



Home > Country Analysis Briefs > [Kazakhstan Country Analysis Brief](#)

PDF version | PDB version

July 2005

[Background](#) | [Oil](#) | [Natural Gas](#) | [Coal](#) | [Electricity](#) | [Key Statistics](#) | [Major Projects](#) | [Profile](#) | [Links](#)

## Kazakhstan

*Kazakhstan is important to world energy markets because it has significant oil and natural gas reserves. After years of foreign investment into the country's oil and natural gas sectors, the landlocked Central Asian state has recently begun to realize its enormous production potential. With sufficient export options, Kazakhstan could become a major world energy producer and exporter over the next decade.*

*Note: Information contained in this report is the best available as of July 2005 and is subject to change.*



### GENERAL BACKGROUND

Kazakhstan has the Caspian Sea region's largest recoverable crude oil reserves, and its production accounts for approximately two-thirds of the roughly 1.8 million barrels per day (bbl/d) currently being produced in the region (including regional oil producers [Azerbaijan](#), and [Turkmenistan](#)). Kazakhstan also has Central Asia's largest economy, and its nominal gross domestic product (GDP) grew by 33 percent in 2004, to \$39.0 billion, resulting in a per capita GDP of \$2,615 (roughly comparable to Honduras and

Vietnam). This marked the sixth consecutive year of significant economic growth in Kazakhstan since its independence in 1991.

Kazakhstan's growing petroleum industry, which accounts for roughly 30 percent of the government's revenues and about half of its export revenues, has driven the country's recent economic growth. Several economic research efforts conducted in 2002 and 2003 highlighted the growing danger of possible "Dutch Disease", or over-reliance on the oil sector. Large influxes of foreign currency can distort exchange rates and ultimately hinder growth in the non-energy sector. Some analysts were predicting that without more investment into the country's non-oil sectors, economic growth in the next decade could falter. However, a recent [report](#) by the IMF cites "impressive" growth in the non-oil sector that could help avoid oil-related growth problems.

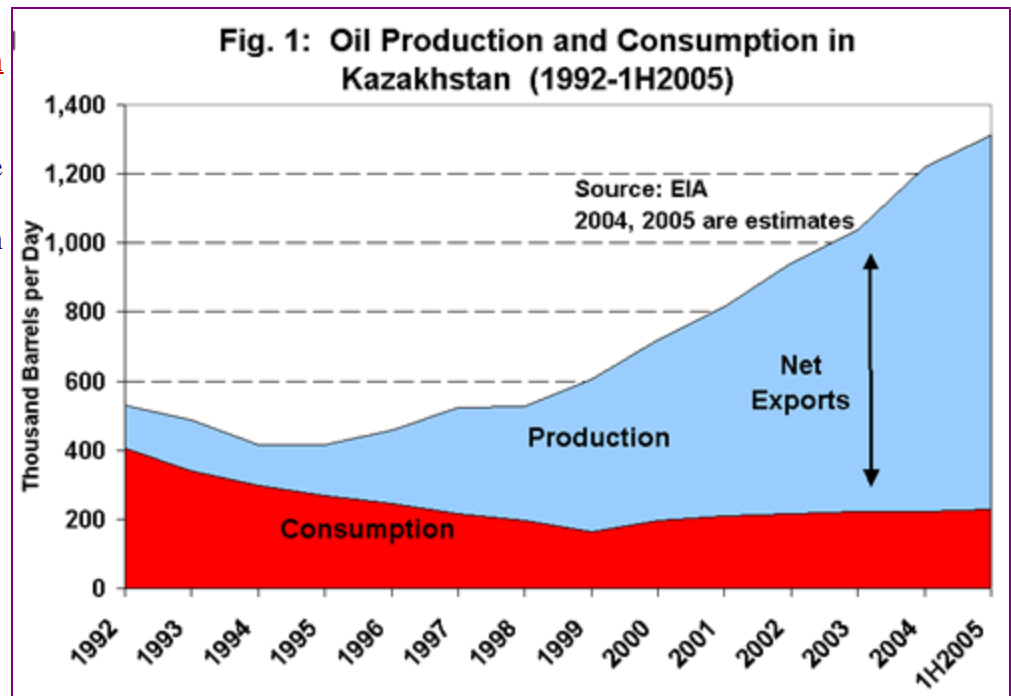
In an effort to reduce Kazakhstan's exposure to price fluctuations for energy and commodities exports, the government created the [National Oil Fund](#) of Kazakhstan. As of the end of June 2005, the National Fund held \$5.2 billion.

Kazakhstan's President, Nursultan Nazarbaev, has been involved in the country's politics since 1977 when he served as Secretary of the Central Committee of the Communist Party of Kazakhstan. In April 1990, Nazarbaev became interim president of the newly independent Republic of Kazakhstan, and was later elected to the post in the country's first national elections, held in December 1991. Nazarbaev was re-elected in 1999,

after a 1995 referendum extended his term, and will be up for reelection again in 2006. The Kazakh executive branch was re-shuffled in June 2003 when then-Prime Minister Imanghaliy Tasmaghambetov resigned from his position. A new Prime Minister, Daniyal Akmetov, was appointed along with a new cabinet, including numerous holdovers from the previous administration. Parliamentary elections were held in 2004, during which the party led by Dariga Nazarbaev, the president's daughter, won 11 percent of the vote. Opposition parties have alleged that authorities committed election fraud, and one month after the elections were over, the speaker of the parliament resigned because he accused the election of being "manipulated."

## OIL

Kazakhstan sits near the northeast portion of the [Caspian Sea](#) and claims most of the Sea's biggest known oil fields. Kazakhstan's combined onshore and offshore proven hydrocarbon reserves have been estimated between 9 and 29 billion barrels (comparable to OPEC members Algeria on the low end and Qatar on the high end). Kazakhstan recently completed a new assessment of its oil reserves and estimated proven and probable oil reserves at approximately 29 billion barrels. The country's earlier assessment in the 1990s estimated reserves at approximately 16 billion barrels. The country is no longer a minor world oil exporter as it was during the late 1990s, and it is poised to become an even more significant player in world oil markets over the next decade.



Kazakhstan produced approximately 1.22 million barrels per day (bbl/d) of oil in 2004 and consumed just 224,000 bbl/d, resulting in net exports of almost 1 million bbl/d. The Kazakh government hopes to increase production levels to around 3.5 million bbl/d by 2015. This would include approximately 1 million bbl/d from Kashagan, 700,000 bbl/d from Tengiz, 600,000 bbl/d from Kurmangazy, and 500,000 bbl/d from Karachaganak. Other smaller fields would account for the balance. Kazakh oil exports are growing rapidly, with current infrastructure delivering it to world markets via the Black Sea (via Russia), the Persian Gulf (via swaps with Iran), as well as some additional traffic northward to Russia via pipeline and rail. Please see the [November 2004 report](#) of the IMF for an expanded oil production discussion for Kazakhstan.

