



Atlantic Council

A Eurasian Energy Primer: The Transatlantic Perspective



Eurasian Energy Futures Initiative

Edited by David Koranyi

A Eurasian Energy Primer: The Transatlantic Perspective

November 2013



Atlantic Council

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Foreword

The world is approaching an inflection point similar to critical years in human history such as 1815, 1919, 1945, and 1989—when the stakes were enormous and the path forward uncertain. Looking ahead, the future could be one characterized by economic and political volatility, environmental catastrophe, and conflicting nationalist struggles. Alternatively, we could create a more cooperative, rules-based world of reduced poverty and rising human advancement.

Ensuring the availability of more and cleaner energy for a growing global population will be among the key global challenges we have to face in years ahead. As the Atlantic Council’s report *Envisioning 2030: US Strategy for a Post-Western World* outlines, a “potentially decisive factor shaping future scenarios in 2030 is the Malthusian race between ever-growing demand for energy, water, and food and development and adoption of transformative technologies that may help meet this demand.” At the same time climate change limits our ability to freely choose our energy mix and poses an interconnected set of challenges that are political, economic, technical, social, and cultural in nature.

In many respects, energy will play a central role in shaping the future of the wider Eurasian space. Energy ties will to a large degree define interregional relationships among Europe, the Eastern Mediterranean Basin, the Black Sea region, the Caucasus, Central Asia, Russia, the Middle East, and the Far East. Eurasian energy outcomes will have a significant impact on the common security and prosperity of the transatlantic community and the world.

The Atlantic Council’s Eurasian Energy Futures Initiative and our annual Energy and Economic Summit in Istanbul both serve the purpose of addressing these regional and global energy challenges head on. This book represents our ambition to positively shape the agenda, working closely with government and private sector partners to advance energy development, trade, and security.

Our thanks go to the authors who contributed to this book. As thought leaders in their respective fields of expertise, they have done a terrific job of outlining the main challenges we face and the opportunities waiting to be seized. They have, of course, expressed their personal views, which do not necessarily reflect views of the Atlantic Council or any other institution or government.

Thanks as well are due to Ambassador Ross Wilson and John Lyman, the directors of our Dinu Patriciu Eurasia Center and Energy and Environment Program, respectively, for their leadership; to their deputies, David Koranyi and Mihaela Carstei, for developing the Eurasian Energy Futures Initiatives and to David in particular for putting together this book.

I would also like to thank those others at the Atlantic Council who have helped to develop this publication and who support the policy community to which it contributes—Taleen Ananian, associate director of communications, Pinar Dost-Niyego, assistant director of the Atlantic Council’s Istanbul Office, and Laura Linderman, associate director of the Dinu Patriciu Eurasia Center, for their help and good cheer throughout this project; and Melissa Hayes for her invaluable support in editing the book.

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Mr. Frederick Kempe
President & CEO, Atlantic Council

Eurasian Energy Security in a Global Context

The geopolitics of energy has undergone a dramatic transformation over the past ten years. The globalization of energy trade has accelerated. Energy markets are increasingly interconnected and interdependent. Meanwhile, a warming climate seems to most an ever-growing threat. The national security and the wellbeing of future generations are at stake. Yet global energy and climate governance is in its infancy.

The world's recovery from the financial and economic crisis of 2008-09 is still fragile, but the hunger for energy resources keeps growing. Rising incomes and populations in the emerging economies boost demand. Global energy usage will increase one-third by 2035, according to the International Energy Agency's (IEA) New Policies Scenario. While demand will almost be flat in the developed world, it will soar in the non-OECD countries. China and India alone will account for nearly 50 percent of the growth in demand. Meanwhile, energy poverty is rampant. Some 1.3 billion people still lack access to electricity. Less than 20 million people in New York City use as much energy as the 800 million living in Sub-Saharan Africa.

Growing energy needs on the one hand and the urgency of climate change on the other put the world on a narrow path to a sustainable energy future. Technological development and the increasing usage of renewable resources offer great hope in the long-term. But in the short and medium-term, choices are constrained. The Fukushima nuclear accident has led to a reconsideration of nuclear power in many developed countries and may complicate its spread in the emerging economies. Fossil fuels will remain essential for meeting global energy needs for the foreseeable future.

The changes in how we produce and consume energy and their effect on Earth's climate alter the global balance of political and economic power in many ways. The unconventional gas and oil revolution in the United States turned global oil and coal markets upside down and has significantly altered intra- and inter-regional natural gas trade. We are only beginning to fully comprehend the implications of the shale revolution. North American "energy independence" may become a reality within a decade- a strategic goal since the early 1970s. That does not mean that the United States will be isolated from energy markets that are global in nature. Nevertheless, the geopolitical implications will be profound. Moreover, the unconventional revolution may well spread beyond North America, despite the momentous difficulties.

In any scenario the region stretching from Central Europe to Central Asia and from Russia to the Middle East will continue to play a crucial role in the geopolitics of energy in the years to come, even if it seems less directly central to US energy security interests. The region contains vast reserves of conventional and unconventional hydrocarbons, a large potential for

harnessing renewable energy, and dynamic economies with growing energy needs. It is strategically located between major demand centers in Europe and Asia. Yet the region is highly volatile and fragmented, and it is struggling to overcome numerous challenges that include ethnic and sectarian conflicts, border disputes, social upheaval, political transition, poverty and environmental degradation.

Eurasian energy issues are also of vital importance from a transatlantic and global perspective. Europe's growing dependence on imports affects the security and competitiveness of the various countries there and thus is a strategic liability for the transatlantic alliance as a whole. The political awakening in the Middle East upset earlier assumptions about energy supply from and demand within the region. The relationship of the EU with such energy suppliers as Russia and the Caspian region and with such transit states as Ukraine and Turkey impacts the stability, security, and prosperity of the entire continent and influences the strategic choices of the United States as well. Similarly, China's thrust for energy resources in the Middle East and Central Asia has profound implications in the region and beyond.

There are immense potential benefits that the transatlantic community can reap from confronting Eurasian energy challenges. The Southern Gas Corridor may bring the South Caucasus closer to Europe and help anchor the region in ways that will strengthen peace and stability despite contrary pressures. Natural gas discoveries in the Eastern Mediterranean may elicit cooperation between Israel and Palestine, as well as Cyprus and Turkey. Iraq can play a critical role in balancing out global oil markets if it can achieve its full potential in energy, economic, and political terms. Countries in Eastern Europe could profit enormously from American regulatory and technological expertise with shale gas as they proceed to explore their own potential. Advancing economic development and trade through and in the Caucasus, Central, and South Asia, making the so-called "new Silk Road" will ease the isolation and add to the economic prospect of the vulnerable countries in Eurasia's heartland, including Afghanistan. Easing Gazprom's energy grip on Central and Eastern Europe will ultimately benefit Russia by hastening the diversification of the Russian economy and reinforces a transparent and market-based energy relationship between Russia and the EU. Satisfying China's insatiable energy appetite with cleaner burning fossil resources will benefit the climate and help sustain global economic growth.

Leadership matters in realizing this potential. The Atlantic Council hopes to help facilitate a productive conversation on these issues in and with the countries of Eurasia, Europe and the United States. We do this with the ultimate goal of promoting peace and prosperity, boosting Europe's energy security and shaping an ambitious transatlantic agenda on Eurasian energy matters of strategic interest.

I am grateful to the Atlantic Council for this opportunity and for the devotion and solid work of my fellow authors in putting together this book. It was a

privilege to work with such distinguished and competent experts. Given the vast nature of the subject, we could not possibly cover all aspects of Eurasian energy. *A Eurasian Energy Primer: The Transatlantic Perspective* endeavors to give you only a taste of the intricate and multifaceted energy challenges facing our communities in the Eurasian space. I hope you will find it a good read.

A handwritten signature in black ink, appearing to read 'David Koranyi', with a long horizontal stroke extending to the right.

David Koranyi

Deputy Director, Dinu Patriciu Eurasia Center
Atlantic Council

Atlantic Council Eurasian Energy Futures Initiative

The Atlantic Council is proud to present its Eurasian Energy Futures Initiative, a joint program managed by the Dinu Patriciu Eurasia Center and the Council's Energy and Environment Program. The Initiative reflects the Council's systematic and comprehensive work as the premiere venue for policymakers on Eurasian energy in Washington, DC. We have assembled a highly respected group of experts with wide-ranging experience and background to build upon the Council's global network and expertise and facilitate relationship-building through a medium that also addresses policy issues relevant to specific countries and markets and for US, European and international energy firms.

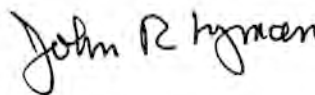
Our aim is to educate and influence decision-makers and stakeholders on emerging energy and energy policy issues so as to ensure effective engagement, maximize the prospects for sound, pro-energy development policies, to minimize the likelihood of policy outcomes that will be detrimental to energy development, sustainable economic growth, and the environment, and to invest in relationships for the short and longer term. To these ends, we work with key political leaders, thinkers, analysts, and top industrial players in the United States, Europe, and Eurasia to lead a strategic debate on the future of energy markets and to chart a course for sustainable development and trade of global energy resources.

The Eurasian Energy Futures Initiative organizes multiple events throughout the year in the United States and Europe. These take the form of roundtable discussions, workshops, closed strategy sessions, and multi-day conferences. Policy reports on strategic and practical Eurasian energy issues produced in close collaboration with our partner organizations from the private sector, the NGO community, and relevant governments are a key feature of the Initiative. The Council offers the advantage of being a non-partisan, independent and respected organization that can identify and work effectively with local partner organizations and can credibly convene the right set of stakeholders, regulators, experts, policymakers and other players.

We are glad to work with the leading stakeholders in Eurasian energy geopolitics and energy market developments of regional and global importance, with particular attention to the Eastern Mediterranean, the North-South Corridor in Central Europe and related political and energy security issues, the realization of the Southern Gas Corridor, shale gas developments in Europe and Eurasia, LNG market developments in the US and their repercussions on European and Eurasian gas markets and energy security, developments in Turkey-Iraq-Iraqi Kurdistan energy relations, and energy developments in Central Asia. The series culminates in the Atlantic Council Energy & Economic Summit, held in Istanbul every November, the crown jewel of our work in the Eurasian energy space.



The Hon. Ross Wilson
Director, Dinu Patriciu Eurasia Center
Atlantic Council



Mr. John R. Lyman
Director, Energy & Environment Program
Atlantic Council

Atlantic Council Energy & Economic Summit

The Atlantic Council Energy and Economic Summit, celebrating its fifth anniversary this year, brings together for two days in Istanbul a unique and preeminent community of global leaders to discuss the latest in energy, economic, political, and other key policy challenges, develop vital relationships, and conduct business.

The Summit continues to grow in scope and size in accordance with its mission to be the most sought-after annual event on energy, politics, and business in the broader region centered around Istanbul. In 2012, the Istanbul Summit brought together more than 350 top-level business, government, and NGO leaders from thirty-seven countries, including thirty-nine CEOs, twenty-eight ministers and 200 journalists who relayed news-making discussions on economic, energy and political challenges in and affecting the region and the world. In 2013, we will host another very distinguished audience made of global leaders, including heads of states and governments, ministers, and CEO's from over forty countries.

More importantly, however, the "Istanbul Summit" already became one of the most important annual platforms globally for the top executives of its corporate partners to exchange views with their political counterparts regarding the challenges and opportunities of the emerging economic and geopolitical landscape.

The Atlantic Council Energy and Economic Summit continues to offer groundbreaking discussion platforms to its stakeholders throughout the year through its partnership with the Atlantic Council's Eurasian Energy Futures Initiative. As the Director of the Istanbul Summit, I am proud to collaborate with my colleagues working on the Futures Initiative, enabling a year-round connection between our expert community with the Istanbul Summit partners, helping to shape the dialogue on critical energy and economic issues of our age.



Mr. Orhan Taner

*Director, Atlantic Council Energy & Economic Summit
and Director, Atlantic Council Istanbul Office*

Pipeline Wars: The Southern Gas Corridor

By Matthew Bryza and David Koranyi

For years, one of the most intriguing and strategically significant questions for those who are interested in European energy security has been: What route will be selected for the Southern Gas Corridor, the network of pipelines that will help Europe to diversify its supplies of natural gas with a connection to fields in Azerbaijan and beyond?

The decision has been expected in the past, only to be postponed as the companies developing the massive Shah Deniz natural gas field in Azerbaijan's sector of the Caspian Sea recalibrated their investment plans. Now, the waiting is finally over. The Shah Deniz consortium chose the Trans-Adriatic Pipeline (TAP) as the European leg of the Southern Gas Corridor. The contest was close until the last minute. TAP's victory was a function of several confluent commercial and political factors that ultimately tipped the balance and eliminated the rival project, Nabucco West. Below we attempt to recap the strategic importance of the Corridor, summarize these factors, and outline the way forward.

The Strategic Rationale of the Southern Gas Corridor

At first glimpse it may seem hard to understand all the hype around the Southern Gas Corridor. After all, the 10 bcm it will initially carry to Europe represents only around 2 percent of the EU's gas consumption, hardly a silver bullet in supply diversification. But, the Southern Corridor will provide Europe with a new route to secure natural gas supplies from the Caspian Sea Basin, the region on which Russia's giant state natural gas company, Gazprom, had planned to rely in order to sustain its monopolistic leverage in Europe for decades. Now, with the Southern Corridor, Azerbaijan's gas will reach lucrative European markets independently of Gazprom, and at prices set more by the market principles of supply and demand than the monopolistic machinations of Gazprom. Moreover, the Southern Corridor is designed to be expanded as additional natural gas becomes available in Azerbaijan, and future supplies in Turkmenistan seek access to European markets. The Southern Corridor could expand even further, to include natural gas from Israel and Cyprus in the Eastern

Mediterranean, as well as Iraq, and perhaps, someday, Iran.

An expanded Southern Corridor will take several years to achieve. The original “Grand Nabucco” concept, with a capacity of 31 bcm, was first conceived more than twelve years ago to bring Iranian gas to Europe. That is a nonstarter today for obvious political reasons, and also because of commercial challenges in reaching energy deals with Tehran.

Turkmen gas will not be available for the foreseeable future due to political and legal disputes over the Caspian Sea, as well as Russian pressure on Turkmenistan to forego a European export route, all of which are likely to be resolved only after the Southern Corridor is coming to physical fruition. At that point, Turkmenistan’s leaders will be able to calculate that the risk of aggravating Russia will be outweighed by the geopolitical and commercial benefits of exporting Turkmen gas westward. Moreover, future Azeri (or swapped) offshore gas will require at least a decade more to develop.

Yet the importance of the Southern Gas Corridor cannot be overstated. Opening up a fourth major natural gas corridor (the first three being the ones from Norway/North Sea, North Africa, and Russia) is of strategic significance not only for Europe, but also for the transatlantic alliance as a whole. The rationale behind the concept is more valid—and more worrisome to Gazprom—than ever.

First, as discussed above, the Southern Corridor opens a new and competitive route for Europe to import natural gas from producers that Gazprom does not control. This competition comes at a time when Gazprom is seeing its monopoly leverage weakened by the emergence of natural gas trading hubs in Northern Europe, by the increasing availability of liquid natural gas, and by vigorous European Commission efforts to establish

a unified European energy market, in which market forces rather than monopoly forces determine energy prices. Taken together, these factors are making it increasingly difficult for Gazprom to demand higher natural gas prices based on long-term contracts that are indexed to the price of oil, which is currently nearly twice

as expensive per unit of energy than is natural gas.

Second, Europe will likely need more gas in the long run. While natural gas usage is forecast to be flat in the coming years in the European Union, it will pick up again in the next decade, as coal—and, in some cases, nuclear—are phased out of the energy mix, and gas is ideally placed to serve as backup generation to steady the uneven performance of renewables. As conventional reserves deplete, Europe’s dependence on gas imports is expected to grow further, from the current 64 percent to above 80 percent in the coming decades. Even a significant—and, at present, distant—uptick in unconventional gas production in Europe, complementing the US shale gas revolution, will likely

“TAP’s victory was a function of several confluent commercial and political factors that ultimately tipped the balance and eliminated the rival project, Nabucco West.”

only offset the decline in indigenous conventional production and keep import rates steadily around 60 to 65 percent. In comparison, the United States imported less than 5 percent of its natural gas consumption in 2012, and is widely predicted to become a net liquefied natural gas exporter by 2016. Energy prices in general, and natural gas prices in particular, are increasingly becoming a headache for European leaders as an issue of competitiveness, as well as a concern over preserving social peace.

Finally, the Southern Corridor will be essential to stabilizing the volatile region of South Caucasus by anchoring Azerbaijan

to the Euro-Atlantic community. Just as the Baku-Tbilisi-Ceyhan pipeline solidified Azerbaijan's and Georgia's Western links, it is expected that the Southern Gas Corridor will contribute to

cementing their Euro-Atlantic orientation. And, hopefully, in the not-too-distant future, it will be possible for Azerbaijan to offer natural gas supplies to Armenia, as a way to help the two countries overcome their mutual animosity, rooted in the unresolved Nagorno-Karabakh conflict. It will also bring new supplies to Turkey, the fastest-growing gas market in Europe, to decrease its dependence on Iran and Russia, and to lay the foundation for a gas-trading hub that will lower gas prices for Turkey and its European neighbors. Turkey's energy bill makes up the bulk of the current account deficit that endangers its economic growth.

“The Southern Corridor will be essential to stabilizing the volatile region of South Caucasus by anchoring Azerbaijan to the Euro-Atlantic community.”

Why the Trans-Adriatic Pipeline (TAP)?

TAP's selection has disappointed many who rooted for Nabucco as the main pipeline to bring gas to the Central European region, still overly dependent on Russia. What ultimately matters, though, is that the Southern Corridor materializes in one form or another. Many Nabucco supporters argued that while the Italian and Western European markets are oversupplied and well diversified, gas through Nabucco West would reach most of the countries exposed to the 2006 and 2009 Russo-Ukrainian gas crises, including countries in southeastern Europe. Nabucco

would also increase the liquidity of the Central European Gas Hub at Baumgarten, Austria, the terminus of the Nabucco pipeline.

Nabucco West's strategic advantage over TAP has been slowly but surely chipped away due

primarily to commercial concerns, with political factors making a push in the end. Most fundamentally, Nabucco West was unable to assuage anxieties regarding whether its financial firepower would be able to cover what is a significantly longer and more-expensive route, with the TAP consortium having the ability to demonstrate that it would provide Shah Deniz consortium members with a higher gas sales price, minus transportation costs (or “netback”) than would Nabucco West. Meanwhile, the late entry of GDF Suez into the Nabucco consortium (after the departure of German RWE) failed to dispel concerns that the Nabucco consortium consists of smaller entities,

some of which are exposed to the whims of unpredictable governmental policy, either through politics, ownership structure, or regulatory environment. In addition, Nabucco West was unsuccessful in organizing itself sufficiently to mount as strong a commercial bid as TAP, as evidenced by Nabucco West's failure to attract sufficient nonbinding bids for its initial 10 bcm capacity in the crucial months before the decision, signaling uncertain market prospects in Central Europe in the medium term.

A second set of key issues that helped to seal the Shah Deniz consortium's selection of TAP was the commercial and political factors surrounding the privatization of Greece's natural gas distribution company, DESFA. Sinterz, a Russian company that appears to be indirectly controlled by Gazprom, originally seemed to have locked in its acquisition of DESFA's domestic gas pipelines with a \$1.9 billion bid that was nearly five times as high as independent financial experts' analysis of the network's value. Coupled with Gazprom's loan bid for privatization of DEPA, the Greek government's natural gas contracting company, Gazprom and its ally appeared poised to seize control of Greece's entire natural gas trading system. Though the TAP consortium will build an entirely new pipeline across Greece and into Albania, and under the Adriatic Sea, DESFA's internal Greek pipelines were critical to the Shah Deniz consortium's plans to market gas from TAP to Greece's Balkan neighbors. Then, just a little over a week before the Shah Deniz consortium's scheduled decision on TAP versus Nabucco West, the European Commission made clear it would insist on applying the market liberalization directives of its Third Energy

Package in Greece, preventing Gazprom from operating Greece's national gas grid as a monopoly.

At this point, both Gazprom and Sinterz bowed out, leaving DESFA to be acquired by the lone remaining bidder, Azerbaijan's and Shah Deniz's SOCAR. These developments also reflect how TAP has skillfully transformed itself from a project primarily destined to supply the saturated Italian market, to one that will supply the Balkans through the Ionian-Adriatic Pipeline (IAP), as well as the major markets in Western Europe. Fluxys's—a pipeline operator with access to mature markets in Germany, France, Belgium, the Netherlands, and even the UK—entry into the TAP consortium further underpins that strategy.

Completing the Corridor

The process is far from over. After having concluded gas sales agreements with European buyers in September,¹ the Shah Deniz consortium is moving on to finalize negotiations on both the ownership and the financing of TANAP and TAP. The final investment decision is yet to take place. There are many open questions left that must be addressed.

1 The Shah Deniz consortium announced on September 19, 2013, that twenty-five-year sales agreements have been concluded for just over 10 billion cubic meters a year (BCMA) of gas to be produced from the Shah Deniz field in Azerbaijan as a result of the development of Stage 2 of the Shah Deniz project. Nine companies will purchase this gas in Italy, Greece, and Bulgaria: Axpo Trading AG, Bulgargaz EAD, DEPA Public Gas Corporation of Greece S.A., Enel Trade SpA, E.ON Global Commodities SE, Gas Natural Aproveisionamientos SDG SA, GDF SUEZ S.A., Hera Trading srl, and Shell Energy Europe Limited. Of the total 10 bcm, around 1 bcm will go to buyers intending to supply Bulgaria and Greece, and the rest will go to buyers intending to supply Italy and adjacent market hubs (<http://www.bp.com/en/global/corporate/press/press-releases/shah-deniz-major-sales-agreements-with-european-gas-purchasers-c.html>).

Financing challenges remain for both TAP and the two pipelines that will carry gas from Azerbaijan to the Turkey–Greece border. The first is the expansion of the South Caucasus Gas Pipeline (SCP-X) that already connects Azerbaijan with Georgia and Turkey; and second, the construction of the Trans-Anatolian Pipeline (TANAP), 80 percent of which will be owned and financed by Azerbaijan and Shah Deniz consortium partners SOCAR, BP, and Statoil. Financing these large projects is complicated by the tight economics of natural gas production at the Shah Deniz field.

