CHAPTER 1

CENTRAL AND EASTERN EUROPE'S DEPENDENCE ON RUSSIAN GAS, WESTERN CIS TRANSIT STATES AND THE QUEST FOR DIVERSIFICATION THROUGH THE SOUTHERN CORRIDOR

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1. Introduction[2]

Conventional wisdom dictates Central and Eastern European (CEE) dependencies on Russian gas imports and the western Commonwealth of Independent States' (CIS)[3] position as transit routes. But despite the common past, the CEE region is not totally homogeneous. The 13 gas importing countries[4] of Central and Eastern Europe operate under different conditions. They are to a different extent dependent on gas, gas imports, and Russian gas. A central question is the extent to which a country's domestic gas production can meet its demand. In addition to this, other major elements need consideration: the number of pipelines; the number of directions and from which directions a country can receive gas; the number of through-transiting pipelines (if any); the existence of coastlines for terminals to regasify liquefied natural gas (or LNG); and the capacity of a country's underground gas storage.[5]

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2 In this study, the quantity of natural gas is in billions of cubic meters. However, the standards differ among the International Energy Agency (IEA), BP, the former Soviet Union, and the European countries. The abbreviations used for units of measurement in this study are: bcm – billion cubic metres; bcma – billion cubic metres per annum; mmcm – million cubic metres; mcm – thousand cubic metres; mmtpa – millions of tonnes per annum. Research for this chapter was completed on October 25, 2012.

3 Belarus, Ukraine, and Moldova.

4 These are Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Slovenia, Serbia, Bosnia-Herzegovina, and Macedonia. Croatia has not extended its long-term gas supply contract with Russia after expiration at the end of 2010. Among the Central and Eastern European countries, Albania and Montenegro (and Kosovo), lacking import capacity, do not import any gas.

5 The issue of underground gas storage facilities is not a constituent of the analysis, but it will nevertheless em-

The Russo-Ukrainian gas crisis of January 2009 showed exactly the conditions of the Central and Eastern European states' achievements for improving the security of supply at that time. Southeast Europe suffered very seriously, and in Central Europe the effect of the gas crisis for Slovakia also was particularly significant. Under these circumstances, the Slovak Prime Minister Robert Fico (also prime minister prior to the crisis) proposed restarting the recently idled second block of the Bohunice nuclear power plant as an anti-crisis measure. Bulgaria, more dramatically affected, also hinted at reopening one unit at the Kozloduy nuclear power plant.[6]

Since 2005, several signed or extended contracts with Gazprom[7] in the CEE region concern gas supply, but some contracts expired already or expire in the early or mid-2010s. Prior to the renewing or extending of these contracts, an important consideration is predicting the amount of needed Russian gas to obtain leverage for bargaining positions enhanced by the demonstration of progress for diversification projects.

2. Market changes in Europe and Gazprom, with special attention to the pricing and the CEE region

In the last four to five years, the global gas market has changed significantly. Although these changes have affected various regions differently, several factors have been shaping the adjustment process to these changes: the onset and the effects of the economic crisis, the sharp rise in unconventional gas production (most importantly the shale gas revolution in the United States), the surge in liquefied natural gas production, and globalizing gas markets.

Before the economic crisis, European gas customers sought to sign or extend long-term gas supply contracts with Gazprom, thus ensuring a 20 to 30-year supply. When oil prices surged to a record level in July 2008, Gazprom's Chairperson of the Management Committee, Alexei Miller, expected oil prices to rise to USD 250 a barrel and, consequently, gas prices to spike to USD 1,000 per mcm.[8,9]

phasize the importance of them. Among Gazprom's customers in the region, Estonia, Lithuania, Slovenia, Bosnia-Herzegovina, and Macedonia have no storage capacity, while Serbia recently opened facilities.

6 *EurActiv.com,* January 12, 2009, http://www.euractiv.com/energy/gas-crisis-gives-slovakia-excuse-news-221021.

7 Gazprom or its 100 per cent owned subsidiaries have the exclusive right to export gas or LNG produced in Russia. This monopoly does not apply to production-sharing agreements.

