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CENTRAL ASIA'S NATURAL GAS: THE PITFALLS OF ENERGY EXPORT DIVERSIFICATION

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KEY POINTS

1. There are two elements that are key to the Central Asian natural gas exporting countries' (Kazakhstan, Turkmenistan and Uzbekistan) energy security: first, energy demand security to generate economic growth and maintain social stability; second, an ability to meet international energy demands without compromising internal energy consumption.
2. Pursuing the goal of decreasing the dependence on Russia-bound pipes (as a way to ensure greater security of energy demand), the Central Asian gas exporters have developed significant natural gas export commitments to other importers, including China and Iran, as well as played an active role in the discussion of the TAPI and Nabucco projects. However, there are signs that it will be challenging for the region's exporters to keep up with increasing international demand for energy.
3. Central Asian gas exporters appear more focused on securing energy demand by external customers to generate revenues rather than on addressing the problem of insufficient energy supply for domestic consumers (i.e. the local population). Moreover, subsidizing natural gas sector for political purposes domestically makes it unattractive for both national and private energy companies to invest in energy efficiency projects.



INTRODUCTION

Central Asia is one of the regions in the world that enjoy an abundance of energy resources. Possessing about 20 trillion cubic meters of natural gas, the region is becoming more and more attractive to the larger, energy thirsty powers surrounding Central Asia. While energy importers deal with the need to ensure a steady source of energy, Central Asian gas exporters aim at securing their ability to constantly move energy “out” to markets to obtain a steady income. Having experienced the negative impact of excessive dependence solely on Russian pipelines, regional exporters are now pursuing the diversification of energy export routes to gain access to various energy markets. Regional exporters require particular energy security policy considerations given their geographical situation: surrounded by larger powers (Russia, China, Europe and South Asia) that often compete for energy resources, with pipelines representing the only cost-effective way to transport energy due to the region’s landlocked status.

It is also important that any attempt to keep up with international demand should by no means compromise the availability of natural gas for the local population’s needs in these countries. Moreover, if the end goal of regional exporters is to meet present energy needs without compromising energy supplies for future generations, then excessive reliance on hydrocarbons is not the most sustainable way to pursue energy security. This security policy brief examines the possible impact of diversification of energy export routes on the energy security of Central Asian natural gas exporting countries.

CONCEPTUALIZING EXPORTING COUNTRIES' ENERGY SECURITY

Traditionally, energy security has been associated with energy self-sufficiency and the security of energy (mainly oil and gas) supplies. When a country starts importing a large amount of oil and gas, it becomes vulnerable to potential energy sanctions. "Traditional energy security seeks to assure supply while assuming that demand is given."¹ However, due to the increasing cases of energy flow disruptions by importing states, some scholars have begun to challenge the traditional perception of energy security by arguing that "exporters worry about energy demand (to generate economic growth and maintain social stability) the way energy importers worry about energy supply."² For energy exporting countries, there is also often a tradeoff between increasing energy export-capacity and providing domestic consumers (including population) with sufficient energy supplies at affordable prices. Thus, in designing energy security policies, exporting countries have to take into account the human dimension that places individuals' energy needs at the center of their interests.³

In this sense energy security can be defined as a condition states enjoy when they can be confident that they will have adequate and sustainable energy supplies for both population and economic needs for the foreseeable future (i.e. sufficient energy supplies for energy importers and continued demand for the energy resources of exporters). Given this definition, there are two main elements of energy security that Central Asian gas exporting countries should be concerned about: first, energy demand security by external customers at a fair price; second, their ability to meet international energy demands without compromising internal energy consumption.

