

LOOKING BOTH WAYS: CENTRAL ASIA AS A GAS SUPPLIER TO CHINA

SPECIAL POLICY BRIEF BY CASPIAN POLICY CENTER

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ABOUT THE AUTHORS



Ambassador (Ret.) Robert Cekuta
Caspian Energy and Economy Program Chair,
Caspian Policy Center

Ambassador to the Republic of Azerbaijan (2015 – 2018), Robert Cekuta has long and extensive experience as a top level U.S. diplomat. Deeply engaged in advancing high-profile international energy projects, trade policy initiatives and agreements, commercial sales, and other complex international security matters, Amb. Cekuta's positions in the State Department included Principal Deputy Assistant Secretary for Energy Resources as well as Deputy Assistant Secretary for Energy, Sanctions, and Commodities.

In addition, he was Deputy Chief of Mission in Albania and held positions in Vienna, Baghdad, Kabul, Johannesburg, and Sana'a, Yemen.

He set up the Economic Policy Analysis and Public Diplomacy Office in the State Department's Bureau for Economic and Business Affairs, and served on the boards of the Extractive Industries Transparency Initiative (EITI) and the International Energy Agency (IEA), where he also chaired the IEA Board's Standing Group on Long-term Cooperation charged with anticipating global energy developments.



Blake Wilcox
Research Intern,
Caspian Policy Center

Blake Wilcox is an MA candidate in the Eurasian, Russian and East European Studies program at Georgetown's Walsh School of Foreign Service. He graduated magna cum laude with a BA from Brown University, where he concentrated in Slavic studies and German Studies. Blake has served as a research assistant at Brown, worked as a business consultant in Washington, DC and participated in the American Councils' Business Russian Language and Internship Program. His research interests include the energy industry in the CIS, sanctions' impact on the Russian economy, and the role of the international financial system in Russia's economy.

INTRODUCTION

China's demand for energy, especially energy that burns cleaner than coal, is expected to increase through 2040. Natural gas will remain essential — along with renewables and nuclear — in meeting that rising demand. While China's domestic natural gas production is expected to continue its rise, reports show demand will likely to continue outstripping domestic supply.¹ The Oxford Institute for Energy Studies reports that China already imports over 40 percent of its natural gas needs.² However, as with other consumers, China seems likely to seek multiple and diverse sources of energy, for national security as well as for commercial considerations.

China's growing role as a market for gas occurs at the same time as a major evolution in the international gas market. The shale gas revolution has made the United States a top LNG provider, produced new technologies for processing/shipping LNG, and changed pricing terms and contract structures; these all affect and reshape markets.

Central Asian producers have been, and can remain, important suppliers for China's gas needs. States in the region have to take the gas market's evolution into account and consider what steps they should take to compete in this changing landscape. One key goal is to ensure they are always seen as reliable suppliers. Central Asian states also need to be realistic in their expectations of pricing and remain cautious when considering project financing.

CHINA'S CONTINUED GROWING GAS NEEDS

While coal primarily powered China's economic boom in the last two decades, Beijing's economic planners increasingly look to raise the share of gas in China's energy mix. This is primarily due to its environmental advantages as well as to pricing and other commercial considerations. Asian LNG spot prices dropped from their March 2014 high of \$20.20 per million British thermal units (MMBtu) to \$6.80/MMBtu in March 2015.³ Prices have generally remained low, with May 2019 futures contracts for July delivery costing just \$4.50 /MMBtu.⁴

Chinese domestic politics regarding air quality are another critical factor. Beijing has pledged to limit CO₂ emissions in the Paris Climate Accords and has demonstrated greater commitment to environmental protection and reducing air pollution. Natural gas produces less CO₂ than per unit of electricity generated. The switch from coal to gas can also reduce emissions of other noxious pollutants, including fine particulate matter, sulfur dioxide, and mercury — elevated levels of which are present in many areas of China. Economic planners have sponsored various initiatives for switching from coal to gas in small-scale residential and industrial applications as well as in power generation. As a result of these initiatives, China's coal consumption rose just 1 percent in 2018.⁵ In contrast, China's demand for natural gas grew 18.1 percent in 2018,⁶ with preliminary estimates for gas consumption in 2019 forecasting a 14 percent increase over the previous year.⁷

