

# 1 Mutually Beneficial Development



- ◎ Exploration and Development
- ◎ Discovery of New Reserves
- ◎ Refining Modernization
- ◎ International Energy Channels
- ◎ Quality Products and Services
- ◎ Local Economic Development

CNPC adheres to the principle of mutually beneficial development in its international cooperation. As a responsible and reliable partner, CNPC believes that common development is evidenced by CNPC's efforts in complementing Kazakh resources with its technical strengths, improving efficiency and returns from oil and gas exploration and development, promoting the modernization of the Kazakh oil industry, stabilizing oil and gas supply in the country, safeguarding oil and gas resources through increased energy efficiency, realizing sustainable resource utilization, creating jobs for local people, stimulating the development of local small and medium-sized enterprises, improving the local infrastructure, boosting local people's living standards, and bringing tangible benefits to the Kazakh people.

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## Mutually Beneficial Development

### ◎ Exploration and Development

The oil and gas development projects we have completed in Kazakhstan over the past 12 years have made an important contribution to the modernization and sustainable development of the Kazakh oil industry.

**Rejuvenation of an old oilfield:** Development of the Zhanazhol oilfield began in 1983. When we took over the oilfield in 1997, its annual output was only 2.35 million metric tons. Most of the wells were flowing wells, and had to be shut down after the lifting pressure was exhausted. Following its investigation, the company drew up an *Adjustment Plan for the Development of the Zhanazhol Oilfield*, implementation of which radically improved the overall situation. With the adoption of gas-lift production technology, Zhanazhol's output was raised to 4.08 million metric tons in 2004. At the end of 2008, it had 314 gas-lift wells with daily output of 6,325 metric tons. Zhanazhol is now one of the largest oilfields in the world to use gas-lift production technology.

**Technical breakthroughs in the development of the sub-salt reservoir:** The Kenkiyak Sub-salt Oilfield, with 110 million metric tons of reserves, was discovered in 1971. Most of the reserves are around 4,500m deep, interbedded by 3,000-m-thick salt rock, geopressured hydrogen sulfide-containing gas and geopressured aquifer, making drilling very difficult and costly. Despite its discovery more than 20 years ago, it remained unproducible. After CNPC took over the oilfield it used technologies such as carbonate reservoir description, fracture identification and underbalanced drilling to overcome the technical challenges from sub-salt structural imaging and ultra-thick salt rock drilling, and quickly raised its annual production capacity to 2 million metric tons, turning 28.64 million metric tons of unproducible reserves into producible quality reserves.

**Airtight blended transportation of gas and oil:** In April 2005, CNPC AktobeMunaiGas invested USD 23 million in constructing the 44-km Kenkiyak-Zhanazhol Blended Oil and Gas Transportation Pipeline, realizing 100% airtight gathering and transportation of oil and gas. This pipeline transports oil, gas and water produced by the Kenkiyak Sub-salt Oilfield to

the Zhanazhol Oil and Gas Processing Plant for processing, overcoming chronic environmental and safety problems caused by foul odors from the flaring of sour gas and simple crude sweetening, simplifying the crude processing process of the sub-salt oilfield, and reducing the cost of oilfield development. CNPC AktobeMunaiGas' daily output increased from 300 to 400 metric tons after the pipeline became operational.

**Breakthrough in oil and gas processing:** Although the Zhanazhol and Kenkiyak oilfields both contain abundant natural gas and condensate resources, these contain a high degree of sulfur. Before CNPC took over, the associated gas was processed at outdated facilities with inadequate capacity. As a result, a large amount of natural gas could not be effectively utilized, forcing Aktobe to import natural gas from overseas. This also severely constrained the oilfield's development and crude output growth.

In 2001 and 2002, CNPC AktobeMunaiGas invested more than USD 200 million in upgrading these outdated facilities, drew up a long-term development plan, and built the new Zhanazhol Oil and Gas Processing Plant. This can process 5 million metric tons of crude, and 2.1 billion cubic meters of natural gas annually, allowing crude output to grow and ending any need for Aktobe to import natural gas from overseas.

Construction of the Third Zhanazhol Oil and Gas Processing Plant started in June 2006. It has a designed annual processing capacity of 6 billion cubic meters of natural gas and 1.5 million metric tons of condensate. The project will be completed in three phases. The first phase of the project, which can process 2 billion cubic meters of natural gas annually, was completed and became operational at the end of 2007. The second phase, which will process 2 billion cubic meters of natural gas and 500,000 metric tons of condensate annually, is under construction. The third phase, with an annual processing capacity of 2 billion cubic meters of natural and 1 million metric tons of condensate, will be completed in 2010. In July 2007, the Third Zhanazhol Oil and Gas Processing Plant was designated by Kazakh President Nursultan Nazarbayev as one of the six "breakthrough projects" in Aktobe.