The complex geology of that field means that net profit from natural gas production and exports barely exceed the break-even point, with investors relying on gas condensate to boost returns. Moreover, SOCAR faces extreme demands for capital investments due not only to TANAP and SCP-X, but also to huge investments in Turkey at the Star Refinery and Petkim petrochemicals factory in Izmir, Turkey, along with two large-scale petrochemical parks in Azerbaijan.

It is also important to note that the choice of TAP over Nabucco West might eventually be more about sequence than exclusivity. The Southern Gas Corridor’s initial 10 bcm capacity is only the beginning. Both pipeline projects were designed to be scalable, and by the middle of the next decade, additional supplies may be enough to provide up to 30 to 35 bcm of gas from Azerbaijan alone, which in theory could fill *both* a larger TAP *and* pipelines that carry gas toward Central Europe. Further fields

from the Kurdistan Region of Iraq and the Eastern Mediterranean could be shipped through the Corridor to Europe, should the underlying and complex geopolitical issues be resolved; big questions, indeed. Nabucco West as a project may be dead (save for significant quantities of gas coming online from the Black Sea or Romanian shale, both distinct possibilities as of now), but gas still might flow toward Central Europe as well.

Building the Greece-Bulgaria interconnector—the rights to which are owned by Greek DEPA (25 percent), private Italian company Edison (25 percent), and the Bulgarian state energy holding company, EAD (50 percent)—will provide gas from TAP into Bulgaria. By building this long-stalled interconnector, gas could be moved onward to Hungary through an already-existing

Hungarian-Romanian interconnector (which must be upgraded to be able to handle bidirectional flows). This was the original idea of SEEP, a BP-led project based not on a grand construct such as Nabucco, but on linking up the existing networks. Azeri gas might also be shipped from Italy to Austria’s Baumgarten Hub, the original destination of Nabucco West through the TAG pipeline. Furthermore, the planned Ionian Adriatic Pipeline (IAP) could deliver gas to the Western Balkans, all the way up to Croatia, provided that additional quantities beyond the initial 10 bcm of gas will come through TAP.

The remaining political and commercial uncertainties around the project should not be underestimated. TAP’s victory

“Financing challenges remain for both TAP and the two pipelines that will carry gas from Azerbaijan to the Turkey–Greece border.”

heralds a new, but equally challenging, chapter in this long journey. The implementation will be complex, possibly fraught with further delays. Nonetheless, a major piece of the puzzle has finally been put in place that will unlock the real prospect of opening up a fourth major natural gas supply route to Europe. This, in any case, is a welcome development of a strategic nature.

***Matthew Bryza** is a senior fellow with the Atlantic Council's Dinu Patriciu Eurasia Center and director of the International Centre for Defence Studies in Tallinn. He served as US ambassador to Azerbaijan from February 2011 to January 2012.*

***David Koranyi** is the deputy director of the Atlantic Council's Dinu Patriciu Eurasia Center.*

Beyond the Caspian: Unlocking the Energy Potential of Iraq's Kurdistan Region

By **Ben Van Heuvelen**

A dramatic reversal of Turkish foreign policy over the past five years has opened up Iraq's Kurdistan region as a major new source of potential oil and gas supply. Turkey has begun to spend significant financial and geopolitical capital to give the landlocked Iraqi Kurds pipeline access to Turkish ports and, by extension, international markets. If successful, this Turkish-Kurdish cooperation will provide world markets with more than 1 million barrels per day (bpd) of new oil supply this decade and give Turkey access to at least 10 billion cubic meters annually (bcma) of natural gas, which it will need to continue fueling its rapid economic growth. This energy cooperation would also greatly enhance the Kurdistan Regional Government's (KRG) leverage in its struggles with Baghdad for greater autonomy within Iraq's federal system. Although Turkish and Kurdish leaders insist they are working to enhance the unity of Iraq, their energy deal also promises to sever the ties of financial dependence that bind the KRG to Baghdad, laying the foundation for what could

eventually become an independent Kurdistan.

Kurdistan's Latent Potential

Oil and gas companies have flocked to Iraq's autonomous Kurdistan region. In contrast to the federal Oil Ministry in Baghdad, which has forged partnerships with international oil companies (IOCs) using a technical service contract model, the KRG's Ministry of Natural Resources (MNR) has offered production-sharing contracts (PSCs) with relatively high profit margins. Dozens of oil companies have signed more than fifty contracts, and the players entering the KRG have gotten progressively larger, including ExxonMobil, Chevron, Gazprom Neft, and Total.

The Kurdish oil sector is only a decade old, and already the region has developed more than 429,000 bpd of oil-production capacity, according to calculations compiled by Iraq Oil Report, based on aggregated company disclosures and other reporting. Kurdistan's oil contractors have also proven more than 2 billion barrels of reserves recoverable on a P1 or P2 basis, and total resources of more than 17.7

billion barrels. (KRG officials sometimes claim reserves of 45 billion barrels, but there are no public data available to support this assessment.) KRG Minister of Natural Resources Ashti Hawrami has ambitiously claimed that the region can raise its capacity to 1 million bpd by 2015.

The KRG may be even more promising as a gas play. So far, only the Khor Mor field has entered production, generating 335 million standard cubic feet per day (scf/d). Around the region, companies have

discovered more than 12 trillion cubic feet of gas recoverable on a P1 or P2 basis, and total resources of more than 38 trillion cubic feet. Just two fields, Miran and Bina Bawi, together hold at least 8 trillion cubic feet of recoverable gas.

Much of this potential has been locked in for the past decade, however, because of a political conflict between the KRG and the federal government in Baghdad. Iraqi prime minister Nouri al-Maliki's administration has consistently argued that the federal Oil Ministry has primary authority over Iraq's oil sector, while the KRG claims independent authority to sign contracts within its territory, manage those fields, and export oil and gas. The dispute stems from radically different interpretations of Iraq's 2005 constitution and, by extension, diverging visions for the shape of the Iraqi state. The two sides came close to passing oil legislation in 2007, which could have harmonized the lines of hydrocarbon

authority in Iraq, but a final agreement proved elusive. Instead, the KRG passed its own regional oil law, and leaders in Erbil and Baghdad have signed contracts and ushered in billions of dollars' worth of foreign investment under contrasting legal frameworks.

Until recently, Baghdad appeared to have the upper hand in this conflict because the central government has controlled the country's export pipelines. The landlocked Kurds have occasionally struck temporary

political agreements with Baghdad to feed crude into the Iraq-Turkey Pipeline (ITP), which runs to the Turkish port of Ceyhan, but all of those deals have fallen apart. Their primary opponent has been Deputy Prime Minister for Energy Hussain al-Shahristani. He considers all of Kurdistan's contracts to be illegal, and has been reluctant to authorize

payments to the KRG's contractors, since doing so could implicitly validate the legal basis of Kurdistan's oil sector. Shahristani also argues that the KRG should be assessed for the independent oil revenues it has generated through domestic sales and trucking exports, which have not been paid to the federal treasury. As a result, the KRG and its contractors have received payment for only a fraction of the oil they have exported through the federal pipeline system.

This political risk has also caused IOCs to think twice about investing. Even those companies that have already signed

"If successful, this Turkish-Kurdish cooperation will provide world markets with more than 1 million barrels per day of new oil supply this decade and give Turkey access to at least 10 billion cubic meters annually of natural gas."

contracts in Kurdistan still must make medium-term decisions about how quickly to move from the exploration to the production phase of development, and how much production capacity to build. Nobody wants to invest billions of dollars to develop several hundred thousand barrels per day of capacity, only to find there is not a working pipeline to deliver the resulting crude to international markets. Companies with massive capital budgets still need to see evidence that they will be able to monetize their investments.

Kurdistan can rise to 1 million bpd of production capacity and beyond, as Hawrami has projected, only if IOCs are willing to invest the capital necessary to support that level of development. This means that the KRG needs to show companies like Exxon and Chevron that they can reliably export, and be paid for, their oil. While relations with Baghdad remain frosty, Erbil seems to have found a new pipeline patron in Ankara.

Turkey's Policy Shift

Turkey's unresolved "Kurdish question" was once a seemingly immovable wedge preventing any functional relationship with the KRG. Turkey opposed Kurdish autonomy in Iraq for fear of emboldening Kurdish separatists at home. Moreover, the militants of the Kurdistan Workers' Party (PKK), labeled a terrorist organization by Turkey and the United States, were launching regular attacks on Turkish armed forces from safe havens in northern Iraq's Qandil Mountains. The KRG did not sanction these attacks, but it also did little to stop them. Tensions rose so high that, as recently as 2008, Turkey had massed tens of thousands of troops on its southern border and was conducting large air and

ground operations against the PKK inside Iraqi Kurdish territory, provoking threats of violent retaliation from Kurdistan president Massoud Barzani.

In this atmosphere of hostility, Turkey's foreign policy apparatus treated Iraq as a security issue, and primary responsibility rested with the Turkish General Staff. But that posture began to shift in 2008, when Prime Minister Recep Tayyip Erdogan transferred the Iraq file to a special office in the Foreign Ministry, headed by Murat Ozelik, who would later become the Turkish ambassador in Baghdad. Ozelik was among a handful of Foreign Ministry leaders who thought Turkey could mitigate the security threat emanating from Iraq most effectively by building economic ties in both the Arab-majority south and the Kurdish north. He undertook a mission to establish relationships with Kurdish leaders and find points of potential economic cooperation. The United States also pushed for the rapprochement, eager to avoid conflict in the only part of Iraq that had remained stable after the 2003 invasion.

After exchanging visits of increasingly senior delegations between the Turkish and Kurdish capitals, Erdogan himself visited Erbil, on March 29, 2011. By that time, Turkey's leaders estimated that 70 percent of their economic activity in Iraq was focused on Kurdistan. They were also aware of the hydrocarbon resources there. When Erdogan first arrived in Erbil, Hawrami brought geological maps with him to the airport, ensuring that even if Erdogan's visit were cut short for some reason, he would at least receive a briefing on the oil and gas potential just across his southern border.

Turkey's interest in Kurdistan was further galvanized several months later, on October 18, 2011, when ExxonMobil signed six production-sharing contracts with the KRG. This milestone for the Kurdish oil sector signaled that more super-majors would soon follow, and asset prices would be rising. It also caused many Turkish policymakers to believe that the United States was tacitly supporting the KRG's independent oil ambitions. The US State Department had long discouraged oil companies from signing contracts with the KRG by warning them of the significant legal and political risks. But many senior Turkish officials have said in background interviews that they found it hard to believe Exxon would be "allowed" to do anything that truly ran afoul of American foreign-policy priorities. From their perspective, the United States was staking out massive energy interests just across the Turkish border, in both northern and southern Iraq.

Meanwhile, Turkey had been conducting its state-sponsored energy investment—according to Baghdad's wishes—solely through Iraq's federal Oil Ministry.

Turkey has set a high-profile goal of becoming a top-ten world economy by 2023, and it will need an enormous supply of natural gas to get there. Turkey's economy has grown at an average annual rate of about 5 percent over the past decade, and its electricity demand at roughly 7 to 8 percent. The country consumes about 47 bcma of gas currently, and many analysts expect that demand to rise by nearly half in the next decade.

Where will this new supply come from? Turkey already depends on Russia for more than half of its gas, and its imports from Iran are both expensive and fraught with sanctions-related difficulty. Its other major supplier, Azerbaijan, has agreed to earmark 6 bcma for Turkey from the massive Shah Deniz 2 field, but that will only cover about a quarter of Turkey's projected medium-term gas demand growth. Just across Turkey's southern border, the unexploited gas fields of the KRG are a potential game-changer.

An Energy Deal Takes Shape

Turkish and Kurdish leaders first began to discuss a potential energy alliance in early 2012, and by the fall of that year, the contours of a massive deal were taking shape. Given the political complications with Baghdad and Iraq's uncertain legal environment, the two sides decided to structure the deal not as a state-to-state agreement, but

“Turkey has set a high-profile goal of becoming a top-ten world economy by 2023, and it will need an enormous supply of natural gas to get there.”

as a commercial arrangement. Turkey's deal-making vehicle would be a new entity originally called Salus Energy Company, which was registered in Jersey in October 2012 as a private company wholly owned by the Turkish state company, Botas. The name was kept secret for nearly a year, partially because some Turkish officials worried that Salus, which means “salvation” in Latin, was an unnecessarily provocative name for a company that would likely help to empower the Kurds in their struggles with Baghdad. On July 31, 2013, the name was changed to the Turkish Energy Company (TEC).

Although the contours of cooperation were defined in late 2012, it wasn't until March 25, 2013, that the deal was finalized in the form of a commercial framework agreement between TEC (which was still called Salus at the time) and the KRG. Kurdish prime minister Nechirvan Barzani traveled to Ankara for the signing, where he was hosted by Erdogan. The text of that agreement remains secret, but several officials involved in the deal-making have confirmed that it calls on TEC to invest in at least a half-dozen exploration blocks, and to facilitate the export of both crude oil and natural gas through Turkey. The comprehensive nature of the agreement reflects the different interests that have brought the two sides together: Turkey is primarily interested in cheap and plentiful natural gas, while the KRG's priority is to monetize its crude production.

“Turkey is primarily interested in cheap and plentiful natural gas, while the KRG’s priority is to monetize its crude production.”

Turkey has already begun preparing for natural gas imports. The framework agreement guarantees Turkey at least 10 bcma, and as of this writing, the two sides are still in the process of negotiating a gas supply agreement (GSA) that could see this amount increase. Several officials involved in that negotiation say that they have agreed on an initial pricing mechanism—which will make KRG gas far cheaper than Turkish supplies from Russia or Iran—but that they have not yet fully answered the question of how and when the price can be renegotiated. Turkey is apparently confident enough in the medium-term success of those negotiations, however, that it has begun extending its gas pipeline network toward the KRG border. Botas

has already begun the construction of a pipeline from Bismil to Mardin, and is preparing to tender for the construction of a final leg, from Mardin to Silopi, at the Turkey-KRG border. The pipeline will be forty or forty-two inches in diameter, enough to handle 16 to 20 bcma of imports.

Meanwhile, the KRG has nearly completed a crude pipeline to the Turkish border. The first leg of this pipeline begins at the Taq Taq field and runs to Khurmala, near

Kirkuk; the second leg goes up to the border city of Feyshkabour, all without leaving KRG territory. Initially, KRG officials say they will ramp up to 300,000 bpd of pipeline exports in early 2014. Hawrami has

also recently announced a second pipeline project, for heavier crude.

On the Turkish side of the border, crude will flow into the existing Iraq-Turkey Pipeline (ITP), which is actually composed of two parallel lines. The forty-six-inch line is currently being used to transport federally controlled Iraqi oil from Kirkuk to Ceyhan. But the second line, forty inches in diameter, has been dormant due to poor maintenance and lack of crude supply. The plan is to connect the new KRG pipeline into the latent forty-inch line just before the Turkish border, downstream of the federal North Oil Company's (NOC) final metering station. In effect, Erbil and Ankara will be appropriating half of the ITP for KRG exports, despite stark objections from Baghdad.

On the upstream side, TEC and the MNR have finalized terms for investment

in at least six exploration blocks. As of this writing, however, Turkish officials speaking on background have denied that any PSCs have been signed. It is also not clear whether TEC will buy stakes in some, or all, of Exxon's exploration blocks. Erdogan himself has commented publicly that Turkey intends to partner with Exxon, but none of the parties have revealed what such a deal would look like, or the current status of negotiations.

Most crucially from the KRG's perspective, Turkish leaders appear committed to ensuring that the KRG receives direct payments for its exports. The Turkish government has already sanctioned the trucking of 30,000 to 40,000 bpd of crude from the KRG's Taq Taq field to the Turkish port of Mersin. Under this arrangement, the private buyer of the crude—a Turkish-owned, Singapore-registered company called PowerTrans—makes payments that go directly to the KRG and its contractor, TTOPCO, which is a consortium led by the Anglo-Turkish company, Genel Energy. Turkey will likely use a similar model for facilitating the KRG's pipeline exports, with TEC or another intermediary functioning as the official buyer of KRG crude.

Geopolitical Crosscurrents

Leaders in Baghdad vehemently oppose this Turkish "meddling" in Iraqi domestic affairs, and say that Iraq's sovereignty is at stake. Like every other oil-exporting government in the world, Iraq's central government claims authority to regulate

international exports, and has traditionally controlled all of the country's export pipelines, including the ITP. Baghdad leaders cite Article 110 of the Iraqi constitution, which gives the federal government "exclusive authority" in "formulating foreign sovereign economic and trade policy." They also argue that Turkey has affirmed Baghdad's sovereign authority over exports in the agreement governing the ITP, which was signed by Shahrastani and Turkish energy minister Taner Yildiz in 2010.

"The Obama administration has been pushing for a so-called "win-win-win" solution, through which Turkey would avoid any alleged breach of sovereignty and Baghdad would condone KRG exports."

The Obama administration has been pushing for a so-called "win-win-win" solution, through which Turkey would avoid any alleged breach of sovereignty and Baghdad would condone KRG exports. When Erdogan visited the White House in May 2013, Obama affirmed his administration's position, which has been

reiterated in high-level meetings since then. Although leaders in Ankara and Erbil have not indicated any willingness to compromise the fundamental contours of the deal, there appears to be a dim hope of a revived relationship with Baghdad, stemming from Maliki's current political weakness.

Maliki faces reelection in 2014, and will almost certainly need Kurdish support to win a third term. He is also likely eager to ensure that Turkey does not work to assemble a unified Sunni political bloc in Iraq, as it did in 2009 and 2010. This would make it more difficult for Maliki to form a postelection coalition, for which he would

likely need support from a moderate slice of Sunni parties. Against this political backdrop, Maliki has confirmed that he will visit Ankara before the end of 2013. His relationship with Erdogan has been famously antagonistic—Erdogan once compared him to Yazid, the Umayyad caliph who killed Imam Hussein, the most revered figure in Shiite Islam—so it is not clear how far such a dialogue can go.

The biggest sticking point for Baghdad is likely to be the question of payments. Kurdistan currently relies on allocations from the federal budget for the vast majority of its regional budget—more than \$11 billion in 2013—and this dependency has been the primary tie that still binds the two sides together. (Aside from this key financial tether, the KRG also has many trappings of a sovereign state: The government commands its own security forces, provides all public services, flies its own flag, and controls its borders and customs—including its heavily fortified southern border with the rest of Iraq.) If Turkey were to accept Kurdish crude via pipeline, and ensure direct delivery of payments, then the KRG would effectively become economically independent from Baghdad as soon as it could generate enough production capacity and revenue to offset its share of the federal budget. Such economic self-determination is an explicit goal of the KRG, while Baghdad wants to retain its levers of control.

Given those opposing prerogatives, it is difficult to imagine how Turkey can

move forward without taking sides—and Erdogan has left little doubt that he sees deeper interests in the relationship with Erbil than with Baghdad. Although there is far more oil in southern Iraq than the KRG, Baghdad cannot offer the strategic commodity Turkey most craves: natural gas. Even by the optimistic projections of the Oil Ministry, Iraq will not be a net exporter of gas until 2020, and at that point the government has provisionally committed to export via liquefied natural gas (LNG) terminals in Basra. By contrast, the KRG has already committed at least 10 bcma to Turkey at a favorable price, with exports to begin this decade. Moreover, Erdogan has established a good rapport with both Massoud and Nechirvan Barzani, and he has shown willingness to exert his rising influence over the KRG in the pursuit of other objectives: modulating the activities of Kurdish rebel groups in Syria; pursuing a rapprochement with the PKK; and building domestic political support among the Kurdish BDP party in Turkey.

“Although there is far more oil in southern Iraq than the KRG, Baghdad cannot offer the strategic commodity Turkey most craves: natural gas.”

Given this calculus of interests, it seems likely that Turkey will continue building its alliance with the KRG—a message that was reinforced in a late October 2013 meeting between Erdogan and Nechirvan Barzani. But there are also signs that the American opposition has given Erdogan pause, and that leaders in Ankara feel less urgency than their counterparts in Erbil. Hawrami once optimistically predicted pipeline exports would begin by September 2013, but as of this writing, Botas has not yet begun refurbishing the Turkish side of

the forty-inch ITP line. The delay does not necessarily reflect political hesitation from Turkey; it may be a Turkish negotiating tactic designed to extract more-favorable terms in the GSA, or it could simply be a symptom of the technical complexity of the deal. Regardless, there are several significant political, legal, and logistical obstacles that remain.

Obstacles

If Turkey forges ahead with Erbil, without a “win-win-win” solution, Baghdad’s most likely potential recourse would be legal action. The Iraqi government could try to sue unsanctioned buyers of KRG crude, or it could initiate arbitration proceedings directly against Turkey, as the terms of the 2010 ITP agreement appear to allow. Such lawsuits have the potential to drive down KRG crude prices and, if successful, stymie the flow of exports. Yet they also carry a risk for Baghdad. Given Iraq’s ambiguous constitution and legal environment, it is hardly clear which side would prevail—and if a credible international arbitrator were to rule on the side of Ankara and Erbil, that precedent would help to validate the Turkish and Kurdish position.

Baghdad could also respond by making significant reductions to the KRG’s portion of the federal budget. Shahrastani has already indicated that he is seeking to cut \$10 billion in 2014—almost the entire KRG allocation—in recompense for past crude revenues that the KRG has not delivered to the federal treasury. Maliki has distanced himself from this position, however. The prime minister will likely need Kurdish support if he is to win a third term in 2014, and his spokesman has said that, although Erbil and Baghdad do have a difficult reckoning of debts to address, “there might

be a number of alternative ways” beyond a unilateral deduction in the budget.

A further challenge concerns the logistics of payment. Iraqi oil revenues are still subject to UN-imposed regulations and US legal protections. Five percent of all Iraqi crude sales are deducted to pay reparations, mostly to Kuwait, stemming from the Saddam Hussein regime. The remaining funds are held in an account at the Federal Reserve Bank of New York (FRBNY), which is protected by a US executive order from other legal claims. In background interviews, Turkish officials have confirmed that payments for KRG crude will not go to the FRBNY, but without that mechanism, it is not clear how Turkey will facilitate payments to the KRG without running afoul of the UN and exposing those funds to Iraq’s creditors.