8 Reuters, July 3, 2008, http://www.reuters.com/article/2008/07/03/gazprom-gas-prices-idUSL0341241220080703.

9 In continental Europe, in the long-term gas supply contracts gas prices are mainly linked to oil product prices

A few months later, a totally different situation appeared in the gas market. In 2009, gas demand declined sharply in Europe. This consequently produced an oversupply, allowing spot E.ON Ruhrgas market gas prices to fall well below oil product-indexed prices in contracts for long-term gas supply. Moreover, after recovering from a downward spiral, oil prices have remained (relatively) high. Since the end of 2008, the so-called "two price" or "hybrid price" market has existed,[10] allowing growth for the role of gas trading hubs and their prices.

All these factors meant Gazprom's European customers needed less and cheaper gas. In 2009, gas demand, determined by the economic crisis in Europe, caused gas consumption to fall by 7 per cent. In 2010, the cold weather caused significant increase in demand, 6 per cent above the 2009 level. The warm weather characterizing 2011 caused demand for gas to fall by 8 per cent,[11] In 2011, three additional factors garnered serious attention: the temporary suspension of Libya's gas exports, the Fukushima nuclear disaster, and its subsequent influence on operations of nuclear power plants. In early 2012, the shock of demand for gas in Europe attracted attention. At present, apart from weather conditions, problems with economic growth, relatively high gas prices, the growth of renewable energy sources, and extremely low CO2 prices have driven European demand for gas.[12] As the IEA claimed, during 2011, neither long-term nor spot-indexed gas could compete with coal as a marginal source for base-load electricity generation, in part due to a significant drop in CO2 prices.[13] Fluctuation in gas prices in the United States has had significant impact on coal consumption in Europe, which imports U.S. coal.

Gas exports outside the former Soviet Union[14] by Gazprom Export, a 100 per cent owned subsidiary of Gazprom, fell sharply in 2009 (from 158.8 bcm in 2008 to 140.6 bcm in 2009) due to lower demand, high contract prices, and interruption in supply during the Russo–Ukrainian gas crisis of January 2009. A slightly steeper decline occurred in 2010 before a spike in 2011 (from 138.6 bcm in 2010 to 150.0 bcm in 2011); however, despite this spike, gas exports still

and take or pay requirements, meaning imposition of minimum purchase obligations.

10 J. Stern and H. Rogers, *The Transition to Hub-Based Gas Pricing in Continental Europe,* Oxford Institute for Energy Studies, NG 49, March 2011.

11 J. Stern, Natural Gas in Europe and Asia: Supply and Demand Perspectives, NOG/UI Seminar: The Great Gas Game: Supply of Natural Gas to Europe and Asia, Stockholm, May 10, 2012, http://www.ui.se/upl/files/73355.pdf.

12 *Natural Gas Information 2012* (Paris: IEA, 2012); *Medium-Term Gas Market Report 2012* (Paris: IEA, 2012).

13 *Medium-Term Gas Market Report 2012,* 142.

14 This gas belongs to Gazprom's gas balance (or produced/owned by Gazprom) and is sold under long-term gas supply contracts. In this chapter, we do not analyze the causes of differences between data taken from the Russian customs statistics and various Gazprom sources.

remained far below the 2008 level. In 2011, the EU's main external source of supply was Russia, supplying 24 per cent of the EU's gas consumption. Other major sources were Norway (19%), Algeria (9%), and Qatar (7%).[15] In 2010, European LNG imports increased significantly, and then declined slightly in 2011.[16]

According to the Russian daily Vedomosti, in 2011, Macedonia paid the highest price for Russian gas (USD 462 per mcm) while Armenia enjoyed the lowest price (USD 180 per mcm). In the CEE region, the offer price to Slovakia was USD 333, which was even lower than for Moldova (USD 338). In 2010, the dissimilarity remained, and Slovenia was the only country in the CEE region having a price (USD 377) lower than Germany's (USD 379). Paying record prices among all customers of Gazprom were Bosnia-Herzegovina (USD 429), Poland (USD 420), and the Czech Republic (USD 419). Bulgaria purchased gas for USD 391, Hungary for USD 383, and Romania for USD 380. Vedomosti recorded only one price for the Baltic States, USD 397.[17]

