

Romania's Energy Strategy Options: Current Trends in Eastern Europe's Natural Gas Markets¹

Radu Dudău

Introduction

Romania's most important foreign energy policy project, the Nabucco gas pipeline, collapsed in June 2013 as the rivaling TAP (*Trans-Adriatic Pipeline*) won the bidding for transporting Azerbaijani gas to the EU. Hence, the Southern Gas Corridor (SGC) will link the Caspian Basin to Southern Italy via Turkey, Greece, Albania, and the Adriatic Sea.

Shah Deniz consortium's choice was predominantly commercial, yet it came to the detriment of Eastern Europe's strategic necessities. But, although left with no large-scale international project, Romania keeps significant options to improve its energy security on the medium term. This paper reviews Romania's prospective new sources – internal and external – of primary energy.

Remarkably, the year 2020 stands out as a deadline of sorts for the accomplishment of Romania's strategic objectives. However, as argued, each of them is marked by considerable uncertainty. Geology and geopolitics are the main factors whose interplay shape the country's and the region's strategic options, though domestic policy elements also come into play. Before analyzing them, it is useful to have a brief overview of the Romanian oil and gas sector.

¹ The present is an expanded and updated version of an article published in Romanian in the 7 Jan. 2014 issue of 22.

According to *BP's Statistical Review of World Energy* (2013), Romania's proved reserves in 2012 amounted to 100 billion cubic meters (bcm) of natural gas (a fifth of the 1992 level) and 100 million tons (mt) of oil (half the 1992 level).² Romania produces annually 10.9 bcm of natural gas and consumes 13.5 bcm. The yearly crude oil production is 4.1 mt against a consumption of 8.8 mt. The aggregated depletion rate of hydrocarbon reserves is 10% per year, meaning that without supplementary sources Romania's import dependence will grow from currently less than 20% to 50% in about 10 years.

The East European gas market is quasi-monopolistic, dominated by Gazprom's supply and infrastructure. Prices that East European countries pay for Russian gas are, on average, 15% higher than those charged to Western European consumers. According to *Izvestia* (Jan. 2013), the average selling price of Russian gas to Romania during the first half of 2012 was \$431.8/thousand cubic meters (tcm), as compared to \$379.3/tcm in Germany.

From a geological viewpoint, natural gas is the main potential line of development in the Black Sea Basin. To capitalize on it, Romania has three strategic options: (a) to increase the productivity of mature conventional wells through new extraction technologies; (b) to develop new finds in the continental Black Sea shelf; (c) to explore and develop the country's shale gas plays.

Let us examine them in turn.

Domestic strategic options

Enhanced mature wells productivity

Romania's hydrocarbon reserves are fragmented and "old," and well productivity is among the lowest in Europe. In order to halt productivity decline, massive investments are needed in improved extraction technologies (increase of reservoir pressure, stimulation, deep drilling, etc).

OMV Petrom has undertaken an extensive investment program of this kind and managed in 2013 to stop production decline and even obtain a slight increase in crude oil production as compared to 2012. It has started extensive redevelopment of seven

² *BP's Statistical Review of World Energy* (2013), pp. 6, 20. BP's data squares relatively well with those of Romania's Agency for Natural Resources (ANRM), quoted in *Gândul* (30 Dec. 2013).

onshore oil fields that includes drilling new wells and modernizing production facilities. To explore new fields deep underground, the company has partnered with Hunt Oil and Repsol.

Similarly, the country's largest natural gas producer, state-owned Romgaz, recorded in 2012 a marginal production increase as compared to the previous year. Nevertheless, all-in-all, the need for capital and know-how in this field remains enormous and the results can only be gradual and long-term.

Offshore reserves

In February 2012, Exxon Mobil & OMV Petrom's Domino-1 well discovered a deepwater gas deposit of up to 100 bcm in the Neptun block of Romania's Exclusive Economic Zone (EEZ). After several "dry" exploratory drillings in Turkish waters, that discovery was a remarkable success.

But for all of its promising prospects, the Romanian offshore is still filled with uncertainty and difficulties. First, discovery of additional reserves is needed in order to justify production investment decisions. A couple of new exploratory deepwater wells in 2014 followed by another dozen by 2018 will certainly be revealing.

Then, deepwater drilling is much more expensive than onshore operations. Besides, costs are generally higher in the Black Sea region than in other parts of the world due to scarce offshore drilling equipment and of deepwater service providers. Lastly, issues related to necessary new onshore infrastructure and to legislative and procedural vagueness require timely decision-making attention and adequate investments.

