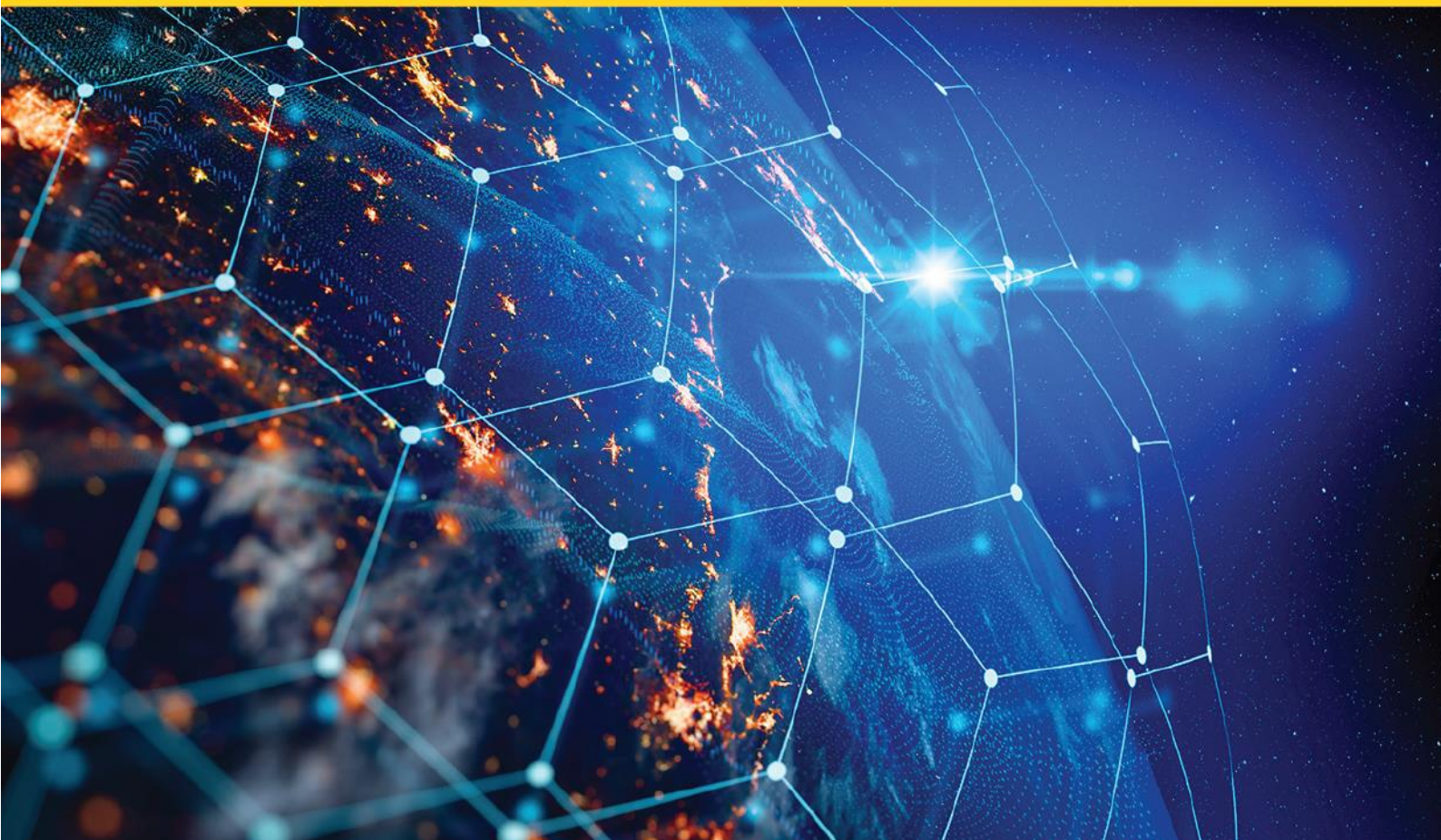


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Regional energy security and energy diplomacy in Central Asia – Part I.