China imports large volumes of natural gas, which are expected to increase as demand growth outpaces the rises in China's domestic output. China imported 124.64 billion cubic meters (bcm) of natural gas in 2018 — 44 percent of the total gas used that year.⁸ Domestic gas output has

grown, but not enough to keep pace with the rise in demand. Year-on-year growth in Chinese gas output from 2008 to 2018 exceeded 9 percent, and proven gas reserves have jumped four-fold since 1998.⁹ However, domestic gas output increased just 7.5 percent in 2018.¹⁰ As a result of demand growth exceeding increases in domestic production, China's gas imports have expanded tenfold since 2010, when just 12.4 bcm — 11 percent of gas consumed — was imported.¹¹

Many have raised the prospect of a Chinese Shale Revolution as a remedy for rising import dependence, but significant geographical and institutional obstacles exist. Chinese analysts tend to be quite optimistic, and cite China's huge shale gas reserves (the largest in the world, according to the EIA) along with how the shale revolution in the United States radically altered trade and other dynamics.¹²



Collection facility for shale gas in Chongqing

China, however, faces important geographical and institutional obstacles to realizing an American-style shale revolution. Chinese shale deposits are located deeper underground than their U.S. counterparts, which makes drilling each well more expensive. Unlike U.S. hydrocarbon-bearing shale formations which are relatively even, Chinese formations are choppy and inconsistent. This trait of Chinese shale geology limits the productive length of well laterals, the horizontal portion of the well bore, which means less gas is extracted.¹³ Furthermore, China lacks many of the institutional factors that facilitated the U.S. Shale Revolution. As energy specialist Agnia Grigas notes, these include a “confluence of know-how, technology, business environment, financing availability, legislation such as landowners’ mineral rights, and entrepreneurial drive.”¹⁴

CENTRAL ASIA AND COMMERCIAL GAS COMPETITORS

Two natural gas pipelines bring foreign gas to Chinese consumers: the Central Asia-China Pipeline (CACGP) and the Sino-Myanmar Natural Gas Pipeline. A third, the Power of Siberia (PoS) pipeline which brings Russian gas to China, is under construction and is expected to start delivering gas by the end of 2019. A fourth pipeline from Russia to China, called the Altai Pipeline or Western Route, has been pushed by Russia, but has generated less interest among Chinese buyers.

At the same time, China imports growing amounts of LNG from Australia, Malaysia, Indonesia, and New Guinea, as well as an increasing amount from the United States. These quantities of LNG account for around 60 percent of China's natural gas imports and arrive at China's coastal cities.¹⁵

Central Asia-China Pipeline

The CACGP connects gas-rich states in Central Asia with western China, going through Turkmenistan, Uzbekistan, and Kazakhstan, accepting gas from all three states before crossing the Chinese border near Khorgos in Xinjiang. Three extant lines (known as A, B, and C – all following route 3 in the map below), give the CACGP a total capacity of 55 bcm annually (bcm/a).¹⁶ Until 2017, CACGP was the largest source of natural gas imports into China, but has subsequently been overtaken by LNG.¹⁷ Turkmenistan provides the lion's share of gas flowing through CACGP,



with Turkmen gas exports to China reaching 33 bcm in 2017; these numbers equate to 35 percent of China's imports and 17 percent of total gas demand.¹⁸ Projections for 2018 gas exports to China suggest Turkmenistan would supply 38.7 bcm, 7.6 bcm from Uzbekistan, and over 5 bcm from Kazakhstan.¹⁹

The CACGP, however, is approaching full capacity and proposals have been made to expand the system. Gas imports via CACGP have steadily grown since operations began in 2010. The utilization rate was expected to reach 93 percent in 2018, which engendered expectations that the pipeline will reach maximum capacity in early 2019.²⁰ Kazakhstan and China agreed in 2018 to boost Kazakh gas exports from 5 bcm/a to 10 bcm/a

starting in 2019; however, CACGP did not have the capacity to support this increase, so the bilateral agreement included a provision for adding additional compression capacity on lines A and B.²¹ This upgrade will boost CACGP's throughput from 55 bcm/a to 65 bcm/a.²²



Compressor station on the Kazakh section of CACGP, Line C

There are plans to expand CACGP by adding Line D to the Central Asia-China pipeline with an alternative route from Turkmenistan to China through Uzbekistan, Tajikistan, and Kyrgyzstan (labeled 4 in the map above). If completed, the new line would enable Turkmenistan to transport an additional 30 bcma, and allow it to almost double gas exports to China.²³ A preliminary agreement on Line D was reached in September 2013, but work on the project has by and large stalled.²⁴ Although it seems Tajikistan is forging ahead, Uzbekistan and Kyrgyzstan suspended construction work on their sections of the line in 2016.²⁵ A Tajik government representative stated during a 2018 press conference that it was the payments regularly sent by the Chinese investor that enabled construction to move forward.²⁶ Financing arrangements for Line D are quite murky, but different sources suggest that CNPC, the China Development Bank, and Central Asian parastatals are contributing funds.^{27,28}