¹ Von Hippel, David and Tatsujiro Suzuki, James H. Williams, Timothy Savage, Peter Hayes, "Energy security and sustainability in Northeast Asia," *Energy Policy* 39, 2011, 6719-6730

² Bahgat, Gawdat, "Energy Security: An Interdisciplinary Approach," Wiley, 2011, 2

³ Alhaji, Anas F., "What Is Energy Security? Definitions and Concepts (Part 3/5)," *Middle East Economic Survey*, 2007b; See also Shaffer, Brenda, "Energy Politics," University of Pennsylvania Press, 2009

MANAGING THE SOVIET LEGACY – THE MONOPOLY OF THE RUSSIAN PIPELINE SYSTEM

After the collapse of the Soviet Union, Russia inherited control over the major pipeline networks for exporting hydrocarbons from the Central Asian region. The Russian government has very effectively used Central Asian exporters' dependence on its pipelines to promote its economic and political interests. The inability of exporters to diversify export routes has put the Central Asian states in a highly vulnerable position vis-a-vis Russia. Central Asian gas producers have had to sell their energy resources to Moscow, which re-exports that energy to Europe at twice and sometimes even three times the purchase price. For instance, prior to 2000s a base level of payment for natural gas did not correspond to the market value of the gas and was often in the form of barter. In 2006, Turkmenistan was receiving \$60 per thousand cubic meters (tcm) for gas exports delivered at the Turkmenistan's border. From the last quarter of 2006 the price paid by Russia increased to \$100/tcm, then to \$130/tcm in the first half of 2008, and to \$150/tcm in the second half of 2008.⁴ However, when Russian company GAZPROM was buying Turkmen gas for less than \$100/tcm in 2006 it resold this gas for \$230/tcm to RosUkrEnergo. RosUkrEnergy resold it again to Europe for \$250 dollars per thousand cubic meters.⁵ Unfair pricing policy has forced regional exporters to consider pipeline projects designed to move energy out of the region avoiding Russia.

In an attempt to block projects that could challenge its almost complete monopoly over the region's energy export, Russia agreed to pay higher price for Central Asian natural gas. Turkmenistan signed agreement to export 70-80 bcm of natural gas per year for 350 USD per thousand cubic meters (tcb), which was the European price, to

⁴ Gould, Tim, Isabel Murray, Jonathan Sinton, Dagmar Graczyk, and Christopher Segar, "Perspectives on Caspian Oil and Gas Development," IEA Directorate of Global Energy Dialogue, 2008, 11 <http://www.asiacentral.es/docs/caspian_perspectives_iea_dec08.pdf>

⁵ Bahgat, Gawdat, "Europe's energy security: challenges and opportunities," *International Affairs*, 82: 5, 2006, 961

Russia in 2008.⁶ Since Russia needed Central Asian energy to fulfill its obligations to European customers and was not able to re-export it due to Russia-Ukraine gas crisis, Russia effectively used an explosion at one of the main pipelines as an excuse to cut gas imports from the region. Even though natural gas contracts are usually concluded on a “take or pay” basis, which obliges the customer to pay for an agreed amount of natural gas to be transported “regardless of whether or not it is actually consumed,”⁷ there was no mechanism to force Russia to take the natural gas or pay for it. As a consequence, Turkmenistan experienced significant economic loss due that incident.

It became obvious that in the absence of an effective enforcement mechanism the best way to ensure energy demand was to increase interdependence between Central Asian exporters and energy importers. The extent to which each side possesses alternative supply or market options, including transport infrastructure, determines the extent of interdependence in energy relations.⁸ In addition to an already existing Turkmenistan-Iran gas pipeline, the newly constructed Central Asia-China Gas Pipeline that goes from Turkmenistan through Uzbekistan and Kazakhstan to China was supposed to decrease regional gas exporters’ dependence on Russia. Even though Russia remains a major importer of Central Asian natural gas, with the increasing transport capacity through alternative pipeline networks, Central Asian exporters are now less vulnerable to unilateral disruption of gas imports by Russia. Thus, Russia imported 10 bcm/y in 2011, while Turkmen gas export included another 10 bcm/y to Iran and 14 bcm/y to China.⁹

⁶ Henderson, Creelea, “Shifting sands in Central Asia: geopolitics of natural gas flows,” 2010 Access date: April 1, 2013 <<http://www.bu.edu/iscip/Vol20/henderson.html>>

⁷ Shaffer, Brenda, “Energy Politics,” University of Pennsylvania Press, 2009, 13
Shaffer, Brenda, “Energy Politics,” University of Pennsylvania Press, 2009, 13

⁸ Socor, Vladimir, “BP’s Appraisal Doubles the Proven Reserves of Turkmenistani Gas,” *Eurasia Daily Monitor* Volume:

⁹ Issue: 137, 2012 <[http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=39649#Ua8gSL9bzdK](http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=39649#.Ua8gSL9bzdK)>



EXPORT DIVERSIFICATION AND ITS IMPLICATIONS

The ongoing negotiations between regional energy exporters and potential European and South Asian natural gas importers have shown that the goal exporters pursue is to further diversify their energy export routes. While this goal is perfectly understandable, taking into account particular characteristics of the region and natural gas supply, the realization of planned pipeline projects will most likely negatively impact the exporting countries' own energy security.