Beyond the legal difficulties, Turkey’s patronage of the KRG could have unintended and destabilizing consequences within Iraq. One major problem stems from Iraq’s territorial disputes. After decades of gerrymandering and ethnic cleansing under Saddam, several different groups now lay competing claims to a swath of land between federally controlled Iraq and the KRG. Kurdish authorities intend to develop oil and gas resources in much of this territory, including two of the exploration blocks earmarked for TEC. One of those blocks includes the disputed city of Tuz Khurmatu, where, one year ago, Kurdish and federal Iraqi security forces engaged in a deadly gun battle that led to a prolonged period of tense militarization along the KRG’s southern border. Within the past year, leaders in Baghdad have threatened to respond with force if oil companies

begin drilling in disputed areas. In light of Iraq's rising security problems, stemming largely from the resurgence of al-Qaeda, it now seems unlikely that Baghdad would take military action in response to oil sector provocations. Nonetheless, these tensions have been severe enough to cause ExxonMobil to modulate exploration plans in its own disputed acreage.

Perhaps the greatest uncertainty stems from the prospect of Kurdistan's rising independence. Turkey's leaders deny that they are trying to facilitate the birth of a new state, and in the short term they seem to have an abundance of leverage to ensure that Kurdistan remains a part of Iraq while also becoming a quasi-client state of Turkey. But if they can successfully

implement their energy deal, the KRG will likely gain significant clout. Not only could Turkey end up depending on the KRG for a large and difficult-to-replace portion of its gas supply, but the KRG would also be gaining geopolitical stature as its crude exports rise toward the 1 million bpd mark, and beyond. In light of this possibility, the greatest obstacle to Turkey's budding alliance with the KRG might ultimately be Turkey's own anxiety over following its plans to their logical conclusion.

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Energy in the Eastern Mediterranean: Promise or Peril?

By John Roberts

The Eastern Mediterranean holds great promise for hydrocarbon riches, but there are considerable problems concerning just how that promise might be delivered. It is primarily a gas-rich area, and gas is usually much more complicated to develop than oil, not least because the costs of getting a unit of energy to market in the form of gas are roughly twice those for oil.

Moreover, the Eastern Mediterranean poses a host of trans-boundary problems in terms of getting its output to market, exacerbated by the different stages of development in the region. So, while Israel has already discovered major commercial quantities of gas, Cyprus is only just at the beginning of what it hopes will be a new gas era; it has found some gas, but not enough, as yet, to secure financing for its plans to build a national, and perhaps regional, facility to produce liquefied natural gas (LNG).

The issues concerning practical development of Eastern Mediterranean hydrocarbons essentially comprises

three elements: the resource base, the prospective timing for development of these resources, and the various destinations to which these resources might be sent. This last issue, of course, embraces the complex matter of which markets should be served, as well as the transportation systems required to reach those markets.

In general, the resource base can be considered as reasonably well established already, with considerable prospects for the discovery of further hydrocarbons with Cyprus and, perhaps, Lebanon, joining Israel as owners of commercially viable offshore reservoirs. But while Israel already has one major field, Tamar, in production, and an even bigger field, Leviathan, in preparation for full field development, Cyprus has to face the problem that its sole discovery to date, Aphrodite, is currently insufficient to justify a major export-oriented project, while Lebanon has yet to even implement its current offshore block award program.

As for the final element, the immediate issue is commonly viewed in terms of

whether Israeli gas might be piped to Turkey via a subsea pipeline across or around Cyprus, or whether it might opt for an LNG facility. If it were to choose LNG, then this raises a host of further questions concerning just where such a facility might be located: onshore in Israel, onshore in Cyprus, or perhaps a floating facility in the Mediterranean itself.

Nor are these the only possibilities. There are those who favor a pipeline to Greece, and there are proposals for a radical new form of export transportation using compressed natural gas.

In sum, both the pace and methods of development of this new hydrocarbons province remain uncertain; what is certain is that commercial imperatives will ensure that the energy riches of the eastern Mediterranean will be developed. At present there is a window of opportunity which grants both the companies involved in actual field development and the governments seeking to develop national energy strategies a window of opportunity to decide just how far they wish to go in working cooperatively to develop the region's resources. In commercial terms, they are helped by the fact that some of the leading companies involved in developing Israel's offshore resources are also involved in the sole Cyprus discovery to date; in political terms, there is also the intriguing prospect that an approach to cooperative development of export routes might also

“Both the pace and methods of development of this new hydrocarbons province remain uncertain; what is certain is that commercial imperatives will ensure that the energy riches of the eastern Mediterranean will be developed.”

contribute to movement to resolve the decades-old Cyprus dispute.

The Resource Base

As of late 2013, the Eastern Mediterranean's proven resource base consisted of the following main fields:

Israel:

- Tamar, operated by Noble Energy with Delek and Avner. Reserves: 275 billion cubic meters (bcm). Field production started in March 2013, with a major offshore platform in place. By July 2013 Tamar was producing at a rate of 636 million cubic feet per day (mcf/d), the equivalent of 18 million cubic meters per day (bcm/d), and accounting for 94 percent of Israeli gas production.
- Leviathan, operated by Noble Energy with Delek and Avner. Reserves: 481–566 bcm. Planning is in progress to assess how best to develop the field. The type—and cost—of the development will depend on the export strategy adopted. The decision on whether Australia's Woodside will proceed with its option to take a 30 percent stake in the venture is specifically linked to agreement on export strategy.
- Tanin, Mari-B, Noa, Dalit, Dolphin, Shimshon. Total reserves: 114–127 bcm. Minor fields which may be

developed as adjuncts to Tamar and Leviathan. In July 2013, the official best estimate for recoverable reserves at Tanin was 592 bcf (16.8 bcm), a fraction of the resource base of either Leviathan or Tamar, but enough to make it Israel's third biggest gas field (unless eclipsed by Karish).

- Karish, operated by Noble Energy. Discovered in May 2013. Estimated resource base (with further assessments required to translate these into reserves) c. 50 bcm. Its significance is that it lies close to, but does not appear to extend into, either Lebanon's undisputed exclusive economic zone (EEZ), or the sliver of water in which Israel and Lebanon have overlapping EEZ claims.

Cyprus: Aphrodite, operated by Noble Energy. Reserve base: 102–170 bcm. Planning for development is under way, but is adversely impacted by the downward revision of reserves announced on October 3, 2013.

Palestine: Gaza Marine, operated by BG. Reserves: c. 28 bcm. Discovered in 2000, but no development so far due to such issues as the Intifada and poor Israeli-Palestinian relations. BG officials visited Israel in September 2013 to assess whether field development might now become possible.

Eastern Mediterranean: Total proven reserve base, as of November 2013: 1,000–1,206 bcm.

However, additional resources are also likely to be found. In March 2010 the US Geological Survey estimated recoverable

gas reserves in the Levant Basin (most of which lies within Israeli and Cypriot national or EEZ waters) at some 3.4 trillion cubic meters of gas. Major efforts are under way to discover further resources. Specific efforts include:

Cyprus: The Cypriot authorities have so far defined thirteen exploration blocks located broadly alongside or near the southern coasts of the island, and thus under clear Republic of Cyprus control, and on the Cypriot side of maritime boundary lines agreed upon by Egypt, Israel, and Lebanon. Major companies involved include Total, Eni, and South Korea's Kogas. Charles Ellinas, the executive president of the Cyprus National Hydrocarbons Company (KRETYK), said in March 2013 that natural gas resources in the six offshore blocks already awarded could amount to 40 tcf (1.13 tcm), enough to allow for production of up to 30 million tonnes per year of LNG in the future.

Israel: Ongoing exploration. The key issue is the development of Leviathan.

Lebanon: In May 2013, Lebanon launched its first licensing round with fifty-two companies, including such giants as Shell, Total, ExxonMobil, and Chevron, reported to have expressed interest in Lebanese prospects. But lack of a properly constituted government in Beirut, which was under caretaker administration for much of 2013 in the absence of a government able to secure a parliamentary majority, has delayed license awards. There are ten blocks for which licenses are available, and awards, delayed twice already, are currently supposed to be made in January 2014. In May 2013, Lebanese Mineral Resources Minister Gebran

Bassil declared that preliminary surveys show reserves of 30 tcf of natural gas in Lebanese waters. But this was based entirely on seismic studies conducted by Norway's Spectrum and, in the absence of actual drilling, does not constitute a reliable basis for reserve projections.¹

Palestine: In 2001 BG found the Gaza Marine field, 30 kms off the coast of the Palestinian Territories, with an estimated reserve base of one tcf (about 28 bcm). Initial development plans broke down over the price that Israel would pay for any gas not required by the Palestinian Authority. Renewed talks are currently under way, now that Israel, at least de facto, no longer requires surplus gas from non-Israeli sources.

Turkey (and TRNC): In April 2012, the state-owned Turkish Petroleum began exploratory drilling off the northern coast of Cyprus. This followed a September 2011 agreement between Ankara and the self-proclaimed TRNC concerning continental shelf delimitation, under which the TRNC granted Turkey permission to drill off all the island's coasts, including southern coastal areas controlled by the Republic of Cyprus. So far, however, Turkish companies have made no attempt to drill in such waters, although Ankara has dispatched its Piri Reis survey vessel into waters off coastal areas controlled by the Republic of Cyprus on various occasions.

Greece: The first data sets for seismic studies covering an arc of offshore Greek EEZ extending from south of Crete to the Ionian Sea were made available in July 2013. No figures for putative reserves have yet been made available, and it may be some months before evaluations can yield even tentative estimates. There does not appear to have been any seismic activity in the areas east of Crete extending toward the Cypriot EEZ.

Syria: Damascus has officially undertaken two bidding rounds for offshore licenses.

The first, in 2007, did not result in the award of any blocks. The second, in March 2011, covered 9,038 square kilometers; bids were due by September 2011, but, because of the civil war, the process was not followed up.

“But the time frames for developing Cypriot and Israeli resources now seem out of sync. Tamar is already under development, and the Israelis, naturally enough, want to see Leviathan developed as quickly as possible.”

Prospective Timelines for Development...

When Noble discovered the Aphrodite field in late 2011, it appeared quite reasonable to contemplate the possible development of the field in conjunction with the Israeli offshore fields, Tamar and Leviathan, being developed by Noble. There was a difference in scale, but there was—and still is—a reasonable prospect that there might well be further discoveries in Block 12, Noble's Cypriot concession. This encouraged both Cypriot leaders and Noble itself to consider the possible development of an LNG liquefaction complex at Vasilikos on the southern coast of Cyprus to serve Israeli as well as Cypriot fields. To this end, on June 26, 2013, Noble and Delek signed

1 Gebran Bassil, address to Arab Economic Forum, Beirut, May 10, 2013.

a memorandum of understanding with the Cypriot government to build an LNG facility at Vasilikos.

But the time frames for developing Cypriot and Israeli resources now seem out of sync. Tamar is already under development, and the Israelis, naturally enough, want to see Leviathan developed as quickly as possible. However, on October 3, 2013, the Cypriot government received some very bad news indeed: Noble had revised its previous estimate for the reserve base at Aphrodite, down from a mean of 198 bcm (its original December 2011 assessment) to just 141.5 bcm.²

....And their Impact on LNG

This has profound implications for the timing of any liquefaction project at Vasilikos. Senior Cypriot officials have told the author they think that in practice, it is likely to lead to a two-year delay in developing the plant. Before the reserve revision, the Cypriot government was hoping that it would be able to negotiate a framework agreement for the Vasilikos LNG plant by the end of 2013; to complete heads of agreement with the various parties by the end of 2014; to secure a final investment decision in the third quarter of 2015; to start actual construction in 2016; to have gas delivered to Cyprus in the third quarter of 2018; and to have the first LNG export train operational in the third quarter of 2019.

² When it initially assessed Aphrodite's resources in December 2011, Noble Energy considered the field probably possessed between 5 trillion cubic feet (tcf) and 8 tcf, "with a gross mean of 7 tcf." But in October 2013, it anticipated probable reserves of between 3.6 tcf to 6.0 tcf, "with a mean of approximately 5 tcf." Seven tcf is the equivalent of 198 bcm; 5 tcf equates to 141.5 bcm.

But an LNG project is a complex business. The upfront costs in terms of site purchase, preparation, and infrastructure development, including loading facilities, ensure that the cost of building an initial LNG train is roughly double that of any subsequent train. Since it takes some 7 bcm of gas input to produce 5 mt (million tonnes) of gas output, the Cypriot authorities considered that their initial understanding that Aphrodite possessed 198 bcm was, broadly speaking, sufficient to feed the first train, which they hoped would come on-stream in late 2019, for the standard thirty-year cycle required to secure project financing. (In practice, of course, LNG trains may operate for much longer than this.) They would then rely on further discoveries in Cypriot waters and/or the provision of gas from Israeli fields to provide input for the all-important second train.

So in reducing the initial available Cypriot resource base to around 140 bcm (and it may be better to use an approximation, as prospective investors will now be looking much harder to see how Noble Energy further refines its Aphrodite figures), Aphrodite's operator has highlighted just how great is the disparity between what the Cyprus government would like to do and the indigenous resources available for transforming its dreams to reality.

Moreover, it is by no means clear that the Israelis—either in the form of the actual developers of the offshore fields, or as the government—are prepared to commit sufficient gas at this stage to justify the development of Vasilikos on anything like the timetable envisaged by Nicosia. And while it remains important to restate the key point that it is the same group of

companies that is developing the major fields on both sides of the Israel–Cyprus EEZ boundary, it is also true that so far, no LNG plant has yet been developed that relies on feedstock from an external supplier; or, more to the point, no provider of gas has yet been willing to see its gas processed into LNG in a foreign country.

At present, it looks as if both the Israeli government and the field developers favor a twin-track approach that would envisage exporting some 8 to 13 bcm/y of gas by pipeline to Turkey, and a further 5 bcm/y processed as LNG at Vasilikos. This concept was discussed privately at a conference on Eastern Mediterranean energy at Paphos in early September, but at this stage, such figures should be considered as indicative of volumes that might be made available, rather than as specific proposals for actual project implementation.

Israeli Volume Available for Export

The availability of Israeli gas for general export is, in the short run, constrained by the Israeli government's decision in July 2013 to retain some 540 bcm of proven reserves to cover anticipated domestic consumption over the next twenty-five years. This decision owed much to the fact that in 2012, Israel had expected gas to fuel as much as 40 percent of its power supply, only to discover that, as a result of persistent cutoffs in gas supplies from Egypt, there was only enough gas to account for 14 percent of its power generation. With Israeli electricity already close to 70 percent reliance on gas (largely as a result of Tamar coming online), a strong domestic focus is quite understandable.

In addition, there is also the strongly held view in some Israeli governmental circles that, in order to bolster relations with its immediate neighbors (in effect, to ensure a degree of economic dependence on Israel), a portion of Israel's reserves should be used to provide around 2.5 to 3 bcm/y to regional markets in the Palestinian Territories and Jordan.

However, it should be noted that although Israeli accounts have reported that this meant Israel was seeking to retain more than 60 percent of the gas discovered in its Eastern Mediterranean fields for domestic use, such calculations were based on an assumption that the putative figure of 900 bcm for Israeli reserves used by the government's Tzemach Committee as the basis for its deliberations was no more than an assumption, albeit a reasonable one as of early to mid-2013. But, unlike Cyprus, and as the Karish discovery further demonstrated, Israeli reserves do show good prospects for continued expansion, while the commercial imperatives for getting an export project up and running will make it hard for Israeli lawmakers to secure legislation that limits the amount of gas that can be exported in any given year.

In general, it is far better to assume that while Israel will retain around 600 bcm for domestic use or supply to its immediate neighbors over a twenty-five-year time frame, this does not carry any automatic connotation that some 24 bcm have to be used at home in any given year, not least because actual current Israeli demand is running at about 7 bcm/y. By the time Israeli demand has risen to the average 21.6 bcm, envisaged by the government in setting its 540 bcm retention figure,

actual reserves are likely to have grown sufficiently that there will be then, as now, far more gas potentially available for export than is required to meet domestic requirements, whether in terms of actual consumption or envisaged long-term energy security.

Export Markets and the Way they Might be Reached

Pipelines and the development of LNG facilities constitute the main contemporary systems for large-scale gas exports. The first is generally reckoned to be far more cost-efficient up to distances of around 2,000 nautical miles; the latter generally works better for longer distances.³ But further elements also need to be considered. There is no single global gas market. And Europe—surrounded by gas producers in Russia, the Caspian, the Middle East, North Africa, and now North America—not only has some output in the North Sea, in increasingly interesting frontier areas off Norway, but also constitutes a massive import market that is becoming increasingly competitive.

In contrast, the Asia/Pacific region constitutes an even bigger import market—and one which is likely to grow both rapidly and steadily, as gas consumption increases in contrast to the somewhat hesitant growth prospects for European gas imports, which depend far more on Europe's declining indigenous gas production than on any anticipated growth in actual gas consumption.

³ This generalization should not be regarded as absolute. Some LNG has worked profitably on shorter hauls, notably for Egyptian gas deliveries to Europe, while some pipelines carry gas for thousands of miles, albeit from fields commonly located far inland.

Moreover, if Europe is to be regarded as the destination for Eastern Mediterranean gas, then the obvious initial market is Turkey, since Turkey is the one European country with a steadily increasing demand for gas that can—until or unless the Turks themselves make a major gas discovery in the Black Sea—only be fulfilled by imports. And while there are other prospective suppliers in the region, notably in Azerbaijan and northern Iraq, the proximity of the Eastern Mediterranean fields to Turkey provides an obvious commercial basis for developers to explore, to see just how their gas might be delivered to the most rapidly growing market in the region.

As for the Asia/Pacific markets, precisely because they are so far away from the bulk of their suppliers, by and large they have to be supplied by LNG. And the nature of the LNG trade is such that LNG facilities tend to be developed with firm arrangements already in place for the long-term supply of dedicated volumes of gas to designated customers, according to specific price formulas intended to secure both a return on the high cost of developing the initial LNG liquefaction, shipping, and regasification facilities, and to provide some kind of link to ensure that developers can profit from any subsequent, more-general increase in energy prices.

Theoretical Pipeline Options

In trying to reach Turkey by pipeline, prospective East Mediterranean developers will have to resolve a combination of political and boundary problems. The political issues relate to the ongoing Cyprus dispute; the boundary problems, to the fact that there is no direct pipeline route to Turkey from Israel's

offshore EEZ that currently involves passage through waters that are either uncontested, or considered by Israel to be friendly to Israeli interests.

In theory, there are four prospective routes for delivery of gas from Leviathan to Turkey. These are:

1. Onshore through Lebanon and Syria. Even in the absence of a civil war in Syria, this is not a realistic prospect for Israeli-sourced gas.
2. Offshore through Lebanese and Syrian waters. This entails the same political/security constraints as above, and can thus be ruled out for the foreseeable future.
3. Through waters that constitute the EEZ of Cyprus. This is doable, so long as there is a Cyprus settlement. A variant on this would be through the Cypriot EEZ, then through Cyprus territorial waters and onshore, across the island itself, before heading offshore again for a connection from northern Cyprus to Turkey. Again, this requires the resolution of the Cyprus problem.
4. A maritime route to the west of Cyprus. This raises the vexing question: Who possesses the EEZs through which such a line would pass? Turkish opinion asserts that its EEZ shares a common boundary with Egypt's EEZ; Greek opinion

states that its EEZ shares a common boundary with the Cypriot EEZ. These contradictory claims raise problems which almost certainly rule out immediate consideration of a pipeline to connect Leviathan to Turkey by such a route. In addition, they raise problems concerning the somewhat long-term possibility of a pipeline to connect Aphrodite and any other Cypriot discoveries by pipeline to Greece.

“It is important to note that both Turkish and Israeli government officials appear to believe that they can, somehow, finesse the Cyprus issues and develop a pipeline in the absence of a Cyprus settlement.”

The Pipeline Issue and the Cyprus Dispute

In considering the transit of pipelines through the EEZs of Eastern Mediterranean states, the main point is simply that although the owners of an EEZ cannot legally refuse permission for third parties to build such lines, they have the right to require full environmental impact assessments, and

to play a role in determining the exact route that such a line should take. This, in practice if not in theory, ensures that their cooperation must be secured for the development of such pipelines. This is why any line from Leviathan requires the cooperation of the Cypriot government, and, given the poor state of relations (to be polite) between the Republic of Cyprus and the government of Turkey (which no longer recognizes the Republic of Cyprus), such cooperation cannot reasonably be expected in the absence of a more-general Cyprus settlement.

In this context, however, it is important to note that both Turkish and Israeli

government officials appear to believe that they can, somehow, finesse the Cyprus issues and develop a pipeline in the absence of a Cyprus settlement. Almost certainly, this simply reflects a misunderstanding of attitudes in both the Greek and Turkish Cypriot communities that underpin the Cyprus problem.

Nonetheless, it is possible to envisage that a pipeline connecting the Eastern Mediterranean gas fields to Turkey might be secured within the context of a resolution of the Cyprus problem. Efforts are currently under way to revive the peace process, not least by instituting twin dialogues: one between Ankara and the internationally recognized government of Cyprus, which in practice administers the large, Greek-populated, and southern 62 percent of the island; the other between Athens and the self-declared Turkish Republic of Northern Cyprus, which in practice—and with Turkish military protection—administers the largely Turkish-populated and northern 38 percent of the island.

In addition, with the European Commission moving to reopen talks on Turkish entry into the European Union, prospects for improving relations throughout the region, including the Cyprus problem itself, are better than they have been at any time since the failure of the last Cyprus peace effort in 2004.

In this context, two elements are worth considering. The first is whether there should be an energy track added to the bi-communal discussion process between the Greek- and Turkish-Cypriot communities; the second is whether, in order to save time in the event that a Cyprus settlement were to make such a pipeline possible, the United States and/or the EU might fund a preliminary survey of potential pipeline routes.

“It is possible to envisage that a pipeline connecting the Eastern Mediterranean gas fields to Turkey might be secured within the context of a resolution of the Cyprus problem.”

Although no one has yet carried out a full pipeline feasibility study (or, indeed, a full LNG feasibility study), at least one Turkish group, Turcas, has attempted to cost a pipeline project to Turkey. In September 2013, Turcas formally unveiled a proposed 16 bcm twin-pipe, 470-km

pipeline from Leviathan to either Çekisan or Mersin, in southern Turkey, estimating the project’s cost at \$2.55 billion. In addition, during the course of 2013, Israel’s Delek Group stated that it is also assessing the possibility of a pipeline to Turkey.

Israeli LNG Prospects

There is, of course, the possibility that Israel might seek to develop its own LNG facilities, particularly in light of a prospective delay to the development of Vasilikos. Israel has various options, and all are under study. However, they all have drawbacks.

The options are:

Onshore on the Mediterranean Coast: At first sight, this is the most logical site for

an Israeli LNG facility, but in practice there are few sites that could really work. There would be considerable opposition from environmentalists, who quite naturally want to preserve as much of the country's limited stretches of relatively undeveloped coastline as they can for recreational purposes.

