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China and Central Asia: A Significant New Energy Nexus

By Fakhmiddin Fazilov & Xiangming Chen



China now accounts for almost 20 percent of the world's energy consumption and its demand is still growing at high speed. In order to keep up with the expanding industry China turns to Central Asia with ambitious gas line projects and considers countries such as Kazakhstan, Turkmenistan and Uzbekistan to be key factors in its energy security nexus.

A Rising China Reshaping the Global Energy Landscape

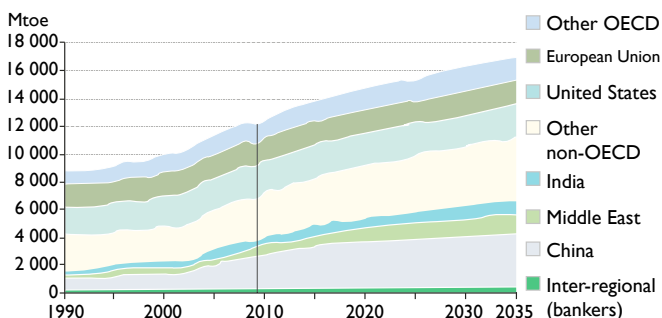
The growth of China's economy at historically unprecedented speed and scale over the last three decades has completely altered the supply-demand equation of global energy. Its galloping manufacturing machine has been running on massive quantities of coal and oil. From a country with no private cars to the largest auto market in the world, China has dramatically accelerated its petrol consumption. With millions of skyscrapers and lower buildings of all kinds shooting up in its hundreds of large cities that have to be cooled and heated, China has become a giant in the overall consumption of energy by the world's cities. Given its limited domestic supply of oil and gas, China has to get this massive amount of new energy from somewhere else in the world. It is the

combination of the quantity and sources of China's added demand for energy that has spun a new web of global and regional geo-economic ties involving Central Asia and other regions such as Latin America.¹

The nature and trajectory of China's rising energy demand have been shaped by the model and scale of its economic growth. China has built a huge number of export-oriented factories of massive scale in what can be called factory-cities along its coast, some of which employ almost one million workers like Foxconn's factory in Shenzhen. Moreover, China has put up gigantic buildings and transport infrastructure in these cities where millions of affluent consumers live and drive. Nothing like this conjuncture of powerful forces has happened in the history of industrialization, urbanization and modernization. As a result, China has become world's largest energy consumer in less than 20 years, accounting for almost 20 percent of the world's total energy consumption now (see Figure 1). This has also turned China into the world's second largest net importer of oil today, from being an oil exporter in the 1990s (see Figure 2). Looking forward, China's energy demand is expected to expand 75 percent by 2035 when its lead over the United States will be much larger (Figure 1).

Although China has a substantial domestic supply of energy, especially coal, it has been looking abroad for more and more sources of oil and gas. China produced an estimated 4.3 million barrels per day (bbl/d) of oil liquids in 2011, which is forecast to rise to 4.5 million bbl/d by the end of 2013. However, its booming economy requires China to import more than 50 percent of the oil it needs. According to the US Energy Information Administration (EIA), China may import about 75 percent of the crude oil it will consume by 2035.²

Figure 1.
China's Rising Energy Demand, 1990- 2035 in Comparative Perspective



Source: International Energy Agency (IEA), World Energy Outlook (2010).

China's rapidly growing demand for energy is fueled by its energy-intensive industries like steel, aluminum, automobiles, electronics and chemicals. China now accounts for about 35 percent of the world's steel production and about 50 percent of the world's cement production. By the year 2030, the number of cars in China is projected to increase to 400 million from 27 million cars in 2004,³ driving up considerably more energy consumption. Natural gas consumption in China has also risen over the past decade. In 2011, China produced 3.6 trillion cubic feet (tcf) of natural gas, 9 percent more than in 2010. While natural gas accounted for 23.7 percent of global energy consumption in 2011, it was only 4.5 percent in China. China's domestic gas is not enough to meet the needs of these growing industries, which pushed China's gas import to jump from 12 percent of its consumption in 2010 to 22 percent in 2011.⁴

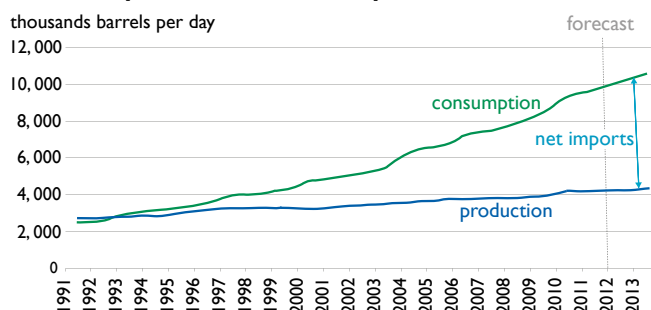
The International Energy Agency noted that oil security has emerged as a central policy in China, leading China to diversify its access to energy resources globally.