Thus, if a final investment decision to commercially develop new offshore fields is reached by the end of 2014, it is not until 2020 that new natural gas volumes will hit the market.

Shale gas

The third strategic direction is shale gas. According to EIA's 2013 geological estimate, Romania holds technically recoverable reserves of 1,610 bcm.³ If only a fraction of this

³ U.S. Energy Information Agency (EIA) (2013), *Technically Recoverable Shale Oil and Shale Gas Resources: An Assessment of 137 Shale Formations in 41 Countries Outside the United*

amount turns out to be commercially viable, Romania will not only cover its internal gas consumption, but also become a natural gas exporter.

Several international companies are involved at various stages in Romanian shale gas activities. Among them, Chevron's operations are most advanced, although the American IOC has not yet started exploratory drilling. At the time of writing, Chevron's first exploratory well in the Vaslui county was due to start in a couple of weeks' time.

This industry, however, faces fierce social protests fuelled by emotions and fears mostly induced by manipulation and disinformation, and very little by way of scientific reasoning. Indeed, mistrust and even hostility from part of the public is a serious hurdle for shale gas development in Romania – notwithstanding the uncertain results of exploration itself.

There is at present a hypertrophic perception of environmental and public health risks associated with shale gas development activity. A natural concern over the direct effects of industry's operations has been exacerbated by a mixed campaign of media manipulation, political populism, narrow-minded economic nationalism, and militant wishful thinking. This has partly resulted in an emotion-laden atmosphere, which hinders overarching articulations of public interest by way of fact-based costs-benefits analysis.

The backdrop to this stance is a relatively widespread social mistrust in state institutions' competence and integrity. Indeed, there has been no culture or habit of transparency and public consultation in Romania regarding major extractive industry projects. As such, positions are radicalized and the odds of social consensus are dim.

Nonetheless, science must get to inform public debate and the state must regain its credibility as the foremost promoter of public interest. A good starting point would be to turn the regulatory state agencies into truly politically independent entities, properly equipped with human and financial resources.

Recently, European Commission's (EC) Recommendation "on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU"⁴ has put forward a unified framework for shale gas activities EU-wide. Building on IEA's (2012) *golden rules* for natural gas production, the Recommendation offers conceptual clarifications and urges strict operational safeguards to ensure environmental protection and adequate public involvement.

States, Washington D.C.: Department of Energy, June 2013, p. 348.

4 European Commission (2014), COM(2014) 23 final, January 22.

In a scenario of increasing social acceptance and confirmed commercially exploitable reserves, Romanian shale gas could enter the market towards 2020. By then, hydraulic fracturing technology will probably have become a better understood, hence less frightening topic.

Transforming trends in the European natural gas markets

In each of these domestic directions of new gas sources development, an additional element of unpredictability has to do with potential competition from pipeline imports. Several recent developments in the region are creating for the first time the likely possibility of having liquid energy markets in Central and Eastern Europe by the end of the current decade:

(a) The growing interconnectivity of the national natural gas grids in Eastern Europe, which will allow for new trading relations, superimposed on the East-West geographical setting of the large Soviet-era pipelines. Romania is already interconnected with Hungary (albeit only in west-to-east sense) while reverse flow interconnections with Bulgaria and Moldova are to be completed in 2014.

(b) The EU competition and market liberalization policies, passed at the beginning of the 1990s, have become truly efficient over the last few years, palpably limiting monopolistic practices within the European energy markets.

(c) A global-scale trend that has supported and stimulated gas-to-gas trade in Western Europe adds to the picture: the North American “shale gas revolution.” It made available to Europe and Asia large quantities of Qatari LNG originally prepared for the American regasification terminals in the Gulf of Mexico. Consequently, natural gas traded on the British, Belgian, Dutch and German hubs has become cheaper than the gas piped from Gazprom, Statoil or Sonatrach, and has led to increased contractual flexibility with these traditional suppliers.

The long-term contracts (LTCs) concluded by large utility companies from Germany, Italy and France – Eni, E.On Ruhrgas, RWE, Wintershall, GDF Suez – with the Russian giant had been for decades solid and lucrative, allowing these companies to operate *de facto* monopolies inside their national markets. Their terms of delivery (usually 20-25 years) included clauses that suddenly became highly problematic: oil-

indexed gas prices, “take-or-pay” (obligation to pay at least 85% of annually contracted volumes regardless of actual physical delivery), and “destination clauses” (imported gas cannot be re-exported).