Due to the take or pay provision, customers had to seriously consider the consequences from amounts of gas not (yet) accepted within a given contract year. In 2009, almost all customers of Gazprom Export outside the former Soviet Union bought less gas than in 2008. In terms of volume, Germany, Turkey, and Italy, being the three main customers, lowered their purchases the most. In 2009, Poland was the only country who, after eliminating the controversial Russo–Ukrainian intermediary company Rosukrenergo (see below), significantly increased imports; Switzerland accepted a similar amount as in 2008. In 2010, Poland became, and has retained (ahead of France), the position of fourth largest customer of Gazprom Export outside the former Soviet Union.[18] Italy, the third largest importer of Russian gas after Germany and Turkey, was also seriously impacted in 2010. In 2010, Turkey also significantly reduced gas purchases from Russia but to a much lesser extent. However, in 2011, Turkey and Italy accounted for the bulk of the increase. Italy purchased more gas from Russia to compensate for a shortfall from Libya.[19] To be more precise, the closure of the Libyan–Italian Greenstream gas pipeline allowed Italy's ENI to replace Libyan supplies with pre-paid gas from Gazprom.[20]

15 *Eurogas Press Release,* March 29, 2012, http://www.eurogas.org/uploaded/Eurogas%20press%20release%20on%20More%20customers,%20consuming%20less%20gas,%20in%202011.pdf.

16 *Medium-Term Oil and Gas Markets 2011* (Paris: IEA, 2011), 186; *Medium-Term Gas Market Report 2012,* 104.

17 *Vedomosti,* June 18, 2012; naturally various averages are given for the other cases as well.

18 As to Gazprom Group's total sales in Europe, Poland and France had already changed positions in 2009, but in 2009 and 2011, gas sales to the UK exceeded those in Poland.

19 *Financial Times,* February 16, 2012, http://www.ft.com/intl/cms/s/0/2e57f4c4-58ad-11e1-9f28-00144eabdc0.html#axzz1oivhTm7f.

20 *ICIS Heren,* March 3, 2011, http://www.icis.com/heren/articles/2011/03/03/9440628/gazprom-counts-

In 2011, 25.3 per cent of gas exports by Gazprom Export outside the former Soviet Union went to 10 Central and Eastern European states. This volume (accounting for 38 bcm of gas) is more than 10 per cent below the 2008 level; but, if ignoring Croatia, then exports are almost 8 per cent below the 2008 volume. In 2011, apart from Poland and Macedonia, all countries bought less gas from Gazprom than in 2008.

Since 2010, Gazprom has granted various concessions for price reductions to several regional companies in long-term gas supply contracts. In December 2010, Latvia and Estonia received offers for 15 per cent lower prices, provided they increased gas consumption to the 2007 level (i.e. to pre-crisis levels).[21] As of July 2011, import prices declined for Hungary's E.ON Földgáz Trade, a subsidiary of Germany's E.ON Ruhrgas.[22] In 2011, SPP of Slovakia was among the companies receiving revised prices, and in December 2011, Serbia achieved a 12 per cent price reduction for 2012.[23] In the same year, Bulgaria received a discount of 11 per cent from April 2012 until the end of 2012.[24]

In the CEE region, disputes concerning prices for RWE Transgas, the Czech subsidiary of Germany's RWE, the PGNiG of Poland, and the Lithuanian Energy Ministry with the Gazprom Group are due for resolution via arbitration.[25] After the arrangement with E.ON Ruhrgas in early July 2012, ending arbitration, Gazprom declared successful defence of its price model.[26] But Jonathan Stern (Oxford Institute of Energy Studies) believes Gazprom was, in fact, unable to preserve its oil-linked contracts. "Europe is moving to hub-based pricing, and that means Gazprom is as well."[27]

Gazprom responded too late to the market processes and lost market share in Europe.[28] However, from the point of view of Gazprom, priority accrues to rev-

on-rue-gas-as-production-falls,-exports-soar.html.

21 *RIA Novosti,* December 24, 2010, http://en.rian.ru/business/20101224/161916344.html.

22 T. Horváth, Aktuális kihívások a magyar földgázpiacon – egy Supplier szemszögébQl, September 15, 2011 (Conference Presentation), http://www.cebc.hu/ppt/energetika2011/horvath_tibor.pdf.