The land-locked geographical status of the Central Asian region limits exporters' access to global energy markets. Gas pipelines, as the only cost efficient way to move energy out of the region, require significant investment from both producers' and customers' side. Since new international gas transporting pipelines need to operate for at least fifteen to twenty years before investments can be recouped, natural gas supplied in pipelines is generally traded in the framework of long-term contracts with long-term obligations.¹⁰ These characteristics of natural gas trade, together with the fact that the region is surrounded by major powers (Russia, China, India and Europe) that often compete for energy resources, set a particular type of energy supply relations in which importing states might be willing to use various political, economic and military tools to force Central Asian exporting countries fulfill their obligations at any cost.

With all existing energy transporting projects upgraded and planned ones constructed, there is a doubt that the region has the capacity to meet international demand for energy. Russia remains an important gas importer of regional energy resources via its Central Asia Center gas pipeline network, with a capacity to transport 45 bcm/year, up to 90 bcm/year if upgraded. Russia is also interested in constructing the Caspian Coastal Pipeline (from Turkmenistan via Kazakhstan to Russia) to significantly increase the overall capacity of the Central Asia-Center pipeline system. Turkmenistan is planning to increase the volume of gas supplied to Iran from 6-8

¹⁰ Shaffer, Brenda, "Energy Politics," University of Pennsylvania Press, 2009, 37-38

bcm/year up to 20 bcm/year. Another major energy importer that has recently entered the market is China. Turkmenistan was initially obliged to export 30 bcm/year of natural gas to China according to the agreement signed in 2006. However, the new agreement that was signed two years later stipulated an increase of the gas supply up to 40 bcm/year by 2015. During the Shanghai Cooperation Organization's summit in Beijing in June 2012, leaders of these two countries agreed to increase the amount of energy export up to 65 bcm/year.¹¹ China will be receiving additional 10 bcm/year from Uzbekistan according to the agreement signed in 2010. Among major planned pipeline projects to transport energy out of the Central Asian region, TAPI and Nabucco stand out, with the capacity of 33 bcm/year and up to 31 bcm/year, respectively.

Despite its ups and downs, Central Asian producers' marketable gas export capacity remains around 55-65 bcm/year. Since there has been no precedent of a boom in natural gas production in Central Asia, doubts regarding the region's capability to keep up with its international demand might not be an exaggeration. The situation is the most worrying in Uzbekistan. Outdated and inefficient natural gas transportation systems, growing internal energy demand, and the fact that no major natural gas reserves have recently been explored signal Uzbekistan's physical incapability to increase export capability. The fact that Uzbekistan had to cut its gas export to Russia for forty days to meet its internal energy needs last year¹² and supply less than the agreed amount of gas to Tajikistan (132 million cubic meters (mcm) of gas instead of 155 mcm¹³) can be taken as signs that it would be quite challenging for Uzbekistan to supply for about 15 bcm to Russia¹⁴, 10 bcm to China and 4.5 bcm to supply

¹¹ Socor, Vladimir, "China to Increase Central Asian Gas Imports Through Multiple Pipelines," *Eurasia Daily Monitor*, Volume: 9 Issue: 152 in Jamestown Foundation. Access date: March 20, 2013 <http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=39751>

¹² Kazenergy, "Uzbekistan vozobnovil eksport gaza v Rossiyu posle mesyachnogo pereryva," *January 2013* Access date: April, 10, 2013 <<http://kazenergy.com/rul/press/2011-04-21-10-41-35/7764-2013-01-29-11-07-35.html>>

¹³ Akhmadov, Erkin, "Uzbekistan introduces new laws on gas supply," *CACI Analyst*, 2013 Access date March 30, 2013 <<http://www.cacianalyst.org/?q=node/5905>>

¹⁴ Sharip, Farkhad, "Uzbekistan's Quest for Aral Sea Oil May Weaken Kazakhstan's Position in the Caspian," *Eurasia Daily Monitor*, Volume: 9 Issue: 23, 2012 <http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=38962>

Southern parts of Kazakhstan through Tashkent-Shymkent-Bishkek-Almaty pipeline system.¹⁵ Even Turkmenistan, the major natural gas exporter in the region, is already behind the initially scheduled gas supply plans to China for various technical reasons and because of disagreements over the price.

