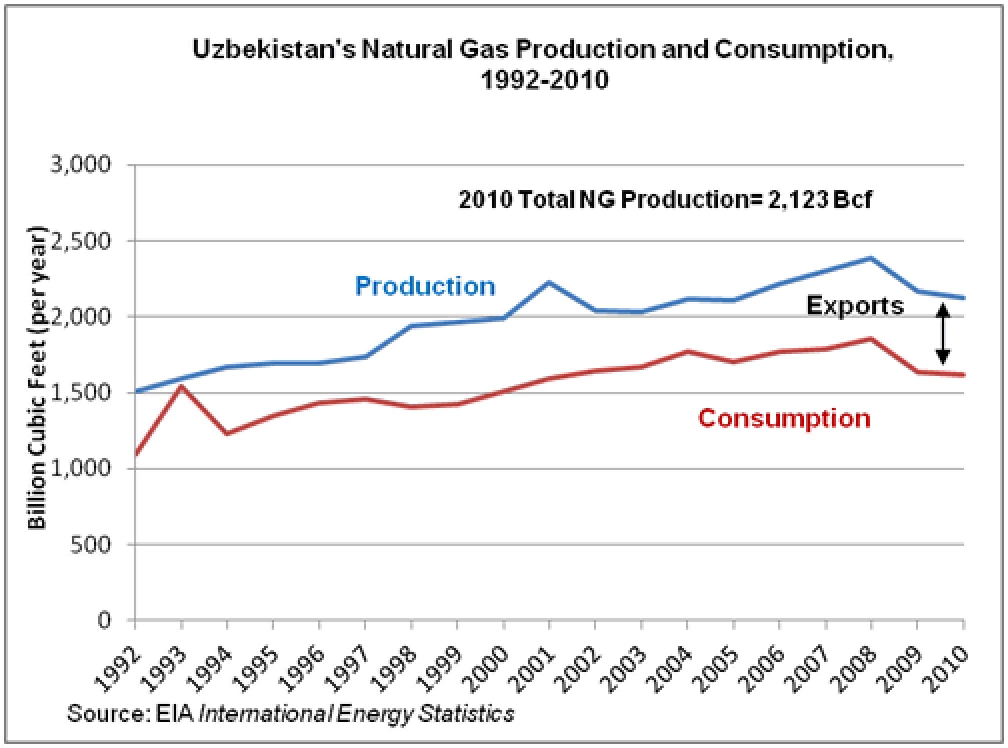
According to *OGJ,* Uzbekistan holds an estimated 65 Tcf (Trillion cubic feet) of proven natural gas reserves as of 2012, ranking it the fourth highest in the Eurasia region and nineteenth in the world. Uzbekistan produces natural gas from 52 fields with 12 major deposits, accounting for over 95 percent of the country's gas production. These deposits are concentrated on the Uzbek side of the Amu Darya Basin in the southeastern region and in the Central Ustyurt plateau near the Aral Sea in the western region of the country.



Exploration and Production

Since independence in 1992, Uzbekistan increased its natural gas production by 44 percent, from 1.5 Tcf/y to over 2.1 Tcf/y in 2010. Production peaked at 2.4 Tcf/y in 2008. Uzbekistan is currently the second largest gas producer in the Eurasia region (after Russia and passing Turkmenistan in 2009) and ranks in the top thirteen natural gas-producing countries in the world.

Uzbekistan's natural gas fields, concentrated in the southwest region, were heavily exploited in the 1960's and 1970's. Production from existing fields, such as Kokdumalak and Shurtan, has reached a plateau. In order to offset declines from mature fields and boost overall production, Uzbekistan announced plans to spend at least $1 billion (two-thirds funded by Uzbekneftegas and one-third by domestic and international banks) by 2020 on increasing gas reserves and infrastructure for fields in the southwestern Gazli region. The national company also reported in 2011 that it will invest $800 million in the next four years to augment gas reserves and exports from four older fields in the southern Kashkadarya region, which produce 1.7 Tcf/y, over three-quarters of Uzbekistan's total production.



Uzbekistan signed several accords and PSAs in the last four years with Russian and Asian companies to develop new gas projects and revamp depleting fields. Lukoil holds two agreements with Uzbekneftegaz for production at the Kandym-Khauzak project and the Southwest Gissar project as detailed in the following table. Lukoil's goal is to increase its total gas production in Uzbekistan to over 600 Billion cubic feet (Bcf) by 2017 and export some of the gas to China when transportation capacity on the Central Asia-China Pipeline expands.

Gazprom and Uzbekneftegaz signed an agreement on strategic cooperation in 2002 so that the Russian company can purchase long-term Uzbek gas exports and participate in more exploration and production supply ventures. The Russian company currently has two production sharing agreements in northwestern Uzbekistan.