Onshore in the Gulf of Aqaba: A plant on the Red Sea is a logical choice, since the markets Israel would hope to reach are those in the Asia/Pacific region. A terminal on the Red Sea would ensure that tankers would not have to pass through the Suez Canal en route to their prospective destinations—or have to go all the way around Africa were the canal to be closed for any reason. But Israel only has a few kilometers of coast on the Red Sea, and it is all taken up with existing docks or beaches serving the port and people of Eilat. One suggested alternative is construction of a facility at the industrial area of Jordan's adjoining port of Aqaba. But whether the Israeli government would be willing to risk such an investment beyond its borders, even though it has a peace treaty with Jordan, remains highly uncertain.

There is, however, one intriguing variant on the Red Sea concept, and that is the development of a liquefaction facility some 15 or 20 kms inland from Eilat, in the Negev Desert, with the liquefied output then conveyed to LNG tankers via both onshore and subsea cryogenic pipelines.

Offshore in the Mediterranean: There are three current international projects to develop floating liquefied natural gas (FLNG) facilities. In effect, these are giant, purpose-built supertankers carrying full liquefaction trains on board. This option

poses considerable security problems, as such a vessel would be an obvious potential target for anti-Israeli forces, notably Lebanon's Hezbollah.

CNG—the long shot: Although pipelines and LNG constitute the backbone of current international gas-delivery systems, there is the intriguing possibility that both could lose out to a third option: maritime transport in the form of compressed natural gas (CNG). This is an untried technology, although at least one company, Calgary-based Sea NG, has secured certification from the American Bureau of Shipping for tankers capable of carrying anything from 66 to 600 million cubic feet of gas (1.87 to 17 million cubic meters [mcm]). Presentations by Sea NG officials represent the option as one that would be competitive with pipelines, even over short distances, and with LNG over distances of up to 2,000 kms.

Australia's Woodside, which is assessing an option to take a 30 percent stake in Leviathan, is also assessing the introduction of a compression unit as part of the design process for a production platform at Leviathan. If CNG is as competitive as its promoters suggest, then it constitutes a way to deliver Israeli gas to regional markets such as Turkey without any of the trans-boundary problems associated with construction of a direct pipeline. Against this are the uncertainties associated with being the first developer of a new system. There are logical arguments as to why it should prove commercially attractive, but, as yet, there is no experience of it actually working in practice.

Who Determines the Choice of Options?

All cross-boundary energy projects require both a commercial and a political green light (as do many projects within individual states). Commercially, an attractive case can be made both for delivering gas to Turkey in the near term and then, in the medium to long term, taking advantage of Turkey's increasing role as a physical hub to deliver gas to European markets beyond Turkey. In the longer term, the lure of a major market in the Asia/Pacific region is extremely strong; as and when the resource base justifies the initial costs involved in the development of LNG facilities, commercial developers would naturally wish to take advantage of such a market.

But timing is crucial. The Turkish market is on the Eastern Mediterranean doorstep, and Turkey is a market that could take gas as soon as it was actually available in the Eastern Mediterranean; in other words, within two or three years. As for the Asia/Pacific market, sometime around 2020, a host of new, export-oriented LNG projects will come on-stream in Australia and the waters between Australia, Indonesia, and East Timor. These will almost certainly have a profound impact on prospects for other suppliers seeking to secure contracts to deliver gas to customers in China, Japan, and South Korea.

This is one quite genuine reason why Cyprus has been so keen to press ahead with an LNG plant at Vasilikos as fast as possible: It wants to not only sign up customers in the Far East, but also to be able to supply them before the next wave of Australian LNG comes on-stream. This is why the downward revision of initial

reserves at Aphrodite is such bad news for the Cypriot authorities, since it makes it highly improbable that they will be able to secure financing for an LNG plant until new resources are discovered, and then transformed into proven reserves. This, in practice, means waiting for such companies as Eni and Total to succeed in their exploration efforts. So while it is reasonable to assume that, in time, further discoveries will be made, in practice such discoveries have to be made and confirmed by actual drilling. Eni and Total are not due to start their drilling activities until 2014, almost certainly ensuring at least a two-year wait for any significant upward revision of Cypriot reserves.

So this throws the spotlight back on Israeli plans for LNG, or on Israeli willingness to supply gas from Leviathan as feedstock for Vasilikos.

The involvement of Noble and Delek on both sides of the boundary line between the Israeli and Cypriot EEZs, and the difficulties posed by the development of an LNG facility in Israel itself, do make it quite possible to envisage the eventual development of Vasilikos as a plant designed to serve both Israeli and Cypriot gas fields. But in the short term—in effect, until the next round of the Cyprus exploration campaign produces its results (or lack thereof) in late 2014, or sometime in 2015—Israel would have to commit around twice as much gas as Cyprus to make the plant viable. And Israel, while wanting to keep the Vasilikos option alive, quite clearly considers that it should only constitute one element in a multipronged export. In particular, it is highly unlikely that Israel will wish to support the development of an LNG facility

at Vasilikos if it were to be designed, as a result of limited supply from Cypriot fields, primarily to serve Israeli gas exports, since a plant that essentially existed to serve Israeli interests would almost certainly come to be seen by radical anti-Israeli forces in the region as an Israeli enclave in Cyprus, and thus, a prospective target for sabotage or direct attack.

However, the idea that Israeli gas might supply both an LNG terminal at Vasilikos and be piped to Turkey was discussed privately at a conference on Eastern Mediterranean energy at Paphos in early September, with Michael Lotem, Israel's special envoy for regional gas issues. Lotem told the conference attendees: "I truly believe that an energy facility in Cyprus and a pipeline to Turkey are not competing options for Israeli gas; they are complementary options. The model is that one strengthens the other."⁴

Conclusion

The difference in the time frames for developing Israeli and Cypriot gas make it hard to envisage any early start to a Cypriot LNG plant along the timeline favored by the Cypriot government. This raises the issue of how far the Israeli government—and, more importantly, the companies developing Leviathan—will go in pursuing the concept of a joint LNG project rather than focusing on alternative export options, notably a pipeline to Turkey, but perhaps also including development of CNG.

Both a pipeline to Turkey and development of a maritime CNG option would appear

to provide export options for Israel that would enable both companies and the government to monetize the resources of Leviathan much more quickly than by waiting for the development of a viable multi-train LNG facility at Vasilikos. But while a pipeline to Turkey would almost certainly constitute the fastest way for Israeli gas to reach a major export market, such a line can only be laid with the explicit support of the government of Cyprus. And, in practical terms, such support cannot be expected unless there is also a settlement of the decades-old Cyprus question.

The next six to twelve months should be sufficient to demonstrate whether current efforts by the United Nations and the United States to revive the Cyprus peace process are getting anywhere, and whether the European Commission's promised revival of EU membership talks with Turkey are helping to serve détente, if not rapprochement, between the governments of Cyprus and Turkey, and, more importantly, between the two Cypriot communities themselves.

There is a considerable degree of flux in Eastern Mediterranean geopolitics at present, and it is reasonable to argue that the development of export routes for Eastern Mediterranean gas—and, thus, the development of the biggest discovery to date, Leviathan—will very largely depend on just how much the region's geopolitics change in the next year or so.

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⁴ Michael Lotem, Conference on Eastern Mediterranean Energy, Paphos, September 11, 2013.

The Future of EU-Russian Energy Relations

By Adnan Vatansever

Hardly any two counterparts have been more in the spotlight than Russia and the European Union when it comes to energy relations. This is not surprising, given the scale of the exchange. The European Union as a whole remains the world's largest importer of two strategic commodities—oil and gas—with Russia being its main supplier. Russia, in the meantime, is on par with Saudi Arabia in terms of oil (including petroleum products) exports, and an unrivaled gas supplier to foreign markets, far ahead of its main competitors, Qatar and Norway. Furthermore, Russian energy exports remain predominantly destined for the European market, though efforts are under way to capture markets in the Asia-Pacific region.

The EU-Russian energy relationship is bound to remain profoundly important for many years, and possibly decades, because of Europe's dwindling energy resource base, the geographic proximity of the two counterparts, and the sunken costs in massive infrastructure connecting Russian reserves with European customers. Stable

relations are crucial for Europe to ensure its energy security, and for Russia to maintain its economic prosperity, which highly depends on energy export revenues.

And yet, despite the remarkable scope of the energy trade, EU-Russian energy relations have been going through intricacies in more-recent years. Natural gas has been at the center of these complexities. After decades of an excellent track record of gas deliveries by Russia, relations have often become tense between Gazprom, Russia's gas supplier, and individual EU countries and companies.

Growing tensions in European-Russian gas relations have sparked a lively debate about Russia's role in Europe's energy security. This chapter argues that the energy discourse in Europe has been unjustifiably preoccupied with concerns about potential physical disruptions of Russian gas. Instead, the real challenge for European-Russian energy relations—and, in fact, for European energy security—lies in addressing two problems:

- **Managing price disputes that are likely to stay:** Throughout the coming decade, disagreements over the price of Russian gas are more likely to preoccupy Europe than real disruptions in the gas flow. While Europe will come under increasing pressure to acquire affordable energy resources to enhance its competitiveness, Gazprom may find it increasingly difficult to deliver gas at lower prices in future years.

- **Ensuring Gazprom adapts to transformations in Europe's gas market:**

As the European Union takes steps toward a single gas market, member countries and their companies will need to go through a challenging process of adaptation. It will be even tougher for Europe's main gas supplier, Gazprom, to adapt, and the process will inevitably lead to new tensions.

Gas as the Cornerstone of EU-Russian Energy Ties

Gas constitutes only one part of the multifaceted energy ties that have developed between Moscow and European capitals over the past five decades. Russia supplies about a third of EU's gas imports, but it also accounts for 27 percent of EU's crude oil imports, 24 percent of coal imports, and 30 percent of uranium imports. It supplies electricity to neighboring EU members, with plans for further growth in this area of energy trade.

Yet, most of the tensions in EU-Russian energy relations have been about gas. An anxiety about a potential supply disruption, widely shared in Europe, has been principally about gas rather than any other type of fossil fuel or uranium. This, despite the fact that import dependence on Russia has nearly consistently decreased in the past two decades, while for other fossil fuels the trend has been generally upwards. Remarkably, the value of Russian oil and petroleum product exports to Europe dwarfs the total cost of Russian gas supplies in any given year. But apart

from relatively minor concerns among several refiners in Eastern Europe about the future of the Druzhba pipeline, Russian oil has rarely been a part of Europe's energy security discourse.

Furthermore, gas has been at the center of competing pipelines. As EU countries

embarked on efforts to diversify their gas imports, various projects for bringing Caspian gas through Turkey have been in stark competition with a Russian project—the South Stream pipeline, which aims to solidify Russia's leading position in European gas markets. Additionally, the two counterparts have maintained rather conflicting visions about Europe's gas market (see below), contributing to uncertainty over their future gas relationship.

Both counterparts have had a role in the rising tensions with respect to the natural gas trade, as each side has tended to politicize this relationship. In Moscow's case, it is difficult to claim that its gas

“...the energy discourse in Europe has been unjustifiably preoccupied with concerns about potential physical disruptions of Russian gas.”

exports have always been based on purely commercial terms, breeding the perception that Russia aims to utilize energy as a foreign policy tool. Friendly governments among former Soviet republics have generally received preferential treatment through their access to cheaper gas. Likewise, substantial price differentials across Gazprom's European clients are hard to justify on a commercial basis. On the other hand, Russian officials have felt that Gazprom has been treated unfairly with regard to its attempts to penetrate Europe's downstream gas market. The extent to which the Russian gas major could expand its downstream presence in Europe has been left unclear. Additionally, Moscow has clearly perceived the continuous and explicit calls within European capitals for cutting "gas dependence on Russia" as politicized.

However, the tensions in Europe's gas relations with Russia have also been the product of the nature of gas markets, which in the short term is fairly beyond the control of the two counterparts. Unlike in the case of oil, a truly global gas market does not really exist, reflecting the relatively higher cost of shipping gas, particularly across oceans. Natural gas is traded in regional markets that exhibit significant structural and price differences. Notably, only 35 percent of the natural gas consumed worldwide was traded across borders in 2012.¹ The corresponding figure for oil was 62 percent, signifying the more-globalized nature of the market for oil.

It is important to acknowledge that in spite of difficulties in their gas relations,

the European Union and Russia have also taken notable strides toward managing their increasingly complex energy relationship. Since the launch of the EU-Russian Energy Dialogue in 2000, the two players have had a highly active platform from which to discuss questions of common interest, ranging from clean coal development and energy efficiency to nuclear safety and major infrastructure projects for electricity.

Predictably, natural gas has also been high on the Dialogue's agenda. Within the Dialogue's framework, the parties have worked together on developing more-precise methods and models predicting long-term energy supply and consumption, and the EU has agreed to recognize a select group of Russian gas projects as "energy infrastructure projects of common interest." One major achievement of the Dialogue was the agreement to establish an Early Warning Mechanism in 2009, which has been enhanced subsequently with the aim of preventing and managing crises in case of potential supply interruptions. Also, in 2011, EU Energy Commissioner Gunther Oettinger and Russia's Energy Minister Sergey Shmatko decided to create the Joint Gas Advisory Council, whose members include representatives of the gas industry, research institutions, and government on both sides.

Nonetheless, while important, the EU-Russian Energy Dialogue and the resulting initiatives have yet to yield any notable results with respect to some of the most critical sources of tension in the gas relationship. The presence of an intense, high-level dialogue on energy has not succeeded in resolving disagreements

¹ BP Statistical Review of World Energy, June 2013.

on the pricing of Russian gas. Neither has the dialogue substantially dented the gap between the European and the Russian visions about the future of Europe's gas market integration and liberalization.

The Overstated Risk of a Physical Disruption

Discussions about energy security in Europe often reflect one major concern: Substantial dependence on Russian gas provides Moscow with a valuable diplomatic lever. Proponents of this view believe that Russia may ultimately decide to cut off or threaten to restrict its gas supplies in order to facilitate its foreign policy agenda on the European continent.

While a physical disruption could bring significant welfare losses in Europe, a fixation on this possibility is misleading and potentially counterproductive. It misreads current European gas market realities, and overlooks more-salient risks in EU-Russian energy relations.

On balance, for more than four decades, Moscow has been a fairly reliable gas partner in Europe. Gas relations with Western Europe had already started to flourish during the Cold War—despite strong initial opposition from the United States. During the 1980s, the USSR's drive for developing West Siberia's gas coincided with a rapidly expanding market share for Soviet gas in Europe. While generating vital foreign currency revenues for Moscow, Soviet gas played a positive role in alleviating Europe's dependence on oil from the Middle East.

To an extent, Gazprom and Russia carry a fair share of the blame for the misguided fixation on cuts of gas flows to Europe. The disruptions originating in Ukraine in the winters of 2006 and 2009 had a dramatic impact on several countries in Central and Eastern Europe, severely damaging European perceptions about Russian gas supplies. This is true, even though these disruptions need to be viewed in the context of a complex pricing and payment dispute between Moscow and Kyiv; it would be unfair to assign Gazprom sole responsibility for the predicament.

“While a physical disruption could bring significant welfare losses in Europe, a fixation on this possibility is misleading and potentially counterproductive.”

What is more, for many years Gazprom itself played on Europe's sense of insecurity by repeatedly emphasizing, and often overstressing, the potential threat of physical disruption

of its gas sales to Europe—in this case, due to troubled transit countries, Ukraine and Belarus. It readily endorsed Europe's energy security narrative that puts the emphasis on the risks of a physical disruption, though with different culprits in mind: the transit states. This helped to justify its two grand pipeline projects (Nord Stream and South Stream), and, in fact, to secure significant support among European capitals to implement them.

An additional problem with allowing the narrative to remain fixated on the risks of a physical disruption is that it overestimates the benefits allegedly accruing to the supplier, while underestimating the potential harm that suppliers would typically like to avoid. The

act of deliberately interrupting the supply of gas is very much prone to backfire, even with a “reasonable” justification, and would eventually hurt the supplier. It is an incident that cannot escape the public eye. In fact, even the mere threat of cutting off gas supplies can hardly remain hidden, as the importing country can immediately secure international support by exposing the supplier’s “plot” and impairing its hard-earned credibility. The disruptions in the last decade helped to galvanize a more-common stance on European energy security that could eventually erode Russia’s market position, even in Central and Eastern Europe—hardly the outcome Moscow wanted.

Neither Gazprom nor the Russian state appears willing to further risk Russia’s credibility as a reliable supplier. Not only is the Russian government heavily dependent on gas export revenues, but Gazprom also remains largely locked into the European market. The gas behemoth’s failure to diversify its pipeline exports to Asia and its late entry into the international LNG market have solidified this dependence.

Additionally, Europe is headed toward an improved capability to deal with the challenge of short-term disruptions in gas supply, although progress is slower than desired. Significant efforts are under way to construct new cross-border connections and storage facilities. In the near future, countries in Central and Eastern Europe are likely to be able to withstand a gas crisis of the magnitude of the one witnessed in 2009, with substantially less damage. Gazprom’s two grand pipeline projects, Nord Stream and South Stream, could also minimize the risk of disruption caused by a third party (transit country),

enhancing Europe’s sense of energy security.

Managing Price Disputes that are Likely to Stay

The price of gas: A key element for energy security

It has become more common today to adopt a broader definition of energy security that goes beyond the traditional emphasis on the physical reliability of supply, and includes the ability to acquire energy at reasonable prices. Europe’s energy security discourse will need to go beyond the traditional focus on physical disruption, and it has yet to reflect the growing strategic importance of the price of gas.

First, in an increasingly competitive global economy, the price of energy can be a significant part of economic competitiveness for a country, and even a whole region. With Europe bearing the extra cost of staying ahead of the pack in promoting greener forms of energy, the last thing Europeans need to do is overpay their single most important supplier of gas—Russia. The problem has the potential to be particularly acute for the new members of the European Union in Central and Eastern Europe (see below).

Second, Europe is currently negotiating the price of gas, where Russia holds substantial leverage. This could have potential implications for broader policy choices in European countries. Russia’s options—to either placate or punish its European partners—remain wide. It is these levers that in reality could matter more than any theoretical possibilities of Moscow abruptly cutting its gas shipments to Europe.

TABLE 1: Average Price of Gas Sold by Gazprom in European Countries in the First Half of 2012 (USD per thousand cubic meters)

Western Europe and Turkey	
UK	313.4
Netherlands	371.4
Germany	379.3
Finland	384.8
France	393.7
Austria	397.4
Turkey	406.7
Italy	440.0
Switzerland	442.2
Greece	476.7
Denmark	495.0
Eastern Europe	
Hungary	390.8
Slovakia	429.0
Romania	431.8
Serbia	457.3
Slovenia	485.6
Bulgaria	501.0
Czech Republic	503.1
Bosnia & Herzegovina	515.2
Poland	525.5
Macedonia	564.3

Source: *Izvestia*, 2013

Moscow has an array of options with which to approach negotiations with European clients, including: providing ad hoc price cuts; consenting to revise an existing price formula for a few years, or for the duration of the contract; agreeing to exempt gas sales from export taxes (which could mean an immediate 30 percent of extra revenues, and more room for maneuvering for Gazprom); flexibility over the portion of gas indexed to spot market prices; flexibility on “take or pay” obligations;

and so on. Each of these options affords Gazprom substantial clout in Europe.

Notably, in contrast to physical disruptions of Russian gas, negotiations over the price of gas are neither very rare nor are they generally exposed to public view. There are nearly constant negotiations over gas contracts between Moscow and European capitals, and their terms mostly remain proprietary.

Central and Eastern Europe’s vulnerability to higher prices

Reportedly, countries in Eastern Europe, including the Baltics and Ukraine, generally pay substantially higher prices than Gazprom’s clients further west. Bulgaria, for instance, has repeatedly complained that it is paying more than Greece for Gazprom’s gas, even though the gas for the Greek market has to cross its own territory. Notoriously, Ukraine, geographically closer to Russia, has continued to pay more than many other Gazprom clients in Europe. A report by Russia’s *Izvestia*, published at the beginning of 2013, highlights the substantial differences in the price of gas across Europe (see Table 1).

In a comprehensive study of Gazprom’s pricing in Europe, the Russian investment bank Troika Dialog (now integrated with Sberbank) put Gazprom’s European clients roughly into two categories: the “price takers” (nearly all former communist countries in Eastern Europe) and the “price breakers” (Germany, Italy, France, and Turkey).² Eastern Europe has had to pay not only relatively higher prices to Gazprom, but has also faced a greater

² Russia: Oil and Gas, Troika Dialog, July 2010.

TABLE 2: Share of Russian Gas in Total Imports in Select European Countries

W. Europe & Turkey	2000	2012
Austria	86.1	61.9
France	30.9	16.1
Germany	44.3	34.6
Greece	84.2	78.4
Italy	36.6	20.4
Turkey	73.6	57.4

Eastern Europe	2000	2012
Bulgaria	100.0	100.0
Czech Republic	88.0	66.2
Hungary	84.8	81.3
Poland	90.8	82.2
Romania*	94.1	100.0
Slovakia	100.0	92.6

Source: Estimated from annual statistical reviews by BP.
* Latest data for Romania is from 2010.

difficulty in renegotiating the terms of their contracts. For instance, Poland was able to secure a modest price reduction in November 2012, but unlike several German and Italian companies, it failed to get Gazprom's consent to index part of the sales to spot market prices.

The presence of such a dichotomy should not be a surprise. Access to alternative sources of gas—LNG, or gas piped from a non-Russian source—remains the principal path for European companies to negotiate for better terms with Gazprom. As Table 2 illustrates, Gazprom's key clients in Western Europe (including Turkey) continued to diversify their sources of supply during the past decade. All six countries listed managed to reduce the share of Russian gas in their imports. By contrast, in Eastern Europe, with the partial exception of the Czech Republic (which invested in access to Norwegian

gas), the level of dependence on Russian gas imports has remained nearly the same since 2000. And, in fact, not much has changed for them since their days as members of the communist bloc.

It is notable that in the past few years, the share of Russian gas has been declining in countries with access to alternative sources of gas (generally, cheaper gas indexed to spot prices). Gazprom's loss of market share to Statoil in Germany has prompted it to accept several revisions in its contracts. By contrast, Gazprom has retained its market share nearly intact in most Central and Eastern European countries, despite some drop in total sales due mainly to the economic crisis.