Szabolcs Veres

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Csaba Moldicz

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Abstract

After the break-up of the Soviet Union in 1991, the countries of Central Asia faced a number of serious political and economic issues and challenges. One of the most prominent of these issues was the independence of the energy sector in the independent states (Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan and Tajikistan) and the future of energy policy in Central Asian countries. The underdevelopment of the 2000s, population growth, increased energy demand in the winter months, and growing energy demand in the economies have led to seasonal power outages on a regular basis throughout the region. Despite these difficulties, countries in the region pursued policies to attract foreign investment in energy development. However, the remoteness of the countries of the region from the European market for hydrocarbon resources did not allow oil and gas pipeline projects to develop that would have reached Europe. As a result, the energy policy of the countries of Central Asia has been determined primarily by cooperation with China and Russia. The study focuses on the energy security of the Central Asian countries, while providing an insight into the energy policy situation in the countries of the region and a brief description of the energy sources on which the energy policies of the countries concerned are based.

Keywords: Central Asia, energy policy, energy security

Introduction

Energy security in the 21st century

With the breakdown of the bipolar world order, and in the aftermath of the terror attacks on 11 September 2001, the concept of security has gradually expanded. Energy security has become part of this conceptual expansion. Today, there is not only the question of the „oil weapon”, but the manipulation of any component of the so-called 'energy mix'¹ can have serious consequences for the security of countries and regions. The issue of energy security in Europe became central after the first Russian-Ukrainian gas dispute² in 2005-2006.

A secure energy supply has become one of the conditions of life today. And with the current

¹ The energy mix is the sum of all the sources of energy used (or produced) from different sources in energy production.

² A dispute between Russia and Ukraine over the price of natural gas in Ukraine started in the autumn of 2004, with the main issue being how much Ukraine should pay for Russian gas. Thanks to the so-called Orange Revolution in November 2004, Moscow raised the price of gas to Ukraine (Kyiv had previously been able to buy gas from Moscow at well below market prices) substantially, from USD 50 to USD 160, and then, in response to the escalation of the dispute, to USD 220-230, the world market price at the time, to the displeasure of the Ukrainian side. As a result, Moscow has significantly reduced the amount of natural gas supplied to Ukraine and through Ukraine to Europe.

war between Russia and Ukraine and the sanctions policy it has triggered, energy security has become a priority for all countries. Energy security also occupies a unique place in the field of security studies. Like the concept of security (security policy), the concept of energy security is complex, and its interpretation is constantly evolving as new geopolitical challenges and technologies emerge. The role of energy in international and regional relations has also become increasingly important. Moreover, energy can have a huge tension-generating effect if the amount of energy available becomes scarce.

The beginning of energy policy in post-Soviet Central Asia

The starting point for energy policy in Central Asian countries dates to the period after 1991. Central Asia is one of the world's most resource-rich [regions](#), with vast reserves of hydrocarbons (oil, gas and coal) and significant renewable energy resources (solar, wind and hydro). This basic premise continues to guide [the energy](#) policies of Central Asian countries. Kazakhstan has huge oil and coal reserves and excellent solar and wind energy potential. Uzbekistan and Turkmenistan also have enormous untapped natural gas reserves, and the country's geographic location also means that it has vast reserves of renewable energy sources (especially solar). Tajikistan and Kyrgyzstan have the largest freshwater reserves in the Central Asian region, which both countries also use for energy production.

Central Asian countries face similar challenges on the road to energy security. For example, mountainous and desert terrain that can prevent access to energy resources, or outdated infrastructure that limits energy production and efficiency.

Hydrocarbon reserves and renewable energy reserves in Central Asian countries					
	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
Petroleum	30 billion barrels (2019)	5 million barrels (2020)	12 million barrels (2019)	600 million barrels (2019)	600 million barrels (2019)
Natural gas	2.7 trillion m ³ (2019)	6 billion (2020) m ³	5.663 billion (2018) m ³	19.5 trillion (2018) m ³	1.2 trillion (2019) m ³
Coal	26.6 billion tonnes (2019)	1.3 billion tonnes (2020)	4.5 billion tonnes (2019)	No data	1.375 billion tonnes (2019)
Hydropower potential	199 TWh/year	163 TWh/year	527 TWh/year	24TWh/year	88.5 TWh/year
Solar potential	3760 GW	267 GW	195 GW	655 GW	593 GW
Wind energy potential	354 GW	1.5 GW	2 GW	10 GW	1.6 GW

Source: own collection based on British Petrol (2021).