23 According to media information, this addendum will be in place for as long as the new long-term contract remains. (*Kommersant,* February 24, 2012, http://www.kommersant.ru/doc-rss/1879271.)

24 The 11 per cent figure is an average for the three contracts with Bulgaria. *(Ministry of Economy, Energy and Tourism of the Republic of Bulgaria – News,* August 28, 2012, http://www.mi.government.bg/en/news/delyan-dobrev-otstapkata-ot-11-ot-cenata-na-gaza-e-v-sila-ot-1-vi-april-do-kraya-na-godinata-830.html.)

25 After completing this study, PGNiG secured a deal with Gazprom.

26 Reuters, July 5, 2012, http://www.reuters.com/article/2012/07/05/us-energy-gas-europe-gazprom-idUSBRE8640FN20120705.

27 *Financial Times,* February 16, 2012, http://www.ft.com/intl/cms/s/0/2e57f4c4-58ad-11e1-9f28-00144feabdc0.html#axzz1oivhTm7f.

28 A.A. Konoplyanik, Russian Gas at European Energy Market: Why Adaptation is Inevitable, *Energy Strategy Reviews 1,* no. 1 (March 2012): 42 56.

enue generation and not exports' volumes. In 2011, 58 per cent of the gas sold in Europe was according to an oil-linked formula, but due to renegotiations and arbitration, this ratio reflects a decline.[29] Gazprom supplies only 7 per cent of its total gas exports to Europe at spot rates.[30]

A serious warning for Gazprom occurred when, at the end of September 2011, in order to investigate possible anti-competitive practices the European Commission officials undertook unannounced inspections at the premises of companies active in supply, transmission, and storage of gas in several EU Member States, mainly in Central and Eastern Europe.[31] A year later, in early September 2012, the European Commission launched an anti-trust probe of Gazprom for three suspected anti-competitive practices in Central and Eastern Europe involving Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, and Bulgaria.[32] First, Gazprom may have divided gas markets by hindering free flow of gas across Member States. Second, Gazprom may have prevented diversification of the supply of gas, and third, Gazprom may have imposed unfair prices on its customers by linking the price of gas to oil prices.[33] Previously, one-and-half years before the anti-trust investigation, in January 2011, the Lithuanian Ministry of Energy filed a complaint with the European Commission request-

29 *Natural Gas Europe,* September 13, 2012, http://www.naturalgaseurope.com/shale-gas-needed-for-fully-functioning-eu-gas-market.

30 This data is derived from Gazprom's 2011 November Base Prospectus and reiterated by Alexander Medvedev (of Gazprom) in Gazprom's Investor Day in London on February 14, 2012. However, current understanding is that this figure has increased since that time. (Investor Day, London, February 14, 2012, Questions and answers, Gazprom, Gazprom, http://www.gazprom.com/f/posts/67/590264/2012-02-14-investor-day-london-en.pdf.)

31 *European Commission – Press Release,* MEMO/11/641, September 27, 2011, http://europa.eu/rapid/press-release_MEMO-11-641_en.htm?locale=en.

32 *European Commission – Press Release,* IP/12/937, September 4, 2012, http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/937&format=HTML&aged=0&language=EN&guiLanguage=en; *Bloomberg,* September 4, 2012 http://www.bloomberg.com/news/2012-09-04/gazprom-faces-eu-anti-trust-probe-on-eastern-european-gas-sales.html.

33 In response, on September 11, 2012, President Putin signed an Executive Order that states, "open joint stock companies on the list of strategic enterprises and their subsidiaries should supply information on their activities (unless such information must be published or disclosed in any case) upon request from the authorities and agencies of foreign countries, international organisations, associations and groups of foreign countries, only subject to prior consent of a respective federal executive body authorised by the Russian Government. The same procedure shall apply if the aforementioned economic actors make amendments to contracts concluded with foreign counteragents and other such documents pertaining to their business (pricing) policy in foreign countries, or for the purposes of alienating their shares and stakes in foreign entities, rights to conduct business activity on foreign soil, and titles to real estate located abroad, should the above actions are accomplished on demand of the abovementioned organisations, bodies and groups." The Executive Order states that the authorized federal executive body must refuse to grant its consent to these actions to proceed if they could harm Russia's economic interests. ("Executive order on measures protecting Russian interests in Russian legal entities' foreign economic activities," September 11, 2012, http://eng.kremlin.ru/news/4401#sel=.)

