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Energy Security in South East Europe

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Our technologically advanced global economy is dependent upon the continuous availability of energy. On one level, therefore, the concept of energy security refers first of all to preventing any disruption of supply. But energy security may also refer to the larger complex of variables that comprise the diverse concerns of energy policy in complex modern societies. Energy security, in all its dimensions, plays an ever more important role in the national security strategies of each of the countries of South East Europe, and of the entire European region.

There are two faces to energy security in South East Europe. On the one hand, the region's economic path is increasingly international and globally connected. The road ahead is clearly one in which South East European countries are in a position to benefit from interactions with all their neighbors. On the other hand, strategies for meeting the economic, environmental, and security challenges of the dynamic energy sector call for more effective national policy development. Strengthening domestic capacity among South East European nations will make it possible to be more efficient and successful in regional and global interactions on many levels. In this sense, energy security is one of the most important challenges confronting the nations of the South East European region.

Defining "energy security"

The most common working definition of energy security emphasizes secure access to needed energy resources on the individual, state, and international levels. Contemporary international organizations are focusing increasingly on this key issue. For example, at its 2006 Riga summit NATO included the promotion of energy security among its vital goals for the twenty-first century.[1] From the Riga Declaration to

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the Lisbon Strategic Concept, the issue of energy security has been addressed in every significant document of the Alliance. The European Union (EU) has also issued several official documents devoted exclusively to energy concerns.[2] However, these documents do not offer an explicit and formal definition of the term "energy security."

Within the theoretical literature of security studies, the term "energy security" emerged as a consequence of the greater diversity and complexity of challenges to security and stability in the modern world. During the period of the Cold War, Arnold Wolfers was among the first to challenge the conventional understanding of security, and to call for a definition encompassing more than just territorial defense against external attack.[3] Some two decades later, Lester Brown explicitly described energy and environmental issues as being equal in importance to classical military factors in the equation of national security.[4] Barry Buzan argued in his major work, *People, States and Fear: An Agenda for International Security Studies in the Post-Cold War Era,* that "security" refers to at least five distinct areas: military, political, economic, social, and environmental.[5] The environmental dimension of security, including maintenance of the ecosystems and biosphere on which all human life depends, perhaps best illustrates the broadening scope of the evolving definition of "security."

In the wake of the breakdown of the bipolar international system, scholars of international relations and security studies have acknowledged the increasing complexity of challenges to peace and security. During the initial period of transformation from the bipolar era to the post–Cold War world order, social, cultural, ethnic, national, religious, and economic differences led to heightened instability in the Balkans and in other regions. Zbigniew Brzezinski argued that instead "of the new world order based on harmony and accord, notions that seemingly belonged to the past have suddenly become our future."[6] Brzezinski pointed primarily to ethnic, national and religious tensions, but predicted that an imbalance in the geographic distribution of natural resources and disputes over borders between newly independent states could likewise provoke conflicts. Henry Kissinger observed that the causes of instability in the new world order were mostly social in nature.[7] In fact, a wide array of new threats to peace and stability developed in parallel with the dynamics of globalization.[8]

By the end of the 1990s, international relations and security studies scholars were using a number of different terms and references to capture emerging security threats. Many of the new sources of instability were encompassed in the phrase "soft security challenges." Analyzing

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security challenges in the context of globalization, Sean Kay defines four main areas of concern: 1) the development of technology and international trade; 2) asymmetric threats to security, including genocide and terrorism as extreme cases; 3) issues connected with individual rights and human security (the right to information, education, free expression); and 4) environmental degradation and energy issues.[9] For Kay, these four areas correspond to the most important sources of national power, and of individual well-being, in a globalizing world.

Energy security in the twenty-first century: significance and challenges for South East Europe

Donald J. Goldstein argues that energy security directly impacts the territorial integrity, political independence, and psychological state of mind of a nation's population.[10] For example, the challenges of securing potable water for exposed populations in Africa, access to natural gas for European households, sufficient Persian Gulf oil for Chinese markets, reliable distribution of electrical energy throughout the United States, and the introduction of new energy technologies, suggest the diverse ways in which energy security has become a critical consideration on the national, regional, and global levels. Nations link aspirations for augmenting their overall power and influence to energy and energy security. Postsocialist countries with oil, natural gas, and other energy resources seek to tie their development to rich nations and thereby improve their standing in the new world order. For nations throughout the world, including those of South East Europe, energy security has become a high priority in national security policy priorities and planning.