At the same time, it is worth recognizing that Gazprom's selective pricing policy is not always an outcome of its ability to exercise its market power. Evidence suggests that Moscow's foreign policy considerations also have an impact on Gazprom's pricing. For instance, in 2012, Russia's close ally in the South Caucasus, Armenia, continued to pay less than half of what Ukraine paid per cubic meter of gas.

An uphill battle on Russian gas prices on the horizon

As economic troubles hurt Europe's demand for gas, and US-bound LNG tankers flocked into the European market, depressing spot prices, suddenly Gazprom was faced with a new reality: Many of its clients wanted less gas, and at a lower price than stipulated in their oil-indexed contracts. The Russian gas major came under increasing pressure to renegotiate some of the contracted volumes, and set the price in line with the lower spot market prices.

After demonstrating its resolve to defend the traditional linkage of gas prices to oil, Gazprom has yielded on some of the pressures. With several of its major clients, notably, in Germany and Italy, Gazprom agreed to index a portion (generally up to 15 percent) of its gas sales to the existing spot prices. In other cases, it reduced its client's take-or-pay liabilities—the amount of gas consumers have to pay, regardless of whether they need it or not. Following several arbitration cases, it also yielded on pressures to provide additional discounts, including some that reduced the burden of clients retroactively. For instance, the company reported its retroactive payments (as a discount) to European customers in 2012 standing at 102.7 billion rubles (~\$3.2 billion). Additionally, Gazprom agreed to provide several customers further discounts (generally up to 10 percent) for 2013.³

And yet, pricing disputes are far from over. In fact, an uphill battle may well be on the horizon for years to come, particularly if Europe's gas demand remains weak. This is because Gazprom may genuinely face growing constraints in response to requests for lower prices, endangering its market position. Also, in certain sub-markets—read, Eastern Europe—Gazprom may not perceive an immediate reason to substantially revise its pricing policy.

Gazprom may still have significant room left for maneuvering (with regard to pricing its gas abroad) in the near future. This is not least because, only two years ago, it still topped *Forbes's* list of the world's most profitable companies. Its

profits stood at USD 44 billion in 2011. While a considerable opaqueness about the company's finances makes it difficult to estimate its precise room for maneuvering, at least for three reasons, this room may be getting smaller in the coming years:

- a suboptimal upstream strategy amidst a rapidly changing domestic and foreign market;
- an expensive export infrastructure strategy; and
- the likelihood for increased tax pressure on Gazprom.

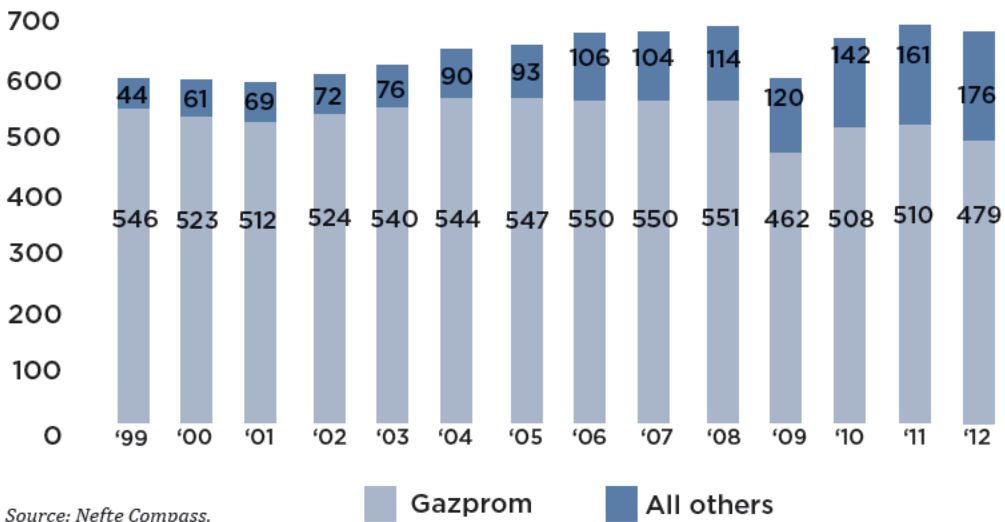
Gazprom continues to carry out an upstream strategy that fails to take into account new realities in Russia's domestic market and abroad. This will come at a cost that could eventually curb its capacity to cut prices when needed.

Gazprom has invested in upstream capacity that does not look likely to be utilized in the near term, and possibly even by the end of the decade. Since 2007, it has plowed over \$40 billion into the development of Yamal, its principal greenfield project. Before the Great Recession, such an investment decision was widely applauded, as the key concern at the time was its potential inability to meet both domestic and foreign commitments.

But market conditions have changed abruptly. European demand remains stagnant, and the IEA predicts that in 2020, the EU's total gas consumption will be only 4 bcm higher than in 2010 (540 bcm forecasted in the New

3 James Marson, "Gazprom's 2012 Profits Fall 11% on Lower Gas Sales," *Wall Street Journal*, April 30, 2013.

Figure 1: Gas Production in Russia (in bcm)



Policies Scenario for 2020).⁴ Russia's Commonwealth of Independent States (CIS) market is not performing any better. In particular, Ukraine, Gazprom's largest foreign client in the CIS, remains determined to gradually reduce its Russian gas imports.

Gazprom's biggest headache, however, may well turn out to be the Russian domestic market. On the one hand, demand growth has drastically slowed since 2008. Energy efficiency measures, especially in power generation, are expected to curb further growth in demand. The IEA's most recent estimate is that Russia will consume only 4.6 percent more gas in 2020 than in 2010.⁵

On the other hand, the Russian domestic market is getting increasingly crowded. Independents and oil companies have aggressively expanded their output in the past decade: Their share in Russia's total gas output increased from a mere 10 percent in 2000 to about 24 percent in

2011. With no access to foreign markets, part of their growth is happening at Gazprom's expense. Some of the gas is sold to Gazprom, but a growing portion is marketed through seizing on Gazprom's clients. Novatek's recent long-term sales contracts with two major Gazprom customers—the Russian arm of Germany's EON, and Mosenergo—are indicative of a troubling trend for the Russian major. Rosneft, Russia's largest oil company, has also announced plans for aggressively expanding its role in the gas business. Furthermore, non-Gazprom gas is set to grow rapidly through the end of this decade, with optimistic estimates adding as much as 100 bcm of extra gas to the market by 2020.

What is striking is that non-Gazprom output has kept growing even when total Russian output has needed to be cut due to a lack of demand. Gazprom has taken the hit by cutting its own production to balance the markets (see). With more gas expected to come from independent gas producers and Russia's oil companies, it

⁴ World Energy Outlook 2012, International Energy Agency.

⁵ *Ibid.*

appears highly unlikely that Gazprom will reach its pre-crisis peak output for many years to come, hurting its bottom line.

In this context, Gazprom has opted for a costly upstream strategy with some potentially significant consequences. Every year since 2009, it has had to curb production below its annual target. What is even more troubling about Gazprom's practice has been its decision to cut production at Soviet legacy fields that produce gas at a relatively low cost, while putting vast sums of capital into greenfield development (Yamal).⁶ So far, Gazprom has demonstrated no intention for restraint in its investment plans in Yamal, despite market conditions. Instead, its cheap legacy fields remain as the major candidates for continued production cuts in the future.

With Yamal output rising, this is likely to raise the average cost of Gazprom's output. This comes on top of deteriorating quality at legacy fields, where costs remain relatively lower, but are on an upward trend. In sum, Gazprom may well be headed toward a gas glut, while its costs head upwards. This could limit its room for maneuvering in its pricing policy in the future.⁷

Moreover, Gazprom's export strategy is likely to further raise the cost of bringing Russian gas to the European market. Exports to Europe are not expected

to grow significantly by the end of the decade. And yet, Gazprom keeps investing in export pipelines that far exceed its capacity needs. With the recently launched Nord Stream, Gazprom already has a substantial excess export capacity. If South Stream comes online, Russia will have a capacity to export well over 300 bcm of gas to the European market—a capacity that is about two times larger than its forecasted exports to Europe in the medium term. This implies that the average capacity utilization in Gazprom's export network will potentially remain low, raising the average cost of shipping Russian gas to Europe. Someone will eventually have to pay for the extra cost.

Finally, the Russian government has signaled an increasingly assertive stance on the relatively low level of taxation that Gazprom has been enjoying—at a time when Gazprom itself needs to maintain large capital expenditures just to sustain current production levels. At the beginning of Putin's first presidency, the tax regime for the oil sector was fundamentally overhauled, resulting in a massive transfer of rents from the oil companies to the state throughout the following decade. Gazprom continued to enjoy lower taxes partly due to its role as a supplier of relatively underpriced gas to the domestic market. In the past few years, as domestic prices have been rising, Gazprom has finally been able to make significant profits from sales at home. But this has also attracted the ire of a growing number of government officials, requesting a "rebalancing" of Gazprom's tax burden.

As the Russian oil sector is about to reach its peak in the next few years, the relative importance of the gas sector as a source

6 Curiously, Gazprom has—so far—failed to at least measure up domestic shale and tight gas potential, though these might easily be closer to the European markets and cheaper to exploit than Yamal.

7 To Gazprom's credit, in 2012, the company decided to postpone investment in another highly capital-intensive field (Shtokman), which could have further strained it financially.

of revenue for the Russian state is likely to grow. At present, the oil sector remains the largest source of government revenue, but it faces a monumental upstream challenge as legacy fields decline and new fields need to be urgently developed just to keep the current level of output. That is precisely why Rosneft is entering into deals with international majors, like Exxon, Eni, Statoil, and BP: to lure in expertise and technology, and to enhance production from old (tight oil) and new (Arctic and Black Sea offshore) fields alike. But this means the government has to forsake substantial tax revenues from the oil sector in order to create a better investment environment and promote its further development.

With the Russian gas sector possibly headed toward a glut through this decade, the Russian government may well look at Gazprom and other gas players to compensate for the foregone revenues. While this outcome is not a given, it does pose a major risk for Gazprom, and could eventually further raise the cost of the gas it brings to consumers in Europe.

Ensuring Gazprom Adapts to Transformations in Europe's Gas Market

Tensions in EU-Russian gas relations are magnified by Europe's internal energy market dynamics and an ambitious agenda that calls for a fundamental transformation. For any supplier faced with a market that goes through transformative changes, adapting involves difficulties. But further challenges arise if this adaptation has to occur in the context of sluggish demand and repeated calls for a revision in established contracts.

Three aspects of Europe's energy market transformation create challenges for EU-Russian relations:

- market liberalization and regulatory reform in member states;
- creating a physically integrated gas market; and
- ensuring fair and transparent market condition.

Market liberalization in Europe

Energy remains one of the last frontiers for the European Union in terms of its decades-long efforts to create an integrated economy, and, eventually, a single market. In several waves, liberalization reforms have started to transform Europe's gas and electricity markets. While the path for creating a single energy market has been a long and a difficult one, it appears the European Commission has decided to take the bold steps necessary to make it happen.

Brussels and Moscow have exhibited stark differences in their vision about the future of the European market. In Europe, the prevalent view has been that further steps in liberalizing the market are necessary to establish a more-competitive market. The underlying assumption has been that increased competitiveness would lead to lower prices for European consumers. European bureaucrats point out that liberalization reforms are fundamentally about a better-functioning market and not directed against a specific energy supplier. In fact, the original target of the European Commission in its drive for gas market liberalization was the national champions in EU member states (such as Ruhrgas,

GDF Suez, ENI), who maintained overly dominant positions in their respective markets.

From Russia's perspective, keeping the status quo is the preferable option. It involves fewer risks for Gazprom, and there is less need for the Russian major to adapt itself to new rules in the market. On an official level, Russian representatives have emphasized that future Russian supplies to the European continent are under risk, and could have damaging consequences for Europe in meeting its energy needs.

It is worth noting that this is not the first time that Gazprom has been anxious about European liberalization. Earlier reform measures, such as the First Energy Package (1998) and the Second Energy Package (2003), were also met with apprehension regarding where the European market was headed, and how Gazprom would adapt itself.

But with this new wave of legislations, Gazprom's business practices in Europe are much more likely to be impacted. The Third Energy Package (approved in 2009) took market liberalization and integration a step further. It stipulates ownership unbundling, requiring the separation of companies' production, transmission, and sale of gas. The Package also stipulates regulatory integration across member states under the coordination of the Agency for the Cooperation of Energy Regulators (ACER).

Furthermore, Europe is in the midst of creating the framework of a new Gas Target Model (GTM), which will establish new rules about the allocation of capacity in gas pipelines. This has the potential to impact existing contracts, possibly necessitating their revision.⁸

The Third Energy Package runs counter to Gazprom's strategy to expand further in the gas value chain by acquiring downstream assets in Europe. Also, it necessitates that Gazprom find a new arrangement for its pipeline assets on an EU member territory. The GTM, on the other hand, raises Gazprom's concerns about the possible need to renegotiate some of its contracts in order to comply with the new proposed rules.

The Kremlin has interpreted the new rules as a means to undermining Russian presence in the European gas market. It is also perceived as a matter of sovereignty. As decision-making power belongs to the EU, Russian officials feel that they need to abide by new rules that they have limited control in drafting.

In reality, however, progress in implementing the Third Energy Package has been slow. In late 2012, the European

“From Russia’s perspective, keeping the status quo is the preferable option. It involves fewer risks for Gazprom, and there is less need for the Russian major to adapt itself to new rules in the market.”

8 For instance, the new model stipulates moving away from the traditional model of trading gas at national borders toward trading at gas hubs. A detailed analysis on the subject is provided in Katja Yafimava, *The EU Third Energy Package for Gas and the Gas Target Model: Major Contentious Issues Inside and Outside the EU*, Oxford: Oxford Institute for Energy Studies, April 2013.

Commission highlighted the difficulties experienced by member states. The Commission reported that it had initiated infringement proceedings against eighteen member countries that had failed to implement the Third Energy Package.⁹ With respect to regulatory integration, the results have also been generally disappointing. Appropriate regulations need to be introduced by member countries. Also, ACER continues to lack the formal powers and financial means to become truly effective.

Completing the liberalization of the internal European energy market by 2014, as envisaged by EU legislation, does not appear realistic. While this only delays the day of reckoning for Gazprom, the pressure to adapt to new market rules is here to stay. In this context, both Russian and EU officials will need to take the opportunity to deepen their dialogue in pursuit of addressing mutual concerns.

A physically integrated gas market

Creating a single-energy gas market within the European Union requires a physical integration apart from simply better coordination in regulatory matters and establishing common rules for member states. This is particularly significant when it comes to ensuring greater liquidity in the market. Liquidity secured through access to competing multiple sources of gas is inevitably important for enhancing the energy security of member states.

In this respect, the EU and Russia have a common interest in seeing Europe create a physically well-connected gas market. It could help depoliticize to an extent the gas relations, particularly through alleviating the energy security concerns of EU's newer member states. The downside for Gazprom could be increased competition in some market segments in Europe, but this is likely to be compensated for by more-stable relations in the medium and longer run.

“...both Russian and EU officials will need to take the opportunity to deepen their dialogue in pursuit of addressing mutual concerns.”

Despite some progress, investments in infrastructure needed to create a single market are lagging. The European Commission estimates that up to 70 billion euros will need to be invested in natural gas infrastructure through 2020.¹⁰ But

regulatory regimes in many member states do not provide an environment that is conducive to ensuring a sufficient rate of return in such investments. Many planned cross-border pipeline connections are yet to be built with funds that are yet to be raised.

In sum, the challenge for EU-Russian relations is not that EU member states are striving to physically connect their markets. It is rather the slow progress in building a well-connected infrastructure, which leaves some member countries more vulnerable, and contributes to politicized energy relations.

⁹ “Brussels Urges EU Countries to Stop Energy Market ‘Distortions,’” November 15, 2012, EurActive News (<http://www.euractiv.com/energy/brussels-urges-eu-countries-ener-news-516075>).

¹⁰ Tim Boersma, “Mr. Putin, Please Shut Down Those Pipelines Again!,” Energy Post, September 18, 2013 (<http://www.energypost.eu/tag/gas-pipelines/>).

Ensuring fair competition

In September 2012, the European Commission opened formal proceedings to investigate whether Gazprom has breached EU antitrust laws. Launched a year after a series of raids on Gazprom's premises in Europe, the investigation has been based on concerns that Gazprom might be abusing its dominant market position in Europe. One particular aspect of the Commission's investigation is that Gazprom might have imposed unfair pricing on some of its clients—an allegation widely pronounced in some Eastern European capitals faced with higher prices.

The European Commission has yet to prepare a formal statement about its decision. But, given its track record of other antitrust proceedings by the Commission, a hefty fine on Gazprom should not be excluded.

The Kremlin's reaction to the European Commission has been harsh. An immediate decree was issued allowing Gazprom to disclose information to foreign regulators only after the government's approval. Gazprom's leadership, in the meantime,

dubbed the proceedings a politically motivated attempt by the European Commission to bring down the price of Russian gas.

The Commission's investigation has clearly ignited further tensions in EU-Russian energy relations. Yet, it could also present an opportunity for both sides. For years, Gazprom has felt unwelcome in Europe during attempts to acquire downstream assets. For many in Europe, the prospects for further penetration by Gazprom in their downstream markets have been daunting. What both sides clearly need is assurance that there will be neither an abuse of market power nor discrimination, as long as all market participants abide by the same rules. The current investigation could help to solidify the long-term rules for doing business in Europe's gas market, although rising tension is inevitable in the interim.

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Cross-border Electricity Exchanges: Bolstering Economic Growth in the South Caucasus and Turkey

By **Nino Ghvinadze**
and **Laura Linderman**

Some fifteen years ago, the United States outlined a strategic vision of the South Caucasus¹ as a vital energy transit corridor from the Caspian basin to Europe that would carry Azerbaijani oil and gas through pipeline routes independent of Russia and Iran. Although South Caucasian energy sectors are already closely interconnected through pipeline networks stretching from Azerbaijan to Turkey and from Russia to Armenia, electricity trade across borders is limited. As regional demand for electric power continues to grow, it is important to tap Georgia's vast hydro and Azerbaijan's cheap natural gas resources and invest in large-scale electricity production. The expansion of cross-border electricity trade will significantly contribute to Georgia's economic growth, help Turkey meet its rapidly increasing electricity needs, and assist European Union (EU) member states in meeting European Commission-mandated renewable energy

quotas. To realize these ambitious goals, Ankara, Tbilisi, and Baku will have to ease technical and legislative trade barriers and attract investors. Consistent technical and financial support from the transatlantic community is essential for the successful implementation of these projects.

Benefits of Regional Integration

Large infrastructure projects that traverse several countries have been proven to help accelerate regional integration and promote peace. Land or sea transport networks, synergized customs regimes, unified energy infrastructure and markets, and international pipelines drive diversified growth and improve political ties. The South Caucasus energy transit corridor was meant to ease Europe's dependence on Russian gas and minimize Russia's influence in the South Caucasus and Central Asia (CCA), but has had broader strategic implications. The corridor has become part of a grand strategy for the region to push economic reforms, encourage spillover effects in other sectors, such as simplification of customs regimes, joint defense projects, and promoting pro-Euro-

1 Georgia, Azerbaijan, and Armenia.

Atlantic policies. Turkey and Azerbaijan are Georgia's leading foreign investors and trade partners. If and when political disagreements are overcome, Armenia has the potential to join and benefit from this trans-Caucasian partnership.

The United States has been a main sponsor of the South Caucasus Corridor initiative, which is seen as part of the New Silk Road of transport and energy links between Europe and the CCA region. An economically sound and stable South Caucasus will be a reliable partner for ensuring the security of Europe's eastern border and provide a lucrative market for both American and European businesses. According to an International Monetary Fund (IMF) assessment of CCA markets,² there is room to deepen intraregional trade. Georgia leads the region with 20 percent of its total trade occurring with its neighbors. By contrast, less than 5 percent of Azerbaijan's and Armenia's total trade is with their immediate neighbors.

Projects included as part of the Southern Corridor vision include the Baku-Tbilisi-Ceyhan (BTC) and Baku-Tbilisi-Erzurum (South Caucasus Pipeline) oil and gas pipelines and the Baku-Tbilisi-Kars (BTK) railway. BTK is a new 105-kilometer branch of a railway, slated to open in 2014, that will serve as one of the exit routes for the International Security Assistance Force (ISAF) from Afghanistan.³ Through a new Marmaray tunnel under the Bosphorus,

scheduled to open in the fall 2013, BTK will be directly linked to the European railway network.

Connecting the Georgian and Azerbaijani energy grids to Turkey and later to the European system is another element of the corridor that was initiated in the late 2000s. The projects, which have received support from the US government and the EU⁴ and are co-financed by international agencies and regional governments, aim to renovate and build new transmission lines to interconnect Georgian, Azerbaijani, and Turkish power grids. Foreign investors are also helping to develop hydropower generation in Georgia and Turkey. These relatively new components of the corridor are even more important now, when shale gas has the potential to diminish dependence on Russian gas and the Nabucco project has been delayed for an indefinite period.

Clean Energy for Regional and European Markets

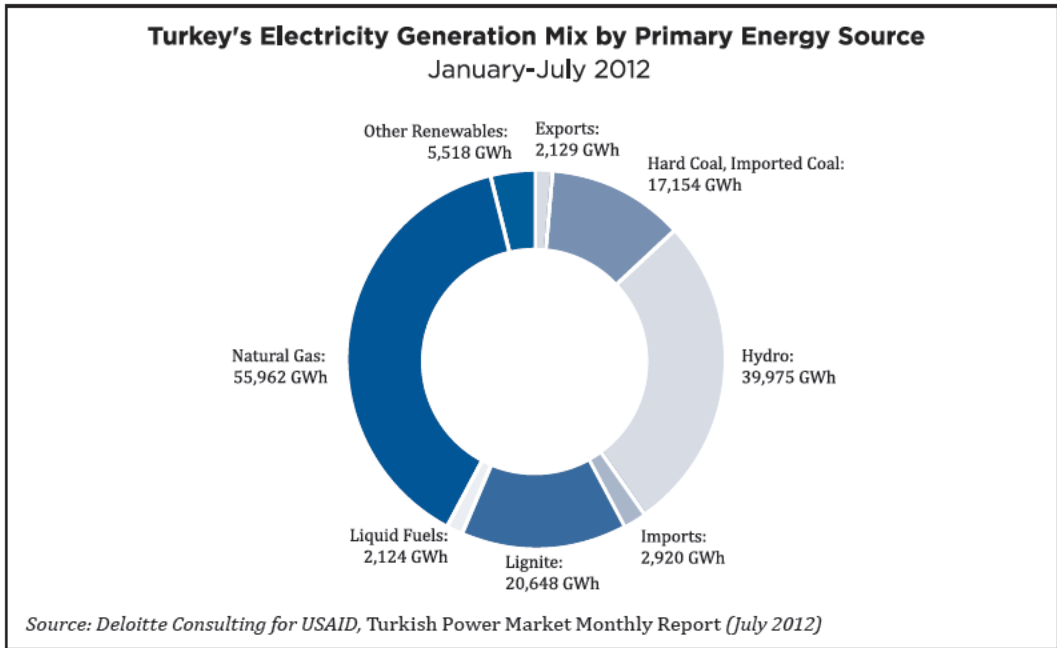
The share of hydropower in the world energy mix is growing steadily, which makes increasing interest in largely untapped hydro potential of Georgia and Turkey very timely. The International Energy Agency (IEA) projects that over the period of 2012 to 2035, almost 60 percent of investments in energy generation will be allocated toward renewable energy sources.⁵ Hydropower constituted almost

2 Juha Kahkonen, "The Caucasus and Central Asia: From Transition to Emerging Markets," IMF, May 2013, <http://www.imf.org/external/np/seminars/eng/2013/cca/pdf/jk.pdf>.