In an attempt to fill international gas pipelines with energy it is important that Central Asian exporters take into account potential energy security risks. Increasing the volume of energy export to external customers will most likely affect Central Asian energy balances, in which even less energy is available for export to the neighboring upstream countries of Kyrgyzstan and Tajikistan. In the face of severe energy shortages, with no regulatory framework to settle disputes, upstream countries will probably push harder for the construction of their Rogun and Kambarata hydropower plants, which can further escalate tensions in energy sector between downstream Uzbekistan and upstream countries. The Almaty Agreement of 1992 was meant to keep the resource sharing mechanisms (coordinating water release from upstream states' dams and supply of natural gas and coal by downstream states) functioning "until the Central Asian states could reach a solution amenable to all parties."¹⁶ However, frequent energy supply disruptions to Kyrgyzstan and Tajikistan by downstream countries prove the fact that the Almaty Agreement is no longer effective.

Regional exporters are guided by a particular understanding of energy security, which seems to be limited to ensuring continued demand and the highest possible price for their natural gas. While all the elements of energy security are considered important, Central Asian energy exporters are interested in securing energy demand through external customers more than providing energy services securely (including sufficient energy) to their populations.

¹⁵ US Energy Information Administration, *Kazakhstan Energy Data, 2012*, <<http://www.eia.gov/countries/cab.cfm?fips=KZ>>

¹⁶ Dinar, Ariel, Shlomi Dinar, Stephen McCaffrey, and DaeneMckinney, "Bridges over Water: Understanding Transboundary Water Conflict, Negotiation and Cooperation," *World Scientific Series on Energy and Resource Economics*, vol. 3, 2007, 294

Kazakhstan consumes only half of its overall gas production and exports the other half because it lacks extensive internal gas supply networks to transport energy from resource rich regions to distant and relatively small population centers.¹⁷ However, the lack of extended gas supply networks does not dramatically impact the overall gas consumption in Kazakhstan because gas shortages are compensated by natural gas swap deals. For instance, Kazakhstan supplies 4.5 bcm/y to Russia in the west, while imports approximately 3.5 bcm/y from Uzbekistan in the south and 1 bcm/y in the north.¹⁸

The policies of Turkmenistan and Uzbekistan of restricting domestic consumption through rationing are linked to using subsidized gas for political purposes domestically. Natural gas subsidies cost 4.36 billions to the budget of Turkmenistan, which was 14.80 percent of the GDP in 2011. Uzbekistan leads the Central Asian region in the amount of its GDP loss due to subsidies. Natural gas subsidies cost Uzbekistan 9.09 billion (approximately 18.88 percent of the GDP) in 2011. Low prices for natural gas due to subsidies in energy sector result in lower profits for producers (both private and state owned companies), thus making it unattractive to invest in upgrading energy infrastructure that can significantly increase efficiency to avoid energy waste and expand pipeline networks to supply distant regions with energy.¹⁹ For instance, gas flaring is a pervasive problem in Uzbekistan, resulting in losses of annually approximately \$500 million. Out-dated (inefficient) energy production and transportation infrastructure cost Uzbekistan about 4.5% of its GDP every year²⁰. Having experienced significant economic loss due to subsidizing natural gas sector Central Asian energy exporters, especially Turkmenistan and Uzbekistan are trying to compensate that loss by increasing their energy export capacity.