Between 1999 and 2004, Kazakhstan's oil production grew by about 15 percent every year, resulting in nearly a doubling (roughly) of oil production (see Fig 1, [DATA](#)). Most recently, the first six months of 2005 showed a slower, 10 percent production growth year-over-year. The slower rate of growth may be attributed to government restrictions on associated gas flaring or to new restrictions to production-sharing agreements (PSAs).

Increased oil production in recent years has been the result of an influx of foreign investment into Kazakhstan's oil sector. [International projects](#) have taken the form of joint ventures with Kazmunaigaz (formerly Kazakhoil), the national oil company, as well as production-sharing agreements (PSAs), and exploration/field concessions. The country expects the majority of the growth will come from four enormous fields: Tengiz, Karachaganak, Kurmangazy, and Kashagan.

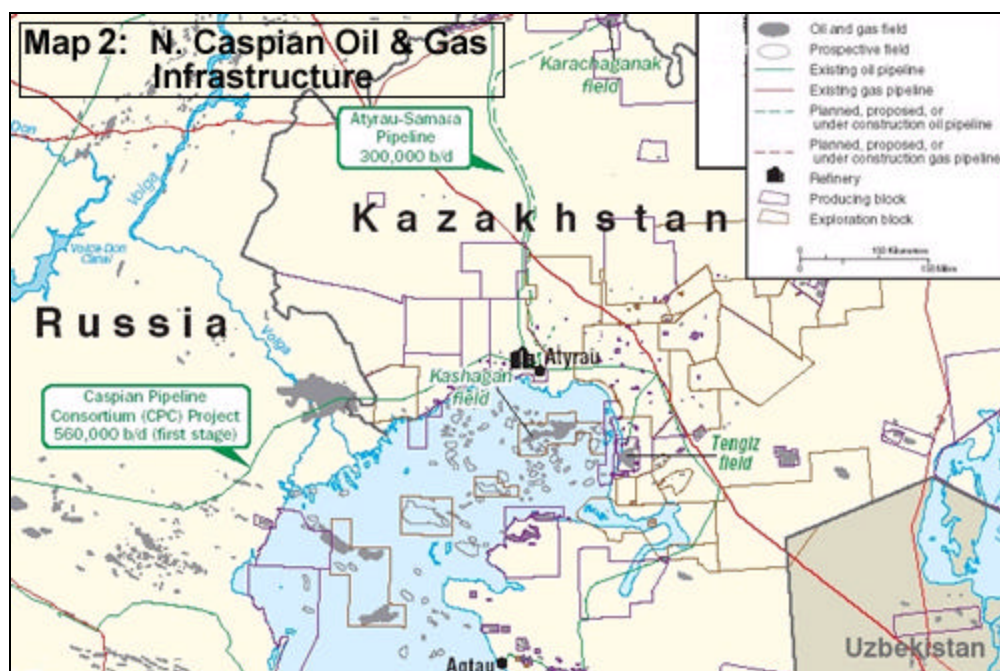
## Government Policy

In June 2003, the government of Kazakhstan announced a new Caspian Sea development program, which called for new offshore blocks to be auctioned beginning in 2004. However, in the last year, the government introduced new restrictions to newly-inked PSAs. For example, the government-owned oil and gas company KazMunaiGaz must now own at least half of any PSA and will act as contractor in all new offshore PSAs in Kazakhstan. Also, the introduction of a new tax structure in January 2004 included a so-called "rent tax" on exports, a progressive tax that increases as oil prices grow. The new amendment to Kazakhstan's tax law has raised the government's share of oil income to a range of 65 to 85 percent, and it has removed a clause guaranteeing investors a static tax rate throughout the duration of the contract. The new structure also includes an excess profit tax and a minimal governmental share of oil to be produced under new PSAs.

Although the government is clear in its intent to raise oil and gas output in the long term, it is still unclear the extent to which the state will partake in the additional revenues from higher output. The Kazakh government wants the state oil company, KazMunaiGaz, to have a larger role in the country's production, and the company's recent partial buyout of BG's 16.67 percent Kashagan stake is one prime example.

## Tengiz

The Tengiz field is located in the swamplands along the northeast shores of the Caspian Sea (see Map 2). Recoverable crude oil reserves have been estimated at 6-9 billion barrels by consortium member [Chevron](#). Tengiz has been developed by the Tengizchevroil (TCO) joint venture (ChevronTexaco 50%, ExxonMobil 25%, Kazmunaigaz 20%, LukArco 5%) since 1993. For the first half of 2005, the consortium produced 267,000 bbl/d of crude oil and condensate, or approximately 21 percent of Kazakhstan's daily crude oil and condensate production. In January 2003, after contentious negotiations with the government of Kazakhstan, the TCO consortium members initiated a \$3 billion expansion project designed to boost production to approximately 450,000 bbl/d by 2006. According to Chevron, Tengiz could potentially produce 700,000 bbl/d by the end of the decade. In 2004, approximately 271,000 bbl/d were sent from the Tengiz field through the Caspian Pipeline Consortium (CPC) project to the Russian Black Sea port of Novorossiysk (see Map 2). Due to current government regulations against the flaring of associated natural gas (see [below](#)), Tengiz's production during 2005 may stagnate until the field's operators can find a usage for it. A plan to reinject all the associated sour gas is due to come online by May 2006.



## Karachaganak

The Karachaganak oil and gas/condensate field is located onshore, in northern Kazakhstan, near the border with Russia's Orenburg field (see map). Karachaganak is being developed by the [Karachaganak Integrated Organization \(KIO\)](#), a consortium led by Britain's [British Gas \(BG\)](#) and ENI (Italy). According to BG, the field holds reserves of more than 2.4 billion barrels of oil and 16 Tcf of gas, recoverable over the 40-year life of the project. Oil and condensate production from Karachaganak

averaged 230,000 bbl/d during the first half of 2005, representing 18 percent of total Kazakh production. The consortium members aim to increase output from Karachaganak to 500,000 bbl/d by 2010.

In previous years, almost all of Karachaganak's crude oil production was processed at Russian facilities associated with the Orenburg field located just across the border. In April 2003, a pipeline spur southward to Atyrau was completed that connects the Karachaganak field to Kazakhstan's primary export pipeline, the Caspian Pipeline Consortium ([CPC](#)) project. The new connection has enabled increased exports from Karachaganak, and has reduced the consortium members' dependence on Russian buyers.

### **Kashagan**

The Kashagan field, the largest 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 (see Map 1). Although the field is still being appraised, in June 2002 the consortium operating the field, the [Agip Kazakhstan North Caspian Operating Company--Agip KCO \(formerly known as OKIOC\)](#), estimated the field's recoverable reserves at 7-9 billion barrels of oil equivalent, with further potential totaling 9 to 13 billion barrels using secondary recovery techniques (gas injection, for example). Oil production is not expected to begin until 2008 at initial levels of 75,000 bbl/d, with subsequent levels of around 450,000 bbl/d. Peak production of 1.2 million bbl/d is expected by 2016.