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## ○ Discovery of New Reserves

While continuing our sustained exploration in established oilfields, we are also actively conducting risk exploration for structural and hidden lithologic hydrocarbon reservoirs. By the end of 2007, CNPC had completed 4,946 kilometers of 2-D seismic lines as well as 3,120 square kilometers of 3-D seismic profiles, and added 26.05 million metric tons of newly proven reserves in Kazakhstan.

In 2002, CNPC AktobeMunaiGas commenced risk exploration in the eastern Pre-Caspian Basin, covering an area of 2,933.9 square kilometers. The company applied such exploration technologies as fine horizon calibration, speed analysis, and palaeostructure recovery technology, overcoming many technical challenges and making impressive research and exploration achievements. The “Hope Oilfield” discovered in 2005 was the first major

exploration breakthrough in the past decade in Aktobe, and a 100-million-ton oil-bearing structure was also discovered in North Troyes in 2006.

The South Turgai Basin is a highly mature oil and gas exploration area with a history of 40 years. PK has invested at least USD 50 million annually in the exploration of this basin in recent years. Studies of its petroleum geology and the search for new exploration targets increased the recoverable reserves of areas such as Kolzhan by 5.33 million metric tons and achieved substantial results in the exploration of complicated oil and gas reserves, such as the discovery of sandstone reservoir at Kyzylkia and the Middle-Lower Jurassic reservoir at Aryskum. By the end of September 2006, Tuzkol-1 had achieved a daily output of 70 cubic meters, making it the most significant discovery in the south of the basin in 40 years.



- Exploration and Development
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## ○ Refining Modernization

The Shymkent refinery, established in 1985, is located in southeast of Shymkent, South Kazakhstan. It is jointly run by CNPC and KazMunaiGas. As one of the three leading refineries in Kazakhstan, Shymkent plays an important role in stabilizing the local oil market. In cooperation with our partners, we have built a modern refinery with improved fuel quality, product structure and production efficiency, and reduced production costs.

As a result of technological upgrading, Shymkent's lightweight oil recovery rate is now over 78%, and its products meet the Euro III and IV standards. This refinery's environmental indicators meet the Kazakh national standards, making it one of the best refineries in central Asia.

Along with our partners, we have also drawn up a long-term development plan for the refinery in accordance with the Oil Industry Mid-term Development Plan of the Kazakh Ministry of Energy and Mineral Resources. In order to further expand its output, we want all of the refinery's indicators to meet international standards, fuel quality to reach Euro IV standards, build a petrochemical production facility in the refinery, raise the lightweight oil recovery rate to the level of modern refineries, and increase the annual refined capacity to 6 million metric tons. The technical upgrading of the refinery was launched after it was approved by all of the stakeholders, including KazMunaiGas. The process is expected to take three years, during which the existing refining



capacity must be maintained. The upgrading will include the addition of heavy oil catalytic cracking and reforming and natural gas absorption and fractionation facilities, and the installation of new isomerization and hydrogenation catalytic cracking equipment.

By the end of 2008, the environmental impact assessment of Shymkent refinery's technical upgrading had been approved by the Kazakh government and environmental protection organizations, and the company's research agency had drawn up a detailed plan for its modernization.

On July 3, 2008, the mayor of Shymkent awarded a medal commemorating the 10th anniversary of the moving of the Kazakh capital to Astana to Jiang Shi, vice-president of the Shymkent refinery, in recognition of outstanding contributions made by its staff to Kazakhstan's socio-economic development.



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## ◎ International Energy Channels

The Kazakh government is trying to boost its oil revenues by diversifying and stabilizing its export channels. The Kazakhstan-China Oil Pipeline, constructed by CNPC and KTO, has become an important channel for Kazakhstan's oil exports. The Kazakhstan-China Natural Gas Pipeline, which is currently under construction, will not only increase Kazakhstan's tax revenues, but also supply gas to the south of the country, boosting the region's economic development.

### 1. Kazakhstan-China Oil Pipeline

The Kazakhstan-China Oil Pipeline is the result of joint investment by CNPC and KazTransOil (KTO), with both owning 50% stakes. This 2,828-kilometer pipeline, with an annual transportation capacity of 20 million metric tons, runs from Atyrau on the Caspian Sea, through Aktobe to Alashankou in China. The first section of the pipeline was completed and became operational on December 15, 2005, and it had exported 12.54 million metric tons of crude oil by the end of 2008. Construction of the second section of the pipeline started in December 2007, and will become operational in October 2009. By that time, the pipeline will be able to transport crude oil from western Kazakhstan to China's Xinjiang Uygur Autonomous Region. As the first pipeline to carry its oil directly to the international market and being China's first cross-border crude oil pipeline, it will diversify Kazakhstan's crude oil export channels and increase the supply of crude oil to the Chinese market.