The North and West Ustyurt plateau near the Aral Sea garnered attention from several investors, and currently there are four PSAs to explore and produce gas in this area. The Aral Sea exploration block is a PSA consisting of the following stakeholders: CNPC, Lukoil, KNOC, and Uzbekneftegaz. Uzbekneftegaz plans to transport gas from the Aral Sea using the Bhukara-Urals pipeline or the Central Asia Center pipeline system.

Uzbekistan's Natural Gas Projects and Investments			
Company	**Development / Field**	**Production / Reserves**	**Contract Details**
Lukoil acquired PSA Feb 2008 from Soyuzneftegaz	Southwest Gissar and central Ustyurt regions (7 fields)	Targeted 105 Bcf/y by 2013; 3.5 Tcf reserves	36-yr PSA signed in Feb 2007, $2 billion
Gazprom	Shakhpati field in NW Uzbekistan		15-yr PSA signed in 2004, $15 million to help modernize the field
Gazprom	Western Ustyurt region (4 fields)	35.3 Tcf reserves	PSA signed in 2006; Gazprom to invest $400 million by 2011
Lukoil	Khauzak and Kandym fields in the Bukhara-Khiva and Gissar regions	100 Bcf/y in 2010, 140 Bcf/y targeted by 2012 and 530 Bcf/y peak by 2015; 9 Tcf reserves	35-yr PSA signed in June 2004; Production at Khauzak began 2007; Kandym field to be operational by 2014, $1 billion
Consortium: CNPC, Lukoil, KNOC, and Uzbekneftegaz (25% stake each)	Aral Sea exploration block	14 Tcf reserves	35-yr PSA signed in 2006; Production began May 2010
KOGAS consortium and Uzbekneftegas	Aral Sea: Surgil field	Targets 2.8 Bcf/y by 2014	MOU signed 2006; JV formed in 2008; $600 million for gas field development and $3.3 billion for chemical plant
Petronas	Surkhandarya region: Baisun field	Targets 78 Bcf/y	35-yr PSA signed in 2010 to invest $1.5 billion; constructing gas processing plant for the field
Petronas	West Urga / Western Ustyurt region (3 fields)	Targets 25 Bcf/y	15-yr PSA signed in 2008 to invest $500 million

Sources: Global Insight, IEA, and trade press

Gas Flaring and Transportation

Gas from fields associated with oil production is sometimes flared, and there are losses on the system due to pressure declines. Uzbekneftegaz estimates that associated gas utilization is currently 40 percent. According to estimates from a World Bank commissioned study conducted by the National Oceanic and Atmospheric Administration's (NOAA), Uzbekistan flared an estimated 67 Bcf/y in 2010 and ranks as one of the top 20 gas flaring countries; however flaring has declined overall since 2006. Uzbekneftegaz reports it will invest $123 million to increase gas utilization and monetize supply that is currently flared or shut in at associated fields.

Natural Gas Exports

Uzbekistan consumes nearly 80 percent of its gas production, or about 1,600 Bcf/y in 2010, for domestic use in the electric and heating sectors. Uzbekistan's lack of sufficient gas export pipeline options and heavily regulated and subsidized prices limit the country's gas exports. With one of the highest populations in the region – 27.8 million in 2009, export capabilities compete with domestic demand for supply. However, Uzbekistan plans to triple its gas exports by 2020 and diversify gas markets.

Uzbekistan exported approximately 24 percent of its gas production in 2010, and exports have generally increased since 2002. Uzbekistan sends over half of its natural gas exports to Russia and the remainder to neighboring states such as Kazakhstan, Kyrgyzstan, and Tajikistan. Uzbekistan is also a transit country for Turkmenistan's gas exports to Russia and China.

Uzbekneftegaz signed new agreements with Gazprom and CNPC in 2010. The agreement with Gazprom covers a 2-year extension of the current agreement in which Russia contracted to import over 350 Bcf/y through 2012. In 2010, Uzbekistan signed a supply agreement with CNPC for China to take 350 Bcf/y once the capacity on the Central Asia-China Pipeline expands in 2014. Furthermore, China's Eximbank agreed to provide $74 million in order to modernize Uzbekistan's gas distribution network to facilitate the flows to China.