Costing approximately \$29 billion to develop, the Kashagan field has presented particular challenges for its developers. Kashagan 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 area. A new tax structure was introduced by the government this year, so the ownership rights of the field remained unclear for almost two years after British Gas (BG) decided to sell its 16.7 percent share of the field. Only recently after drawn-out negotiations, consortium members decided to redistribute BG's share, giving half to themselves and half to Kazmunaigaz. While the share was being negotiated, little progress was made on the field's development, thereby possibly extending the field's online date beyond 2008.

### **Kurmangazy**

Located on the maritime border between Russia and Kazakhstan, the Kurmangazy field is the least developed of Kazakhstan's upcoming oil field developments. Russia and Kazakhstan signed a new \$23 billion PSA agreement for the 7.33 billion barrel Kurmangazy oil field in July 2005. Oil output from this field could raise Kazakhstan's total oil output even further by adding up to 600,000 bbl/d in the next decade. After some delay on the terms of the agreement, Russian and Kazakh state oil firms Rosneft and Kazmunaigaz signed the deal in the hopes that this would hasten the field's development. A bilateral agreement signed by Kazakhstan and Russia in May 2002 delineated the Kazakh and Russian sectors of the Caspian seabed and defined the development of Kurmangazy and two other disputed offshore fields that are situated near the Kazakh/Russian border.

For a detailed map of the Caspian Region's oil and gas infrastructure please click [here](#).

### **OIL EXPORTS**

For the first half of 2005, Kazakhstan's exported on average 1.1 million bbl/d in three directions: northward (via the Russian pipeline system and rail network); westward (via the Caspian Pipeline Consortium Project and barge to Azerbaijan); and southward (via swaps with Iran). Kazakhstan also exported approximately 30,000 bbl/d eastward to China via the Alashankoy rail crossing in 2005. The majority of Kazakh oil is exported via pipeline through Russia and other neighboring countries. Connections to ports on the Black Sea and the Persian Gulf have allowed some Kazakh oil (or proxy oil from Iran) to be traded on the world market. Efforts are underway to expand the country's export infrastructure (see [MAP](#)) (especially to the east) over the next decade as Kazakhstan's oil production increases. The Kazakh energy minister stated at a conference in June 2005 that despite the Kazakhstan-China and BTC pipelines, Kazakhstan will still have a need for additional export routes (roughly 300,000-400,000 bbl/d) by 2011. When the [BTC](#) project opened in May 2005, Kazakhstan announced that it would agree to increase overseas shipments on the Caspian to Baku from around 145,000 bbl/d to around 760,000 bbl/d by 2016. Also, there is a proposal to build an export pipeline from Kazakhstan to Iran via Turkmenistan but the proposal has yet to gain support from Western investors.

Kazakhstan has also taken a heightened interest in sending oil over the Black Sea to the reversed [Odessa-Brody](#) pipeline.

In January 2004, Kazakhstan started taxing crude oil exports for the first time. Now, oil producers must pay taxes on oil exports in increasing magnitude as the world oil price fluctuates. The tax ranges from 1 percent when oil prices are around \$19/bbl to 33 percent if prices rise as high as \$40/bbl or more. All exporters except those in fixed price production-sharing agreements are liable to pay the tax.

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

The 980-mile long CPC connects Kazakhstan's Caspian Sea area oil deposits with Russia's Black Sea port of Novorossiysk (see BG [project](#) page). The governments of Russia, Kazakhstan, and Oman developed the CPC project in conjunction with a consortium of international oil companies. It is actually an extension of the existing oil transit infrastructure surrounding the Caspian Sea. Newly constructed components of the line run from the Russian town of Komsomolskaya straight westward to Novorossiysk. The pipeline is supplied with Kazakh oil through the Soviet-era links surrounding the Sea, which the consortium members have refurbished. The first crude oil was loaded onto a tanker in Novorossiysk on October 15, 2001, and the pipeline was officially opened on November 27, 2001. Initial capacity of the CPC pipeline is 560,000 bbl/d, and the consortium has plans for a \$1.5 billion expansion project to increase the pipeline's peak capacity to 1.35 million bbl/d by 2009. The pumping tariff will rise by 34¢/bbl to \$4.21/bbl. No timetable for implementation of the new tariff has been set. CPC will add 200,000 b/d in capacity in 2007 and a further 200,000 b/d the year after that, with the balance to be completed by early 2009.

Since October 2001, the CPC has transported roughly 275 million barrels, or roughly one-third of Kazakhstan's exports. Most of this oil came from the Tengiz field. With the completion of the two pipeline spurs from Kenkiyak and Karachaganak to the CPC at Atyrau (see Map 1), CPC transport levels increased from around 310,000 bbl/d in 2003 to 450,000 bbl/d in 2004, an increase of 45 percent. Export levels reached a peak of 655,000 bbl/d in April 2005 but have decreased about 50,000 bbl/d each month until July 2005. Russian oil companies TNK-BP and Rosneft have begun to use CPC more due to constraints on the Russian pipeline system. According to Transneft, Russia's pipeline monopoly, Russian oil producers used the CPC for approximately 85,000 bbl/d in May 2005.

### **Atyrau-Samara**

Kazakhstan's other major oil export pipeline, from Atyrau to Samara, is a northbound link to the Russian distribution system. Before the completion of the CPC pipeline at the end of 2001, Kazakhstan exported almost all of its oil through this system. But, since Kazakhstan desired more independence from the Russian transit systems, it favored the development of transport alternatives. Still, in June 2002, Kazakhstan and Russia signed a 15-year oil transit agreement under which Kazakhstan will export 340,000 bbl/d of oil annually via the Russian pipeline system. Russia's trade ministry also pledged to increase the capacity of the line to around 500,000 bbl/d. As the CPC project grows with Kazakh production, absolute volumes through Atyrau-Samara are expected to grow, but this pipeline will become relatively less significant.

### **Kazakhstan-China Pipeline**

The Kazakhstan-China pipeline will export Caspian oil to serve China's growing energy needs. Construction began on the second segment of the Kazakhstan-China pipeline in late September 2004. The 613-mile-long pipeline from Atasu, in northwestern Kazakhstan, to Alashankou in China's northwestern Xinjiang region will be completed by December 2005. The second stage of this project will have an estimated cost of \$850 million. The first section of the Kazakhstan-China pipeline was completed in 2003 and runs across Western Kazakhstan from the oil fields of the Aktobe region to the oil hub of Atyrau. The pipeline is expected to have an initial capacity of around 200,000 bbl/d, which will eventually be expanded to 400,000 bbl/d. The Kazakh and Chinese national oil companies are jointly financing the project, yet the Chinese oil company will be responsible for filling the pipeline from its oilfields in Kazakhstan once it is finished. The quantity of crude oil supplied to China through this route will still represent only a small percentage (i.e. less than 5%) of China's expected oil demand by the time the project reaches completion. China imported approximately 30,000 bbl/d

from Kazakhstan during the first five months of 2005.