¹⁷ Bisenov, Naubet, "Neighbourly negotiations," *Energy Global*, 2013. Access date: April 1, 2013 <http://www.energyglobal.com/news/pipelines/articles/Neighbourly_negotiations_an_analysis_of_central_asian_energy_pipelines.aspx>

¹⁸ Bisenov, Naubet, "Neighbourly negotiations," *Energy Global*, 12 March 2013 http://www.energyglobal.com/news/pipelines/articles/Neighbourly_negotiations_an_analysis_of_central_asian_energy_pipelines.aspx

¹⁹ Clements, Benedict et al. "Energy Subsidy Reform: Lessons and Implications," *International Monetary Fund*, 2013, 15 <<http://www.imf.org/external/np/pp/eng/2013/012813.pdf>>

²⁰ Uzbekistan: *The Economics of Efficiency. Uzbekistan Pushes to Reduce Energy Consumption in Industry*, The World Bank, <http://www.worldbank.org/en/results/2013/04/30/uzbekistan-the-economics-of-efficiency> accessed 10 May 2013

The lack of an extended gas-supply networks within the country and inefficiency in energy transportation and distribution infrastructure are less likely to receive sufficient attention within the framework of energy policies that prioritize energy export security.

	Natural gas subsidy in billion dollars ²¹			Percent of GDP ²²
	2009	2010	2011	2011
Kazakhstan	0.21	0.22	0.33	0.15
Turkmenistan	2.17	3.55	4.36	14.80
Uzbekistan	9.29	9.28	9.09	18.88

²¹ "Fossil fuel consumption subsidy rates as a proportion of the full cost of supply 2011," IEA-World Energy Outlook, 2012 <<http://www.iea.org/subsidy/index.html>>

²² Clements, Benedict et al. "Energy Subsidy Reform: Lessons and Implications," International Monetary Fund, 2013, 48 <<http://www.imf.org/external/np/pp/eng/2013/012813.pdf>>



RECOMMENDATIONS

Central Asian gas exporters have to reconsider their priorities and start pursuing short-term as well as long-term perspectives in designing energy security policies in order to secure their ability to constantly move energy “out” to markets and be confident that they will have adequate and sustainable energy supplies for the foreseeable future for both their local population and economic needs.

There are several key aspects of energy security that must be taken into consideration when designing energy policies aimed at securing the ability of Central Asian natural gas exporting countries to move energy “out” to energy markets continuously for the sake of obtaining steady income:

- Natural gas trade deals are usually signed on a long-term basis with long-term obligations. The region’s gas exporters must pay due attention to the balance between the gas reserves and export obligations to ensure their commitments are realistic. This is especially important given that Central Asia’s key gas partners are large regional powers that often compete for energy resources. In case natural gas reserves do not match gas export commitments, the competition among large energy importers for the region’s gas may have serious undesirable effects on the region.
- Efforts to expand the natural gas exports to countries outside the region might negatively impact gas supply to the region’s upstream states (Kyrgyzstan, Tajikistan), and thus lead to further complications over the water sharing among downstream and upstream states, given that upstream states would try to compensate the deficit of natural gas by increasing the production of hydropower.
- Central Asian natural gas exporters’ energy security concerns should not be limited to the security of energy demand by external customers. It is equally important that energy security policies are designed in such a way that increasing

energy export capacity does not compromise availability of sufficient energy supplies for population needs in these countries. Since exporting natural gas is interlinked with internal energy shortages, the availability of sufficient energy for local population needs must be placed at the center of any decision-making by governmental agencies. Investing in energy projects to increase efficiency of energy production and distribution infrastructures can significantly improve energy security in gas exporting countries. However, neither national nor private energy companies are interested in investing in energy efficiency or increasing the amount of gas for domestic consumption due to subsidized energy policies. Even though in the short-run reforming energy subsidies might raise energy prices, in the long-term perspective it will lead to reallocation of resources to activities that are more efficient and less energy intensive. In this sense, governmental agencies need to initiate subsidy reform in order to make it attractive to invest in energy efficiency and if necessary redirect energy supplies to domestic energy markets.

Central Asian energy exporters must be confident that the present energy needs are met without compromising energy supplies for future generations. Since natural gas is considered to be a depletable energy source, the development of alternative/renewable energy sources will contribute to the sustainability of energy supplies to meet both local population and economic needs in the long run. It is important though that in order to achieve this objective, proper measure must be taken now. As a starting point, Central Asian gas exporters need to develop a clear energy strategy and action plan to promote renewables in the overall energy balance.

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