Energy security is increasingly connected with natural resource endowments, environmental protection, climate change, and access to a reliable supply of oil and natural gas. Due to growing demand for hydrocarbon resources, existing reserves are constantly reassessed and new transit routes are proposed. The potential for civil and interstate conflicts derived from the struggle to control energy resources expands, and the impact of energy-related issues upon the global economy and financial markets becomes greater. Many scientists warn that proven hydrocarbon reserves will eventually be exhausted.[11] The lack of sufficient access to oil is already creating political and economic insecurity in parts of the world, and the impact of shortages can only be expected to grow in the future. From a pessimistic perspective, energy insecurity

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is seen as an ever more difficult challenge, likely to become a major impediment to development and prosperity.[12]

Other specialists, such as Julian Simon, Michael Lynch, and Dorothea H. El Mallakh, acknowledge the limited availability of strategic raw materials, and especially oil reserves, but are not as gloomy in their forecasts.[13] While acknowledging that natural reserves are not unlimited, they call upon corporations and governments to adopt and implement rational energy policies in order to manage the problem. They also emphasize the importance of alternative energy sources and of increased investment in research and development capable of creating new technologies that allow for a more efficient utilization of existing resources. Roland Dannreuther notes that while in the early 1980s OPEC (the Organization of the Petroleum Exporting Countries) possessed technology adequate for accessing only 40 percent of their proven oil reserves, by 2000 the figure had grown to 70 percent, standing today at 90 percent.[14] The United States lowered the percentage of GDP spent on oil imports from 2.76 percent during the decade of the 1980s to approximately 1 percent in 2003.[15] Proposed investments in research and development aimed at achieving greater energy will obviously be easier for nations that are stable and have the resources to devote to making progress in this area.

Projections indicate that the greatest increase in demand for energy (primarily oil) in the twenty-first century will come from China and India. At the same time, the demand for oil in the industrially developed transatlantic region is slowly dropping, most markedly in Germany and France. Demand continues to increase in the Middle East, even with the current political turbulence sweeping the region. The adverse consequences of increased production and consumption of oil and its derivatives for the environment, climate, and public health represent additional sources of concern. Developing and sustaining alternative sources of energy has been a privilege available primarily to the wealthier countries. In order to effectively manage energy supplies over the long term, issues of energy security must be addressed in conjunction with environmental protection and ensuring energy efficiency capacity building among nations with more limited resources.

According to Paul Horsnell, in today's interdependent world it is not in the best interest of either the producer or the consumer to provoke a total disruption in energy distribution. Both can be expected to do all that is possible to preserve the flow of basic energy supplies, thereby strengthening energy security.[16] Some critics contend, however, that this logic does not apply to nations excluded from access to the existing

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energy supply chain. Others scholars, such as Abdulaziz H. Al-Sowayegh, argue that the problem of energy security is one of the major factors separating the international community along the North–South divide.[17] Very few less-developed nations have succeeded in utilizing their energy resources successfully to promote peace, prosperity, or stability.

None of the nations of South East Europe has significant domestic energy resources. Croatia produces some oil and natural gas, but production is not sufficient to meet the demands of domestic consumption. In an international environment characterized by rising demand and unstable markets, the nations of South East Europe have a vital interest in assuring access to sustainable external supplies of both oil and natural gas.

The security implications of South East Europe's energy profile are important for three reasons. First, the South East European countries are heavily dependent upon energy imports for domestic purposes and are thus vulnerable to the economic consequences of supply disruptions. Second, the countries of South East Europe occupy a geographic position linking Europe, Eurasia, and the Middle East that is critical for the transfer of fuel resources to the European market. Third, as consumers and as a part of a transit corridor, the countries of South East Europe have been required to adapt to the requirements of political and economic interaction with both Europe and Eurasia. Because none of the countries of South East Europe are major energy producers, they can do little to respond positively to foreign market pressures, but as a transit region they can do much to obstruct or delay transfers. Given these regional circumstances, energy security has a highly political profile in the national security calculations of each of the South East European countries.

On the global level, energy security has become more varied, complicated, and challenging than ever before. Renewable sources of energy such as wind power, solar power, geothermal power and hydropower are growing in importance. Public opinion, technological advances, and increased efficiency will make these renewable sources of energy increasingly significant. Nevertheless, these and other alternatives will not be sufficient to meet basic power in the decades ahead. Crude oil, natural gas, coal, and nuclear power will continue to be the unavoidable and inescapable backbone of energy security.