In addition to the CPC and Atyrau-Samara, Kazakhstan exports via swaps to Iran, by rail to Russia, and across the Caspian by barge. The swap agreement between Iran and Kazakhstan entails approximately 30,000 bbl/d, and the agreement also includes immediate plans to build two oil terminals in Iran. Another export route reportedly under consideration is a subsea trans-Caspian pipeline connecting to the Baku-Tbilisi-Ceyhan (BTC) project. However, in June 2004 Kazakh president Nazarbaev reiterated he preferred an oil export pipeline to the Persian Gulf through Iran over a connection to BTC, through China, or through Russia.

### Downstream/Refining

In contrast to the upstream sector, the refining sector has remained largely in the state's possession. The refining sector in Kazakhstan has not received high levels of FDI like other parts of the oil and gas production sector. 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. Consequently, this has affected refinery performance, and Kazakhstan's refineries currently operate at only 51 percent of their nameplate capacity.

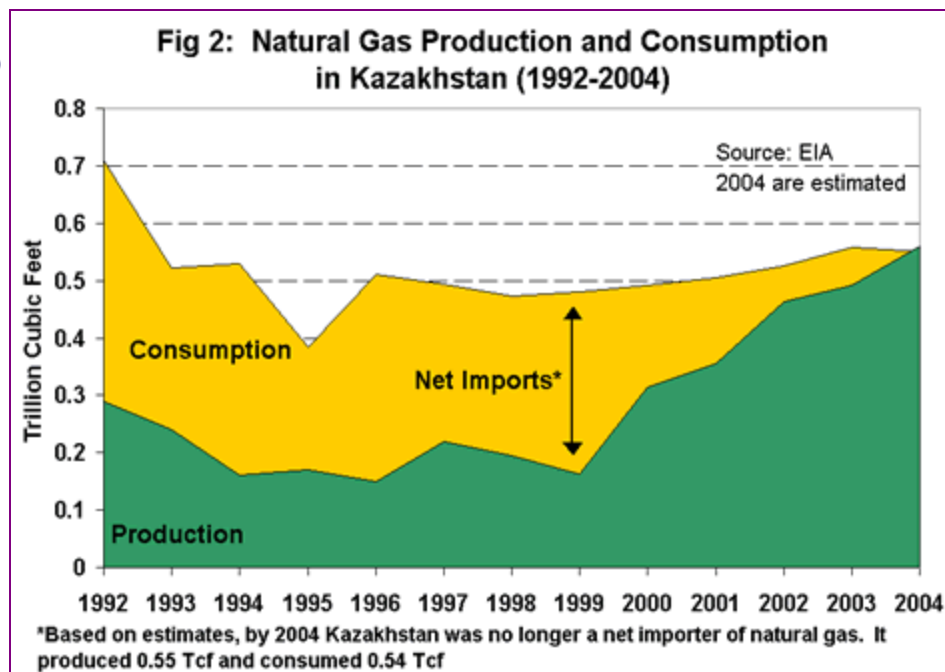
The refining sector in Kazakhstan has three major oil refineries supplying the northern region (at Pavlodar), western region (at Atyrau), and southern region (at Shymkent), with total crude oil refining capacity of 345,093 bbl/d. The refinery at Pavlodar is supplied mainly by a crude oil pipeline from western Siberia (since Russian reserves 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 Kazakh fields at Kumkol, Aktyubinsk, and Makatinsk, although it is linked by pipeline to Russia. Marubeni Corporation (Japan) began reconstructing the Atyrau refinery in 2004, and it should complete most repairs by early 2005. Finally, TengizChevroil, the Chevron Texaco-operated venture developing the Tengiz gas field announced in early 2004 that it had started construction of a new gas refinery as part of its "second generation" project that is due to go on line in 2006. Eventually, the project will double refinery production to 500,000 bbl/d from around 255,000 bbl/d in 2003.

Oil producers' lack of incentive to provide the domestic market with refined products has created severe problems for the agricultural sector, which is largely dependent on government support and subsidized inputs for its survival. Because of the shortages, the Kazakh government has frequently imposed a ban on product exports.

### NATURAL GAS

Despite Kazakhstan's sizeable proven natural gas reserves of 65-70 trillion cubic feet (Tcf) (comparable to Canada and Kuwait and ranking it in the top 20 countries in the world), the country spent most of the time following independence as a net natural gas importer. By 2004, however, Kazakhstan's production had reached parity with its consumption level (approximately 550 Bcf), and the country had 40 Tcf in net exports of natural gas during the first half of 2005.

Preliminary estimates show that natural gas production has increased almost 24 percent during the first half of 2005, to a rate of 570 Bcf per year. This compares to around



460 Tcf during the same time period in 2004. Most of Kazakhstan's natural gas imports come from Uzbekistan and Turkmenistan and are redistributed into the Russian natural gas pipeline system.

Natural gas production in Kazakhstan has increased significantly since 1999 (see Fig. 2). In August 1999, the Kazakh government passed a law requiring subsoil users (such as oil companies) to include natural gas utilization projects in their development plans. As a result, natural gas production has been on a steady increase since 1999, and by 2000 it eclipsed its pre-independence production levels. According to the 15-year strategy of the Kazakh Ministry for Energy and Mineral Resources, the country plans to increase its natural gas production to 1.66 Tcf by 2010, and to 1.84 Tcf by 2015.

Most of Kazakhstan's natural gas reserves are located in the west of the country, with roughly 25 percent of proven reserves situated in the Karachaganak field. This oil and gas condensate field reportedly has proven natural gas reserves of 16-20 Tcf. The consortium developing Karachaganak expects peak production by 2010 at around 1 Tcf. Because of Kazakhstan's divided distribution network, Karachaganak's natural gas is exported northward to Russia's Orenburg processing plant, as opposed to being delivered to Kazakh consumers in the south. (see below). During the spring of 2005, Kazmunaigas and Gazprom announced plans to set up a joint venture to modernize the Orenburg gas processing plant to increase the capacity to process almost 300 Bcf of natural gas from the Karachaganak field. According to the plan agreed by the sides, the work should be completed in 2005. Efforts are also underway to export Karachaganak's gas condensate and other liquids through the CPC pipeline system. The Karachaganak Integrated Organization, which is developing the field, has thus far focused its efforts primarily on extraction of the field's liquid condensate reserves. Several of the country's other oil fields, Tengiz and Kashagan for example, also contain associated natural gas (a by-product of oil extraction).

