

# COUNTRY ANALYSIS BRIEFS

## Kazakhstan

Last Updated: November 2010

### Background

***Kazakhstan has the second largest oil reserves as well as the second largest oil production among the former Soviet republics after Russia. The country also has large reserves of natural gas and production of both oil and gas is steadily increasing.***

Full development of its major oilfields could make Kazakhstan one of the world's top 5 oil producers within the next decade. With production of 1.54 million barrels per day (bbl/d) in 2009, Kazakhstan is already a major producer, and continued development of its giant Tengiz, Karachaganak, and Kashagan fields is expected to at least double its current production by 2019. Kazakhstan's sector of the Caspian Sea is believed to hold several other major oil and natural gas deposits as yet unexploited.

Steadily rising natural gas production is transforming Kazakhstan from a net gas importer to a net exporter. Natural gas development has lagged behind oil due to the lack of domestic gas pipeline infrastructure linking the western producing region with the eastern industrial region as well as insufficiency in export pipelines. However, the Kazakhstan-China gas pipeline will enable the transport of gas to Kazakhstan's industrial region as well as increased gas exports when it comes online in 2014.

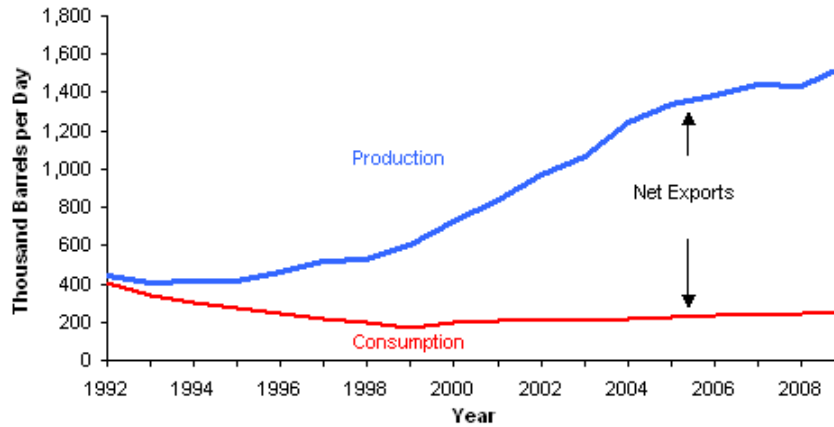
The lack of access to a seaport makes the country dependent mainly on pipelines to transport its hydrocarbons to world markets. It is also a transit state for pipeline exports from Turkmenistan and Uzbekistan. Neighbors China and Russia are key economic partners, providing sources of export demand and government project financing.



### Oil

***Kazakhstan is aiming to become one the world's top oil exporters in the next decade.***

Kazakhstan's proven oil reserves were estimated at 30 billion barrels by the *Oil and Gas Journal* in January 2010. The country's main oil reserves are located in the western part of the country, where the 5 largest onshore oil fields, Tengiz, Karachaganak, Aktobe, Mangistau, and Uzen, are located. These onshore fields account for about half of current proven reserves, while the offshore Kashagan and Kurmangazy oil fields, in Kazakhstan's sector of the Caspian Sea, are estimated to contain at least 14 billion barrels.

**Kazakhstan's Oil Production and Consumption, 1992-2009**

Source: EIA

### Sector Organization

A recently renamed Ministry of Oil and Gas is responsible for developing the legislative and regulatory framework, as well as developing strategy for the oil sector. National oil and gas company, Kazmunaigaz (KMG), was created in 2002 to represent the state's interests in Kazakhstan's oil and gas industry. Rising oil production has been the result of an influx of foreign investment into Kazakhstan's oil sector since 1991. However, KMG plays a growing role in oil and gas sector development as the government now reserves a majority stake for KMG in all new projects and joint ventures.

Kazakhstan's Law on Subsoil and Subsoil Use governs the transfer of subsoil use rights and was amended in 2005 to give the state the basis to exercise pre-emption rights on any oil assets put up for sale in the country, allowing KMG to buy them and thus secure stakes in several of the country's biggest projects. The law was amended again in 2007 to allow the state to make retrospective changes to any existing oil contracts or even break the contracts if they are deemed a threat to the country's security. The June 2010 amendment establishes strict local content requirements for oil and gas contracts.