3 Georgia's Prime Minister Bidzina Ivanishvili announced the decision to use BTK as an alternative exit route for ISAF after meeting with the NATO Secretary General Anders Rasmussen in June 2013.

4 The major donor organizations are the US Agency for International Development (USAID), EU's Neighborhood Investment Facility (NIF), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), and German Development Bank (KfW).

5 International Energy Agency, "World Energy Outlook 2012 Factsheet: How Will Global Energy Markets Evolve to 2035?," <http://www.worldenergyoutlook.org/media/weowebsite/2012/factsheets.pdf>.



78 percent of all renewable energy generated in 2012.⁶ Hydropower expansion will be in non-Organization for Economic Co-operation and Development (OECD) countries, as many OECD economies are already widely utilizing their hydro resources. Norway is almost 100 percent powered by hydroelectricity, while Austria generates almost 60 percent, and Sweden and Switzerland about 40 percent of their total electricity consumption. Compared to other OECD countries, Turkey's hydro sector is significantly underdeveloped. Turkey's 2009 Electricity Market and Security of Supply Strategy sets the goal of increasing the share of renewable energy in electricity generation up to 30 percent by 2023 by utilizing all the technically and economically viable hydro and geothermal

potential in the country.⁷ EU 20/20/20 targets call for an increase to 20 percent of total consumption from renewables.

Developing vast hydro resources and strengthening connection of the South Caucasus energy grid with the Turkish and European electricity systems would supply Georgia's economy with cheap renewable energy for the decades to come and help other countries in the region meet their energy needs. With Turkey's full membership in the European Network of Transmission System Operators for Electricity (ENTSO-E), Georgia and Azerbaijan will be able to export their electricity surplus to Turkey and, through energy swaps, to Europe. Turkey has been in the process of joining ENTSO-E since 2010. The third and last phase of synchronizing operations among the Turkish, Greek, and Bulgarian energy

6 British Petroleum, BP Statistical Review of World Energy June 2013. http://www.bp.com/content/dam/bp/pdf/statistical-review/statistical_review_of_world_energy_2013.pdf.

7 Undersecretariat of State Planning Organization, Prime Minister's Office of the Republic of Turkey, "Electricity Energy Market and Supply Security Strategy Paper," May 2009.

grids should be completed by the end of 2013. Georgia and Turkey, along with Armenia and Norway, have observer status in the European Energy Community. The Community aims to extend EU energy policies into non-EU countries on Europe's periphery with the aim of creating integrated energy markets and improving supply security. Georgia is currently negotiating its full membership in the Community.

Turkey's Growing Energy Needs

A brief drop in Turkey's electricity consumption in the aftermath of the 2008-09 world financial crisis was followed by swift recovery, and the country's consumption is expected to double by 2021. Both the IEA and the state electricity transmission company TEIAS estimate that Turkey's medium- to long-term energy demand will be one of the fastest growing in the world. Today, an average Turkish citizen consumes only one-third of the electricity used by an average EU citizen; as Turkey's GDP per capita continues to catch up with that of the EU, electricity consumption is also expected to grow. The TEIAS high and low forecasts anticipate demand will grow by 6.5 to 7.5 percent annually, reaching 467,260 gigawatt hours (GWh) by 2021.⁸ Because of rapid growth in demand, inadequate production, and high input costs, the price of electricity in the Turkish private wholesale market is among the highest (on average nine US cents per kilowatt hour) in Europe, significantly higher than in the South Caucasus and Russia.

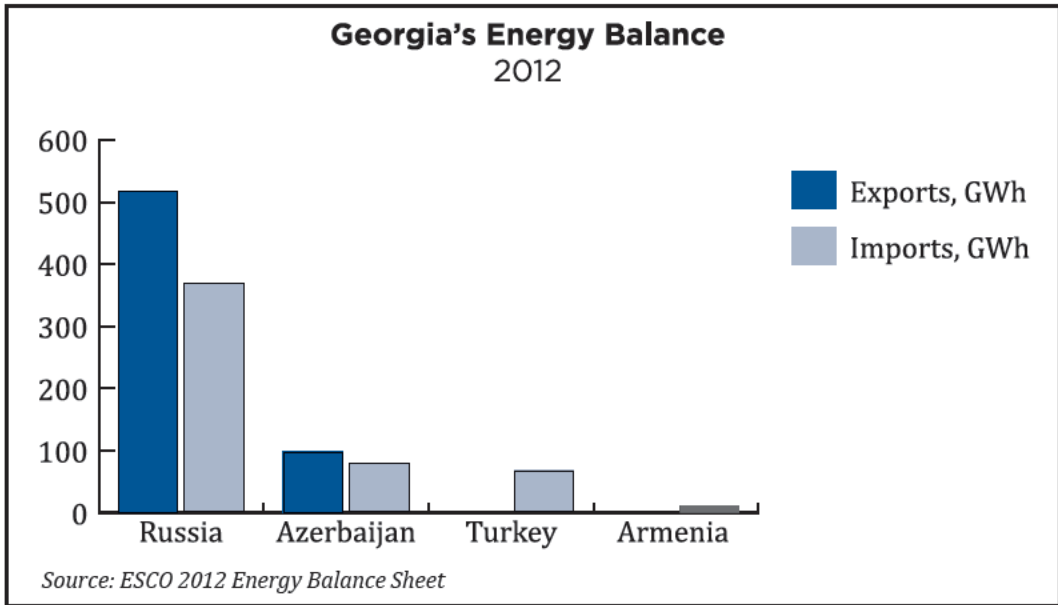
More than 70 percent of Turkey's energy

⁸ Deloitte Consulting for the United States Agency for International Development (USAID), Turkish Power Market Monthly Report, July 2012, February 2013, p. 6.

needs are met by imports. Roughly 57 percent of its natural gas supply comes from Russia, 20 percent from Iran, and about 15 percent from Azerbaijan. Ankara also buys liquefied natural gas (LNG) from Algeria, Nigeria, Qatar, Egypt, and Norway. The share of Azerbaijani gas has significantly increased since the inauguration of the Baku-Tbilisi-Erzurum pipeline in 2007 and will continue to do so. Turkey's other energy generation options include coal, nuclear, and renewables, specifically wind, solar, and hydropower. Ankara is negotiating with foreign companies to build a coal-powered plant and two nuclear plants, but both coal and nuclear power (a new source of energy for the country) have drawbacks—the former increases CO₂ emissions, while the latter is costly. The price of nuclear electricity is estimated to be higher than the average price on the Turkish wholesale market.⁹ Besides lignite, Turkey's domestic energy resources include solar, wind, and hydro resources. With twenty-five river basins and a varied topography, Turkey has about 16 percent of Europe's hydropower potential, and about 28 percent of its electricity production is generated using water. Renewables other than hydro (wind and solar) constitute less than 4 percent of Turkey's electricity generation mix.

Despite the ambitious goals set by the Ministry of Energy and Natural Resources for 2023, new hydro, coal, and nuclear power plant projects face obstacles such as lack of funds and skilled engineers, lack

⁹ According to the agreement with Rosatom, TETAS will buy a fixed proportion of the power at a flat price of 12.35 US cents per kWh for fifteen years, while the average price on Turkish market is about 9 US cents. Source: World Nuclear Association, "Nuclear Power in Turkey," updated in July 2013, <http://world-nuclear.org/info/Country-Profiles/Countries-T-Z/Turkey/#.Uk2oohDI9vh>.



of political consensus, and environmental hurdles.

Today Turkey still relies on “energy swaps”—seasonal and peak hour exchanges of surplus energy with its neighbors—to meet the electricity demand. Electricity imports are likely to increase in the short- and medium-term, since the realization of Ankara’s program is going to take at least a decade.

Electricity Surplus in Georgia and Azerbaijan

Power generation accounts for roughly 3 percent of Georgia’s gross domestic product (GDP) and employs only 1 percent of the workforce, but strategically it is one of the key sectors of Georgian economy.¹⁰ Today 80 to 85 percent of total consumption, which was 7,221 GWh in 2012, is generated by hydropower plants

(HPP)¹¹ and only 15 to 20 percent by coal- and gas-fired plants.¹² In its per capita concentration of natural hydro resources, Georgia is among the leaders in the world. It has the potential to fully replace gas-fired plants with locally generated hydropower and still have exporting capacity. According to official estimates, about 80 percent of the country’s economically viable hydro potential has yet to be explored.

Georgia’s domestic electricity demand is expected to grow about 6 percent annually, reaching 11,171 GWh a year by 2015,¹³ an increase that can be satisfied by expanding hydro electricity production and reducing distribution losses.¹⁴ Georgia’s capacity to store extra water during the summer to generate electricity in the winter needs improvement, however. Surplus water is

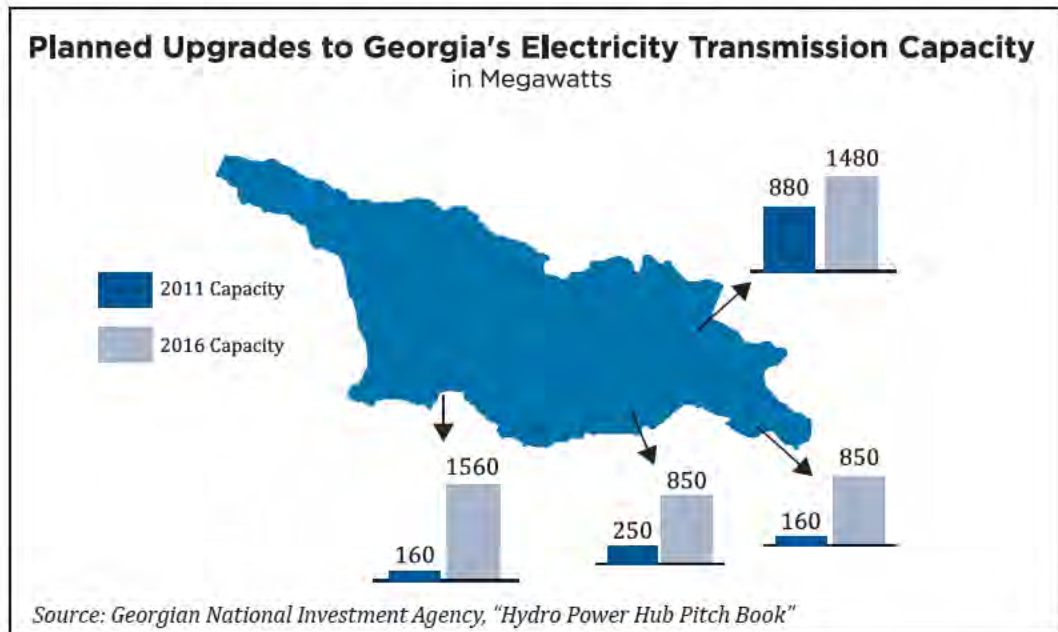
10 Georgian National Investment Agency, “Hydro Power Hub Pitch Book,” 2013, <http://www.investinggeorgia.org/index.php?m=165>.

11 Electricity System Commercial Operator (ESCO), “2013 Energy Balance of Georgia,” http://www.esco.ge/index.php?article_id=105&clang=1.

12 Georgia imports natural gas; the share of coal in energy mix is negligible.

13 Georgian National Investment Agency.

14 Transmission losses are below 2 percent in Georgia.



spilled in the spring and summer months, when the demand on the domestic market is relatively low. As a result, Georgia's total reservoir capacity is only about 10 percent of its annual generation, compared to 70 percent in Norway and 25 percent in Sweden and Switzerland.

In 2011 Georgia was a net electricity exporter. But the country can export only in summer months, and it imports power during the winter. Exports do not exceed 10 percent of total generation, which in 2012 was only 528 GWh; the rest is used domestically. If the right investments are made and distribution losses are reduced significantly, Georgia has the capacity to produce and export electricity at a competitive price.

Azerbaijan's electricity generation is dominated by natural gas, which together with oil, yields more than 60 percent of the country's GDP. Abundant gas supplies and subsidized natural gas prices on the domestic market have translated into an

electricity surplus. Rapid expansion of generation capacity is coupled with slow growth of domestic demand for electric power. Since households account for the biggest share of electricity consumption, widening the gas distribution network and replacing electric with gas heating systems is significantly lowering consumption.

Increases in electricity prices, the introduction of meters, and better bill collection further incentivizes households to cut down on consumption. In 2007, an increase in electricity tariffs to seven US cents per kilowatt hour (kWh) reduced consumption by 11 percent.

Today Azerbaijan sells gas to Turkey for \$350 per thousand cubic meters, which is cheaper than the price of Iranian and Russian gas (\$500 and \$400, respectively),¹⁵ while the subsidized price for local consumers, from companies

¹⁵ "Azerbaijan's gas price for Turkey named," Today.Az, January 14, 2013, <http://www.today.az/news/business/117646.html>.

such as Azerenerji, the largest state-owned power generation and distribution company in Azerbaijan, is roughly \$120.¹⁶ At this price, the cost to generate and transmit electricity ranges from four to six US cents per kWh. Assuming that the average price on the Turkish market is eight to ten US cents, Azerenerji's net benefit is roughly four US cents per kWh.¹⁷ As long as the natural gas price for Azerbaijan's domestic users remains lower than the average price of gas in Turkey, and as long as Azerbaijan keeps selling its gas to Turkey for lower than average market price of natural gas in the region, Azerenerji has incentives to increase production and seek export opportunities.

Azerbaijan is already a net exporter of electricity. However, total exports in 2012 did not exceed 341 GWh, which is less than 10 percent of total production. According to official estimates, Azerbaijan's energy industry is planning to add 1200 to 2000 megawatts of gas-fired generation capacity by 2015 and invest massively in infrastructure renovation to reduce transmission losses in the electricity grid from current 15 percent to more conventional 5 percent level.

“Azerbaijan is already a net exporter of electricity. However, total exports in 2012 did not exceed 341 GWh, which is less than 10 percent of total production.”

Russia and Armenia

Both Russian and Armenian consumers enjoy low electricity prices, but Russian electric power generation relies upon heavily subsidized natural gas.

Despite Moscow's plans to reduce reliance on electricity generated from natural gas, the IEA predicts that instead the natural gas share in Russia's electricity mix is going to increase. More than half of the electricity consumed in Russia's Southern Grid, bordering the South Caucasus and the Black Sea, is generated by thermal

power plants. To achieve parity between high international and low local tariffs, Gazprom is expected to raise domestic rates on natural gas by 15 percent in 2013.¹⁸ If the state allows such an increase, it will be reflected in Russian electricity prices on

wholesale markets. Even if prices rise for households too, however, Russian consumers are not likely to use less electricity because of the inefficiency of the system. Russia is one of the least energy-efficient economies in the world, using almost three times as much energy per unit of GDP as the EU-25.¹⁹

Power consumption in Russia has surpassed the pre- financial crisis level

16 “Price Rise of Gas in Azerbaijan is to Increase Financial Opportunities of Gas Sector—Interview with the Secretary of the Tariff (Price) Council of Azerbaijan Republic,” Tariff (price) Council of Azerbaijan Republic, July 2, 2009, <http://www.tariffcouncil.gov.az/?/en/news/view/43/>.

17 These calculations do not include the opportunity cost of selling natural gas to Turkey on average market price in the region. Source: Econ Pöyry AS, Electricity Export Opportunities from the Caucasus to Turkey, p. 32.

18 “Russia Plans to Curb Gazprom's Domestic Gas Tariffs,” Reuters, February 25, 2013, <http://www.reuters.com/article/2013/02/25/gazprom-tariffs-idUSL6N0BP8Z820130225>.

19 EU-25 represents all EU members except for Bulgaria, Romania, and Croatia. Because these three countries are the latest additions to the Union, certain data for them are not available and some of the analyses conducted prior 2007 do not include them. Source: Econ Pöyry AS, Electricity Export Opportunities from the Caucasus to Turkey, p.72.

already in 2011, reaching 1,021 terawatt hours (TWh). Roughly 80 percent of this electricity is sold on liberalized wholesale markets, but the household portion remains strictly regulated. Overall, Russia's electricity market suffers from unsustainably low prices that provide no return on investment, antiquated power plants, transmission and distribution infrastructure with high power loss, and inefficient consumption. Despite its current status as an energy exporter, Russia may become a lucrative electricity import market in the medium- and long-term, especially its Southern Grid, which has one of the highest demand growth rates in the country.

Armenia can meet its own electricity demand, which was roughly 5.8 TWh in 2012 and exports the excess for five to six US cents per kWh. However, 43 percent of Armenia's domestically-produced electric power is supplied by the Medzamor nuclear power plant, which is scheduled to be decommissioned in 2021. Yerevan is planning to replace it with a new nuclear power plant to be built in partnership with Russia. Funds for construction have yet to be secured, however. Another hit to Armenia's electricity market could be an increase in the price the country pays for Russian gas. Since July 2013 Yerevan has had to adjust to a roughly 18 percent hike in the Russian natural gas price, reaching \$374 per 1000 cubic meters.²⁰ This is about as much as western European consumers will pay in 2013, but still lower than the Russian gas price for eastern European countries.

20 "Armenia: Could a Gas Price Hike Have Political Implications?," Eurasianet.org, June 6, 2013, <http://www.eurasianet.org/node/67096>.

Import-Export Potential and Electricity Markets

The pace of electricity **market liberalization** varies across the region. Turkey, Azerbaijan, and Georgia are all transitioning toward a more deregulated market; Turkey and Georgia are significantly ahead. Although its transmission system is still largely controlled by a state-owned TEIAS, the Turkish electricity market should be more open to independent, nonstate buyers by the end of 2015. In Georgia, liberalization reforms are driven by foreign direct investment (FDI) prospects and the desire to integrate the electricity system with Turkey and southeastern Europe. The electricity market is largely deregulated. State-owned Georgian State Electrosystem (GSE) and the United Energy System SakRusEnergo manage the biggest chunk of the transmission network and international trade. Local electric market prices are calculated by an independent regulatory agency, the Georgian National Energy and Water Supply Regulatory Commission (GNERC). Azerbaijan's electricity sector is dominated by Azerenerji. Retail prices are calculated by the Tariff Council and reviewed and approved by the Council of Ministers and the Office of the President.

Many decision-makers in Baku, Tbilisi, and Ankara fully understand the benefits and importance of deregulation for the development of the electricity sector, but maintaining control over electricity tariffs and keeping electricity bills low is one of the major instruments for keeping the electorate satisfied.

Major **technical challenges** that distribution companies face in these

markets are losses from transmission and distribution because of infrastructure deficiencies, consumer looting, and problems with bill collection. Electricity lost from supply source transmission to distribution stations is in the range of 2 to 3 percent, which is relatively low compared to other developed markets. Moving electricity from distribution substations to consumers is more problematic. Electricity loss, mostly caused by pilferage, is 20 percent in Azerbaijan, 14 percent in Turkey, and 11 percent in Georgia.²¹ Azerbaijan still has significant problems with bill collection in rural areas and has not yet completed a metering process.

Electricity trade

conditions among Georgia, Azerbaijan, and Turkey have been outlined in a number of agreements. In 2007, the countries' leaders signed a "Tbilisi Declaration" announcing plans to build a high-voltage line connecting Azerbaijan and Turkey via Georgia. In 2012, Georgian and Turkish delegates signed a Cross-Border Electricity Trade Agreement (CBETA). The agreement was ratified by the Turkish parliament in May 2013. Georgian-Turkish transmission capacity was strengthened by a new 500 kilovolt transmission line to which the electricity produced in Georgia's newly constructed HPPs will have preferential access. Turkey has long exchanged electricity with its neighbors, particularly with Bulgaria, Greece, Northern Iraq, and Azerbaijan's

"Many decision-makers in Baku, Tbilisi, and Ankara fully understand the benefits and importance of deregulation for the development of the electricity sector."

Nakhichevan region. As Bulgaria prepares to decommission its Kozloduy nuclear power reactor in 2014, it will have to rely more heavily on imported electricity. Hence, Turkey's efforts to strengthen its transmission capacity westward under the ENTSO-E umbrella are timely.²² Electricity swaps are not new to Azerbaijan, Georgia, and Russia as well, but both in Soviet times and during the past two decades this trade has been limited to peak-hour or seasonal swaps on a barter basis.

Development of the energy sector

requires far more **foreign investment**

both in generation and transmission capacities. While Turkey and Azerbaijan are able to cofinance these costs, Georgia largely depends on outside investments and loans from international financial institutions.

The Georgian Ministry of

Energy is looking for investors for at least five large-size and up to seventy small- and medium-size HPPs, which could add roughly 1,500 MW of generation capacity.²³

Georgia is committed to facilitating electricity trade with its neighbors through greater technical compatibility with their power grids, harmonization of legislation, and development and renovation of the transmission

21 The World Bank, "Electric Power Transmission and Distribution Losses (% of output)," <http://data.worldbank.org/indicator/EG.ELC.LOSS.ZS>.

22 "Cross-border capacity between Bulgaria, Greece, and Turkey to Increase," ENTSO-E, April 22, 2013, https://www.entsoe.eu/news-events/announcements/newssingleview/article/cross-border-capacity-between-bulgaria-greece-and-turkey-to-increase/?tx_ttnews%25255Btmp%25255D=2&cHash=d112071b55541fc9a4da0893895b6729.