Beginning in 2009, the situation of West-European utilities had become unsustainable: under pressure from local distributors securing cheaper gas from trading hubs, the obligation to acquire minimal gas volumes at oil-indexed prices became unbearable. As a consequence, utility companies required and obtained from international suppliers gradual price reductions and more flexible contractual clauses. Some concessions were reached through amiable renegotiations, others through decisions by international courts of arbitration.

Taken together, these three tendencies of the EU natural gas markets may well be transformative enough to allow Romania to enjoy diversified import sources and better contractual terms.

Import diversification prospects

99% of Romania’s gas imports come from the Russian Federation, amounting to about 20% of current total gas consumption. Nevertheless, the ongoing trends do for the first time offer serious prospects of diversified import sources.

Russian gas from the West

Following the elimination of destination clauses and thanks to the Hungarian interconnection, Romania could import Russian gas from West-to-East; on the short to medium term, most feasible are imports from Austria’s Central European Gas Hub (CEEGH) in Baumgarten and der March.

To illustrate the option’s feasibility, Ukraine’s case is telling: since 2012, Kiev has been importing Russian gas from Germany’s RWE through Poland and Hungary. To enable larger scale imports, in December 2013 Eustream (the Slovak natural gas TSO) agreed to make arrangements for reverse-flow into Ukraine via one of its four major transit pipelines, allowing Kiev to import from Germany up to 10 bcm/year – equivalent to more than a third of the volumes imported from Russia in 2013. But back then this arrangement did not come to fruition, since Russia rewarded ex-president Yanukovich

for turning away from the EU Association Agreement with a massive gas price discount, from approximately \$400 to \$268.5.

As it is turned out, those improved price terms were short-lived: the success of the Euromaidan movement was followed by the Russian annexation of Crimea and the onset of a very tense political standoff between Moscow and Kiev. Not only was the gas price discount eliminated, but the new price level was set to \$480/tcm, one of Europe's highest. Under such circumstances, the new Ukrainian authorities have again become keenly interested in gas imports from the EU, as well as in European financial support in order for Kiev to be able to service its debt to Gazprom.

However, in the meantime Gazprom made Slovakia a price discount, and no new talks have yet been set about installing reverse-flow capacity on Slovakia's gas transport system. Besides, knowing Kiev's dismal track record on debt, it is doubtful that European gas traders will take the risk on arbitrage into the pricier Ukrainian market, unless a financial back-up arrangement from the EU, Washington and the IMF comes firstly in place.

The Southern Gas Corridor

The Southern Gas Corridor (SGC) will be able to supply Romania through the Greek-Bulgarian and the Bulgarian-Romanian gas interconnectors, which are currently under construction. But this scenario is not achievable before 2020, since the full development of Azerbaijan's Shah Deniz field is scheduled to be completed in 2019 – if no delays occur, as it was the case a few times before.

SGC will be a very costly and technically complex enterprise. According to BP, total costs – including full development of Shah Deniz, related pipelines and production system, doubling capacity of the Baku-Tbilisi-Erzurum gas pipeline, construction of TANAP (*Trans-Anatolian Pipeline*) across Turkey, and of TAP – will amount to no less than \$50 billion. Besides, costs of transport over more than 3,000 km must also be factored in, so that Azeri gas will not sell cheaply on European markets.

Indeed, natural gas prices will be a key element in the development of different competing projects. With energy markets becoming increasingly liberalized, competitive and integrated, approximating the ideal of a “single European market,” geopolitical factors should gradually lose their weigh in the energy trade equation (leaving aside the geopolitical dimension of the single energy market project itself).

The crux of each project of the oil and gas industry will be its profitability on a competitive but strictly regulated market in terms of environment protection and climate. Two important commercial elements stand out: the level at which wholesale price equals total costs per unit (*breakeven point*) and the volumes available for supply. In addition, as different large transport projects successively enter the market, they create a *path-dependence* that shapes the competitive environment for future projects.

In any event, Romania must strive to build a *liquid* natural gas market (*i.e.*, where transactions take place quickly and loss of value is negligible), along with the requisite physical and institutional infrastructure.