In response to its tremendous energy needs, the Chinese government has elevated its energy policy to a very high priority. The International Energy Agency (IEA) recently noted that oil security has emerged as a central policy in China,⁵ leading China to diversify its access to energy resources globally. China imports a vast amount of energy from the Middle East, Africa, Asia-Pacific and other countries. In 2011, the Middle East, including Iran, supplied 2.6 million bbl/d (51 percent) to China, Africa 1.2 million bbl/d (24 percent), the Asia-Pacific region 173,000 bbl/d (3 percent), and other countries 1.1 million bbl/d (22 percent).⁶ China has become heavily dependent on a number of distant countries in the Middle East and Africa with low political stability. To ameliorate this dependence, China has begun to diversify its international energy sources by sponsoring the development of China-bound pipelines in Myanmar (Burma), Central Asia and Pakistan. Meanwhile, the Central Asian vector of China's energy policy has become considerably more important.

China's Turn to Central Asia for Energy Supply

Of the non-Middle Eastern energy sources for China, Central Asia looms large and close due to its abundance of oil and natural gas deposits and relative regional stability. Central Asia accounts for about 4 percent of global energy deposits. The oil reserves in Central Asia and along the Caspian Sea coast amount to 17 to 33 bbl/d, which are comparable to that of Qatar. China has turned to Central Asia for energy supply, for two main reasons. Besides accessing a more stable and closer source of abundant energy, China

Figure 2.
China's oil production and consumption, 1990-2013



Source: U.S. Energy Information Administration *International Energy Statistics and Short-Term Energy Outlook* (August 2012)

aims to compete aggressively for its energy security by developing its "energy diplomacy" with the region. Secondly, developing close ties with Central Asia through an energy nexus will help China deter threats from the separatist activists in the Xinjiang Uyghur Autonomous Region. China has reorganized the army units in Xinjiang to safeguard its oil fields given the 3,300 km western border with Kazakhstan, Kyrgyzstan and Tajikistan.

The root of connections between the Central Asian countries and China goes all the way back to the Silk Road times. Diplomatic relations between China and the Central Asian countries have been established since the collapse of the Soviet Union in 1991-1992. Trade between China and the five Central Asian countries rose from \$527 million in 1992 to \$40 billion in 2011.⁷ China has increased its investment in building roads and tunnels in Tajikistan, developing the oil sector in Kazakhstan and constructing a 1,800-kilometer natural gas pipeline from Turkmenistan. In Central Asia, China has sought to establish a regional free trade zone, partially as a way of tapping into the region's vast energy resources. Nowadays, the major Chinese energy players in the region are China National Petroleum Corporation (CNPC), China National Offshore Oil Corporation (CNOOC), China Petroleum and Chemical Corporation (SINOPEC) and Petro China. They have partnered with local companies to compete with traditional power players like Russia and multinational companies such as Chevron, ExxonMobile and BP in the exploration and extraction of oil and natural gas.

Two main pipelines from Central Asia to China, the Central Asia-China gas pipeline and Kazakhstan-China oil

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Kazakhstan's total proven offshore and onshore fields' reserves constitute about 37 billion barrels of oil and 3.3 trillion cubic meters (tcm) of natural gas, making Kazakhstan one of the world's major oil producers with the potential to expand the production.

pipeline, are already in operation. The Central Asia-China gas pipeline, spanning Turkmenistan, Uzbekistan and Kazakhstan, and crossing Xingjian Uyghur Autonomous Republic at the border town of Horgos, transported 40 billion cubic meters (bcm) of natural gas when it was first built. It is connected with China's second west-east gas pipeline, which starts from Horgos and ends in Hong Kong, stretching 8,704 km. China imported about 18.4 bcm of natural gas through its first cross-border pipeline the last two years. Given China's plan to increase gas imports from Central Asia by five times by 2015, the Central Asia-China pipeline's capacity will expand up to 55-60 billion cubic meters of gas per year.⁸

The further development of China's Central Asian energy pipeline projects will involve a China-Arab line to the oil terminals of the Persian Gulf. These energy corridors will ultimately place China in the center of a "Pan-Asian global energy bridge," which will link existing and potential suppliers (Persian Gulf countries, Central Asia and Russia) to the major energy consumers (China, Japan and Korea). If successful, it will not only improve the energy security of China, but also strengthen Beijing's broader geo-political influence in the region.