In early 2008, the government announced that no more production-sharing agreements (PSAs) would be awarded, and joint ventures are now the most common type of investment. The Kazakh government's decision to offer exploration blocks to KMG first, letting the state firm negotiate with potential partners rather than issuing blocks via an open licensing process, initially dampened private oil company interest. However, KMG signed exploration agreements with Total and Statoil in June 2010 for 2 offshore Caspian blocks. State-to-state deals with state-owned oil companies, particularly Russian and Chinese, are prevalent. In August 2010, the government announced the re-introduction of oil export duties, first introduced in 2008 and then suspended in January 2009. This affects all oil exporters operating in Kazakhstan.

### Production

Kazakhstan's oil production reached 1.54 million barrels per day (Mmbbl/d) in 2009, more than double the level of a decade earlier, while domestic oil consumption averaged 241,000 bbl/d. The 8 largest currently producing fields are located onshore: 5 in the western part of the country, the North and South Kumkol fields in the south central area, and the Akshabulak field in the central area. These 8 fields accounted for about 80 percent of liquids production in the country in 2008. Oil production in 2010 is projected at 1.6 Mmbbl/d.

KMG is now the second largest oil producer in Kazakhstan after the Chevron-led Tengizchevroil consortium, in which KMG has a 20 percent interest. In August 2010, KMG announced its plans to raise its oil and condensate production to 480,000 bbl/d by 2014, up from 380,000 bbl/d in 2009. Oil liquids production growth is largely dependent on performance at the 3 largest fields, Tengiz, Kashagan, and Karachaganak.

#### *Largest Currently Producing Oil Fields*

Tengiz is currently Kazakhstan's largest producing oil field, with recoverable crude oil reserves estimated at 6-9 billion barrels by consortium leader Chevron. It is located onshore northwestern Kazakhstan and produced 377,000 bbl/d of crude oil in 2008, rising to 492,000 bbl/d of crude oil as well as 38,000 bbl/d of condensate in 2009, according to Chevron. It is the world's deepest operating giant field at 12,000 feet and has been in development since 1993 by the Tengizchevroil (TCO) joint venture, a 40-year, US\$20 billion agreement between Chevron (50percent), ExxonMobil (25percent), KMG (20percent), and LukArco (5percent) signed with the Kazakh government. Production could increase to 800,000 bbl/d by 2016. Tengiz output is currently

exported through the Caspian Pipeline Consortium (CPC) oil pipeline, which runs from Tengiz to Novorossiysk, Russia on the Black Sea.

Karachaganak, also onshore northwestern Kazakhstan close to the Russian border, produced 231,000 bbl/d of condensate in 2009, about the same as in 2008. According to Karachaganak Petroleum Operating (KPO), the field holds reserves of around 8-9 billion barrels of oil and gas condensate and 47 trillion cubic feet of natural gas. The field is operated by the KPO consortium under a PSA signed in 1997 to develop the field for 40 years. KPO includes Agip and BG, (each 32.5percent), Chevron (20percent), and Lukoil (15percent). In August 2010, the Kazakh government and KPO were reportedly negotiating a stake for KMG in the only major oil and gas project in the country without KMG participation. A pipeline connection to the Tengiz-Novorossiysk pipeline allows KPO to export its condensate output through Russia. Karachaganak's Phase 3 development program, aimed at increasing condensate output, is reported on hold due to delays in upgrading and expanding the Orenburg processing plant in Russia.

Uzen oil field, located in southwestern Kazakhstan in the Mangistau region, produced 134,000 bbl/d in 2008. It is 100 percent owned by KMG and has been in operation since 1961. Rehabilitation of the Uzen field and development of the adjacent Karamandybas field is aimed at increasing production. Reserves are estimated at 1.35 billion barrels.

Mangistau oil field, in the same region, produced 115,000 bbl/d in 2009. It has reserves estimated at 500 million barrels and is operated jointly by KMG and China National Petroleum Corporation (CNPC).