The Levantine Basin

An emerging gas-producing region closer to European markets than the Caspian Basin is the Levantine Basin in the Eastern Mediterranean. Discoveries since 2009 in offshore – mostly deep and ultradeep water – Israel, Cyprus and Lebanon are estimated by the EIA (2013) at 1,170 bcm of technically recoverable gas. The Israeli Leviathan field, with estimated 535 bcm of gas and 31.1 million barrels of liquid condensate is scheduled to start production in 2017.⁵

In October 2013, the Israeli High Court of Justice decided to uphold a previous Government's decision to cap exports at 40% of the total offshore reserves. Under current estimates, volumes available for export amount to 450 bcm. The more likely export schemes are the following: a pipeline from Leviathan to the Israeli coast, 150 km long, and a liquefaction plant onshore; a 200 km pipeline to Cyprus and a liquefaction plant at Vasilikos; floating LNG facilities at the largest offshore fields; a 400 km pipeline from Leviathan-Tamar to Turkey; a 1,200-1,500 km pipeline to Greece via Cyprus and Crete.⁶

However, the region is ridden with multiple political and military conflicts: Israel and

⁵ There may well be delays, though, as the expected entrance of Australia's Woodside Energy into the Leviathan consortium – a 25% acquisition worth \$2.71 billion – has not come to fruition by the end of March, as previously agreed. Woodside, which is to become the project's LNG operator, has requested that the Finance Ministry recognizes return on capital of between 17 and 19% for floating LNG production, yet not such clause has been included in the taxation principles' outline (*Jerusalem Post*, "Woodside Entrance into Leviathan Gas Field Consortium Still Uncertain," 27 March 2014).

⁶ Bob Tippee (2014), "E. Mediterranean Gas Work Faces Geopolitical Hurdles," in *Oil & Gas Journal*, 7 April 2014.

Lebanon are disputing the delimitation of part of their maritime frontier; Cyprus and Turkey are involved in a larger political conflict surrounding Northern Cyprus and demands by Ankara over hydrocarbon reserves rights in the Levantine Basin on behalf of Turkish Cypriots; Israel and Turkey are still on tense, though slowly remedying, political terms following the Mavi Marmara incident in 2010, while the Syrian civil war looms large as *the* present source of instability in the Near and Middle East.

In spite of the lingering mistrust between Ankara and Jerusalem, a pipeline connection from the Levantine Basin to Turkey seems to make most commercial sense, given Turkey's enormous gas demand and its aspirations to be the Black Sea Region's transit hub. Turkey is also highly dependent on Russian gas imports (67%), so it is keenly interested in establishing significant new diversification routes. Besides, the heightened security risk of the region in the aftermath of the Russian annexation of Crimea makes it important for the Southern Gas Corridor to reduce its geographical dependence on the vulnerable Georgian link.

Leviathan field's terms of lease that the Israeli national Infrastructures, energy and Water Ministry released at the end of March 2014, demand that a gas pipeline be first constructed from the field to the coast, and that at least 9.2 bcm/year be supplied to the domestic market.⁷ The consortium will thus be left with only 7 bcm/year to export. Such conditions translate into constraints upon when the Levant gas's exports will begin (with a probable delay of a couple of years), and how it will be marketed (under the likely assumption that a long-term contract with an anchor customer will have to be looked for).

Regional regasification terminals

Among the easily reachable European destinations for Levantine LNG, two entry-points are particularly relevant for Romania: the Revithoussa regasification terminal in Greece and the one to be built at Omisalj (Croatia) until 2017.

Theoretically, the Greek option could be implemented more quickly, so that by 2019-2020 Romania might import Levantine gas via Greece and Bulgaria. But it is worthwhile remembering that the operator of the Revithoussa LNG terminal is Desfa SA, the company acquired in the summer of 2013 by SOCAR (*State Oil Company of Azerbaijan Republic*). One can safely assume that SOCAR is interested in protecting its

⁷ *Jerusalem Post*, idem.

Greek and South-Eastern market share for Azeri gas, instead of opening the gate to competing imports.

As to the Croatian option, delays may well occur in the terminal's construction. Besides, the whole concept of transporting gas from Croatia to Eastern Europe via Hungary depends on the resolution of the current commercial dispute – with obvious political undertones –between Croatian company INA and Hungarian group MOL. MOL owns 49.1% of INA and wishes to gain full operational control. The Croatian government, with a 44% stake in INA, staunchly refuses. The dispute is arbitrated at the International Center for Settlement of Investment Disputes (Washington, D.C.). In any event, Hungary's interests can decisively influence the timing of the opening of a new energy corridor between the Caspian and the Adriatic Seas.