Beijing's reluctance to move forward with Line D could stem at least in part from questions over the reliability of Central Asian gas, brought home by the problems with gas supplies for Northern China in the winter of 2017-18. Turkmenistan cut gas exports to China in the last six months of 2018, and while CNPC turned to Kazakhstan and Uzbekistan for increased exports to compensate, Central Asian gas exports did not expand enough to meet peak Chinese gas demand in the coldest months. There were a number of causes for the gas crunch, including coal-to-gas switching in excess of Chinese government plans, unusually cold weather in China, unplanned outages at a Turkmen gas processing facility, and limited natural gas storage capacity in China. Turkmenistan was also experiencing a significantly colder winter and elected to allocate more gas to

domestic users. While there are clearly multiple factors involved, there have been insinuations in Chinese media that the Central Asian gas producers bear the blame — some even going so far as to suggest that it was a bargaining ploy to force higher prices. The episode could significantly affect the strategic calculus of Chinese actors deciding how to source natural gas.²⁹



Construction work proceeds on the Tajik portion of CACGP, Line D

Russian Ambitions in the Chinese Gas Market

Besides gas from Central Asia and Myanmar, China will have access to piped gas from Russia in the near future. In 2014, Gazprom and CNPC signed a 30-year agreement for the Russian firm to provide East Siberian gas to Northern China. The gas will be transported via the Power of Siberia (PoS) pipeline with a 38 bcma capacity. It is expected to begin operation December 20, 2019.

Negotiations between Russia and China to construct a natural gas pipeline between their countries had gone on sporadically since 2004. One of the chief causes for the long lack of progress was disagreement about the pipeline's route. Russia preferred a western route traversing the short section of the Russo-Chinese border between Kazakhstan and Mongolia, thus allowing Russia to offer Chinese gas from West Siberian fields that were already developed. Furthermore, using this option, also known as the Altai route, would give Russia greater bargaining power, since there could be the possibility of customers in the EU and China bidding competitively for West Siberian gas. China preferred the eastern route because it would provide gas closer to demand centers along the coast and minimize the need for expensive overland transportation from Xinjiang to Beijing and Shanghai. At least for now, the eastern route would supply gas from greenfield developments in Eastern Siberia with China (as the exclusive customer). Finally, China already had abundant gas available in Xinjiang from CACGP and its domestic production in the Tamir basin, so Beijing did not want to exacerbate this local glut. Negotiations remained stuck for years.

Russia's deteriorating relations with the West, due to its actions in Ukraine, were a factor in China and Russia reaching a deal in 2014. European states responded to Moscow's aggression with steps that included sanctions. Moscow decided to diversify its risk portfolio by intensifying economic cooperation with China. However, Russia was forced to make substantial concessions to achieve a deal. Not only did Russia accede to China's preference for the Eastern route, but

Russia also had to lower its price to get the deal signed. The 2014 agreement between Gazprom and CNPC was never made public; however, the Oxford Energy Institute alludes to unnamed insiders who posit that the deal contained a gas pricing structure favorable to China.³⁰

While construction on the pipeline has proceeded quickly, and PoS is likely to be completed on time, it will still take several years to ramp up gas deliveries. The pipeline was estimated to be 90 percent complete as of July 2018. On the other hand, initial gas deliveries will be much smaller than the full contracted amount of 38 bcma. As a Columbia University study notes, “the ramp-up to full capacity could stretch well into the mid-2020s.”³¹



LOOKING AHEAD

While the United States and European focus has been to move Central Asian fuel west, China continues not only to be an interesting and growing market for the region, but a changing one as well. China is at the forefront of the change in international gas markets, including the attraction of LNG, and is a major factor in reshaping pricing and other contractual terms. Although China needs an increased supply of natural gas, it is also looking to diversify supplies – a long-standing and key aspect of addressing energy security concerns.

Pipelines will remain important avenues for sales of gas. Their very nature inherently promises something consuming countries value: long-term, assured supply. At the same time, Central Asian gas producers need to be conscious of the market dynamics in China. These include the changes wrought by the growing international trade in LNG, e.g., the growing possibilities of spot sales of gas and potential gas suppliers. In looking to sell gas to regional neighbors (such as India and Pakistan), Central Asian suppliers will need to take into account these changing dynamics as well.