The situation after independence

During the Soviet period, Central Asia's geography led to the creation of a complex energy

system - [the Central Asian United Energy System](#) - which united the energy sectors of the five countries in the region, rather than building self-sufficient power generation systems for each member state. This Soviet vision closely linked electricity, fuel, oil and water consumption in Central Asia.

In the late 1990's and early 2000's, the energy policy of the Central Asian countries was aimed at establishing independent and self-sufficient energy systems and energy security. To this end, the countries of the region stopped reciprocal trade in electricity and fuels with each other. This resulted in the wasteful use of water and energy resources and frequent power outages, which led to a decline in the region's [energy security](#). The 2003 Turkmenistan's withdrawal from the Central Asian United Energy System fundamentally challenged regional energy supply, [and](#) following Uzbekistan's withdrawal [in 2009, the United Energy System formally ceased to exist](#).

Energy policy overview of Central Asian countries

All five Central Asian countries were members of the Soviet Union and, following its break-up, embarked on the path to independence. Partly as a result of this, and partly as a result of the Soviet economic legacy, the economies of the Central Asian countries suffered crises in almost all areas in the 1990's, followed by gradual consolidation as each country chose its own path of development. To this end, some Central Asian countries (Uzbekistan and Kazakhstan) have pursued ideas for the development of their energy sector along the lines of specific economic policies, which have included the modernisation of electricity networks.

Kazakhstan

Kazakhstan is a typical example of Central Asian countries' heavy dependence on hydrocarbons. The [country](#) is the 62nd most populous country in the world, yet it is the 25th largest emitter of greenhouse gases (GHG). Kazakhstan's abundant natural resources have reinforced its economic dependence on oil exports for almost three decades

Kazakhstan's energy policy is based mainly on the extraction of natural gas, oil and coal. The country is a net exporter of coal in Central Asia, with significant coal reserves. In addition to abundant fossil fuels, Kazakhstan has about 12 percent of the world's uranium reserves and is the world's largest [uranium producer](#), while the country's total solar energy production [potential](#) is estimated at 2.5 billion kilowatts per year. In Kazakhstan, the main objectives of the transition to renewable energy in the country's energy sector are to meet the electricity generation needs of the [national economy](#), which include upgrading existing thermal power plants and switching to clean coal technologies³ [Studies](#) show that the implementation of a 100 percent renewable energy system in Kazakhstan is technically possible and economically viable, but that it requires political will and full openness to foreign investors as a precondition.

³ The essence of clean coal technologies is that the carbon dioxide produced by burning coal is not released into the atmosphere but is trapped at the end of the combustion process and then safely stored and used. Hence the acronym CCS: *carbon capture and storage*.

Kyrgyzstan

Unlike Kazakhstan, Kyrgyzstan does not have significant energy reserves. The Central Asian country has also failed to achieve significant economic development since the collapse of the Soviet Union, the primary reasons for this being the inherited economic system and political instability of the Central Asian country. As a result, the country still has a high poverty rate (22.4 percent), which makes it difficult to prioritize the [energy transition](#). Bishkek imports about 90 percent of the country's natural gas and oil needs. Electricity in the country is predominantly generated by hydroelectric power plants, and besides, the energy infrastructure is relatively outdated and poorly maintained, resulting in occasional power outages and blackouts throughout the [country](#). A government decision (2010) to quadruple the volume of coal production in order to reduce the country's dependence on electricity imports, at the cost of high air pollution and social peace, is a serious threat to a sustainable energy transition. Nevertheless, the country is trying to move towards a sustainable energy transition. In March 2020, Bishkek adopted a medium-term tariff policy for 2020-2022, aimed at making electricity, heating and hot water tariffs more cost-effective while ensuring affordable energy for the poorest in society. In addition, the privatization of the Kyrgyz coal sector is planned for the future.