The energy outlook for the South East European countries is not different than that which most of the world confronts. It is a picture marked by historically unparalleled political, economic, and technological complexity. Political developments in the Middle East and North Africa region have led to great uncertainty in energy supplies,

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fueling market speculation and hedging that drive price volatility. Rapid economic growth among Asian countries is creating projected energy demands much higher than were anticipated only a few years ago. As an illustration of the scale of impending changes, in 2008 China became the world's largest producer of automobiles, surpassing the United States. Even if China's pace of economic growth slows in the years ahead, as many expect it will, China's growing demand for petroleum is not expected to abate. If industrial production and consumer demand in Asian countries continue on anything similar to present trajectories, the globe may expect a tripling of energy demand by 2050. There is also accumulating evidence that increasing levels of carbon dioxide (CO_2) may impose a collective global requirement to cut the emission of greenhouse gases by 50 percent from current levels – an impending reality that makes the search for alternative energy sources more important.

Changes in national policies have spurred technological development in unexpected directions. The invention of technology making the extraction of unconventional natural gas – such as shale gas and coal bed methane – commercially viable caught energy markets and national policy makers by surprise. Just a few years ago, shale gas was regarded as a scientific novelty that would never result in a commercially viable product. Now shale gas is viewed as the most dynamic area of energy development in several countries. Likewise, in the recent past, energy planners spoke of a "nuclear renaissance," which was expected to restore nuclear power to a position where it would compete with oil and coal as a main source of electricity generation. The tragedy at the Fukushima Daichi nuclear power plant in 2011 dramatically reversed the expectation that nuclear power would replace natural oil and gas. Nonetheless, nuclear power may continue to play an important role as a base load provider in conjunction with oil, natural gas, and coal. But whatever its technical and commercial merits, nuclear power will encounter strong public opposition, based upon apprehension and anxiety.

All of these factors magnify the importance of oil, natural gas, nuclear energy, coal, and renewables for the South East European states. Pipelines play a visible role in the politics of energy security. But the issues of "energy mix" go far beyond the question of pipelines alone. The key question of energy security is not simply an issue of pipeline routes or commodity suppliers; it is a question of both vertical and horizontal diversification. What will be the right combination of energy sources to meet demand; diminish vulnerability; enhance resilience; promote energy efficiency; conserve resources; and reduce carbon dioxide (CO_2) and other hazardous emissions; and, of course, reduce costs?

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Russia and energy security in South East Europe

Russia, the world's largest oil and natural gas producer, supplies the bulk of energy transfers to the nations of South East Europe. The Balkan region is also an important transport route for Russian oil moving through Adriatic ports and a factor in the transport of natural gas through pipelines to nations further to the West. In addition to oil and natural gas, Russia is interested in the development of plants for the production of electrical energy in the Balkans.[18] Given South East Europe's dependence upon energy supply, the presence of Russia as a major player in the region is expected for the long term. While the most appropriate instruments for the advancement of Russia's interests differ from country to country, the fate of every nation in the region is linked to Russia, due to the fact that maintaining access to a reliable source of energy is among their highest security priorities.[19]

The objectives of Russian strategy in the Balkan region were clearly set forth by President Vladimir Putin at the 2007 Balkan Energy Summit. Though some time has elapsed since this event, the approach still stands as the foundation for current strategy, taking into account Russia's potential as a supplier and the energy needs of Balkan states. Since 2007, Russia has continued negotiations on the supply of natural gas and on the use of transport routes through the region. As a result, today Gazprom provides up to 95 percent of the energy resources for some Balkan countries. Gazprom also participates in distribution companies in the region, holding 51 percent ownership in the Bosphorus Gaz Corporation and 45 percent in Turusgas (both in Turkey), as well as 50 percent in Overgaz Inc. (Bulgaria) and 50 percent in Prometheus Gas (Greece).[20]

Other Russian corporations are active in the region both in terms of exports and foreign direct investment. Lukoil is constantly increasing its sales and presence.[21] The value of Lukoil's direct investments in purchases and greenfield projects in the region exceeds $1 billion. The company began its expansion at the end of the 1990s, when it acquired refineries in Burgas (Bulgaria) and Ploiesti (Romania). Today, Lukoil also owns a large petrochemical plant in Burgas and owns producers of lubricants in Ploiesti and Istanbul. [22] The company operates small power stations in Bulgaria and Romania as well, and Russian metal companies are connected with major projects in electricity generation.[23] In 2011, Lukoil began oil exploration in Romanian territorial waters. Moreover, the company controls about 25 percent of the petroleum retail markets in Bulgaria and Romania. Lukoil also owns petroleum stations in Serbia, Croatia, Montenegro, Macedonia, and Turkey.[24] However, the

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company's attempts to develop retail networks in Slovenia and Bosnia and Herzegovina have failed.