To capitalize on their proximity to high-growth markets in East Asia, gas-rich states in Central Asia need to review contractual agreements and financing structures carefully to ensure that the resulting deal suits their interests. While signing a single contract with a Chinese firm covering gas pricing and pipeline financing may seem attractive, recurring interest payments, for example, will cut into profits and may cause dissatisfaction in the long term. Project financing packages

have not always proven attractive over the long-term for suppliers.

Finally, while the United States and the EU continue to want to see oil and gas move west, the flow of hydrocarbons east and south from Central Asia will benefit the West. One important benefit is the cleaner air/global environment benefits that, for example, result from burning gas to lower CO₂ emissions and improve the air quality of Asian cities. A more basic factor is that a core principle of international energy remains true: Our energy security is strengthened when other countries are energy secure as well.

ENDNOTES

¹ BP Energy Outlook, 2019 edition.

<https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2019.pdf> (retrieved June 12, 2019), p. 101.

² O'Sullivan, Stephen. China: Growing import volumes of LNG highlight China's rising energy import dependency. <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/06/China-growing-import-volumes-of-LNG-highlight-China%E2%80%99s-rising-energy-import-dependency.pdf> (retrieved June 10, 2019), p. 2.

³ "Platts JKM™ for March-delivered LNG plunges 61.7 percent in Largest Year-over-Year Drop." PRNewswire. <https://www.prnewswire.com/news-releases/platts-jkm-for-march-delivered-lng-plunges-617-in-largest-year-over-year-drop-300036827.html> (retrieved June 12, 2019).

⁴ Abreu, Abache. "Analysis: LNG market risks oversupply from new export projects: CEOs." Platts. <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/052819-analysis-lng-market-risks-oversupply-from-new-export-projects-ceos> (retrieved June 12, 2019).

⁵ International Energy Agency. Global Energy & CO2 Status Report 2018. 2019, p. 16.

⁶ "China's 2018 natural gas consumption rises 18 percent on year, imports jump 32 percent." Platts. <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/020119-chinas-2018-natural-gas-consumption-rises-18-on-year-imports-jump-32> (retrieved June 10, 2019).

⁷ Aizhu, Chen and Henning Gloystein. "China gas demand to surge in 2019, but maybe not enough to sop up LNG glut." Reuters. <https://www.reuters.com/article/us-china-gas-beijinggas/china-gas-demand-to-surge-in-2019-but-maybe-not-enough-to-sop-up-lng-glut-idUSKCNIRK0BW> (retrieved June 10, 2019).

⁸ "China's 2018 natural gas consumption rises 18 percent on year, imports jump 32 percent." Platts. <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/020119-chinas-2018-natural-gas-consumption-rises-18-on-year-imports-jump-32> (retrieved June 10, 2019).

⁹ Clemente, Jude. "China's Natural Gas Production Has Quietly Surged." Forbes. <https://www.forbes.com/sites/judeclemente/2018/09/27/chinas-natural-gas-production-has-quietly-surged/#55d0ed634d7e> (retrieved June 11, 2019).

¹⁰ Aizhu, Chen and Henning Gloystein. "China gas demand to surge in 2019, but maybe not enough to sop up LNG glut." Reuters. <https://www.reuters.com/article/us-china-gas-beijinggas/china-gas-demand-to-surge-in-2019-but-maybe-not-enough-to-sop-up-lng-glut-idUSKCNIRK0BW> (retrieved June 10, 2019).

¹¹ Miyamoto, Akira and Chikako Ishiguro. The Outlook for Natural Gas and LNG in China in the War against Air Pollution. Oxford Institute for Energy Studies. <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/12/The-Outlook-for-Natural-Gas-and-LNG-in-China-in-the-War-against-Air-Pollution-NG139.pdf> (retrieved June 3, 2019), p. 17.

¹² "China Sits on the World's Biggest Shale Gas Prize. Pumping It Out Is the Hard Part." Bloomberg. <https://www.bloomberg.com/news/features/2018-07-19/petrochina-sinopec-are-chasing-an-elusive-shale-boom> (retrieved June 6, 2019).

¹³ *ibid*

¹⁴ Grigas, Agnia. 2017. The New Geopolitics of Natural Gas. Cambridge, MA: Harvard University Press, p. 8.

¹⁵ O'Sullivan, Stephen. China: Growing import volumes of LNG highlight China's rising energy import dependency. <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/06/China-growing-import-volumes-of-LNG-highlight-China%E2%80%99s-rising-energy-import-dependency.pdf> (retrieved June 10, 2019), P. 2.