Aktobe oil field in northwestern Kazakhstan produced 120,000 bbl/d in 2009, and holds estimated reserves of over 1 billion barrels of oil. CNPC acquired a 60.3 percent stake in 1997 as a result of agreements between the Kazakh and Chinese governments, and another 25.12 percent share was sold to CNPC in 2003 by KMG. Since 1997, oil production has more than doubled and CNPC's target of 200,000 bbl/d production is expected to be reached by early 2011. All oil output is exported to China through a link from the CPC pipeline to the Kazakhstan-China oil pipeline.

North and South Kumkol each produced about 65,000 bbl/d in 2008. The South Kumkol fields are shared by CNPC (66.7 percent) and KMG (33.3 percent). The North Kumkol fields are shared 50-50 by Lukoil and CNPC. These fields are located in south central Kazakhstan, from where the oil is exported via the Kazakhstan-China oil pipeline to China.

Akshabulak and surrounding fields in central Kazakhstan produced 63,000 bbl/d in 2008 and are operated jointly by KMG and Petro Kazakhstan. Oil from this field is transported to the Kumkol area by pipeline for export.

#### *Fields Under Development*

The Kashagan field, believed to be the largest known oil field outside the Middle East and the fifth largest in the world in terms of reserves, is located off the northern shore of the Caspian Sea near the city of Atyrau. The consortium that was developing the field, the Agip Kazakhstan North Caspian Operating Company (Agip KCO) was replaced in January 2009 by the North Caspian Operating Company (NCOC), which includes Kashagan and other fields in the area, such as Aktote, Kairan, and Kalamkas. The NCOC PSA is led by Total, Eni, ExxonMobil, Shell, and KMG, each with a 16.8-percent share, ConocoPhillips with an 8.4-percent share, and Inpex at 7.6 percent. In July 2010, KMG and Shell signed an agreement to jointly manage production when the field comes online. The field's recoverable reserves are estimated at 11 billion barrels of oil. The timetable for production startup has been pushed back to October 2013, some 8 years after the original scheduled startup date of 2005. Initial production from phase 1 is projected at 370,000 to 450,000 bbl/d, with peak production of 1.5 Mmbbl/d from phase 2 projected for 2019.

Much of the repeated delays have been due to cost overruns associated with the field's adverse operating environment. The Kashagan field presents particular challenges for its developers: it contains a high proportion of natural gas under very high pressure, the oil contains large quantities of sulfur, and the offshore platforms require construction that can withstand the extreme weather fluctuations in the northern Caspian Sea. Because the Kashagan field lies in only 3 to 5 meters of water, drilling and extraction operations will proceed from artificial islands. The timing of phase 2 will also determine the timing of construction of new refining and export capability at Kuryk. Existing pipelines to Russia and China will only be able to handle phase 1 output.

The Kurmangazy field, located in the Caspian Sea on the maritime border between Russia and Kazakhstan, is the least developed of Kazakhstan's oil field projects. Russian and Kazakh state oil firms Rosneft and KMG signed a joint development deal in 2005. The first 2 wells were drilled in 2006 but came up dry, and although further drilling is planned, it has been repeatedly postponed. According to an October 2010 news report, the exploration contract between Russia and Kazakhstan is to be renewed.

#### **Exports**

Kazakhstan is an important exporter of light, sweet crude oil. In 2009, Kazakhstan had net oil exports of about 1.3 Mmbbl/d, with current infrastructure delivering it to world markets by pipelines

to the Black Sea via Russia; by barge and pipeline to the Mediterranean via Azerbaijan and Turkey; by barge and rail to Batumi, Georgia on the Black Sea; and by pipeline to China.

According to an October 2010 interview with Kazakh Prime Minister Karim Massimov, Kazakhstan hopes to raise its oil exports to 3 Mmbbl/d by 2020. However, the rapid growth of oil production will require increased capacity for exporting.