Gazprom Neft is the second largest Russian investor in the oil sector in the Balkans. The company has invested more than $500 million in Serbia's Naftna Industrija Srbije. Gazprom Neft bought a 51 percent share in 2009 and an additional 5.15 percent in 2011.[25] Zarubezhneft is also an important Russian oil company in the region, with about $200 million of direct investment. In 2007, Zarubezhneft purchased an oil refinery in Bosanski Brod, a motor oil plant in Modřice, and petroleum stations under the brand name Petrol in the Republika Srpska (Bosnia and Herzegovina). The state-controlled company made significant investments in the reconstruction and modernization of these projects.[26] Among the nations of the Balkan region, only Albania has been unwilling to develop cooperation with Russian oil and gas investors.

Russia's vast oil and gas reserves establish a basis for cementing long-term engagement in South East Europe and among the region's neighbors. Through oil and gas pipelines, as well as through the electric energy grid, Russia has become further connected with the European space, opening possibilities for deepening cooperation over the long term. If managed constructively, Russian influence in the energy sector throughout South East Europe, coupled with significant potential for Russian engagement in other spheres, should lead to stronger bilateral and multilateral ties.

Energy corridors and issues of transit and supply

Energy corridors are critical to the flow of oil and natural gas from East to West. During the Soviet period, plans were developed to provide inexpensive energy for economic development from energy-rich regions within the USSR to the energy-poor countries of Central Europe. In 1962, the first oil transfers reached Czechoslovakia, and in the course of 1963, Hungary, Poland, and the German Democratic Republic came on line. The Druzhba (Friendship) pipeline went into operation in October 1964, carrying oil from Tatarstan and Samara (Kuybyshev) Oblast, and the system was expanded through the 1970s. During the 1980s, the USSR developed plans to extend the pipelines to West European customers. After the demise of the USSR, the Russian oil industry was largely privatized, but the transportation network remained under government control. A number of distribution spurs such as the Baltic Pipeline System 1 and later the Baltic Pipeline System 2 were developed, carrying crude oil from Russia's West Siberian and Timan-Pechora oil provinces

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westward to the newly completed port of Primorsk in the Russian Gulf of Finland. The Baltic Pipeline Systems gave Russia a direct outlet to northern European markets, allowing the country to reduce its dependence on transit routes through Estonia, Latvia, and Lithuania.

The Russian natural gas industry, in contrast to the oil industry, was incrementally and only partially privatized, with the Russian government maintaining a controlling amount of shares at all times. The Russian government regards Gazprom as one of Russia's "national champions." Gazprom is the largest enterprise in Russia in terms of market capitalization (total share market value) and the largest gas company in the world in terms of employees. In recent years, Gazprom has accounted for as much as one fourth of Russia's federal budget revenues. Gazprom provides gas used by Russia's households and industrial facilities and powers thermal generating stations that provide about 50 percent of Russia's electricity.

Russia is primarily a fixed infrastructure exporter, relying on pipeline transport services for the great bulk of energy shipment. Pipeline transport makes both the producer and consumer to a certain extent mutually dependent upon a commercial relationship. This mutual dependence has been a source of disagreement between Russia as a fuel supplier and Western European countries as fuel consumers, with Central European countries lying in the path of transmission. In the past decade, the EU has increasingly supported improvements in infrastructure and commercial practice in order to promote diversification of access to natural gas supplies for European consumers. Diversification includes the construction of new gas pipelines and storage facilities as well as the construction of interconnectors to enable reverse flows of gas between member states. It also entails the construction of transit routes and terminals for liquefied natural gas (LNG).