ing investigation of abuse due to the dominant position of Gazprom.[34] While Günther Oettinger was EU Energy Commissioner, Lithuania, in mid-September 2012, emphasized that Russian gas prices to the EU Member States should not vary greatly.[35]

In the first half of the 2000s, the Directorate-General for Competition (DG COMP) initiated removal of territorial restrictions ("destination clauses") from contracts for supplying gas concluded by Gazprom with a number of gas wholesalers in the EU. The parties found mutually acceptable alternatives with ENI, OMV, and E.ON Ruhrgas, and in June 2005, the European Commission ceased its review of Gazprom's contracts. After that, Gazprom declared further exclusion of such clauses in new contracts with companies organized under the laws of a Member State of the EU ("EU companies").[36] Consequently, the issue of lifting the ban on gas re-export can receive attention in Central and Eastern Europe.[37]

3. Gas demand and production in Central and Eastern Europe

3.1 Role of gas in primary energy consumption in Central and Eastern European countries

Central and Eastern European countries[38] can represent three distinct groups based on the role of gas as the primary energy for consumption. In 2011, gas had tha largest role in primary energy consumption in Hungary (38.2%) and Lithuania (36%), but this ratio was also high in Latvia (33.1%), Romania (30.8%), Croatia (30.8%) and Slovakia (28.1%). In all six cases, representing the first group of countries, ratios were higher than the OECD average, and even the

34 *Ministry of Energy of the Republic of Lithuania – News,* January 25, 2011, http://www.enmin.lt/en/news/detail.php?ID=1198.

35 Reuters, September 14, 2012, http://www.reuters.com/article/2012/09/14/eu-gas-gazprom-idUSL5E-8KE9YZ20120914.

36 *Report on Competition Policy 2005,* European Commission, 2007, http://ec.europa.eu/competition/publications/annual_report/2005/en.pdf; *Gazprom's Base Prospectus dated 19 July 2005; Gazprom's Base Prospectus dated 13 August 2007.*

37 The problem is, arguably, more subtle when considering old contracts. István Kutas, then Head of Communications at E.ON Földgáz Trade, in reply to direct questions said in early September 2008 [author's translation], Critical amounts concerning the ToP [take or pay] are partly exported (i.e. not acquired from Baumgarten, but sold there), partly redirected to our mother company, and partly are not taken (or delayed offtake). Our contract has not changed in this respect, but intra-EU trade is not considered as export and, therefore, not covered by the clause. In Poland, signed in October 2010, an annex to the existing long-term contract, the so-called Yamal contract of 1996 (see below), lifts the ban on re-export of gas to third-party countries without Gazprom Export's consent.

38 Without Montenegro and Albania, but with Croatia.

OECD European average. However, the ratios were below the averages in countries of the second group, consisting of the Czech Republic (17.2%), Bulgaria (12.9%), Poland (12.6%), Slovenia (12%), Serbia (11.9%), and Estonia (10.1%). Finally, in countries, such as Macedonia (3.3%) and Bosnia-Herzegovina (3.1%) gas had an extremely low role in the coutries' portfolio of energy sources.

That said, such figures can change very quickly. For instance, for Latvia in 2009, gas played the greatest role in power generation among the countries examined. But by the end of 2009, Lithuania closed the Ignalina nuclear power plant, resulting in a dramatic increase in gas' role for generating electricity. Lithuania transitioned from a net electricity exporter to the country most dependent on electricity imports in the EU.[39]

3.2 Gas demand

In the CEE region, Poland (with 17.2 bcm in 2011), Romania (14.4 bcm), and Hungary (11.6 bcm) are the largest gas consumers, with a combined share of nearly 60 per cent in 2011.[40] In 2009, in all countries under review, except for Albania, gas consumption decreased quite dramatically in certain cases (approximately 30 to 40 per cent). Although in many countries gas demand reached its peak years before that.[41]