### Current Export Oil Pipelines

#### *Caspian Pipeline Consortium (CPC)*

The Caspian Pipeline Consortium (CPC) oil pipeline was commissioned in 2001 and runs 940 miles from the Tengiz oil field to the Russian Black Sea port of Novorossiysk. The consortium's 4 largest shareholders are: Transneft (24 percent), KMG (19 percent), Chevron (15 percent), and LukArco (12.5 percent). The pipeline consists of refurbished Soviet-era pipeline links along the Caspian and newly constructed components along the line. According to Chevron, it transported an average of 743,000 bbl/d of crude in 2009, which included 597,000 bbl/d of Kazakh oil, mainly from the Tengiz and Karachaganak fields, and 146,000 bbl/d of Russian oil. In addition, approximately 9,000 bbl/d was discharged at Atyrau for loading into rail cars. In late 2008, CPC members agreed on a plan to expand capacity on the pipeline to 1.34 million bbl/d by 2013, but a delay in the final investment decision to the fourth quarter of 2010 due to technical complications moved the completion date to mid-2014. The expansion project involves the construction of 10 additional pumping stations, replacement of some pipeline sections, and 6 new oil storage tanks at Novorossiysk.

### Kazakhstan Oil Pipelines



Source: CIA

#### *Kazakhstan-China Pipeline*

The Kazakhstan-China oil pipeline spans 1,384 miles, running from Atyrau port in northwestern Kazakhstan to Alashankou in China's northwest Xinjiang region, and has a capacity of and is reportedly currently transporting 200,000 bbl/d of crude. It is a joint venture between CNPC and KMG. In 2009, China reportedly received 61 million bbl/d through the pipeline, or 4 percent of China's crude imports.

The pipeline was built in segments, the most recently completed segment, the 492-mile Kenkiyak-Kumkol (Phase 3) started commercial operations on October 6, 2009, and connects the Kenkiyak-Atyrau pipeline (Phase 1) to the Atasu-Alashankou pipeline (Phase 2), online since 2006. The pipeline is currently supplied from the Aktobe and Kumkol fields. The cross-border section connects to CNPC/PetroChina's crude oil pipeline system in northwest China. Phase 1, the Kenkiyak-Atyrau pipeline, was the first oil pipeline built in Kazakhstan since independence. This line was tied into the Kazakhstan-China pipeline and its direction of flow was reversed, now running from Atyrau to Kenkiyak. In October 2009, CNPC and KMG signed a framework agreement to double the pipeline capacity to 400,000 bbl/d by 2013 under a second phase of development. Upon future expansion, it will also carry oil from the Kashagan field.

#### *Atyrau-Samara Pipeline*

Kazakhstan's other major oil export pipeline, from Atyrau to Samara, is a northbound link to Russia's Transneft distribution system, which provides Kazakhstan with a connection to world



markets via the Black Sea. The line was upgraded in 2009 by the addition of pumping and heating stations and currently has a capacity of approximately 600,000 bbl/d. Before the completion of the CPC pipeline, Kazakhstan exported almost all of its oil through this system.

#### *Baku-Tbilisi-Ceyhan*

The Baku-Tbilisi-Ceyhan (BTC) pipeline is a 1 million bbl/d capacity line in neighboring Azerbaijan, which came online in 2006. Kazakhstan has a contract with Azerbaijan and the BTC Pipeline Company to supply up to 500,000 bbl/d of oil via the BTC pipeline. Kazakh oil supplies were loaded into the BTC for re-export for the first time in October 2008. Oil supplies are delivered by tanker across the Caspian to Baku.

#### *Trans Caspian Transportation, Current and Future*

Currently, Kazakhstan ships oil by tanker to Baku and from there it goes either into the BTC pipeline or by rail to Batumi, Georgia. Reportedly, 100,000 bbl/d of oil was being shipped across the Caspian in 2009.