Tajikistan

Tajikistan faces significant challenges to the stability of its energy sector, despite the country's significant energy reserves. A significant part of the country's electricity needs is generated using renewable hydropower. The price of electricity is below the real cost for social reasons (tariff subsidies are among the highest in the world), but rural areas often face energy supply problems. Tajikistan's energy [infrastructure](#) is outdated and there are many cases of long-term supply disruptions, especially in winter. Tajikistan has significantly reduced its imports of natural gas (after the interruption of supplies from Uzbekistan in 2013) and increased its share of oil supplies. The electricity, oil and gas sectors in Tajikistan are state-owned. The investment climate, which could attract potential investors to the energy sector, is progressing but remains unfavorable. Financing for research and development in the energy sector is negligible.

Turkmenistan

Turkmenistan ranks [fourth](#) in the world in terms of offshore and onshore natural gas reserves, after Iran, the Russian Federation and Qatar. Oil and gas exports account for 85 percent of total Turkmen exports, making the country a major player in the global energy market. Turkmenistan is linked to the European Union by a network of gas pipelines (via the Russian Federation and Ukraine) of around 4,000 km. However, EU sanctions on Russia are likely to have a significant impact on the Turkmen gas sector. In Turkmenistan, electricity is produced entirely from natural gas. The country's [economy](#) is closed, but there has been notable progress in attracting foreign investment and improving the investment climate. The implementation of the [TAPI pipeline](#) project (an energy project linking Turkmenistan, Afghanistan, Pakistan and India, launched in 2015) is one of the country's largest [undertakings](#). However, the abundance of fossil fuels is slowing the progress of Turkmen [energy policy](#) towards the use of renewable energy sources.

Legislation in the field of energy efficiency and renewable energy is currently at an early stage (lagging behind in the priority list of the National Climate Change Strategy adopted in 2012).

Uzbekistan

Uzbekistan, like most of its regional neighbors, has significant oil and gas reserves. However, it faces significant problems in the electricity sector. Uzbekistan used to be supplied with electricity through the Central Asian electricity grid until 2009, when it was disconnected, with serious consequences for the further [development](#) of these countries, which are still being felt today. The entire energy sector in Uzbekistan is centralized and state-owned. As in other countries in the region, energy tariffs are subsidized by the government and are significantly below cost. Uzbekistan offers favorable conditions for foreign investment.

The re-establishment of the Central Asian Energy System linking Uzbekistan, Kyrgyzstan, Tajikistan and Kazakhstan ([financed](#) by the Asian Development Bank to the tune of USD 35 million) is the most significant investment to improve security of supply in the region. This project will link Kyrgyzstan and Tajikistan with Pakistan and Afghanistan, thereby greatly improving the supply to consumers, especially in rural areas, covering large areas that suffer from power shortages, especially in winter. The project is expected to be operational by the end of 2023.

Summary

In the contemporary geopolitical landscape, energy security has emerged as a pivotal element of global security, a paradigm shift that coincided with the dissolution of the bipolar world order and the subsequent expansion of the concept of security in the aftermath of the 9/11 terrorist attacks. The manipulation of any component within the 'energy mix' has the potential to exert a profound influence on the security of nations and regions. The European focus on energy security underwent a notable escalation in the wake of the Russian-Ukrainian gas dispute in 2005-2006. Central Asian countries, endowed with abundant natural resources, possess substantial reserves of hydrocarbons and renewable energy sources, yet they encounter analogous challenges in achieving energy security. These countries have prioritized the development of autonomous and self-sufficient energy systems, with certain nations pursuing the modernization of their electricity networks. Kazakhstan places significant reliance on hydrocarbons, while Kyrgyzstan grapples with high poverty rates and substantial energy imports. Tajikistan, despite its substantial energy reserves, confronts significant challenges in its energy sector. Turkmenistan, a major player in the global energy market, has been slow in developing its renewable energy sector. Uzbekistan, like its neighbors, has substantial energy reserves but faces challenges in its electricity sector. A key investment project to improve energy supply in the region is the re-establishment of the Central Asian Energy System, which aims to enhance supply to consumers, especially in rural areas.

In the subsequent segment of this series, an in-depth examination of the energy landscape in Central Asia will be conducted on a country-by-country basis. The analysis will elucidate the

challenges confronting a region in transition, with a focus on Central Asia, and will demonstrate how lessons learned in this context can be applied to other regions.

To be continued!