23 Econ Pöyry, Georgia Presentation, 2011.

infrastructure. The Georgian Ministry of Energy and Natural Resources has adopted a new Electricity Market Model and Electricity Trading Mechanisms²⁴ to be implemented by 2015. GNERC allows distribution companies to add on 60 percent of the total consumer cost to finance expensive upgrades of the grids and substations. Therefore, the end user tariff is high enough to ensure that companies can recover their investments, and Turkey is the only market in the region where such high prices could be competitive. Cross-border trade with Turkey is particularly important because of the seasonal character of hydropower generation. Georgia has the lowest demand and surplus capacity in summer months, when Turkey's power demand hits the highest point.

Challenges

Market liberalization is a long and politically sensitive process. Setting the regulatory agencies right and improving the legislative framework has been a challenge for all countries in the region. Large privatization projects and tariff calculation mechanisms remain opaque and politically sensitive. They are often subject to delays as a consequence of political changes or amended political priorities. International donors and potential investors systematically stress the need for further revision of the Georgian law on electricity and natural gas. Recommended amendments broaden GNERC scope of work and establish new market operating rules and technical and engineering standards.

Recalculation of tariffs for households and small businesses is particularly politicized due to domestic economic and social considerations. As governments try to keep inflation rates down or mitigate social tensions by lowering electricity bills, they are tempted to pressure regulatory committees to recalculate tariffs, undermining the independence of the regulators and the trust of investors. The fact that Georgia's new prime minister and outgoing president fought over the right to appoint members of the GNERC underlines the political sensitivity of the issue.²⁵ The same applies to Azerbaijan's largely state-owned electricity sector. Baku prefers to maintain control and be able to intervene when strategic decisions about the tariffs have to be made. Consistency in deregulation reforms, transparency of tariff calculation methodology, and independence of national regulatory agencies are essential parts of the sustainable development of the sector.

Private investors have incentives to favor easy, short-term projects. Today's economy and the political volatility of the region naturally encourage short-term and easy-to-implement investments in traditional ventures. Although less environmentally friendly and economically sustainable in the long run, many Turkish companies find it safer to invest in thermal power generation, relying on relatively cheap Azerbaijani gas. Thermal power plants offer an easy and almost guaranteed profit, while most of the hydro power plants are more challenging to engineer and require more time, financial resources, and cross-border trade to be made

24 Deloitte Consulting for USAID, Georgian Electricity Market Model 2015 and Electricity Trading Mechanism, January 2013.

25 "Saakashvili Vetoes Bill That Cuts President's Power over Energy Regulator," Civil.ge, July 15, 2013, <http://civil.ge/eng/article.php?id=26245>.

economically viable. Without continued high-level backing from governments and international funders, the private sector will always have an incentive to favor short-term investments. The same applies to Georgian energy companies. Just recently, GSE announced the decision to build a 500-kilovolt power transmission line to Russia,²⁶ although sources of funding have not been specified. While added export capacity and diversification of the export-import market is good, throwing political capital behind a project of questionable economic viability in hopes of short-term political gains is not. The Russian and Georgian electricity grids are already connected via one 500-kilovolt line. While this existing line may benefit from further upgrade, investing an additional \$50 million in the new line to Russia, where energy prices are lower and future economic and political trends are largely unpredictable, is not the wisest thing to do. Tbilisi and Ankara should concentrate both political and financial resources on more expensive and lengthy, but economically and environmentally more sustainable hydro energy.

Large hydropower plants raise environmental concerns. Environmental and social impact issues receive some attention in Turkey and Georgia, but to a much lesser degree than in the northern European markets. As is often the case for emerging economies with strong growth, economic concerns tend to win over environmental or even social and local community concerns in project development. Negative consequences of HPPs on microclimates are outweighed

by the benefits that energy independence and clean energy generation can bring to Georgia's economy and environment.

Conclusions

Continued support from the US, EU, and international financial institutions is essential for the realization of the South Caucasus electricity corridor projects. The decision-makers in Ankara and Tbilisi should be constantly reminded of the long-term advantages of hydropower and the importance of energy independence for the region to make sure that short-term private interests do not outweigh long-term developmental projects of strategic importance.

Consistent liberalization of energy markets, strengthening of the legislative framework, and the independence and professionalism of regulatory agencies in Turkey, Georgia, and Azerbaijan are major preconditions for the development of the sector and for maintaining the trust of investors and international partners.

Just like the BTC and BTE pipelines, the South Caucasus electricity corridor initiative is ambitious and challenging, but can have a tremendously positive impact on the region's energy independence, and for the stability and security of this strategically important but volatile region.

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²⁶ "Georgia Plans to Build 500-kilovolt Power Transmission Line towards Russia," Trend, Tbilisi, July 16, 2013, <http://en.trend.az/regions/scaucasus/georgia/2171309.htm>.

Europe's External Energy Relations

By Sami Andoura

In the unstable energy landscape of the twenty-first century, the question for the European Union (EU) is how current policy developments can deal with the numerous and wide energy issues it faces today, and in the future, on an unprecedented scale. The future of its energy policy has become a major long-term geopolitical, economic, environmental, and social concern for Europe. In this context, the EU needs to develop a coherent external energy policy and look for new means to deal with its external energy dependence through an enhanced common approach to its energy relations with external partners.

Review of EU External Energy Policy Developments

National sovereignty and European (external) energy governance: troublesome ties

Member states have long been unable to balance divergent interests against the need to develop a common energy policy, both internally and on the international scene. They have consistently favored the

rule of national preference in promoting their energy interests and developing strategies deemed acceptable. This is reflected in the European Treaties, which from the beginning stipulated that EU legislation may not affect a member state's choice of energy sources, or the overall structure of its energy supply. This diversity is directly mirrored in the different energy mixes between member states.

Despite the importance of a strategic dimension in any energy policy, security of supply and foreign supplier relations have largely been neglected at the EU level, and remained the preserve of member states only. Faced with successive historical energy crises and oil shocks (1956, 1967, 1973, etc.), which exposed the vulnerabilities of energy-importing countries in Europe, member states have long favored an intergovernmental approach which excludes the EC Treaty's common institutional structures, and instead relies on international organizations such as the International Energy Agency (IEA), or on bilateral relations with the governments of

countries that supply oil and gas (and their companies). The inability of the EU to develop a common foreign policy has intensified this trend and remains an obstacle to establishing a global energy policy.

Security of supply at the heart of the new European energy policy

More recently, the proven effects of climate change, increased energy prices, a growing dependency on foreign supplies of fossil fuels, and problems with supplier and transit countries together underscored an urgent need to develop a common European energy policy. In this complex environment, the EU laid the foundations for a new energy policy with the adoption of an energy and climate package¹ in March 2007.² This legislative package remains the cornerstone of the current EU energy system. The newly designed Energy Policy for Europe (EPE) pursues the following three objectives: 1) to increase security of supply; 2) to ensure the competitiveness of European economies and the availability of affordable supply; and 3) to promote environmental sustainability and combat climate change.

For the first time, a specific external dimension for the EU energy policy is foreseen, mainly based on the diversification of supply sources, primarily of gas, and on Europe-wide transportation networks. Later on, the European Commission launched regular institutional reviews of energy policy. The second one in 2008 directly addressed the question of

energy security and solidarity, and called for an Energy Security and Solidarity Action Plan.³

A new legal basis for the EU energy policy: energy solidarity under the Treaty of Lisbon

In parallel with these policy developments, the Treaty on the Functioning of the European Union (TFEU, i.e. Lisbon Treaty), which entered into force in December 2009, brought major changes in the energy field. Article 194 TFEU offers the first specific legal basis for a European energy policy. It is the result of a carefully crafted compromise between respect for national sovereignty in matters of natural resources and energy taxation, and a shared competence between the EU and the member states. The treaty does, however, specify that the four main objectives of Europe's energy policy set out in Article 194(1) TFEU must be met "in a spirit of solidarity between member states." While the treaty did not provide a clear framework or guidelines for the implementation of solidarity in the development of a new energy policy, the effectiveness and political importance of the principle has been proven several times over by Russian gas suppliers and transit countries, such as Ukraine in 2006.

Crises in Russian gas supplies: a triggering event for EU action

The early twenty-first century was marked by serious energy conflicts in the neighborhood of Europe, especially in the East. In an unstable context, where Russia exerted increasing pressure on transit countries—including Ukraine, Belarus,

1 A European strategy for sustainable, competitive, and secure energy, COM (2006) 105 final, An Energy Policy for Europe, COM (2007) 1 final.

2 European Council, March 8–9, 2007, Presidency conclusions 7224/07 (CONCL 1).

3 Second Strategic Energy Review: An EU energy security and solidarity action plan, COM (2008) 781 final.

Georgia, and Moldavia—the gas supply conflicts between Russia and Ukraine were a watershed in European energy policy, and affected several member states (seventeen in total). These successive gas conflicts highlighted the extreme vulnerability of certain member states, mainly located in Central and Eastern Europe, and revealed the inability of the EU and its member states to provide a coordinated response in the event of an unplanned interruption in gas supply, even though the amount of gas available in the EU as a whole remained sufficient, given the existing storages. Several troubling observations were made, including:

- absence of a truly diverse energy mix and a heavy dependence on Russian gas in certain member states;
- lack of the interconnections needed for bringing gas from Western to Eastern markets;
- persistent limitations and constraints in existing energy infrastructures (inability to reverse flows between countries);
- limited storage capacity and unequal access to capacity between countries;
- disagreement between member states with regard to Russia; and
- weak response from the EU institutions and its member states.

The gas crises were therefore a wake-up call for member states and European institutions, as well as a catalyst for tangible and pragmatic progress in that field. This allowed several major

advances, particularly in the internal domain of security of supply with regard to the gradual establishment of necessary infrastructure—including interconnection, establishment of mechanisms for prevention and crisis management in the field of gas,⁴ the gradual integration of national energy networks—but also externally, with a European strategy for diversification.

Diversification of Energy Sources as the Backbone of EU External Energy Policy

Gas in the energy mixes in Europe: transition(s) and uncertainty

Natural gas is an essential element of the EU energy mix. It accounts for approximately 25 percent of the total primary energy supply. In the past ten years, gas consumption has grown rapidly in Europe, and this process could accelerate in the coming years, especially in light of the energy transition that is gradually taking place in Europe. However, there has been a drop in gas consumption in the EU in both 2012 and 2013, without knowing at this stage whether this trend will be sustained. The magnitudes in question will inevitably have an impact on energy security in Europe.

With decreasing domestic production, gas imports have increased rapidly, thus creating higher import dependence. Although the EU was already importing 54 percent of its energy needs in 2006,⁵ its dependency on non-EU countries for

⁴ The EU adopted a new framework to safeguard the internal security of supply within the gas sector, i.e., Regulation (EU) No 994/2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC.

⁵ EU energy in figures, Statistical Pocketbook, DG ENER, 2012.

its energy supply is expected to grow. EU imports are set to increase to 67 percent by 2030, covering relatively 95 percent of its oil needs and 84 percent of its natural gas needs.⁶ Beyond the main trends of the EU's overall import dependency on three main suppliers (Russia, Norway, Algeria), dependency varies greatly from one member state to another. At the EU level, the range of gas supply sources is relatively broad. At a national level, however, for historical reasons, a number of member states rely on a single supplier for 100 percent of their gas needs. While most Western European States have a reasonably well-diversified gas supply, other member states, mainly in Central and Eastern Europe (but not exclusively), rely completely (Estonia, Finland, Latvia, and Slovakia) or mainly (Bulgaria, Czech Republic, Greece, Lithuania, Poland, and others) on a single source, which in most cases is Russia. Import dependency is not in and of itself an inherently negative phenomenon; nevertheless, it involves conducting a review of the issues of security of supply and diversification of energy sources.

Supply sources diversification: a European strategy

The growing vulnerability and dependency of member states has caused intra-European competition for supply diversification. Most EU member states and main private companies are engaged in

unprecedented diversification strategies of energy sources and resources. As a result, various competing and controversial projects designed to diversify the supply routes for oil and gas pipelines have emerged. Examples include Nord Stream, Nabucco, and South Stream. Nevertheless, the EU is still seeking to define a coherent and collective diversification strategy for supplies and international partnerships, notwithstanding the 2011 European Commission communication on the external dimension of European energy policy.⁷

“In practice, it is the energy industrial operators who have so far played an important role in stimulating greater diversification of supply flows and flexibility within gas markets.”

By ensuring greater diversification of supply sources, mainly natural gas, and transport routes at the European level, the European strategy is seeking to limit the EU's exposure to its imports, particularly for member states that

depend on a single supplier. Efforts include correcting the excessive imbalances in the gas markets between continental and central European countries in order to attain a pan-European gas market over time. To this end, the EU has committed to speaking more often “with a single voice” on the international energy stage, and more coherently by reinforcing energy partnerships and dialogues with the main transit and supplier countries.

In practice, it is the energy industrial operators who have so far played an important role in stimulating greater diversification of supply flows and

6 Trends to 2030—European Energy and Transport, DG TREN, 2009.

7 The EU Energy Policy: Engaging with Partners beyond Our Borders, COM/2011/0539 final.

flexibility within gas markets. They have, for instance, spearheaded several investment projects to develop a supply of liquefied natural gas (LNG) from a diversified range of sources in the Middle East, Qatar, and Africa, as well as in North and South America and elsewhere, and to develop storage capacity as well as additional pipelines to the EU.

The Southern Gas Corridor as the EU flagship project of diversification

One of the major European initiatives is to develop a Southern Gas Corridor as a genuine project of European interest for the diversification of its supply, with Nabucco being the flagship project. The EU has taken a high-profile stance and put its full weight behind developing this project, which it conceived as of genuine European interest. Since its inception, the project has overcome a number of obstacles: delays, rising costs, supply that is not yet secure, and fierce competition from other European projects, including those promoted by the Russians (i.e., South Stream, etc.).

It is now certain that Nabucco will never come online in the form initially promoted by European institutions. It was first scaled as Nabucco West (supported by private operators Austrian OMV, Hungarian MOL, Romanian Transgaz, Turkish Botas, and Bulgarian Bulgargaz), and designed to transport gas from the Caspian to the EU from the Turkish border, as an extension of the Trans-Anatolian Pipeline (TANAP). Then it would continue transport through Bulgaria and Romania to Austria and gas hub Baumgarten. Nabucco West was finally eliminated from the competition by Azeri suppliers and other developers of the consortium for the

Shah Deniz II gas field (supported by BP, Statoil, Total, and SOCAR) for the benefit of its direct competitor, the Trans-Adriatic Pipeline (TAP—supported by Statoil and E.ON Ruhrgas AXPO), which will deliver gas up to 10 bcm per year, from the Turkish border to the EU (by extending the TANAP), through Greece and Albania to Italy.

A number of lessons can be learned from the Nabucco experience. Above all, it is difficult to develop a gas transit without sufficient insurance for the volume of gas available for such a pipeline. Concretely, this project was not sufficiently based on the existence of enough quantities of available gas. Gas resources from Azerbaijan were quickly proved inadequate, and it was never clear how much Turkmenistan, or other suppliers beyond, would engage in this European project of diversification. Moreover, it is more difficult to develop a project of this magnitude when companies and private operators involved are small- or medium-size, not among the largest in Europe, as it turned out after the withdrawal of German operator RWE from Nabucco. Other factors have also played a role, such as the Russian lobby vis-à-vis the countries of Central Asia, the price differences between gas markets targeted by TAP and those covered by Nabucco West, or the (in)direct interest of Azeri (SOCAR) in the Greek energy infrastructure.

Energy partnerships: strategic approach and framework agreements

Joining forces and speaking with a single voice with external partners (producer and transit countries), and pursuing its interests with regard to these states and other trade entities, can also mean

that the EU must negotiate directly with suppliers and transit countries (Russia and Ukraine, but also Central Asia, etc.). When necessary, and in the name of EU common interests and solidarity, the EU will negotiate the conditions of energy supply to European markets, while leaving companies to negotiate and conclude the final contracts over volumes and prices with suppliers. Beyond the current case-by-case, ad hoc approach, the EU is progressively trying to conclude framework agreements with some of these countries, establishing the rules of the game for energy relations, on an equal footing and in-line with the principles of interdependence, reciprocity, and solidarity. The mandate of the European Commission to negotiate a framework agreement with supplier and transit countries in Central Asia (Azerbaijan and Turkmenistan) is a first step in this direction. However, such an approach remains too often absent in bi- or multilateral instruments concluded with supplier and/or transit countries, notably with Russia.

Gas supply capacities: toward a collective approach?

The EU has also explored the possibility of pooling adequate supply capacity for energy resources, establishing, in exceptional and solidly justified circumstances, the “European Union Gas Purchasing Group.” This group aims to give member states and participating companies a genuine power of negotiation with regard to external suppliers. Precisely, the European Commission has studied the feasibility of a group purchase mechanism, mainly to develop the Southern European gas corridor, i.e.,

the Caspian Development Corporation.⁸ The mechanism responds directly to an offer expressly made by the Turkmen negotiators concerning the purchase of gas in large quantities (approximately 30 billion cubic meters per year), without knowing at this stage whether this is a real offer or just a diversion from the Turkmen.

Given that no European operator or member state alone is able to handle such a large quantity of gas, this mechanism is of practical and concrete interest. However, the project came up against a good deal of opposition, mainly among the big national industry players, along with some member states that consider it to be too rigid. They also believe that it interferes too much in their respective activities, and ultimately do not see any commercial interest for them in such a tool. So far, these industrial operators remain the de facto key actors responsible for access to energy resources outside the EU, and, therefore, security of supply. Moreover, establishing this type of instrument might pose a number of problems, mainly with regard to the application of European competition rules.

Other Core Elements of EU External Energy Policy

An external dimension of EU energy policy in-line with the internal market

A finalized and well-functioning European gas market can only be achieved if it also takes into consideration the external dynamics that have a direct impact on the internal market. In this respect, a key issue is the respect of the EU *acquis*

⁸ Caspian Development Corporation, Final Implementation Report. Presented to World Bank, European Commission, and European Investment Bank. Cambridge, MA: IHS CERA, December 2010.

communautaire by third-party operators, as well as external agreements on energy supply and/or transit. In this context, the European Commission opened formal proceedings in 2012 to investigate whether Gazprom may be in breach of EU antitrust rules, and in particular, whether it may be abusing its dominant position in certain Central and Eastern European gas markets.⁹ The sensitive issue of tariff-based discrimination is at the very core of the investigation, as well as the issue of oil-indexed prices. Should the investigation prove that any breaches took place, Gazprom would have to cease these practices, and could be subject to considerable financial penalties.

Another key phenomenon is the noncompliance of related infrastructure contracts signed with third-party suppliers with the EU *acquis communautaire*. The European Commission has been requiring compliance with the regulatory framework established by the Third Energy Package in the EU and beyond since 2011. When renegotiating their gas infrastructure contracts with Russia, Poland (as concerns the Yamal–Europe natural gas pipeline), and then Lithuania (as concerns its gas network), the European Commission concluded that these contracts were not in compliance with EU law. Russia subsequently contested this, believing that it was not subject to these rules, and

questioned the validity of EU legislation, including its Third Energy Package, as unfavorable and discriminatory to it. The European Commission has remained firm in the face of these criticisms, and has made the proposal to foster dialogue with Russia as part of EU–Russia energy relations. Generally, it has also invited member states to become involved in earlier phases of infrastructure contract negotiations in order to ensure their compliance with EU legislation.

Transparency of external energy agreements

The lack of transparency in bilateral supply contracts signed by member states has been detrimental to European energy solidarity and mutual trust between member states several times in the past. For instance, this was the case with the Nord Stream pipeline, which connects Germany and Russia via an offshore pipeline across the Baltic Sea, thereby bypassing the transit countries Ukraine, Poland, and the Baltic States. This sparked anger

against Germany and illustrated the lack of energy solidarity in Europe. Learning from these past conflicts, in November 2012¹⁰ the EU implemented an information-exchange mechanism with regard to new and existing intergovernmental agreements between member states and

“The lack of transparency in bilateral supply contracts signed by member states has been detrimental to European energy solidarity and mutual trust between member states several times in the past.”

⁹ Antitrust: Commission opens proceedings against Gazprom, IP/12/937, April 9, 2012.

¹⁰ Decision No 994/2012/EU of the European Parliament and of the Council of October 25, 2012, establishing an information-exchange mechanism with regard to intergovernmental agreements between member states and third countries in the field of energy.

third-party countries in the field of energy (e.g., the agreement between Russia and Bulgaria on the construction of the South Stream pipeline), but not with private law contracts concluded between suppliers and industrial operators. The aim of this mechanism is to increase transparency between member states, and to ensure that these agreements comply with EU rules concerning the internal energy market and the objectives of security policies.

Energy dialogues with EU neighboring countries and beyond

The EU is entertaining a wide range of energy dialogues with third countries such as Russia, the United States, China, India, and other countries from Central Asia. In this context, energy cooperation with neighboring countries both south and east is part of a far-reaching project to create a pan-European area of security and prosperity, in the name of energy security and diversification of supply. The aim of the EU is that its neighbors will gradually open up their respective energy markets on a reciprocal basis, and develop with partners concrete co-development projects in the energy sector. So far, this strategy is mainly about transferring the Community energy *acquis* to neighboring countries. These activities take place within the following policy frameworks: the South East European Energy Community, the European Neighborhood Policy, and/or the Eastern Partnership, as well as the Union for the Mediterranean. It nevertheless remains key that the European Commission firmly monitors the national authorities of these countries to ensure that they properly implement the needed reforms in their energy sectors (in gas, electricity sectors, etc.). The EU is looking at a new project of diversification—the

new energy discoveries in the eastern Mediterranean area, which involves at least two EU countries (Cyprus and Greece).

Conclusion: Toward an Enhanced Interaction between EU Energy and Foreign Policies

While all of this progress in the field of EU external energy policy is beneficial and welcome, one must recognize that so far, it mainly consists of individual initiatives that cannot yet be regarded as an overall EU strategy. The external dimension of EU energy policy, mostly identified with the issue of diversification of energy sources, is still too often discussed incidentally to the general rules of the internal market, and developed at the technical level.

When will the EU be able to move forward on its own initiative, anticipating the future and making decisions in the energy field that are based on a conscious and assumed choice on the benefit of a collective and united approach, centered on the interdependence of all member states? As a large trading bloc, Europe has a lot to offer to energy suppliers. It thus remains appropriate for the EU and its member states to continue to reflect upon and debate the external issues, including the question of whether it would be better to focus the EU external energy policy dimension around one or two priorities and objectives in a row, rather than on a growing number of equally critical energy issues.