Trans-Caspian shipments to Baku are to eventually reach 500,000 bbl/d in accordance with the October 2009 agreement between Kazakhstan and Azerbaijan. To facilitate exports of oil from the Kashagan oil field during the next decade, Kazakhstan is currently developing the Kazakhstan Caspian Transportation System (KCTS), which includes the construction of a 454-mile, 500,000 bbl/d capacity onshore pipeline from Eskene in western Kazakhstan to Kuryk on the Caspian near Aqtau, where a new 760,000-bbl/d oil terminal is to be built. This system also includes a maritime link to Baku, Azerbaijan and the creation of a new fleet of tankers; new port facilities, and a transfer station in Baku, where the crude oil will be put into an expanded BTC pipeline to Turkey. Under current plans, KMG will hold 51 percent of the pipeline while the international companies developing Kashagan will hold 49 percent. The maritime link will be held by a joint venture between KMG and Azerbaijan's SOCAR. In October 2010, it was reported that the KCTS system is to be postponed as it will not be needed until 2018-2019, which is now when Kashagan's second phase is expected.

#### **Downstream/Refining**

Kazakhstan had a crude oil distillation capacity of 345,100 bbl/d as of January 1, 2010, according to the *Oil and Gas Journal*. There are 3 major oil refineries: Pavlodar, Atyrau, and Shymkent. Kazakhstan reportedly processed an average of 232,900 bbl/d between January and September 2009, according to *Nefte Compass*. Kazakhstan consumed an average of 240,000 bbl/d in 2009.

The refinery at Pavlodar is supplied mainly by a crude oil pipeline from western Siberia, since Russian supplies are well placed geographically to serve that refinery; the Atyrau refinery runs solely on domestic crude from northwest Kazakhstan; and the Shymkent refinery currently uses oil from the oil fields at Kumkol and the nearby area in central Kazakhstan.

The Shymkent refinery is operated by Petrokazakhstan, which is 33-percent owned by KMG and 67-percent owned by CNPC. Petrokazakhstan is the second largest foreign-owned oil producer and the largest manufacturer and supplier of oil products in the country. It is currently involved in projects aimed at increasing the refining capacity and range of products at Shymkent. The company has a transportation and sales network that includes service stations in Kazakhstan and Cyprus.

The Atyrau refinery is also undergoing improvement. In October 2009, KMG and Sinopec signed a contract for the construction of a new petrochemical processing facility at Atyrau, slated to be completed by 2013. The facility will allow the plant to extract benzene and other chemicals from oil and improve the quality of gasoline output.

Despite being a significant oil exporter, Kazakhstan experiences regional and seasonal oil product shortages. Because most of the country's oil and gas is produced in the western part, its industrialized northern and southern regions, lacking pipeline connections to the western oil and gas fields, rely on imports from neighboring Russia and Uzbekistan, respectively. Until recently, the refining sector in Kazakhstan has not received the high levels of foreign direct investment that other parts of the oil sector have. Since domestic prices for refined products have remained low, oil producers have more incentive to export crude oil to international markets instead of refining it locally. KMG reportedly plans to invest up to US \$4 billion to modernize its 3 refineries, beginning in 2011. In August 2010, KMG announced that it expects to fully meet domestic demand for petroleum products from its refineries by 2014 from its own increased production of oil and condensates. KMG controls 65 percent of Kazakhstan's oil transport routes and all of its natural gas pipelines. It is also the leading fuels distributor and retailer in the country.

## **Natural Gas**

In January 2010, the *Oil and Gas Journal* estimated Kazakhstan's proven natural gas reserves at 85 trillion cubic feet (Tcf). Natural gas production in Kazakhstan is almost entirely associated gas. Most of Kazakhstan's natural gas reserves are located in the west of the country, with more than half situated in the Karachaganak oil and gas field, which reportedly has proven natural gas

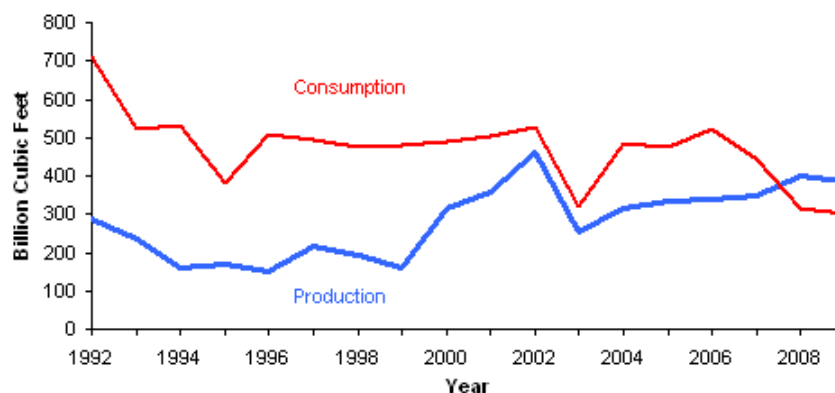
**With large amounts of associated natural gas in its oil fields, Kazakhstan is on the verge of being a net**

**gas exporter.** reserves of 48 Tcf. Kazakhstan shifted from being a net natural gas importer to becoming a net exporter of 134 Bcf in 2009.