Differences between East and West approaches to energy commercial models were dramatized by the "gas wars" of January 2006 and January 2009. As a result of a dispute over natural gas prices, on January 1, 2006 Gazprom halted supply of gas to the Ukrainian market, calling on Ukraine's government to pay increases that partially reflected the global increases in fuel prices. During the night from January 3 to 4, 2006, Naftogas of Ukraine and Gazprom negotiated a deal that temporarily resolved the long-standing natural gas price conflict between Russia and Ukraine. In March 2008, Gazprom agreed to supply Ukraine with natural gas for the rest of the year in a deal that cut out intermediary companies, a move it hoped would end payment disputes. However, in January 2009, supplies were interrupted again in a dispute that resulted

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in 18 European countries reporting major reductions or cut-offs of their natural gas supplies from Russia, transported through Ukraine. The "gas wars" incidents have drawn criticism about reliance upon single-source energy suppliers that are accused of being inclined toward monopolistic business practices and about the manipulation of energy dependency for political purposes.[27]

The main Soviet-era natural gas transport lines passed through Belarus and Ukraine. Russian commercial and political authorities have maneuvered to insulate themselves from the influence of transit countries, emphasizing both northern and southern routes of circumvention. The Blue Stream gas pipelines from southern Russia by subsea pipeline to Turkey started operation in February 2003. A northern gas transportation route dubbed Nord Stream was inaugurated in November 2011, forming a 1,222-km-long (759-mile) subsea pipeline, passing through the Baltic Sea from Vyborg in Russia to Greifswald in Germany. The pipeline currently delivers 27.5 billion cubic meters of gas annually, a capacity that will be doubled when the construction of a second pipeline is completed in 2015.

Russia is in a position to use energy resources to fuel a dynamic foreign policy. A survey of reserves, production, and exports illustrates the point. Russia ranks first in the world in natural gas reserves; second in coal reserves, and is within the top 10 in oil reserves. In 2011, Russia was first in oil production, surpassing Saudi Arabia; second in oil export; and fifth in oil consumption. Russia was in first position in natural gas production, first in export, and second in consumption. It was fifth in the world in coal production, third in coal export, and fifth in coal consumption. Russia is also in first place as a supplier of industrial uranium enrichment services, with between 40 and 45 percent of global capacity. There are other countries with concentrations of production, exporting, and consumption, but there is no other country that ranks at the very top of world lists in all categories.

The close linkage between Russia's energy industry and foreign policy means that Russian policy makers must always bear in mind global energy demand and scientific-technical developments. Demand is rising. "The era of cheap energy," as Vladimir Putin observed at a meeting of natural gas producers in December 2008, "is coming to an end." But this does not necessarily mean that the path to greater success is simply to increase production. Neil King Jr. has expressed caution in this regard: "The current world order has been built on cheap and abundant oil more than any other commodity but the role of oil and gas in the future can be expected to be very different."[28]

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Russia is a major exporter of natural gas to Europe, including volumes that are extracted from Russia's principal gas fields in Yamalo-Nenets in Western Siberia. These fields have been sustaining Russian natural gas production for nearly 20 years but are in a state of production decline. It is expected that the shortfall will be taken up when the large Shtokman field, a rich but nearly inaccessible and challenging area in the Barents Sea within the Arctic Circle, begins production in 2015. Although the bulk of Russia's energy production has been concentrated in Western Siberia and the Urals, exploration is expected to lead to unproven reserves in more remote regions of Eastern Siberia.

Russia's natural gas exports to Eastern and Western Europe are shipped through nine major gas pipelines. The Yamal-Europe I, Northern Lights, Soyuz, and Druzhba pipelines carry Russian gas to Eastern and Western European markets, traversing Ukraine and Belarus. Three other gas pipelines, Blue Stream, North Caucasus, and Mozdok-Gazi-Magomed, connect Russia's production areas to consumers Turkey and the South Caucasus. Other shipment takes place through rail and maritime ports. Russia opened a LNG facility in Sakhalin in 2008, primarily targeting Japan and other Asian natural gas customers. In addition to the currently functioning pipelines, a number of new transit routes are recently opened, under construction, in planning stages, or under discussion.

Consideration is being given to the construction of other pipelines. A proposed Yamal-Europe II would connect with the existing infrastructure, linking Russia with Germany through Poland and possibly Slovakia. The proposed South Stream project has several potential forms. One proposal is for Russia to supply natural gas from the same starting point as the Blue Stream pipeline at Beregovaya, moving 900 kilometers (559 miles) under the Black Sea, traversing Bulgaria, with a northward spur crossing Serbia and Hungary, and a westward spur via Greece and Albania linking directly to the Italian network. The South Stream pipeline will transit Turkish territorial waters, avoiding any reliance on Ukraine.