Natural gas in Kazakhstan is almost entirely "associated" gas, meaning it is produced with oil. For this reason, several fields including Karachaganak reinject significant quantities of gas into the ground to maintain crude wellhead pressure for liquids extraction. In the long term, when the liquids are exhausted, this gas can be recovered. Flaring has declined steadily, but in May 2005 the government ordered all 34 oil producing firms to reduce oil production to levels that would avoid natural gas flaring. Many of the companies that produce associated gas have made pledges to develop ways to use the gas (such as for electricity generation) but have stalled.

Another important natural gas field, Amangeldy, is situated in the south of the country, near Zhambul. Exploratory drilling in 2001 indicated reserves of up to 1.8 Tcf. The field is being developed primarily by Kazmunaigas, and the company expects initial production of roughly 35 Bcf/y after initial developments. The Amangeldy fields that have been developed are producing approximately 880 million cubic feet per year (mmcf/y). The new commissionings of wells at the Amangeldy field have provided a large share of the natural gas production increases over the last year. Plans to build a 120-mile pipeline connecting to the rest of the natural gas distribution structure will help lessen the southern region's import dependency.

### **Natural Gas Distribution**

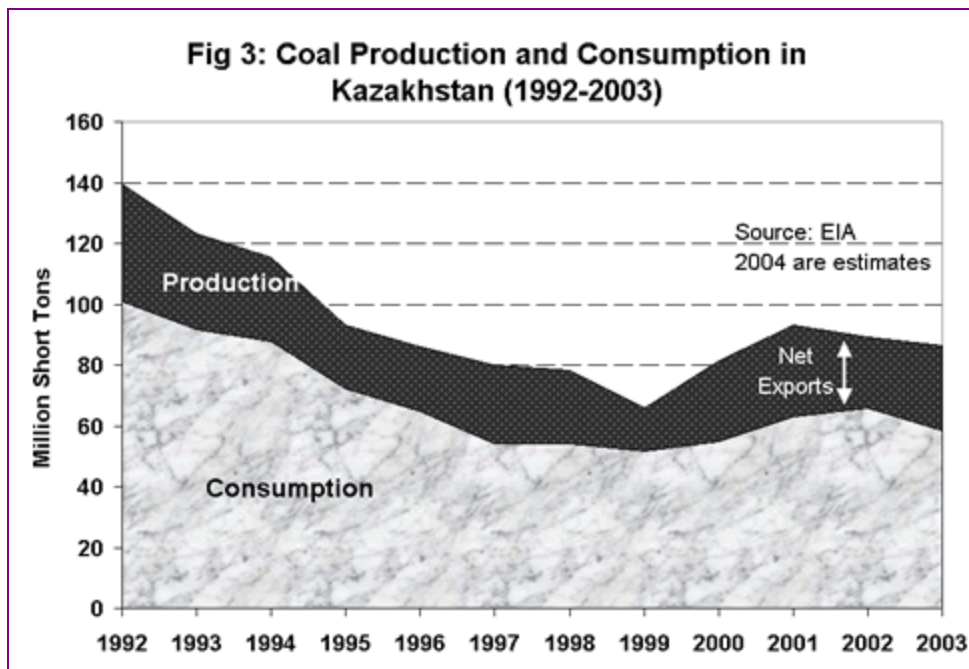
Kazakhstan has two separate domestic natural gas distribution networks, one in the west which services the country's producing natural gas fields, and one in the south which mainly delivers imported natural gas to the southern consuming regions. The lack of internal pipelines connecting Kazakhstan's natural gas-producing areas to the country's industrial belt (between Almaty and Shymkent) has hampered the development of natural gas resources. However, as stated above, the development of the Amangeldy gas field will help Kazakhstan's southern region cease importing Uzbek gas. Kazmunaigas, the state oil and natural gas company operates Kazakhstan's main natural gas pipelines.

In the north, Kazakhstan is developing its ability to export its natural gas through Russia's natural gas pipeline system. Natural gas from the Karachaganak field is sent northward to Russia's Orenburg gas processing plant; however, efforts are currently underway to expand that link and boost export capacity. Some of the gas being sent to Orenburg will then be routed for marketing in the Russian system and some will be sent back to

Kazakhstan. In July 2002, Kazmunaigaz, working in conjunction with Gazprom (Russia) under the joint venture KazRosGas, began a \$500 million program to upgrade Kazakhstan's natural gas pipeline network. The program, which is being developed with the financial backing of several international banks, will increase Kazakhstan's export capacity in the north, beginning in 2005.

Southern Kazakhstan receives its natural gas supplies from Uzbekistan via the Tashkent-Bishkek-Almaty pipeline. This pipeline snakes through Uzbekistan before reaching Shymkent, crosses Kyrgyzstan, and terminates in Almaty. Dependence on imported natural gas for its southern regions has at times been problematic since erratic pricing and supplies from Uzbekistan, combined with illegal tapping of the pipeline by Kyrgyzstan, have resulted in significant supply disruptions to Almaty in the middle of the heating season. As a result, Kazakhstan is determined to end its dependence on imported supplies for its southern regions. Although Kazakhstan has considered the construction of an internal north-south pipeline, thereby alleviating import dependency, the prohibitive cost (at least \$1 billion) of such a pipeline has delayed any decision to proceed with the project.

Since Kazakh natural gas is a potential competitor with Russian natural gas, several new natural gas export pipelines from the Caspian Sea region also are in development or under consideration, potentially opening up new markets for Kazakh natural gas. The two branches of the Central Asia-Centre (CAC) gas pipeline, the main gas export pipeline from Central Asia, meet in the southwestern Kazakh city of Beyneu before crossing into Russia at Alexandrov Gay and feeding into the Russian pipeline system. Therefore, Kazakhstan is a major transit route for gas from Turkmenistan to Russia and on to other markets across the territory of the former Soviet Union



## COAL

Kazakhstan contains Central Asia's largest recoverable coal reserves, with 37.5 billion short tons of mostly anthracitic and bituminous coal. In 2003, Kazakhstan produced 86 million short tons (Mmst) in 2003, while consuming 58 Mmst, resulting in net exports of 28 Mmst. Russia is the largest importer of Kazakh coal, followed by Ukraine. Preliminary estimates show Kazakhstan's 2004 production of bituminous and lignite coal at 94.8 Mmst.

Coal production in Kazakhstan, which was the Soviet Union's

third-largest producer behind Russia and Ukraine, has fallen by roughly 35 percent since independence. EIA data show a modest upswing in coal production in 2000 and 2001 (see graph); however, 2002 and 2003 estimates indicate that output fell again over the past two years. According to the Kazakh Ministry of Energy and Natural Resources, the country aims to be producing 100 million-105 Mmst annually by 2015. Much of the decline in the last decade since independence has been due to mine problems (over 30 people died in mining accidents during 2004) and problems obtaining outside foreign investment to maintain their economic viability. This latter factor will be crucial in obtaining the government's long term production targets.