### 2. Kazakhstan-China Natural Gas Pipeline

The 1,300-kilometer Kazakhstan-China Natural Gas Pipeline stretches from the border of Kazakhstan and Uzbekistan in the west to Huoerguosi in China. It is being constructed and will be operated by Asia Gas Pipeline LLP, a joint venture company established by KazMunaiGas and CNPC. Construction of the pipeline began on July 9, 2008. The first pipeline is expected to be completed and become operational in late 2009, while the second will be up and running in 2010. It is expected to increase tax revenues for Kazakhstan, boost development and infrastructure construction in areas along the route, and power the development of the pipeline construction and materials industries. It will also stabilize natural gas supplies to the south of Kazakhstan and diversify the country's energy export channels. This pipeline can also help improve China's energy mix and diversify the sources of its natural gas imports.



- Exploration and Development
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- Refining Modernization
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## ◎ Quality Products and Services

With the support of our advanced technology and management, we supply quality gasoline, diesel oil, aviation fuel, LNG, heavy oil and other products to the Kazakh market to meet customers' varied needs. We have developed a mature sales network, including procurement, storage, transportation, wholesale and retail.

### 1. Refined product supply

The Shymkent refinery managed by CNPC and its partners is the major supplier of refined oil to southern Kazakhstan. It also supplies oil products to central and western Kazakhstan, and the north of Akotbe. While ensuring normal supplies to the Kazakh market, PK also supplies oil products to the national strategic sectors at a preferential price, as required by the Ministry of Energy and Mineral Resources of Kazakhstan. In 2008, we supplied 220,000 metric tons of aviation fuel to Kazakhstan's airports, accounting for 62% of its total domestic supply, 120,000 metric tons of agricultural diesel oil, and 100,000 metric tons of heavy oil used for winter heating, to Kazakhstan. We also provide an oil products service through our sales network in Astana, Almaty, Aktobe, East Kazakhstan, South Kazakhstan and Kyzylorda.

### 2. Oil products marketing and logistics

The Shymkent refinery has a complete logistics system, including Kazakhstan's largest crude oil and refined product railway loading station. The logistics system covers the handling and transportation of crude oil, refined products and LNG. The crude oil and refined product loading station has five railway handling trestles, handling crude oil, gasoline, diesel oil, aviation fuel, wax oil, and heavy oil. The logistics system also has two railway freight stations for the transfer of oil and oil products, ensuring stable and sustained oil supply to the Kazakh market.

#### Convenient Service Station in Almaty



The No. 2 service station of SINOIL LLP, located in the center of Almaty, is a multi-purpose service station, covering an area of 3,100 square meters. It sells diesel oil, and grade 92, 93, and 96 gasoline. Its daily sales have increased from 9,500 liters in 2003 to 50,000 liters in 2008. The service station has also opened a convenience store, selling lubricants, drinks, snacks and telephone cards, etc. Natalia Petrofna, the manager of the service station, said that the company has transformed it and ensured that the fuel it sells is of the highest quality. "We have also opened a convenience store," she added. "More and more people come here for refueling, and most of them are regulars. We work on three shifts. We're busier than before, but we're still very happy when we see so many people coming to our service station."

- Exploration and Development
- Discovery of New Reserves
- Refining Modernization
- International Energy Channels
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## ○ Local Economic Development

The development of CNPC's business in Kazakhstan is a direct result of the favorable local business environment, and we also do our utmost to promote local economic development. We supply natural gas to local people and companies at a preferential price, as well as crude oil to Kazakh refineries and agricultural oil to farmers at a reduced price. We also seek to stimulate the development of Kazakhstan's small- and medium-sized enterprises through the purchase of local goods and services.

### 1. Preferential supply of oil and gas to local residents

As required by the Kazakh government's *Plan for the Development of the Natural Gas Sector in 2010*, CNPC AktobeMunaiGas supplies natural gas to residents and industrial enterprises in Aktobe at a reduced rate. It currently sells natural gas to local residents at a 75% discount.

Based on the requirements of the Kazakh government, CNPC AktobeMunaiGas supplies

crude oil to Kazakh refineries at the domestic rate. CNPC supplied more than 3.4 million metric tons of crude oil at this rate to Kazakh refineries between 2001 and 2008.