Finally, energy security is a complex issue because a mix of both internal and external policies is necessary in order to make the EU a leading actor in the field, and to equip itself with the power to influence

the global governance of energy issues, expanding its principles/norms and values at the international level.

Hence, the EU could undertake other decisive steps to drive progress by making a greater use of its instruments and external action policies in this area. It is in the EU's best interest to pursue the systematic inclusion, where necessary and justified, of energy objectives in its external policies and instruments, and to use other financial and economic means to attain them.

To achieve that goal, the EU could:

- use its neighborhood policy, both in the East and South;
- develop strategic partnerships, with Russia as a priority;
- further cultivate its enlargement policy, focusing on Turkey;
- use its development policy, notably in Sub-Saharan Africa; and lastly,
- employ its common foreign and security policy.

This approach requires giving the European Commission clear, coherent, and ambitious negotiating mandates. Moreover, the European External Action Service (EEAS) could play a special role in coordinating the different instruments and the multiple geographic areas concerned. The recent trend at the EU level to discuss energy issues in the framework of the EU Foreign Affairs Council of Ministers is welcomed in this regard, and should be further developed in the future.

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Natural Gas Security in Central and Southeast Europe

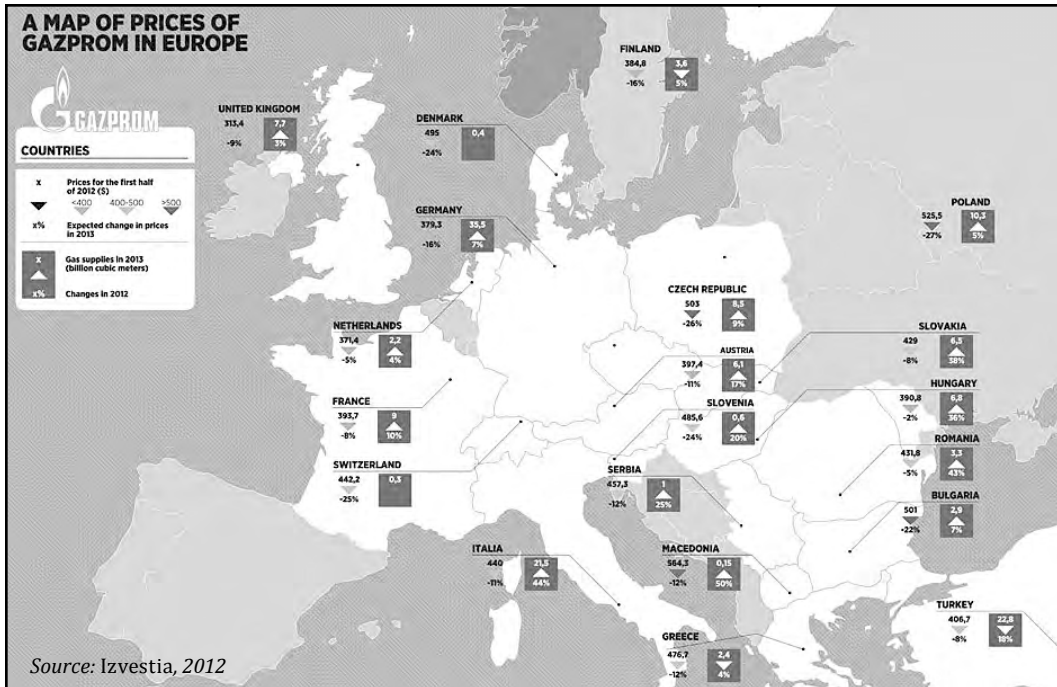
By David Koranyi

The fundamentals of the natural gas sectors of the United States and European Union (EU) are on divergent paths. While the US prepares for gas exports on the back of the unconventional gas revolution, Europe is facing declining indigenous production and growing dependence on imports. The Central and Southeastern Europe (CSEE) region has moved closer to integrate into the EU's internal energy market, but it remains in a vulnerable position in the short-term compared to the rest of the EU and especially the US due to the region's historic exposure to Gazprom's monopolistic abuse. A concerted US, EU, and regional effort is needed to implement a diversification strategy, where US liquefied natural gas (LNG) exports could make a real difference. In the medium and long run, the region can benefit from and play a crucial role in Europe's gas supply diversification strategy and may even succeed in adapting the US unconventional experience, contributing to a healthier energy import balance on the continent.

Strategic Context

Transatlantic cooperation on energy in general and on natural gas in particular has a rich history. Cooperation intensified after the first oil crisis in 1973-74 and led to the establishment of the International Energy Agency (IEA), the energy arm of the Organization for Economic Co-operation and Development (OECD). In the 1980s, the transatlantic partners somewhat differed in their views on core energy security issues and in their responses to challenges. The role of the Soviet Union in providing oil and natural gas to Western Europe and Germany in particular was a touchy subject in the 1980s and led to debates between the United States and its European allies. Transatlantic cooperation again intensified in the 1990s and 2000s on various issues, such as new oil and gas pipelines,¹ energy efficiency, research and development cooperation, carbon capture and storage projects, smart grids, and energy storage. The establishment of the EU-US Energy Council in November 2009 testified to the recognition of energy as an issue of strategic importance and great potential

1 Such as the Baku-Tbilisi-Ceyhan oil pipeline and the planned Nabucco gas pipeline.



in transatlantic cooperation.² President Barack Obama’s reelection in 2012 and a growing recognition of climate change as a real threat in the United States on the one hand, and a more realistic approach to climate and energy security challenges in Europe on the other, may bring the allies even closer.

As natural gas is widely viewed by policymakers as a cleaner-burning “bridge fuel” into a future that is dominated by zero-carbon energy resources, both the United States and the EU treat it as a strategic fossil fuel resource, the demand for which will likely increase further in the medium and long term. Natural gas is

at the heart of public policy and private investment decisions that fundamentally affect both geopolitics and energy security, nowhere more so than in Central and Southeastern Europe.³

At the same time, there are tectonic shifts in the energy markets on both sides of the Atlantic. The allies find themselves in starkly different situations when it comes to gas and oil. The United States is just beginning to fully grasp the consequences of its unconventional gas and oil revolution that has already dramatically reduced US exposure to external sources of fossil fuel supplies. Whereas eight years ago 60 percent of crude oil in the United States was imported, today that number is below 40 percent, in large part as a result of enhanced vehicle fuel economy standards

2 David Koranyi, “Towards a Transatlantic Alliance: Prospects for EU-US Cooperation in Fighting Climate Change and Promoting Energy Security and New Technology” in *Transatlantic Energy Futures: Strategic Perspectives on Energy Security, Climate Change and New Technologies in Europe and the United States*, edited by David Koranyi (Washington, DC: SAIS Center for Transatlantic Relations), 13-14, http://transatlantic.sais-jhu.edu/publications/books/Transatlantic_Energy_Futures/transatlantic-energy-futures.html.

3 In this paper, the CSEE region refers to the Visegrad Four (Czech Republic, Hungary, Slovakia, and Poland), Lithuania, Ukraine, Romania, Bulgaria and the western Balkans (Croatia, Serbia, Bosnia and Herzegovina, Macedonia, Montenegro, and Albania).

and increased production of domestic unconventional oil. Crude oil imports may further decrease to the lower 20s by 2020.⁴ In 2005, the US Energy Information Administration prognosticated that the United States will become the world's largest natural gas exporter by 2015. Today, the United States is not only the largest natural gas producer globally⁵ but is also planning to start exporting liquefied natural gas around 2016-17.⁶ The United States and Canada may technically become energy independent by 2020.⁷ Gas (Henry Hub) prices are around four dollars per million British thermal unit (mmbtu), down from thirteen in 2005. Gas and electricity prices for the industry have decreased by 66 percent and 4 percent, respectively since 2005,⁸ and increased for households by only 6 percent and 8 percent, respectively.

The picture in Europe is in stark contrast. Natural gas usage is forecast to be flat by the end of the decade in the European Union, but it will likely pick up again in the next decade, as coal and in some cases nuclear are phased out from the energy mix and gas is used to steady the uneven performance of renewables.⁹ As conventional reserves deplete, Europe's dependence on gas imports is expected to grow further even in the case of a

significant—and at present distant—uptick in unconventional gas production. Europe is already more than 60 percent dependent on gas imports and over 80 percent dependent on oil imports. By 2035, these numbers could go up as high as 85 percent and 90 percent, respectively.¹⁰

Even as the EU as a whole succeeded in supply source diversification and progressed in market integration, the region has seen a stark increase in gas and electricity prices for industry (35 and 45 percent, respectively) and households (28 and 22 percent, respectively) since 2005. Wholesale gas prices are around three times the level of the Henry Hub price and could go up to five times as much in the CSEE region for those countries without access to alternative supplies. This supply and price gap between the United States and Europe is increasingly a headache for European leaders, especially in Central and Southeastern Europe, as an issue of economic competitiveness, social stability, and national security.

Gas Markets in Central and Eastern Europe

Gas markets show a rather mixed picture in central and southeastern Europe. In some countries, gas plays a negligible (like Albania, Montenegro, and Macedonia) or small (Poland and Serbia) role in the overall energy mix. In others, such as Hungary and Slovakia, gas usage constitutes a large chunk (above 30 percent) of the mix. Demand may have already peaked in the latter countries but import needs

4 Tom Donilon, "Remarks by Tom Donilon, National Security Advisor to the President at the Launch of Columbia University's Center on Global Energy Policy," April 24, 2013, <http://www.whitehouse.gov/the-press-office/2013/04/24/remarks-tom-donilon-national-security-advisor-president-launch-columbia>.

5 The United States overtook Russia as the largest natural gas producer in the world in 2011.

6 US Energy Information Administration data.

7 Edward Morse, et al., Citi GPS, *Energy 2020: North America, the New Middle East?* (March 20, 2012),

8 International Energy Agency data.

9 International Energy Agency, *World Energy Outlook 2012*.

10 Jose Manuel Barroso, "Energy Priorities for Europe, Presentation of J.M. Barroso, President of the European Commission to the European Council of 22 May 2013," European Commission, 4, http://ec.europa.eu/europe2020/pdf/energy3_en.pdf; International Energy Agency data.

will increase as domestic conventional production winds down in the coming years. Demand increase in the former countries is in their strategic interest because it will help them to comply with climate change objectives and reduce coal consumption. But gasification of these economies encounters the chicken-and-egg problem: without access to reasonably priced gas, progress in building the necessary infrastructure to bring additional supplies has been postponed until there is a market demand.

Supply source diversification therefore is a pressing need for the region. This is particularly true for those CSEE countries and companies that will see long-term contracts expire with Gazprom¹¹ in the near future or those that may want to renegotiate their existing oil-indexed contracts just as the Western European companies have done recently.¹² The map above shows the gas price differentials for pipeline gas provided by Gazprom in Europe. It also serves as proof that the dual strategy of market integration and supply diversification to lessen central and southeastern Europe's vulnerability is beginning to yield results. Countries better integrated into the European gas market, such as Hungary, witnessed their wholesale gas prices decrease as the wholesaler German company on renegotiated prices on all of its contracts with Russia's Gazprom. By contrast, Bulgaria and Macedonia, which

are less integrated into the European gas market, continue to pay exorbitantly high prices lacking alternative options.

The four main sources of diversification in order of time horizon are:

- increased shipments of diversely sourced pipeline gas through western Europe via new interconnectors and reverse flows (by 2014/15);
- direct shipments of LNG to CSEE utilizing the Revithoussa terminal in Greece (ready), the Swinoujscie LNG terminal in Poland (under construction, ready by 2015), and the planned LNG terminal at Krk, Croatia (possibly ready by 2018);
- pipeline gas from the Caspian and perhaps beyond (i.e., Iraq and the Eastern Mediterranean) through the Southern Gas Corridor (mid-2020s for most CSEE countries; and finally
- the development of unconventional resources, (unlikely before the 2020s).

“The Croatian LNG terminal now requires all the support it can get from regional governments, the European Union, and the United States.”

Gas Market Integration

Developing natural gas interconnections within the region and with Western Europe is the immediate task that will ensure that the benefits of market liquidity and hub-based pricing make their way to Central and Southeastern Europe. The past four years indicate that the interconnection project is off to a good start. With European assistance, a series of interconnectors have been constructed, forming the backbone of a North-South Gas Corridor that links all of

11 Hungary, Lithuania, Estonia and Bosnia and Herzegovina in 2015; Czech Republic in 2017 (small portion); and Ukraine in 2019.

12 Such as Eni, GDF, E.On, RWE, and others.

central Europe's gas systems from Poland to Croatia and connects the Central and Southeastern European markets with the rest of the EU. The concept has been around since the proposal of the New European Transmission System (NETS) in the mid-2000s to create economies of scale by forming a liquid gas regional market and got a boost after the 2009 Russia-Ukraine gas crisis with the help of EU funds. But several key pieces such as the interconnectors between Poland and Slovakia, Slovakia and Hungary, Croatia and Hungary, Bulgaria and Greece, Bulgaria and Romania, and Romania and Moldova are still missing. There is also a need for reverse flows between Ukraine and Slovakia as well as Hungary and Croatia. Linkages between the Western Balkan countries are also mostly missing or insufficient. The HAG pipeline connecting Hungary to Austria and others is often congested and its capacity allocation is not determined by markets. Any new gas supplies from outside the region ought to reach a better-integrated market by the end of the decade. The primary responsibility for realizing this goal lies with the regional governments though EU guidance and financial assistance from the modest funds available¹³ might certainly help.

“The Trans-Anatolian Pipeline (TANAP), or another dedicated pipeline crossing Turkey, could also bring additional resources from the eastern Mediterranean (Israel, Cyprus), northern Iraq, and possibly from Turkmenistan offshore over time.”

New Sources of LNG Supply

Direct natural gas shipments to the region are equally important, whether by LNG or via pipeline. For that the build-up of regasification capacities is needed. The North-South Corridor's northern end, the Swinoujscie LNG terminal, is already under construction. With an initial capacity of five billion cubic meters (bcm), it will be a major source of new supplies primarily for gas-hungry Poland. Revithoussa, the Greek terminal owned by Greek pipeline operator DESFA (66 percent of which is being privatized to Azerbaijani SOCAR) has another 5.1 bcm capacity for gas that can be fed into a Greece-Bulgaria Interconnector even earlier than Caspian gas.

The concept of the Croatian LNG terminal has been around for almost a decade. After years of paralysis due to both domestic Croatian political bickering and external (mainly Russian) meddling, the LNG project's prospects have improved recently. Croatia is indicating to prospective investors and to Brussels and Washington that it is fully committed to Krk LNG as a top priority. The Croatian LNG terminal now requires all the support it can get from regional governments, the European Union, and the United States. The Croatian government, together with the commercial consortia that will develop both projects, should ask the European Union to designate the LNG terminal as Project of Common Interest, thereby securing

13 The Connecting Europe facility allocates a mere 5.85 billion euros throughout a seven year period (2014-2020) for cofinancing energy Projects of Common Interests in the EU. See http://ec.europa.eu/energy/infrastructure/pci/pci_en.htm.

co-financing from the EU's Connecting Europe Facility.¹⁴

Securing lower-cost supplies of LNG is an equally vital goal. One of the world's prospective suppliers of LNG is the United States. Market forces are driving US companies to seek opportunities to export LNG to higher priced markets in Europe and Asia. But federal regulations and legislation by default restrict US LNG exports in a bid to boost American industries (especially petrochemicals) by locking in cheap natural gas. US LNG could provide that crucial supply that would help ensure the success of Europe's emerging North-South Corridor. The Visegrad-Plus group and the EU should encourage the adoption of the LNG for NATO bill proposed by then-Senator Richard Lugar (R-IN) in 2012, which is now being pressed forward by Senator John Barrasso (R-WY) and Representative Michael Turner (R-OH). This would allow expedited licensing for LNG exports to NATO allies, placing these countries on an equal footing with those that have free trade agreements with the United States until the negotiations over a Transatlantic Trade and Investment Partnership (TTIP) between the EU and the United States conclude.¹⁵

The Southern Gas Corridor

The selection of the Trans-Adriatic Pipeline (TAP) has disappointed those who pinned their hopes on the Nabucco West project to

bring gas to the CSEE region.¹⁶ But Caspian gas may eventually make its way to CSEE. The Southern Gas Corridor's initial ten bcm capacity is likely only the beginning. By the middle of the next decade, additional supplies will likely be more than enough to provide up to thirty to thirty-five bcm of gas from Azerbaijan alone, which could potentially fill both a larger TAP and other pipelines that carry gas toward central Europe. The planned Greece-Bulgaria Interconnector could provide gas from TAP straight into Bulgaria.¹⁷ By building a long-stalled Bulgaria-Romania Interconnector, gas could be moved onward to Hungary through an already existing Hungarian-Romanian Interconnector, which is currently undergoing an upgrade to handle bidirectional flows. That was the original idea of SEEP, a BP-led project based not on a grand construct such as Nabucco but on linking up the existing networks. All of the west Balkan countries could eventually be hooked up via the prospective Ionian-Adriatic Pipeline (IAP) route.

The Trans-Anatolian Pipeline (TANAP), or another dedicated pipeline crossing Turkey, could also bring additional resources from the eastern Mediterranean (Israel, Cyprus), northern Iraq, and possibly from Turkmenistan offshore over time. To ease feeding these additional resources into TANAP, third party access rules for the pipeline will be necessary. That is currently not the case because Turkey is

14 The Swinoujscie LNG terminal, for example, has already received EU funding.

15 As of September 2013, the pace at which the US Department of Energy authorizes non-FTA exports has accelerated significantly. To date, four planned LNG export terminals (Sabine Pass, Freeport, Lake Charles, and Cove Point) were licensed to supply non-FTA countries. That is a potential of 424 bcm, sixty-seven of which can go to non-FTA countries (actual exports will certainly be less). There are twenty+ others waiting for approval.

16 For a detailed analysis on why TAP eventually won, see Matthew Bryza and David Koranyi, "A Tale of Two Pipelines: Why TAP has Won the Day," *Natural Gas Europe*, July 2, 2013, <http://www.naturalgaseurope.com/southern-corridor-strategic-importance-tap-nabucco>.

17 The Gas Sales Agreements (GSAs) between the Shah Deniz consortium and European buyers announced on September 19, 2013 revealed that one bcm was already purchased by Bulgargaz EAD.

not a member of the Energy Community that extends EU rules and regulations to third-party countries.¹⁸ Unlocking the blocked energy chapter in the EU accession negotiations with Turkey would facilitate Turkey's membership in the Community, a critical step in keeping the Southern Gas Corridor open and realizing its potential of becoming the fourth major gas transport corridor to Europe.

Unconventional Revolution in Europe?

The unconventional revolution in the United States has prompted some countries in the CSEE region to look into their own unconventional resources. Poland, Lithuania, Romania, Hungary, and Ukraine are all actively exploring what they might have underground.¹⁹ The jury is still out on the unconventional gas potential in the region, as there are many uncertainties both under and above ground. The initial hopes pinned on Poland have yet to be proven right, as both the geology and the regulatory framework have turned out to be rather challenging. Ukraine has promising potential, but the road to major unconventional gas production will be a bumpy one due to the many political, regulatory, and technical challenges the country faces. In countries like Hungary, a modest unconventional production could offset the decline in conventional resources. Overall, unconventional gas developments will certainly not be a panacea to the region's gas sector vulnerabilities in the immediate future, but may well provide

significant quantities in the medium and long term (i.e., in the mid-2020s and beyond).

Conclusions

A concerted US, EU, and regional effort is needed to implement the diversification strategy outlined above. At the same time a rebalancing has taken place in terms of how the United States and the EU approach CSEE energy security.

While there has been a continuous agreement on the strategic goal of supply diversification, since 2006 and especially 2009, the EU has grown to play a more robust role while the United States assumed a supportive position more in the background. The US' vocal criticism of Russia's role and monopolistic practices in the CSEE region and forceful push for the realization of the Nabucco pipeline has gradually become more muted. The self-sufficiency of US domestic gas supplies and the perception that the implementation of the Southern Gas Corridor, the most visible piece of the regional energy diversification puzzle, is finally underway reinforced the conviction that the EU should primarily be in charge of its own energy security.

Many have attributed the US attempt to "reset" relations with Russia, as well as the lack of strategic focus on the CSEE region, due to the turmoil in the Middle East and other international crises, and the increasing importance of Asia in US foreign policy. But in reality, the transatlantic cooperation has worked well. Growing EU activism complemented a more subtle US energy diplomacy. Both the 2006 and especially the 2009 Russia-Ukraine gas crises served as a wake-up call for both Brussels and the region. From 2009

¹⁸ Energy Community members outside the EU as of September 17, 2013 include Ukraine, Moldova, Macedonia, Montenegro, Serbia, Kosovo, Bosnia and Herzegovina, and Albania.

¹⁹ Bulgaria—similar to France—placed a moratorium on fracking.

onward, the EU and its member states began to finally address the strategic vulnerabilities of the EU's internal gas market in general and the CSEE gas market in particular by adopting and implementing an ambitious agenda for the completion of a competitive and liquid internal gas market within the EU by 2015. They started to build key infrastructure pieces and cracked down on gas suppliers in monopoly positions, most notably through the EU's antitrust proceedings against Gazprom. Nevertheless, the United States remains a crucial player in facilitating the implementation of the Corridor and other projects. Increased technical and regulatory assistance in developing unconventional resources would also go a long way. Finally, the United States could and should play a more direct role in supply diversification in CSEE in the form of LNG.

While supply source diversification and access to hub pricing will be beneficial in any case, the choice of a right mix of long-term, calculable contracts and spot markets is a delicate one. Spot markets are volatile, and there are numerous uncertainties both on the supply and demand side in the medium and long run. In that context, CSEE countries might be enticed to recommit to long-term, oil-indexed gas supply agreements with Gazprom in order to meet their full import needs for short-term political gain (temporary gas price concessions), precluding the benefits of access to alternative sources down the road.

Indeed, an assertive Gazprom is fighting back, trying to retain its market share increasingly under siege in Europe. The South Stream pipeline makes little commercial sense but in all likelihood Gazprom will build it in an attempt to

marginalize Ukraine as a transit state.²⁰ Though the automatic lock-in effect of South Stream should not be overestimated as TPA rules would apply to its European sections, South Stream could strengthen the siren call to rely on Russia alone. Therefore, it is all the more important that the United States signals its continuous support of EU efforts for supply diversification.

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20 András Deák, "Jön! Jön! Jön!—a Déli Áramlat," Grotius, 2012, http://www.grotius.hu/doc/pub/VELGUJ/2012_86_deak_andras_gyorgy_a_deli_aramlat.pdf.

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