Kazakhstan's largest coal producer, [Bogatyr Access Komir](#), which accounts for roughly 35 percent of the country's coal output, is a subsidiary of Access Industries Incorporated (U.S.A.). Bogatyr Access Komir develops northern Kazakhstan's Bogatyr and Severny coal fields and is the country's largest exporter to Russia.



Russian firms are also stake holders in the Kazakh coal industry and roughly 16 Mmst are transited annually from Kazakhstan northward via rail to power plants in southern Russia.

Since independence, Kazakh coal consumption has fallen from 97 Mmst in 1992 to 58 Mmst in 2003 (see graph). As a percentage of total energy consumption, coal accounted for 52 percent in 2002, up slightly from 50 percent in 1992. The majority of Kazakhstan's electric generating plants are coal-fired, including the country's largest power generator, Ekibastuz No. 1, located in north-central Kazakhstan.

## ELECTRICITY

Kazakhstan has 71 power plants, including five hydroelectric power stations, giving the country an overall installed generating capacity of 17 gigawatts (GW), 80 percent of which are coal fired, and 12 percent of which are hydroelectric. Almost 85 percent of the country's power generation comes from coal-fired plants located in the northern coal producing regions. Kazakhstan's hydroelectric facilities are located primarily along the Irtysh river, which flows from China across northeast Kazakhstan.

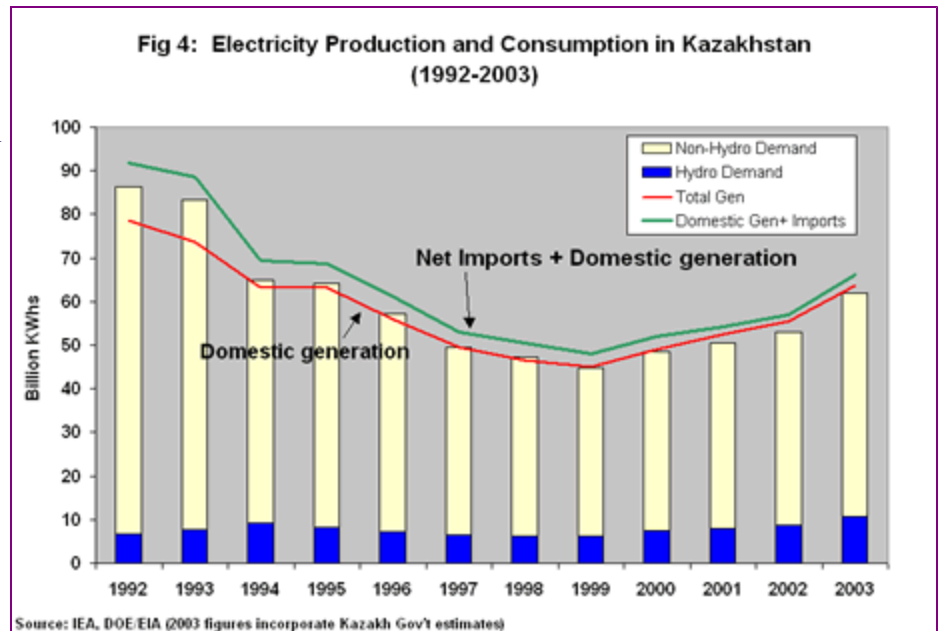
The production and consumption of electricity in Kazakhstan fell significantly following independence. However, robust economic growth since 2000 has helped boost generation to 60.3 billion kilowatt-hours (Bkwh) in 2003 and consumption to 62 Bkwh. Transmission issues necessitate that Kazakhstan continue to import electricity in the southern part of the country, as the country's northern generating units are connected to a separate transmission grid (see below).

The decade-long decline in Kazakh electricity consumption has come primarily at the expense of thermal power, while consumption of hydroelectric power has remained constant (see Fig 4). As a result, hydropower now accounts for almost 20 percent of Kazakhstan's electricity consumption, more than twice its percentage in 1992, making the Irtysh River, which starts upstream in China's Altai mountains, increasingly important as a source of hydropower. Kazakhstan and China have held joint negotiations on management of the Irtysh River since 1999.

Although Kazakhstan technically generates almost enough electricity to meet its demand, the country has suffered from frequent power shortages since 1992 due to the sector's deteriorating infrastructure. Kazakhstan incurs large electricity losses during transmission and distribution over its 285,000 miles of distribution lines. According to Kazakh Minister of Energy and Natural Resources Vladimir Shkolnik, an average of 15 percent of the electricity generated in Kazakhstan is lost before it reaches consumers due to the widespread deterioration of Kazakhstan's power infrastructure.

## Transmission and Distribution

Kazakhstan's electricity transmission and distribution system is divided into three networks. The two in the north are connected to Russia, and the one in the south is connected to the Unified Energy System of Central Asia. However, these transmission systems are not well integrated, and they remain owned by the government. The northern networks, which service the coal-fired power plants that make up most of the country's installed capacity, have recently begun exporting electricity to Russia. In January 2003, the Ekibastuz Power Plant No. 2, located in the northern Pavlodar region, began exporting electricity northward. Conversely, the southern network, which is connected to the Unified Energy System of Central Asia, is forced to import electricity from



neighboring Kyrgyzstan and Uzbekistan because of its lack of installed generating capacity.

Because Kazakhstan's southern regions are largely dependent on expensive imported electricity supplies, in 2004 the Kazakhstan Electricity Grid Operating Company (**KEGOC**) proposed a project to construct a second North-South power line to complement the existing, 600-MW-capacity line, thereby making it possible to supply the country's southern regions fully with energy generated in Kazakhstan (see map at left). The line would also help connect Russia to other more electrically isolated countries in Central Asia. For example, it will enable Tajikistan, which plans to exports up to 700 million Kwh in 2005, to export electricity via Kyrgyzstan and Kazakhstan to Russia.

The line (in red) would cost an estimated \$300 million to build and would take approximately five years. Kazakhstan also has other plans for modernizing its electricity sector. In 2003, KEGOC began investing approximately \$73 million to upgrade the country's high-voltage transmission lines (see [report](#)), upgrade automated substations and purchase new distribution equipment. These investments are part of a bigger \$258.4 million upgrading project which is being planned with financial assistance from the World Bank and European Bank for Reconstruction and Development who have provided loan assistance for the last 4 years. The loan guarantees extend for one more year.