Forecasts for gas demand in the Central and Eastern European region are vague and varying. Only one forecast was available that analysed all of the countries examined. Anouk Honoré (of the Oxford Institute of Energy Studies), following the IEA methodology, calculated in early 2010 that gas consumption in the 15-country region would rise from 77.5 bcm in 2007 (and 75.8 bcm in 2008) to 80.5 bcm in 2020. This is a 4.7 bcm, or 6.2 per cent increase, which is predominantly due to Poland's and Romania's growth in consumption. Honoré forecasts a decline in half of the CEE countries (in Latvia, Lithuania, Hungary, Bulgaria, Slovenia, Croatia and Bosnia-Herzegovina).[42]

In an early 2012 report by Kantor Management Consultants, SA, in association with Booz and Company, a significant increase in consumption is forecast by 2020, compared to 2010 (which is also an estimate) for the region comprising

39 V. Paskevicius, "Electricity Sector Development in Lithuania," Forum "Energy in Latvia 2011," December 7, 2011, http://www.leea.lt/files/2011-12-07prezentacija.ppt.

40 The data also originates from the IEA.

41 *Natural Gas Information 2008* (IEA, Paris, 2008); *Natural Gas Information 2011* (IEA, Paris, 2011); *Natural Gas Information 2012.*

42 Honoré, xl, 243, 292, 293 294.

eight CEE countries (Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Croatia, and Slovenia). In the three scenarios— namely minimum, base, and maximum consumption— the figures, respectively, are from 55.3 bcm in 2010 to 65.8 bcm in 2020 (+14.3%), from 55.7 bcm in 2010 to 76.7 bcm in 2020 (+35.2%), and from 56.2 bcm in 2010 to 86.5 bcm in 2020 (+42.4%).[43] Honoré calculated much lower increases in the same eight countries. Practically, Honoré's number (+14.2%) is, in relative terms, similar to that calculated by Kantor's minimum (+14.3%). In Honoré's predictions, the expectation is that **all** countries will increase consumption, from 63.7 bcm in 2010 (Honoré's projection[44]) to 72.8 bcm in 2020 (i.e. even estimated base numbers or forecasted absolute numbers of the two forecasts differ greatly).

According to Honoré, in CEE countries south of Hungary, only a 0.7 bcm of additional gas demand will occur by 2020, compared to 2008 (from 25.4 bcm in 2008 to 26.1 bcm in 2020). Outside Romania growth will be barely noticeable; rather, a decrease is anticipated. IHS CERA predicts 7.1 bcm of additional demand for gas in the same countries (from 23.5 bcm in 2008 to 30.6 bcm in 2020). Romania and Croatia would account for nearly half of the increase; nevertheless, the assumption is for additional demand in all countries.[45]

The first ten-year Gas Regional Investment Plans,[46] prepared in accordance with the relevant Regulation of the EU's Third Energy Package, provide data over time for ten countries. Accordingly, among the three Baltic States, only Estonia will encounter a rise in consumption of gas from 2011 to 2021, while Latvia's gas demand continues to decline. The expectation for Lithuania is stagnation throughout the period. Among the remaining seven countries (Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria and Croatia), by 2012, compared to 2011 levels, the lowest increase will be for Bulgaria, where predictions for demand suggest only a 3.5 per cent increase. Poland (92.5%), the Czech Republic (44.8%), and Hungary (32.7%) will represent the greatest increase in demand by 2021, while gas consumption will grow below 20 per cent in Croatia (19.8%), Romania (19.7%), and Slovakia (16.2%).

43 *Market Analysis and Priorities for Future Development of the Gas Market and Infrastructure in Central-Eastern Europe under the North-South Energy Interconnections Initiative (Lot 2),* Fiche vigie no 263, DG ENER/Unit B1. Final Report submitted to Directorate-General for Energy, Unit B1: Security of supply and networks, European Commission, January 19, 2012.

44 2008 data (67.1 bcm) is factual, while 2009 data (60.7 bcm) is an estimate.

45 Cited by J. Roberts, "Energy in Central Asia: Drivers and Consequences," (Presentation) Norwegian Institute of International Affairs (NUPI), Oslo, February 22, 2012.