Russia's vision on energy security

Despite extensive discussions, Russia's official policy in the area of energy security is not well elaborated. For example, the Security Council of the Russian Federation does not have a special page for energy security in its website.[29] According to this website, Russian national security policy has six main components: military and defensive, international, economic, state and social, antiterrorist, and cybersecurity. Although many experts pay attention to the political dimension of the problem, according to

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Russian official documents energy security should be understood as a component of economic security. The only international security issue mentioned in the *Russian Foreign Policy Concept* related to energy security deals with Russian economic interests in the Mediterranean region, including the routing of pipelines.[30]

The *Strategy-2020 of Russian National Security* introduced by presidential decree in 2009 devotes one small paragraph (no. 60) to the issue of energy security, where it is mentioned as one of the main elements of economic security in long-term perspective.[31] The document does, however, stress the importance of international cooperation in the regulation of markets, the need for technology transfers, and the development of alternative energy sources. According to the *Strategy-2020 of Russian National Security,* the main objectives of national energy security are sustainable supply; increased energy efficiency within Russian enterprises; the prevention of resource shortage; and the development of strategic reserves and stable electricity, steam, and natural gas networks. All these objectives are directed toward Russia's domestic market (including some remarks about nuclear and ecological security within the energy sector). The international impact of Russian oil and natural gas exports is entirely ignored.

In December 2010, President Dmitry Medvedev announced plans to draw up a special *Doctrine of Energy Security*, which is still in the process of discussion as of 2012. According to Medvedev, the key ideas to be included in the document would include sustainable energy supply; the intensive development of hydroelectric and alternative power stations; modernization of enterprises in the energy sector; antiterrorist protection, and international energy cooperation.[32] Medvedev stressed that Russia does not need state monopolies; instead, stable and predictable oil and natural gas prices are needed. He suggested a greater effort to increase cooperation with the growing countries of the Asia-Pacific region, rather than relying on traditional European markets.

The experts who compiled the *Russian Economic and Social Strategy-2020* understand the importance of European markets for Russia, but also advised a greater emphasis on energy exports to the Asia-Pacific area.[33] This fundamental document specifies a need for the geographical diversification of Russian exports in the energy sector. Following the gas wars with Ukraine, many Russian experts have come to emphasize the unreliability of Russian export "attachment" to the EU. Despite decades of stable energy supply by the Soviet Union and the Russian Federation, European countries are now intensively seeking alternative energy sources. As a result, Russia does not have long-term guarantees

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of profitability for its new oil and natural gas investments (especially in the Arctic region).

It is difficult to say what ideas will inspire the new Presidential Commission for Strategic Development of the Energy Sector and Ecological Security. The first meeting of the Commission took place on July 10, 2012, and Vladimir Putin has articulated only its major tasks.[34] The Commission consists of Russian ministers and other high-level officials, the presidents of the largest oil, gas, and electricity companies (Lukoil, Gazprom, Surgutneftegas, Gazprom Neft, Tatneft, Russneft, Transneft, RosAtom, Inter RAO EES, RusHydro, etc.), and several famous scientists (N. Laverov, A. Dynkin, and others).

Official documents define Russia's vision for managing energy security in Europe, including South East Europe. However, this vision is connected mainly with long-term strategic goals. The current economic interests of private companies, and those of the Russian state, can produce very different outcomes. For example, the Balkan region is a rather convenient target for Russian direct investors. Several Russian companies have successfully begun their modern investment expansion from this region. On the contrary, Asian and Pacific countries are still *terra incognita* for many Russian "young multinationals," both in terms of real and psychological distance.[35] As a result, the majority of Russian investors are eager to continue economic contacts with European countries.

Russian companies typically prefer German and other well-known Western partners for international cooperation in the field of modern energy technologies. However, there are no barriers in Russia to working more closely with the countries of South East Europe. There are many opportunities to participate in the modernization of the Russian energy sector, including the development of alternative green technologies. As for investments in new oil and natural gas infrastructure in the Balkans, Russian companies are interested in participating in any large profitable project. However, many Russian experts and businessmen do not believe in the profitability of the Nabucco project concept that is so popular with European politicians.

Turkey as transit corridor and energy cooperation facilitator

Turkey is another key player in the South East European energy security equation, playing a key role in the East-West dimensions of competition over energy supplies and the search for reduced supply vulnerability. Its

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interests are revealed by two key agreements, concluded at the end of 2011. The first was the agreement signed on December 27, 2011 for the construction of the Trans-Anatolia Gas Pipeline (TANAP) that aims to transport Azeri natural gas from Shah Deniz II across Turkey to Europe. The second agreement, signed in Moscow on December 29, 2011, calls for cooperation in the field of natural gas through the construction of the South Stream pipeline.