#### **Industry Organization: Deregulation Status**

Kazakhstan has privatized all of its power plants, but the sale of regional electricity distribution companies has proceeded more slowly. Also, the majority of the distribution networks has not yet been privatized. KEGOC has granted management rights to several private companies, but KEGOC maintains control over high-voltage transmission lines, substations, and the central dispatching apparatus. Ninety percent of electricity sales are made in the bilateral forward market, and there is also a day-ahead spot market and a real-time balancing market. Generators and load submit schedules for balancing energy three hours ahead and the system operator controls the settlement.

Non-payment of electricity bills, an inadequate collection system, and a lack of market-based transportation tariffs are all obstacles to further large-scale investment in Kazakhstan's transmission and distribution sector. Although the government plans to further privatize the grid, the likely success of these utilities' privatization remains questionable. For example, in 2000 Tractebel (Belgium), the owner of the Almaty electricity utility, left the country and resold the utility to the state gas pipeline operator. After four years, Tractebel had turned the Almaty electricity company around by cutting delinquency rates of more than 75 percent down to just 12 percent. However, following the April 1999 monetary devaluation, the government froze electricity prices to control inflation after previously pledging to raise rates. The Kazakh regulators complained that the company failed to meet certain investment commitments and employed corrupt business practices; Tractebel, in turn, claimed that the Kazakh government hindered the grid's development by not allowing sufficient rate recovery. The resulting dispute with Tractebel led the Belgian company to leave Kazakhstan.

Under the former Soviet Union, Kazakhstan utilized a system of fixed electricity tariffs that were unrelated to



production costs and investment needs. Kazakhstan's State Anti-Monopoly Committee is working to bring electricity tariffs in line with those in other countries and to allow the market to determine transmission tariffs. Effective July 1, 2001, KEGOC increased electricity transmission rates across the country by an average of 23.7 percent. Rates have continued to increase during 2003 and 2004, forcing some manufacturers to halt production.

### **Nuclear Power**

Kazakhstan's sole nuclear power plant, the 90 MW Mangyshlak Nuclear Power Plant at Aqtau, has been shut down since April 1999. It was sold in April 2003 by the government of Kazakhstan to Kazatomprom, the national nuclear power company. Kazatomprom, which has exclusive rights to the production and sale of Kazakh plutonium, plans to maintain and run the plant's thermal generators and water distribution facilities for regional consumption.

Kazakhstan does have large quantities of uranium, with reserves of around 1.5 million tons representing almost 20 percent of the world's supply. In 2004, Kazatomprom produced approximately 4,000 tons of uranium, and the company has plans to increase production to 15,000 tons by 2010.

According to press reports, the Kazakh government is still considering the construction of a new 1,500 MW nuclear plant in the southeast, near Lake Balkash. This project was first announced in 1998, but later shelved in September 2002 because of safety concerns and public opposition to the project. However, due to rising demand in the south, support for the construction of the plant has received new momentum. It is expected that a tender for the the power plant will be issued by 2007 and that the plant will be operational by 2012-2015. Please see the [IAEA's \(Int'l Atomic Energy Agency\) page](#) on Kazakhstan for more information.

---

## **COUNTRY OVERVIEW**

**President:** Nursultan Nazarbaev (re-elected to a seven-year term on January 10, 1999)

**Prime Minister:** Daniyal Akmetov (since June 2003)

**Independence:** December 16, 1991; National holiday: Republic Day, October 25, 1990 (date on which Kazakhstan declared its sovereignty)

**Population (2005):** 15.2 million

**Location:** Central Asia, bordering the Caspian Sea, Russia, Turkmenistan, Uzbekistan, Kyrgyzstan, and China

**Size:** 1,052,100 sq. miles (slightly less than four times the size of Texas)

**Major Cities:** Almaty; Astana (capital, moved from Almaty in December 1998); Karaganda; Shymkent

**Languages:** Kazakh (Qazaq, state language) 64.4%, Russian (official, used in everyday business, designated the "language of interethnic communication") 95% (2001 est.)

## **ECONOMIC OVERVIEW**

**Minister of Finance:** Arman Dunayev

**Minister of Economy & Budget Planning:** Kairat Kelimbetov

**Currency:** Tenge

**Market Exchange Rate (7/19/2005):** US \$1=135.7 Tenge (KZT)

**Nominal Gross Domestic Product (GDP) (2004E):** \$39 billion, **(2005E):** \$49 billion

**Real GDP Growth Rate (2004E):** 9.4%; **(2005E):** 9.1%

**Inflation Rate (Change in Consumer Prices) (2004):** 6.9%.

**Unemployment Rate (2004E):** 8.4%

**Current Account Balance (2004E):** 533 million

**Major Trading Partners:** Russia, U.S., Uzbekistan, China, Turkey, U.K., Germany, Ukraine,

**Merchandise Exports (2004E):** \$20.6 billion

**Merchandise Imports (2004E):** \$13.8 billion

**Merchandise Trade Balance (2004E):** \$6.8 billion

**Major Exports:** oil, ferrous and nonferrous metals, machinery, chemicals, grain, wool, meat, coal

**Major Imports:** machinery and parts, industrial materials, oil and gas, vehicles

**External Debt (2004E):** \$32.4 billion, **(2005E):** \$37.5 billion

## ENERGY OVERVIEW

**Minister of Energy & Natural Resources:** Vladimir Shkolnik

**Chairman, Kazmunaigaz (National Oil & Natural Gas Company):** Uzakbai Karabalin

**Proven Oil Reserves (1/1/2005E):** 9-29 billion barrels

**Proven Natural Gas Reserves (January 1, 2005):** 65-70 trillion cubic feet

**Oil Production (2004E):** 1,221.3 thousand barrels per day, of which 83% was crude oil.

**Oil Consumption (2004E):** 156.7 thousand barrels per day

**Natural Gas Production (2003E):** 500 billion cubic feet, **(2004E):** 560 Bcf

**Natural Gas Consumption (2003E):** 558 billion cubic feet, **(2004E):** 550 Bcf

**Recoverable Coal Reserves (2003E):** 34,479.2 million short tons

**Coal Production (2003E):** 86.45 million short tons

**Coal Consumption (2003E):** 58.5 million short tons

**Electricity Installed Capacity (2003E):** 17.2 gigawatts

**Electricity Production (2003E):** 60.4 billion kilowatt hours

**Electricity Consumption (2003E):** 52.6 billion kilowatt hours

**Total Energy Consumption (2003E):** 2.1 quadrillion Btus, of which Coal (52%), Natural Gas (26%), Oil (17%), Hydroelectricity (4%), Nuclear (0%), Other Renewables (0%)

**Total Per Capita Energy Consumption (2003E):** 135.4 million Btus

**Energy Intensity (2003E):** 42,428 Btu per \$1995-PPP

## ENVIRONMENTAL OVERVIEW - UPDATED IN 1 WEEK - Waiting for Matt

**Minister of Environmental Protection:** Aytkul Samakova

**Total Energy Consumption (2003E):** 2.1 quadrillion Btus, of which Coal (52%), Natural Gas (26%), Oil (17%), Hydroelectricity (4%), Nuclear (0%), Other Renewables (0%)

**Energy-Related Carbon Dioxide Emissions (2003E):** 150 million metric tons, of which Coal (65%), Natural Gas (19%), Oil (16%)

**Per Capita Energy Consumption (2002E):** 135.4 million Btus

**Per Capita Carbon Dioxide Emissions (2002E):** 9.7 metric tons

**Carbon Dioxide Intensity (2003E):** 1.5 metric tons of carbon dioxide/thousand \$1995\*\*

**Status in Climate Change Negotiations:** Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified May 17th, 1995). Signatory to the Kyoto Protocol (March 12th, 1999).