### Natural Gas Production

Annual marketed natural gas production has been trending upward from 162 billion cubic feet (Bcf) in 1999 to 387 Bcf in 2009. While total gross gas production was 1.26 Tcf in 2009, 69 percent of the gas produced, 870 Bcf in 2009, was reinjected back into the fields to enhance oil production. The 2 largest natural gas producing fields are also the largest oil producing fields.

**Kazakhstan's Marketed Natural Gas Production and Consumption, 1992-2009**



Source: EIA

The Karachaganak oil and gas field reportedly produced around 558 Bcf gross gas in 2008, close to half of Kazakhstan's total gross gas production. The consortium developing Karachaganak expects gross production to reach 900 Bcf by 2012. While phases 1 and 2 were focused on condensate production, phase 3 is geared to boost gas output significantly, allowing Kazakhstan to become a major natural gas producer and exporter.

The Tengiz oil and gas field reportedly produced 494 Bcf gross gas during 2008, and the consortium developing the field says it could boost production to 780 Bcf by 2015. The remainder of gas produced came from other smaller fields. Kazakhstan reportedly plans to boost its total gross gas production to 2.5 Tcf by 2015, with gas exports of 1.4 to 1.6 Tcf planned, as new pipeline infrastructure allows the country to export its rising gas output.

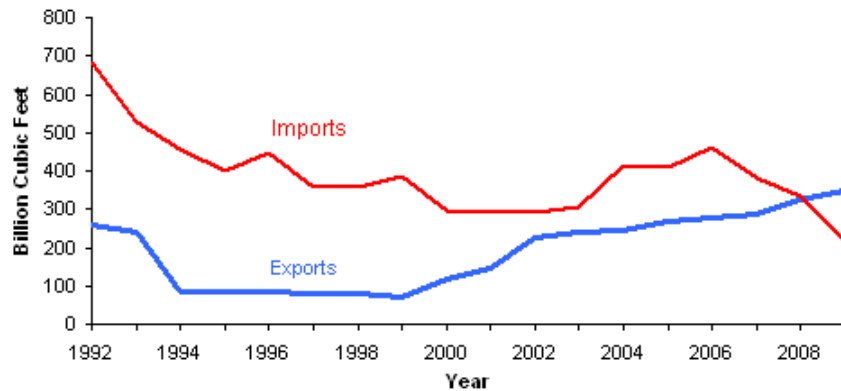
Development of the Amangeldy field is important for Kazakhstan's energy security, as gas output from the field is geared to make the country self-sufficient in gas. The field is located in southern Kazakhstan and is being developed as a joint venture of KMG and Spain's Repsol. It was reported as producing 35 Bcf in 2010 and has an estimated 883 Bcf of recoverable reserves.

### Natural Gas Imports and Exports

Kazakhstan has two separate domestic natural gas distribution networks, one in the west, which services the country's producing fields, and one in the south, which mainly delivers imported natural gas to the consuming regions. The lack of internal pipelines connecting Kazakhstan's natural gas-producing areas to the country's industrial belt between Almaty and Shymkent has hampered the development of the country's natural gas resources. Southern Kazakhstan receives much of its natural gas supplies from Uzbekistan via the Tashkent-Shymkent-Bishkek-Almaty pipeline even as the country exports gas from its northwestern region. KazTransGas, a subsidiary of KMG, controls and manages the country's gas pipeline transportation system.

Kazakhstan currently serves mainly as a transit state for natural gas pipeline exports from Uzbekistan and Turkmenistan to Russia and China. However, in 2009, for the first time exports exceeded imports by 134 Bcf, making Kazakhstan a net oil exporter.