In response to a call made by Kazakh President Nursultan Nazarbayev, since 2004 we have been supporting the development of Kazakh agriculture, with CNPC AktobeMunaiGas supplying diesel oil and heavy oil to the sector at a preferential rate in spring and autumn every year.

## CNPC AktobeMunaiGas Contributes to Local Economic Development



*Congratulatory letter sent by Aktobe Taxation Bureau to CNPC AktobeMunaiGas*

Winters in Aktobe are long and cold. Twelve years ago, when CNPC arrived, imported natural gas was prohibitively expensive for many people. To bring warmth to local people, CNPC AktobeMunaiGas supplies gas to local households at a preferential rate. By the end of 2008, the company had supplied 2.081 billion cubic meters of natural gas to local residents and enterprises.

According to an agreement reached between CNPC and the Aktobe government, from 2006 to 2007, CNPC AktobeMunaiGas invested USD 1.6088 million in the local bakery, stabilizing the price of bread available to local people.

The development of CNPC AktobeMunaiGas over the past 12 years has turned it into a leading oil producer in Aktobe. The company

has not only achieved breakthroughs in oil and gas production, but also paid all taxes and fees to the local government in time and in full, accounting for 70% of local revenues, and created jobs for 15% of the local workforce. These figures prove that the company has become a powerhouse of local economic growth.

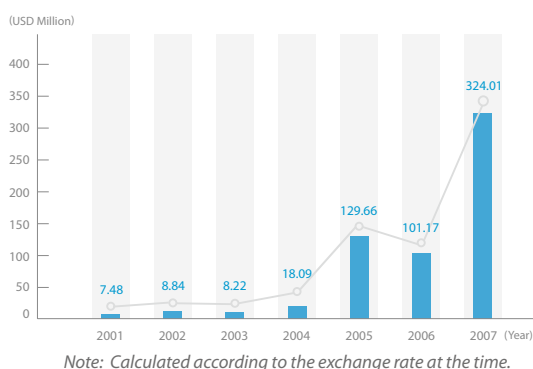
In 2002, during a visit to China, Kazakh President Nursultan Nazarbayev hailed CNPC AktobeMunaiGas as a model of Sino-Kazakh cooperation. In 2007, on the 10th anniversary of energy cooperation between the two countries, the tax authority of Aktobe sent a congratulatory letter to Wang Zhongcai, then president of the company, in recognition of its contribution to the area's socio-economic development.

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## 2. Supporting Kazakhstan's Import Substitute Plan

The Import Substitute Plan is a policy of the Kazakh government to support its national industry. In support of this initiative, the company gives preference to local goods and services. In 2006, CNPC AktobeMunaiGas purchased goods and services worth USD 719 million from Kazakh suppliers, which were mainly small- and medium-sized enterprises. This has had a great impact on many sectors. For example, Kazakhstan's pre-cast panel industry, which only had one small plant in 1997, has witnessed impressive growth. During the construction of the first section of the Kazakhstan-China Oil Pipeline, our purchases from Kazakh companies, such as locally produced raw materials and mechanical equipment, were worth more than USD 17 million. The supply of concrete, sand, rocks, steel, and LNG used for welding was all sub-contracted to local companies in accordance with agreements, with a contract value of USD 19.3367 million. We also sub-contracted projects worth USD 18.6 million to local contractors, which indirectly and directly created 1,500 jobs.

### CNPC AktobeMunaiGas Contracts with Local Companies



## 3. Stimulating infrastructure development

Infrastructure is the basis for the development of the national economy. A mature infrastructure can drive socio-economic development. The sustained development of our company in Kazakhstan has promoted the construction of local infrastructure.



In the past three decades, employees developing the Zhanazhol oilfield would take five hours to travel to work along 300 kilometers of bumpy roads, in conditions of extreme heat or cold. On December 15, 2006, the Emba-Zhanazhol Railway, invested by CNPC AktobeMunaiGas, became operational. The railway was designed according to IV grade and single-track railway standards. It covers a total distance of 79.7 kilometers (including 70.4 kilometers of newly built line and 9.3 kilometers of rebuilt line). Its highest speed is 80 kilometers per hour, which has significantly cut the time it takes the employees to travel to work. The designed freight capacity of the railway is 2.262 million metric tons a year, and the passenger capacity is 6,000 people a month. The employees can take the train back to Aktobe through Emba. The railway has also made it easier for farmers along the line to reach new markets. As the first foreign-invested railway to have been constructed by local companies, this new line has won great praise from the Kazakh government.