**Major Environmental Issues:** Radioactive or toxic chemical sites associated with its former defense industries and test ranges are found throughout the country and pose health risks for humans and animals; industrial pollution is severe in some cities; because the two main rivers which flowed into the Aral Sea have been diverted for irrigation, it is drying up and leaving behind a harmful layer of chemical pesticides and natural salts; these substances are then picked up by the wind and blown into noxious dust storms; pollution in the Caspian Sea; soil pollution from overuse of agricultural chemicals and salination from poor infrastructure and wasteful irrigation practices

**Major International Environmental Agreements:** A party to Conventions on Air Pollution, Biodiversity, Climate Change, Desertification, Endangered Species, Ozone Layer Protection, Ship Pollution. *Signed, but not ratified:* Climate Change.

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar and wind electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

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

## ENERGY INDUSTRY

**Organization:** Kazmunaigaz (vertically-integrated state oil and natural gas company, created in February 2002 by combining state-run Kazakhoil (oil) and TransNefteGaz (oil and natural gas transport, made up of KazTransOil and KazTransGaz)); Kazakhstanugol Corporation (state coal company); Kazakhstan Electricity Grid Operating Company (KEGOC)

**Major Oil and Gas Fields:** Tengiz (mostly oil), Karachaganak (oil and gas/condensate), Kashagan (oil), Amangeldy (natural gas)

**Major Oil Ports:** Atyrau and Aqtau on the Caspian Sea

**Oil Export Pipelines:** Tengiz-Novorossiysk (Russia); Uzen-Atyrau-Samara (Russia); Kenkyak-Orsk (Russia) line that transports oil from the Aktyubinsk fields to the Orsk refinery

**Major Oil Refineries (crude oil refining capacity):** Pavlodar (162,666 bbl/d); Atyrau (104,427 bbl/d); Shymkent (160,000 bbl/d)

**Major Power Plants (capacity):** Ekibastuz No.1 (4,000 megawatts, MW), Yermak (2,400 MW), Zhambyl (1,230 MW)

---

*Sources for this report include: AFX-Asia, Agence France Presse, Associated Press, BBC Monitoring Central Asia Unit, Caspian News Agency, Caspian Business Report, Central Asia & Caucasus Business Report, CIA World Factbook, The Economist, Economist Intelligence Unit ViewsWire, The Financial Times, FSU Oil and Gas Monitor, Global Inisght, Interfax News Agency, ITAR-TASS News Agency, The Moscow Times, Oil and Gas Journal, Petroleum Economist, Platt's Oilgram News, PR Newswire, Radio Free Europe/Radio Liberty, Reuters, Stratfor, The Times of Central Asia, U.S. Department of Commerce's Business Information Service for the Newly Independent States (BISNIS), U.S. Department of State, U.S. Department of Energy, U.S. Energy Information Administration, U.S. Department of State, World Markets Research Centre.*

---

## LINKS

For more information from EIA on the Kazakhstan, please see:

[EIA: Caspian Sea Region](#)

Links to other U.S. government sites:

[CIA World Factbook](#)

[Library of Congress Country Study on the former Soviet Union](#)

[Radio Free Europe/Radio Liberty](#)

[RFE/RL: Energy Politics in the Caspian and Russia](#)

[U.S. Agency for International Development](#)

[U.S. Department of Commerce's Business Information Service for the Newly Independent States \(BISNIS\): Kazakhstan](#)

[U.S. Department of Commerce's Country Commercial Guide: Kazakhstan](#)

[U.S. Department of Commerce, International Trade Administration: Energy Division](#)

[U.S. Department of Commerce, Trade Compliance Center: Market Access Information](#)

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

[U.S. Department of State: Background Notes](#)

[U.S. Department of State, International Information Programs](#)

[U.S. Embassy, Almaty, Kazakhstan](#)

The following links are provided solely as a service to our customers, and therefore should not be construed as advocating or reflecting any position of the Energy Information Administration (EIA) or the United States Government. In addition, EIA does not guarantee the content or accuracy of any information presented in linked sites.

[Bogatyr Access Komir](#)

[British Gas International Operations: Kazakhstan](#)

[Caspian Crossroads Magazine](#)

[Caspian Energy](#)  
[Caspian News Agency](#)  
[Caspian Oil Industry News](#)  
[Caspian Sea News](#)  
[Caspian Revenue Watch](#)  
[Central Asia-Caucasus Institute of The Johns Hopkins University](#)  
[Central Eurasia Project: Kazakhstan](#)  
[Chevron: Kazakhstan and the Caspian Sea Region](#)  
[ENI](#)  
[EurasiaNet.org--News and Analysis from Central Asia and the Caucasus](#)  
[European Bank for Reconstruction and Development](#)  
[Harvard University: Caspian Studies Program](#)  
[Interfax News Agency](#)  
[International Atomic Energy Agency Country Report -- Kazakhstan](#)  
[Kazakhstan Information](#)  
[KEGOC: Kazakhstan Electricity Grid Operating Company](#)  
[Kazakhstan, Official Site of the President](#)  
[Lonely Planet World Guide](#)  
[Offshore Kazakhstan International Operating Company \(OKIOC\)](#)  
[Take a Look at Kazakhstan](#)  
[The Times of Central Asia](#)  
[TRACECA](#)  
[United Nations Framework Convention on Climate Change and the Kyoto Protocol](#)  
[University of Texas: Russian and East European Network Information Center](#)  
[U.S.-Azerbaijan Council](#)  
[The Washington Post](#)  
[World Bank](#)

---

You may be automatically notified via e-mail of updates for this or other country analysis briefs. To join any of our mailing lists, go to [http://www.eia.doe.gov/listserv\\_signup.html](http://www.eia.doe.gov/listserv_signup.html), and follow the directions given.

[Return to Country Analysis Briefs home page](#)

---

Last Updated: July 22, 2005

Contact: Michael Cohen  
[michael.cohen@eia.doe.gov](mailto:michael.cohen@eia.doe.gov)  
Phone: (202) 586-7057  
Fax: (202) 586-9753

EIA Home  
Contact Us

URL: <http://www.eia.doe.gov/cabs/kazak.html>