The Sino-Kazakhstan Energy Ties

Its massive oil reserves make Kazakhstan very attractive to China in boosting energy cooperation. Kazakhstan's total proven offshore and onshore fields' reserves constitute about 37 billion barrels of oil and 3.3 trillion cubic meters (tcm) of natural gas, making Kazakhstan one of the world's major oil producers with the potential to expand the production of 2 million bbl/d in 2010 to 3.5 million bbl/d by 2015. Kazakhstan's reserves of natural

gas are around 8.6 tcm.

Chinese energy companies have been operating and investing in Kazakhstan where CNPC acquired 60.3 percent of shares of Kazakh oil company Aktobemunaigaz in 1997. CNPC later bought the entire shares of the company and re-established CNPC-Aktobemunaigaz. In addition, CNPC is in negotiation to buy a 49% minority stake in Kazakhstan's AO MangistauMunaigaz Company from KazMunaiGaz. This deal gives China control over about 15 percent of Kazakhstan's total oil output.⁹

The discovery of Kazakhstan's giant Kashagan oil field, which was considered "the largest oil discovery anywhere in the world in the past 20 years,"¹⁰ has prompted China to reconsider its position regarding the feasibility of Kazakhstan-China pipeline. As a result, the easternmost part of the pipeline, running 988 km from Atasu in Kazakhstan to Alashankou at the Chinese border (see Map 1A), was completed at the end of 2005 and began operating in May 2006, with a total investment of \$700 million.¹¹ The 962 km long pipeline has been operating as

Further development of Sino-Kazakhstan energy cooperation may bring more opportunities to the region. Kazakhstan and China have considered three opportunities.

Map 1a.



Sources: "China's Worldwide Quest for Energy Security" International Energy Agency 2000;

a 50-50 joint venture between state companies CNPC and KazMunaiGaz. At the beginning, this pipeline was expected to ship one million barrels per day of crude oil into western China or 10 million tons of crude oil per year, but the pipeline is expected to increase its export capacity to 20 million tons in the future.¹²

Further development of Sino-Kazakhstan energy cooperation may bring more opportunities to the region. Kazakhstan and China have considered three opportunities. The first is to prolong the existing pipeline between cities of Uzbekistan-Bukhara and Tashkent to Almaty, then through Taldikorgan to Alashankou. The second is the construction of a new gas pipeline connecting Ishim (western Siberia) and Alashankou and the one going through Astana and Karaganda. The third is a variant of constructing a pipeline from Shalkar (western Kazakhstan) and one coming through Kizilorda until Shimkent, with connection to the pipeline Bukhara-Tashkent-Almaty.¹³

Is energy cooperation mutually beneficial to both China and Kazakhstan? China considers Kazakhstan a key factor in its energy security nexus, and sees the cooperation as helping strengthen and secure its northwestern borders of the volatile Xinjiang Uyghur Autonomous Region. The cooperation also provides new energy to support China's "Go West" program and helps it gain greater access to the markets of Central Asia. Some experts see the increasing Sino-Kazakh cooperation in the energy field as tied to the long-term strategic interests of the two countries, especially when faced with greater U.S. military presence in Central Asia after September 11.¹⁴ For Kazakhstan, China can help diversify its energy sector by balancing against Russia's influence in its energy field.

The future of Sino-Kazakhstan energy cooperation will depend on the exploration of new oil deposits in the shelf areas of the Caspian Sea.

The future of Sino-Kazakhstan energy cooperation will depend on the exploration of new oil deposits in the shelf areas of the Caspian Sea, which may strengthen Chinese companies' presence in the region at the expense of European, American and Russian companies. The political and economic contents of developing energy relations further may be tied to the framework of the Shanghai Cooperation Organization (SCO), especially under the auspices of SCO's newly established "Energy Club."