### Kazakhstan's Natural Gas Exports and Imports, 1992-2009



Source: EIA

#### Central Asia Center Pipeline (CAC)

The two branches of the Central Asia Center (CAC) gas pipeline, controlled by Gazprom, meet in the southwestern Kazakh city of Beyneu before crossing into Russia at Alexandrov Gay and feeding into the Russian pipeline system. The eastern branch, capacity 2.1 trillion cubic feet per year (Tcf/y), originates in the southeastern gas fields of Turkmenistan. The western branch, capacity 176 Bcf/y, originates on the Caspian seacoast of Turkmenistan. Almost all Turkmen and Uzbek gas is delivered via the eastern branch, as the western branch is more than 35 years old and not all of it has been renovated, causing periodic problems. Intergas Central Asia, a subsidiary of KMG, is the operator of the Kazakh pipeline sections and has been increasing its annual investment in repairing and modernizing the western branch of the CAC pipeline using internally generated funds.

In December 2007, Russia, Kazakhstan and Turkmenistan announced signing an agreement to renovate and expand the western branch of the CAC pipeline and to construct a new Caspian gas pipeline paralleling the western branch with a capacity of 706 Bcf. Upon this new pipeline's completion, originally slated for 2012, the route would have a total capacity of 2.8 Tcf, up from around 2.1 Tcf currently. However, construction of the new pipeline was put on hold in 2009 as Turkmenistan seeks to diversify its gas export options and Russia reduces its Turkmen gas imports due to lower European demand.

#### Central Asia Gas Pipeline (CAGP)

In December 2007, CNPC pledged to invest \$2.2 billion in the CAGP, which starts at Gedaim on the border of Turkmenistan and Uzbekistan and extends 1,130 miles across Kazakhstan east to the Chinese border. The pipeline system was built to transport gas from Turkmenistan to China. CNPC, KMG and Uzbekneftegas are partners in this project. Stage 1 of the CAGP transports natural gas from eastern Turkmenistan via Uzbekistan and Kazakhstan to Alashankou, China, where it connects to China's West-East domestic pipeline system. The Turkmenistan section was completed in October 2009, the Uzbek section in November 2009, and the Kazakh section in December 2009, when gas began flowing through the pipeline. In mid-2010, the pipeline was reportedly pumping a total of 459 Bcf, about half from Turkmenistan and the rest from Kazakhstan and Uzbekistan.

Full capacity is to reach 1.4 Tcf (40 bcm) by early 2014, when stage 2, the Kazakhstan-China gas pipeline (KCGP), is completed. Stage 2 is a pipeline running from Beyneu in Kazakhstan's gas-producing western region to Shymkent in its southern industrial region. This new pipeline will be 932 miles long and will connect to the CAGP near Shymkent, enabling Kazakhstan to export gas from Aktobe, Tengiz and Karachaganak fields to China as well as ship an expected 353 Bcf to the Shymkent area for domestic use.

#### Bukhara-Urals Pipeline

A transit gas pipeline from Uzbekistan via Kazakhstan to Russia, this pipeline has capacity of 706 Bcf but it is largely idle.

#### Tashkent-Shymkent-Bishkek-Almaty Pipeline

An import and transit gas pipeline that provides gas supplies from Uzbekistan to Kazakhstan's main southern population centers, this pipeline has a capacity of 160 Bcf. Between Shymkent and Almaty, the line crosses Kyrgyz territory to supply Bishkek, the Kyrgyz capital. Frequent disruptions in supply to Almaty due to disputes between Kyrgyzstan and Uzbekistan have prompted Kazakhstan to develop its own gas fields in the region.

### Kazakhstan Natural Gas Pipeline Routes



Source: Kazakhstan Energy Ministry

### Natural Gas Downstream

Karachaganak's natural gas output is mainly exported northward to Russia's Orenburg processing plant. An agreement between Gazprom and KMG in 2008 created KazRosGas, a joint venture that will purchase gas and expand the Orenburg plant by 2012. Deliveries of Karachaganak gas to the Orenburg plant, located 84 miles from the field, were 280 Bcf in 2008. The volume of Kazakh gas processed at Orenburg is projected to exceed 620 Bcf by 2012.