¹⁶ Lelyveld, Michael. "China Nears Limit on Central Asian Gas." Radio Free Asia. https://www.rfa.org/english/commentaries/energy_watch/china-nears-limit-on-central-asian-gas-06252018100827.html (retrieved June 5, 2019).

¹⁷ Miyamoto, Akira and Chikako Ishiguro. The Outlook for Natural Gas and LNG in China in the War against Air Pollution. Oxford Institute for Energy Studies. <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/12/The-Outlook-for-Natural-Gas-and-LNG-in-China-in-the-War-against-Air-Pollution-NG139.pdf> (retrieved June 3, 2019), p. 26

¹⁸ Lelyveld, Michael. "China May Face Competition For Turkmen Gas." Radio Free Asia. https://www.rfa.org/english/commentaries/energy_watch/china-may-face-competition-for-turkmen-gas-10292018102513.html (retrieved June 5, 2019).

¹⁹ Lelyveld, Michael. "China Nears Limit on Central Asian Gas." Radio Free Asia. https://www.rfa.org/english/commentaries/energy_watch/china-nears-limit-on-central-asian-gas-06252018100827.html (retrieved June 5, 2019).

²⁰ *Ibid*.

²¹ Aliyeva, Kamila. "Kazakhstan to increase gas supplies to China." AzerNews. <https://www.azernews.az/region/125507.html> (retrieved June 12, 2019).

²² Miyamoto, Akira and Chikako Ishiguro. The Outlook for Natural Gas and LNG in China in the War against Air Pollution. Oxford Institute for Energy Studies. <https://www.oxfordenergy.org/wpcms/wp-con->

tent/uploads/2018/12/The-Outlook-for-Natural-Gas-and-LNG-in-China-in-the-War-against-Air-Pollution-NG139.pdf (retrieved June 3, 2019), p. 43

²⁵ Lelyveld, Michael. "China Nears Limit on Central Asian Gas." Radio Free Asia. https://www.rfa.org/english/commentaries/energy_watch/china-nears-limit-on-central-asian-gas-06252018100827.html (retrieved June 5, 2019).

²⁴ Miyamoto, Akira and Chikako Ishiguro. The Outlook for Natural Gas and LNG in China in the War against Air Pollution. Oxford Institute for Energy Studies. <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/12/The-Outlook-for-Natural-Gas-and-LNG-in-China-in-the-War-against-Air-Pollution-NG139.pdf> (retrieved June 3, 2019), p. 45

²⁵ Michel, Casey. "Line D of the Central Asia-China Gas Pipeline Delayed." The Diplomat. <https://thediplomat.com/2016/05/line-d-of-the-central-asia-china-gas-pipeline-delayed/> (retrieved June 7, 2019).

²⁶ "Tajikistan Resumes Building Turkmenistan-China Pipeline." Eurasianet. <https://eurasianet.org/tajikistan-resumes-building-turkmenistan-china-pipeline> (retrieved June 7, 2019).

²⁷ http://country.eiu.com/article.aspx?articleid=981659282&Country=Tajikistan&topic=Economy&subtopic_7

²⁸ Yuldoshev, Avaz. "Tajikistan expected to gain some \$4.5 bln from Turkmenistan-China gas pipeline over 32 years." ASIA-Plus. <https://www.asiaplus.tj/en/news/tajikistan/economic/20141209/tajikistan-expected-gain-some-45-bln-turkmenistan-china-gas-pipeline-over-32-years> (retrieved June 11, 2019).

²⁹ Sandalow, David, Akos Losz and Sheng Yan. "A Natural Gas Giant Awakens: China's Quest for Blue Skies Shapes Global Markets." Columbia Center on Global Energy Policy. https://energypolicy.columbia.edu/sites/default/files/file-uploads/China%20Nat%20Gas%20Commentary_CGEP_June%202018_FINAL.pdf (retrieved June 7, 2019).

³⁰ Ibid.

³¹ Sandalow, David, Akos Losz and Sheng Yan. "A Natural Gas Giant Awakens: China's Quest for Blue Skies Shapes Global Markets." Columbia Center on Global Energy Policy. https://energypolicy.columbia.edu/sites/default/files/file-uploads/China%20Nat%20Gas%20Commentary_CGEP_June%202018_FINAL.pdf (retrieved June 7, 2019), p. 7.

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1015 15th ST NW Suite 380, Washington DC 20005
202 864 6958
INFO@CASPIANPOLICY.ORG
CASPIANPOLICY.ORG