Another LNG regasification terminal relevant to Eastern Europe is under construction at Swinoujscie (Poland). As of February 2014, the terminal was about 75% completed, according to a statement by the Chancellery of Poland's PM.⁸

With an initial planned capacity of 5 bcm/year, the terminal is meant to reduce Poland's dependency on Russian gas. Poland has an annual consumption of some 16.5 bcm, of which 70% is imported from Russia. After 2022, when a two-fold increase in capacity is planned, Swinoujscie may contribute to the supply of the North-South gas corridor connecting the Polish, Baltic, Slovak and Hungarian gas grids. This means that, within the next decade, the Black Sea, the Baltic and the Adriatic basins may be connected through energy corridors.

South Stream

Designed in 2007 as a reaction to the Nabucco project, South Stream is planned to transport Russian gas to Austria and Italy via the Black Sea, through a high-capacity pipeline crossing Southeastern Europe. After the “gas wars” that took place between Russia and Ukraine in 2006 and 2009, South Stream also became a tool of political and diplomatic pressure against Kiev, threatening the usefulness of Ukraine's enormous transportation and gas storage systems. Following the completion of the North Stream pipeline via the Baltic Sea, South Stream has been ascribed a similar role as Ukrainian bypass via the Black Sea. This latter function has never seemed more urgent to Moscow than nowadays, in the heated conflict that has followed the Crimean

⁸ LNG World News (2014), “Poland: Swinoujscie LNG Terminal 75 Pct Complete,” 14 Feb. 2014.

annexation.

South Stream has never made much economic sense, given its enormous projected costs. Its defining nature has always been political, and presently politics trumps virtually anything else in Russia's foreign relations. Whether it will be built or not, either completely or at least in part – that is, at least one of the four parallel 15.75 bcm/year pipelines – hinges in the first place on the development of the Moscow-Kiev political relations.

The two countries could, in theory at least, find a compromise based on self-interest and allow natural gas flows to Europe to continue. Yet no stable regime of the Ukrainian gas transit and storage can be guaranteed absent affordable and sustainable gas prices for Ukraine, and the latter is highly unlikely to obtain as long as the political standoff remains acute. The situation can only reinforce Moscow's resolve to build the pipeline.

Moscow has for years brandished the South Stream concept as a coercion lever in its frequent gas pricing disputes with Kiev. And Gazprom has surely found partners – governmental and corporate alike – in the EU and its south-eastern vicinity willing to join the project.

Nonetheless, in recent months, Brussels's attitude toward South Stream has evolved from cold to glacial. In December 2013 the EC required that the six bilateral agreements⁹ concluded between Russia and EU member states regarding the pipeline's construction be renegotiated and aligned to the demands of Third Energy Package – price liberalization and transparency of tariffs, ownership unbundling (i.e., companies cannot simultaneously hold production capacities and transmission lines), and non-discriminatory third party access to transport infrastructure. More recently, as an element of political retaliation against Russia's conduct in Ukraine, the EC announced that construction of South Stream was not a priority to the EU and that political level negotiations to that effect have been frozen.¹⁰ At the same time, some EU countries (most vocally, Bulgaria) and corporations (especially South Stream stakeholders) have defended the project's importance to EU's security of supply.

For Romania South Stream may come to mean in the coming years yet another

⁹ The six intergovernmental agreements were concluded between the governments of Russia and, respectively, Bulgaria, Hungary, Greece, Slovenia, Croatia, and Austria. Although not an EU member state, Serbia is also involved, as a member of the Energy Community.

¹⁰ novinite.com (2014), "EU Does Not Consider South Stream Priority – Official," 19 April 2014.

external source of natural gas. The project's first line could be finished as soon as 2015 already, so that new natural gas volumes could be imported in a couple of years through the Bulgaria-Romania interconnector.

Now, if several years ago South Stream was rather an added risk for Central and South-Eastern Europe to deepen energy dependence on Russia, the above discussed changes of European gas markets create the context for such a pipeline to be a new and significant supply source in a competitive market environment – of course, provided the situation in Ukraine does not escalate and no “third round” of Western economic sanctions is applied.

It is, though, of paramount importance that the EU energy market and competition legislation be scrupulously observed and that the energy market liberalization process be completed as planned, for only this can ensure that more Russian natural gas will not be used as an instrument of political power, but will rest a commercially valuable commodity.

***Radu Dudău** is director of the Energy Policy Group and Associate Professor at Bucharest University.*

Copyright © 2014 Energy Policy Group

Str. Buzești 75-77, 011013 București, Romania

www.enpg.ro

office@enpg.ro