Plans call for TANAP to be completed in five years at a cost of US $5 billion. Turkey will be able to use 6 billion cubic meters (BCM) of the 16 BCM of natural gas that will flow through this pipeline for its own needs. The structure of the agreement can be changed in time. Under the initial terms, Azerbaijan will own 80 percent of the pipeline and Turkey will own the remaining 20 percent.[36] Later on, British Petroleum, which will be generating the Shah Deniz natural gas, will be included in the process as a third partner. The pipeline will extend the infrastructure for transporting natural gas from Shah Deniz II across Turkey to Europe, as well as Turkmen, Kazakh, and even Iranian natural gas if favorable conditions for expanding the market can be created.

The second agreement works to Russia's advantage.[37] The South Stream pipeline project will have a capacity of 63 BCM and will enable Russia to sell natural gas directly to Europe via the Black Sea while bypassing Ukraine. By signing the agreement, Turkey allowed the new pipeline to pass through its exclusive economic zone (EEZ) in the Black Sea. In return, Russia discounted the cost of natural gas that Turkey purchases from Russia. In 2013, Turkey will purchase 3 billion cubic meters additional of natural gas that have not yet been consumed but were to be purchased from the Druzhba pipeline within the framework of "take or pay" contracts. Although no figures have been announced yet, Turkey seems to have secured more favorable terms regarding accumulated payments for its natural gas purchases.

These agreements set off renewed competition for natural gas energy projects in the region of Turkey. There has been a revival of projects to create alternative pipelines to those sponsored by Russia. The most important factor driving the competition forward is the prospective opening of Shah Deniz II natural gas to international markets by 2017. The possibility that this natural gas could bring an end to the Russian quasi-monopoly has aggravated rivalry among competing pipeline projects. In the three months that followed the signing of the December 2011 agreements, projects conceived as alternatives to the Russian system have either dropped out of the game or have been revised and expanded. The Interconnector-Turkey-Greece-Italy (ITGI), intended to

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transport Caspian and Central Asian natural gas to Italy via Turkey, has now been dropped, but the Trans-Atlantic Pipeline (TAP) project, aimed at reducing European dependence on Russian energy sources, has been pushed forward. Many projects intending to bypass Russia envision Turkey as the natural gas purchasing point, and TANAP could become more prominent as their main supplier. The TANAP agreement also reduces the significance of the Nabucco project and effectively paves the way for South Stream. In general, recent developments seem to point toward a period of aggravated competition rather than regional cooperation, as well as an accretion of Turkish influence in the region as a whole.

The increase in demand for energy attaches Turkey and the Black Sea region to other energy suppliers. Problems in Turkish-Iranian relations and EU-Iranian relations, decisions involving international arbitration and embargo enforcement, and recent developments in the Eastern Mediterranean region require careful consideration by Turkish energy policy makers. Iran is Turkey's second largest natural gas supplier, providing 20 percent of the country's needs. The basis for supply is a major contract signed in 1996, to remain in effect for 25 years, under which Iran is committed to supply Turkey with 10 BCM per year. Iran is also Turkey's most expensive gas supplier. Despite the fact that some clauses in the "take or pay" agreement with Iran favored Turkey in 2002, those clauses have not been deemed sufficient.[38] The only existing pipeline is the Tabriz-Erzurum–Ankara, which has never been utilized at full capacity. Despite the fact that Iranian natural gas is shipped to Turkey directly and without transit fees, the price is almost equal to that paid for Russian natural gas.[39] However, newly signed agreements with Russia and Azerbaijan, and the decisions by the United States and EU member states to implement sanctions against Iran, have strengthened Turkey's position. Iran also supplies nearly 30 percent of Turkey's oil imports, more than either Iraq or Russia. This state of affairs explains why Turkey seeks to restructure its energy policy with a wider perspective, addressing the Black Sea area as a whole.

Iraq, with 140 billion barrels of oil reserve as declared in 2010, is an inevitable part of any equation for regional energy security. However, instability in the Arab world, including the conflict in Syria, produces a negative effect upon both global energy prices and regional energy projects. Iraqi production plants and pipelines present tempting targets for terrorist attacks. In addition, Iraq's daily oil production is still below the level of 2001, though production levels are growing. Turkey is the main actor in the transportation of Iraqi oil and natural gas to global

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markets, and Iraq represents the best opportunity for Turkey to realize its energy potential. Nevertheless, issues pertaining to Kurdish separatism and Kurdistan Workers' Party (PKK) terror have long distorted Turkey's relations with Iraq, especially with respect to the Kurdistan Regional Government in Erbil. They will remain factors that must be taken into account when calculating the future of Turkish-Iraqi relations.