## Profile

### Energy Overview

<b>Proven Oil Reserves (January 1, 2010E)</b>	30 billion barrels
<b>Oil Production (2009E)</b>	1.54 million barrels per day, of which 94% was crude oil.
<b>Oil Consumption (2009E)</b>	241 thousand barrels per day
<b>Crude Oil Distillation Capacity (2010E)</b>	345.1 thousand barrels per day
<b>Proven Natural Gas Reserves (January 1, 2010E)</b>	85 trillion cubic feet
<b>Natural Gas Production (2009E)</b>	387 billion cubic feet
<b>Natural Gas Consumption (2009E)</b>	303 billion cubic feet
<b>Recoverable Coal Reserves (January 1, 2010E)</b>	34.5 billion short tons
<b>Coal Production (2009E)</b>	109.5 million short tons
<b>Coal Consumption (2009E)</b>	88.7 million short tons
<b>Electricity Installed Capacity (2010E)</b>	20 gigawatts
<b>Electricity Production (2008E)</b>	74.6 billion kilowatt hours
<b>Electricity Consumption (2008E)</b>	66 billion kilowatt hours
<b>Total Energy Consumption (2007E)</b>	2.3 quadrillion Btus*, of which Coal (57%), Natural Gas (20%), Oil (19%), Hydroelectricity (3%)
<b>Total Per Capita Energy Consumption (2007E)</b>	148.1 million Btus
<b>Energy Intensity (2007E)</b>	14,244 Btu per \$2005-PPP**

### Environmental Overview



<b>Energy-Related Carbon Dioxide Emissions (2008E)</b>	199 million metric tons, of which Coal (71%), Oil (17%), Natural Gas (11%)
<b>Per-Capita, Energy-Related Carbon Dioxide Emissions (2008E)</b>	13 metric tons
<b>Carbon Intensity (2008E)</b>	1.2 Metric tons per thousand \$2005-PPP**

## Oil and Gas Industry

<b>Major Oil/Gas Ports</b>	Aktau, Atyrau, Kuryk
<b>Foreign Company Involvement</b>	Chevron, Total, CNPC, BG Group, Lukoil, ExxonMobil, Shell, ENI.
<b>Major Oil and Gas Fields</b>	Tengiz, Karachaganak, Aktobe, Mangistau, Kumkol, Uzen, Kashagan
<b>Major Pipelines</b>	Central Asia-Center oil and gas pipelines (CAC), Baku-Tbilisi-Ceyhan oil pipeline (BTC), Caspian Pipeline Consortium oil pipeline(CPC), Atyrau-Samara oil pipeline, Tashkent-Almaty gas pipeline, Bukhara-Urals gas pipeline, Kazakhstan-China oil pipeline, Central Asia Gas Pipeline (CAGP)
<b>Major Refineries</b>	Pavlodar (162,666 bbl/d), Shymkent (78,000 bbl/d), Atyrau (104,427 bbl/d)

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

\*\*GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

## Links

### EIA Links

[EIA - Kazakhstan Country Energy Profile](#)

### U.S. Government

[CIA World Factbook](#)

[U.S. Department of Energy, Office of Fossil Energy: International Affairs](#)

[US Embassy, Astana](#)

[U.S. International Trade Administration, Energy Division](#)

### General Information

[About Kazakhstan](#)

[Caspian Pipeline Consortium](#)

[EurasiaNet.org--News and Analysis from Central Asia and the Caucasus](#)

[Silk Road Intelligence](#)

### Associations and Institutions

[Chevron](#)

[CNPC](#)

[Government of Kazakhstan](#)

[Kazmunaigaz](#)

[Kaztransgaz](#)

[Shell Oil](#)

[U.S.-Kazakhstan Business Association](#)

## Sources

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Offshore Technology

Platt's Oilgram News  
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Rigzone  
Tender Info  
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Silk Road Intelligencer  
U.S. Energy Information Administration  
Wikipedia

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