Turkmenistan and Uzbekistan in China's Energy Policy

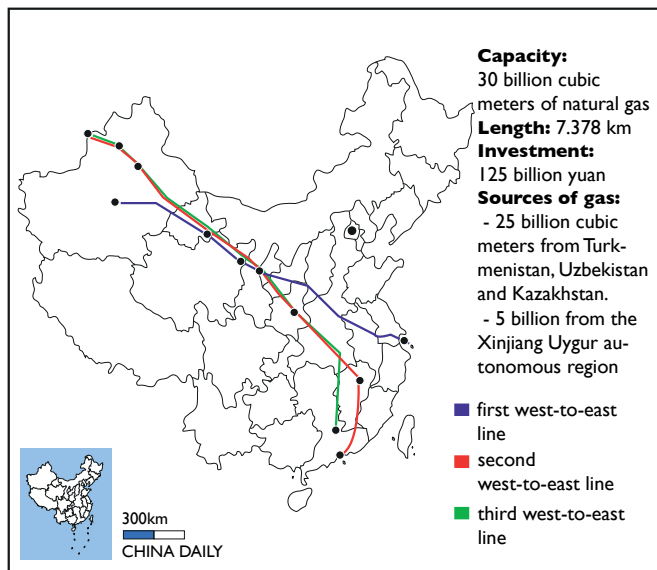
Turkmenistan is one of the world's largest natural gas exporters. According to *Oil and Gas Journal*, Turkmenistan has proven natural gas reserves of approximately 265 trillion

cubic feet (Tcf) in 2012.¹⁵ The abundance of natural gas has drawn significant attention and interest from China. Diplomatic relations between two countries were established after the independence of Turkmenistan in 1992. Given the significant energy component in their bilateral relations, the Turkmenistan-China gas pipeline project – as part of the Central Asia-China pipeline – came into existence. The Central Asia-China gas pipeline begins in Turkmenistan and goes through Uzbekistan and Kazakhstan before connecting to a second pipeline running west to east within China (see Map 1b). China and Turkmenistan signed an agreement in July 2007 under which the latter would supply 30 bcm of gas to China annually through pipelines for 30 years. It began supplying gas on December 14, 2009.

The President of Turkmenistan, Gurbanguly Berdymukhammedov, said during a state visit to Beijing on November 23, 2009 that Turkmenistan would increase its gas exports to a volume of 65 bcm a year.¹⁶ According to CNPC, Turkmenistan has transported more than 30 bcm of natural gas to China in more than 900 days using the Central Asia-China pipeline, an amount making up a fifth of the gas China used last year. Of the 30 bcm, about 10.7 bcm came from the CNPC (Turkmenistan) Amu Darya River Gas Co, and Turkmenistan's Natural Gas Konzern supplied the remaining 19.3 bcm.¹⁷ Turkmenistan is expected to be China's principal supplier of natural gas via the pipeline that traverses through Uzbekistan and Kazakhstan. By strengthening its energy relations with Turkmenistan, China not only attempts to diversify its access to the new gas but also gains greater flexibility in navigating the treacherous geopolitics of the region.

The evolution of energy cooperation between China and Turkmenistan should benefit both sides. Turkmenistan benefits from doubling its energy supply to China and circumventing its biggest competitors – Iran and Russia. Beijing wins by securing new gas supplies and thus postpones plans to deal with Iran until the political climate of the Middle East improves.¹⁸ According to IEA, China's natural gas import will be around 30-40 bcm, and this amount could be covered by Turkmenistan with its 60 bcm annual export capacity. China's consumption will lie in the range of 180 bcm to 200 bcm, and production in the range of 120 bcm to 140 bcm by 2020. Based on this assumption, the gap between demand and domestic production by 2020 will amount to between 40 bcm and 80 bcm.¹⁹ This will reinforce China's interest and need to buy more gas from Turkmenistan.