The possibility for Iraq's potential to be incorporated into the regional energy system is of great concern to Iran. Tehran does not want to see its role in the Gulf region and within the Organization of the Petroleum Exporting Countries (OPEC), second only to that of Saudi Arabia, reduced in the future. However, political issues and international developments do not make Iran an ideal candidate for new pipeline routes. More importantly, the ambiguity that hovers over Iran's future increases the importance of the wider Black Sea region, including the Caspian region, for Turkey. The repercussions of a United States or Israeli military intervention in Iran would largely hinder energy projects in Iraq.[40]

Recent developments in North Africa and the Eastern Mediterranean, and the evolving relationship between Israel and the Greek Cypriots, are creating a network of energy relationships that cannot be limited to the Black Sea region. Israel's policies have attracted the attention of major powers, including Russia and China, to natural gas of the Eastern Mediterranean. This situation complicates the energy issue by attaching it to regional security issues. It is likely that the new relationships between Israel and the Greek Cypriots will negatively affect Turkey's position in the Eastern Mediterranean. This will necessitate recalculating the regional balance of power and could move regional cooperation onto the back burner.

In the last five years, oil and gas prices have evidenced more price volatility than at any time since the dawn of the hydrocarbon era in the 1850s. Anticipated increases in consumer demand – particularly in India and China – and efforts to increase technological adaptation and energy substitution – particularly in Europe and the United States – suggest that energy price volatility will likely be an enduring feature of international hydrocarbon markets. Popular resistance to nuclear facilities may make nuclear power problematic for some time. Coal continues to be the mainstay for electric power generation, but coal power is confronted by an increasing number of opponents, motivated by ecological concerns.

Rising fuel costs have activated attempts to extract hydrocarbons previously thought too expensive to utilize, such as shale gas and unconventional oil deposits. Tapping unconventional sources that do not flow to or near the surface is challenging. The oil sands of Alberta, Canada,

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contain an estimated 175 billion barrels of reserve, the largest in the world outside Saudi Arabia. This oil may cost roughly $30 per barrel to produce, compared to $6.50 for Saudi crude. Likewise, shale deposits in other countries hold promise. In the United States, the Sabine Pass LNG facility, built in 2005 for the purpose of importing LNG from other countries, was stalled by low methane prices in the United States Its owner, Cheniere Incorporated, very nearly went out of business, but after the shale gas Klondike erupted in the United States, Cheniere shifted posture, and in April 2012 received a US license to export natural gas.[41] This unexpected turn of events illustrates a simple maxim – the search for stability in energy markets in the future will not be successful as the result of a single, inflexible regulatory scheme. The commercial risks involved in the energy market are considerable and will not go away. This risks underscore the importance of security cooperation in the energy sector.

Conclusions: complex challenges and need for cooperation in managing the energy sector

South East Europe is at an energy crossroads linking Eurasian, Middle Eastern, and West and North European countries. If energy security is defined as the freedom from disruption of energy supplies for whatever reason, energy markets are clearly much more complex and subject to volatility than at any time in the recent past. The trade-offs among different forms of energy have grown more dependent upon technological developments. New forms of prospecting, exploration, recovery, and marketing are also changing the assumptions of the past. Only a few years ago, most energy policy planners assumed that US dependence on imported energy supplies would grow in the future, even as foreign energy imports became more expensive. However, assumptions about American foreign import oil dependency have been called into question by the new developments in processing of petroleum from oil shale. Some studies suggest that by using shale oil extraction techniques as much as 3 trillion barrels of oil could be recoverable in the United States, an amount that is equal to the entire world's proven conventional oil reserves.[42] Similar questions are being raised about the prospects for unconventional gas sources in Poland and Ukraine.[43]

In comparison with the United States, Western Europe, the Middle East, and Eurasia, nations of South East Europe share common challenges and unique considerations in the areas of energy production, consumption, transportation, and efficiency in usage. It is precisely the

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growing importance of international integration, and the necessity of coordinated, multilateral action on the part of the South East European countries, that have raised the profile of multilateral organizations and international financial institutions in South East Europe. Regional security organizations must increasingly follow suit in focusing on the vulnerabilities caused by energy disruption and the lack of prudent means to prevent confrontations.

Notes

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