Natural Gas Pipeline Routes

Uzbekistan is landlocked on both sides and mainly serves as a transit country for Turkmen gas flowing to Russia and China. The country's distribution system and gas processing capabilities are sufficient to meet its domestic gas transmission requirements, and the key pipeline connecting the Ustyurt and Bukhara-Kiva gas regions with the export pipelines is the Gazli-Kagan pipeline. Uzbekistan is in the process of increasing its gas exports to new markets such as China and to existing markets through these pipelines

Central Asia Center Pipeline (CAC)

The Central Asia-Center pipeline is the key route through which Uzbekistan exports its gas to Russia and Gazprom's natural gas system. The western branch delivers Turkmen natural gas from near the Caspian Sea region to the north, while the eastern branch pipes natural gas from eastern Turkmenistan and southern Uzbekistan to western Kazakhstan. Turkmenistan has been the chief exporter of natural gas via the Central Asia-Center pipeline. Both branches have a combined design capacity of 3,530 Bcf/y; however because of the poor technical conditions, actual capacity is about half of this amount.

Uzbekistan signed a deal with Gazprom in late 2008 that would involve renovation of the CAC's eastern section and construction of a new parallel pipeline, adding up to 1,060 Bcf/y of capacity.

Central Asia-China Pipeline (Turkmenistan to China via Uzbekistan)

CNPC established the Sino-Turkmenistan Gas Pipe Corporation to construct a 1,140-mile (1,833-kilometer) gas export pipeline from Turkmenistan's eastern fields through Uzbekistan to western China and the interconnection with China's West-East pipeline. CNPC originally anticipated transporting up to 1,060 Bcf/y of gas on the Central Asia-China Pipeline which began operations in December 2009. However, in mid-2011, CNPC announced the pipeline's capacity could rise to over 2,100 Bcf/y by 2015.

Although Turkmenistan is designed to be the key contributor of gas to China on this pipeline, Uzbekistan is also slated to transport up to 350 Bcf/y of its own gas to China through the system as well. Currently, Uzbekistan transits only Turkmen gas to China through the pipeline, but the country finalized a gas supply deal with China at the end of 2011. China agreed to build the pipeline's third strand with a capacity of 890 Bcf/y, allowing Uzbekistan to begin exporting its gas to China by 2014.

Bukhara-Urals Pipeline

Lack of maintenance on the CAC caused Uzbekistan to re-open the moth-balled Bukhara-Urals Pipeline in 2001 to transit increasing volumes of Turkmen gas. This pipeline runs from the Dauletabad field in southeastern Turkmenistan through the Bhukara gas region in Uzbekistan, to Kazakhstan, and feeds into the pipeline system in Russia. The pipeline capacity is currently 706 Bcf/y; however, it operates at only a quarter of its capacity, at around 177 Bcf/y and needs refurbishing.

Tashkent- Bishkek-Almaty Pipeline

Uzbekistan's main natural gas export pipeline is the Tashkent-Bishkek-Almaty pipeline which runs from eastern Uzbekistan through northern Kyrgyzstan to southern Kazakhstan and has a capacity of 113 Bcf/y. The pipeline is the main source of natural gas for Kyrgyzstan and southern Kazakhstan. Various issues regarding irregular supplies by Uzbekistan and mounting debts by both Kazakhstan and Kyrgyzstan for supplies already received have led to increased tension among the three neighbors in the past.

Links

EIA Links

EIA: Country Information on Azerbaijan
EIA: Country Information on Iran
EIA: Country Information on Kazakhstan
EIA: Country Information on Russia
Oil and Gas Resources of the Fergana Basin-EIA

U.S. Government

CIA World Factbook
U.S. Department of Energy, Office of Fossil Energy: International Affairs
U.S. International Trade Administration, Energy Division
U.S. Agency for International Development
U.S. Department of Commerce, Uzbekistan
U.S. Department of State - Uzbekistan
U.S. National Oceanic and Atmospheric Administration
Radio Free Europe/Radio Liberty (RFE/RL)
U.S. Embassy in Uzbekistan

General Information

Central Asia to China Gas Pipeline
EurasiaNet.org--News and Analysis from Central Asia and the Caucasus
Asian Development Bank
Eurasianet.org - Country Summaries and news articles
International Crisis Group
World Bank data
UNDP Policy Brief on Energy Reforms in Uzbekistan (2007)
UNDP Investment Guide to Uzbekistan (2007)
News Central Asia
Interfax News Agency

Associations and Institutions

CNPC
Government of Turkmenistan
Government of Uzbekistan
Lukoil

Sources

Asia Pulse
BBC Worldwide Monitoring
Caspian Petroleum Investor
Central Asia Newswire
China National Petroleum Co.
Dow Jones
FSU Oil and Gas Monitor
Heren Energy
IHS Global Insight
International Crisis Group
International Monetary Fund
International Oil Daily
National Oceanic and Atmospheric Administration (NOAA)
Nefte Compass
Oil and Gas Journal
PFC Energy
Platt's Oilgram News
Reuters
Rigzone
Russia Petroleum Investor
U.S. Energy Information Administration
The World Bank

Contact Info

(202)586-8800
cabs@eia.gov