Like with other Central Asian countries, China's overall relationship with Uzbekistan has improved over the last two decades, which has contributed to a deeper and more mutually beneficial cooperation in energy. According to *Oil and Gas Journal*, Uzbekistan holds an estimated 65 tcf of proven natural gas reserves as of 2012, ranking it the fourth highest in the Eurasia region and nineteenth in the world.²⁰ To gain access to this rich gas reserve, China has made major

Map 1b.**CHINA'S THIRD WEST-TO-EAST NATURAL GAS TRANSMISSION LINE**

Sources: China National Petroleum Corp.

economic inroads into Uzbekistan where it has set up more than 380 ventures with Chinese investment and also the representative offices of 65 large Chinese companies; among them, CITIC, CNPC and China Machinery.²¹

The twin anchors of this cooperation are Uzbekistan's national oil and gas company Uzbekneftegaz and Chinese CNPC. In 2004, CNPC signed a contract with Uzbekneftegaz on energy cooperation. In 2006, they signed two more agreements to explore and develop prospective petroleum deposits in five onshore blocks of the Aral Sea together with Russia's Lukoil, Malaysia's PETRONAS, and South Korea's National Oil Corporation.²² A joint venture on oil exploration between Uzbekneftegaz and CNPC was established in the Mingbulak field. The intersection of the Uzbekistan-China gas pipeline into the Central Asia-China gas pipeline has added momentum to the energy cooperation between the two countries. Uzbekistan started to supply natural gas through this gas pipeline on August, 2012. As the China-Central Asia pipeline is a double-line pipeline, including line A and line B, the construction of line C with a length of 1840 kilometers to parallel lines A and B was launched in 2012, including a 157 km-long project undertaken by the China Petroleum Pipeline Bureau. The 3-line gas pipeline of Uzbekistan-China is projected to have a capacity of 25 bcm gas.²³ This ambitious gas project adds to the bilateral economic relations between China and Uzbekistan. Uzbekistan

gains by attracting Chinese investment to its energy sector with spillovers to other sectors of its economy. China's investment in Uzbekistan now exceeds \$4 billion. China has already become Uzbekistan's largest investor, third largest trading partner, largest buyer of cotton, and largest provider of telecommunications equipment.²⁴

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Replaying the Great Game, in Energy

As China has risen to the central gravity of the global economy, it has brought Central Asia into the field of that gravity through various energy connections. One should not be surprised by this parallel or paired development into a new regional energy nexus. For centuries, China and Central Asia were linked through peace, war, trade and marriage, with the exception of the last 100 years when Central Asia fell into the orbit of tsarist Russian and Soviet influence, and became delinked from China. Are we seeing a replay of a Great Game in Central Asia, in energy, with China and the United States replacing the former Soviet Union and Great Britain?²⁵


It is quite clear that China has already fully (re)entered the arena where it plays aggressively to win a larger share of the energy prize in Central Asia, while the United States may be relegated to a second-tier role as its private oil companies, large as they are like ExxonMobil, do not match up evenly against China's powerful state-owned oil giants such as CNPC. In fact, the departure of US and NATO troops from Afghanistan by the end of 2014 will open up more geo-strategic space for China to fill with its energy and diplomatic activities. It may also help China solidify the political stability of Xinjiang bordering Central Asia. In the longer run, China eyes Central Asia as the strategic crossroad for its long land route to trade with the Gulf and Europe.

In the short term, however, China needs to quell its thirst for Central Asia's oil and gas that can be brought overland to power its factories on the eastern seaboard (Map 1b). Therefore, China will continue to devote its diplomatic energy to improving relations with the Central Asian countries to ensure a stable and substantial supply of oil and natural gas that will reduce dependence on Middle Eastern oil and can avoid shipping it along the more vulnerable sea

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China has been playing as a unified, rising power getting the amount of energy that it wants and needs. This equation stands to favour China now and into the future as the regional energy nexus evolves in the larger geo-political context of Eurasia.

route through the narrow Strait of Malacca. In addition, Central Asia can help China diversify its energy supplies. Given China's attempt to develop nuclear energy by constructing about 30 new nuclear power plants, Kazakhstan and Uzbekistan's uranium deposits, which account for around one quarter of the world's uranium reserves, can meet China's critical need.

In all its facets, the China-Central Asia regional energy nexus forms the axis of a new Great Game that will play on for a long time. On one side, the five Central Asian states are plagued by poor relations, with Uzbekistan, Kyrgyzstan and Tajikistan conflicting over boundary and water issues, and the latter two remaining more dependent on Russia through remittance from their migrant workers. On the other side, China has been playing as a unified, rising power getting the amount of energy that it wants and needs. This equation stands to favour China now and into the future as the regional energy nexus evolves in the larger geo-political context of Eurasia. 

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