46 Gas Regional Investment Plans, http://www.gie.eu/memberarea/purtext_entsog_GRIP.asp?wa=plus_GRIP.

3.3 Internal gas production in Central and Eastern Europe, with special attention to unconventional gas

In Central and Eastern Europe, only Romania (with 11.0 bcm in 2011) has substantial gas production, but gas production in Poland (6.2 bcm[47]), Croatia (2.3 bcm), and Hungary (2.8 bcm) are also noteworthy.[48] Romania and Croatia are largely self-sufficient for natural gas supply, consuming 76.4 per cent and 71.9 from domestic sources in 2011, respectively. Although not comparable to Romania and Croatia, in Poland (with 36% in 2011) and Hungary (24.1%) the ratio of gas consumption to production is not negligible. This ratio is lower in Serbia (16.7%) and Bulgaria (15.2%), while others have only token degrees of self-sufficiency (the Czech Republic – 2.2%, and Slovakia – 1.8%), or even none at all, in the rest of the CEE region.

Among unconventional gas resources, shale gas has attracted the most attention. However, shale gas production will be a more difficult matter in Europe than in the United States. The CEE region has taken the first steps to access this resource, and the first failures have occurred. Poland remains the best prospect for shale gas production. Nevertheless, recently, several reports are negative, beginning with the latest assessments predicting resources from shale gas, which may be much lower than originally estimated in the widely circulated April 2011 report of the Energy Information Administration (EIA) of the U.S. Department of Energy. Despite estimates from the March 2012 report of the Polish Geological Institute, the report of the U.S. Geological Survey (USGS) published in July 2010 depicts a negative picture. While some companies yielded disappointing results from drilling for shale gas, any firm conclusion may be too early. Further negative reports in June 2012 suggested a disappointed U.S. "supermajor" company, Exxon Mobil, still in early stages of exploration in Poland, would terminate its shale gas exploration projects.[49] Governmental projects in Poland expect to begin commercial production of shale gas in late 2014 or early 2015.

In January 2012, Bulgaria prevented another U.S. supermajor corporation, Chevron, from continuing shale gas projects. Protests throughout the country that objected to the technology of fracking for shale gas exploration and extraction resulted in the termination of Chevron's exploration permit. In Poland (and Lithuania), Chevron has opportunities for results; however, Romania's new government marks an end to the country's pro-shale gas position. A moratorium

47 Compare with other data sources. For example, according to national sources, domestic gas production was 4.3 bcm in 2011, which is the same as that of BP *(BP Statistical Review of World Energy)*.

48 According to IEA's definition of gas production.

49 *Natural Gas Europe,* June 16, 2012, http://www.naturalgaseurope.com/exxon-withdraws-poland-shale-gas.

is effectively in place in spite of, so far, a lack of adopted, relevant legislation to implement such restrictions.[50] According to an August 2012 statement by the Romanian Minister of Environment and Forests, Romania will most likely extend the moratorium by two years until 2014. However, Romania's hope is not shale gas but rather gas in the Black Sea. Similarly, the same resource provides Bulgaria with an optimistic possibility. In the Czech Republic, an expected moratorium on shale gas exploration is likely, at least by mid-2014, but legislation is not yet official. Here, concerns for revoking licenses and local objections, rather than proceeding with projects were often raised.

Among the Baltic States, Lithuania has aspirations to join those seeking shale gas. In the summer of 2012, Lithuania, after initial postponement, approved its first tender for shale gas exploration; however, no company in Lithuania engages in exploration of shale oil and shale gas. Latvia has announced plans to diversify its energy sources by exploring the development of shale gas resources,[51] but further information is currently absent.

Unconventional gas in Hungary's Makó Trough initially attracted interest, but the exploratory drilling has been unsuccessful. However, Hungary's oil and gas company, Mol, produces gas from unconventional reservoirs in Hungary. Finally, the potential of Hungary's former Yugoslav neighbours for unconventional gas is worth mentioning, too.

4. Transit through the western CIS states and Central and Eastern Europe

The bulk of exported Russian gas to consumers outside the former Soviet Union transits three western CIS states, Ukraine, Belarus, and Moldova. In addition, Finland also has interconnections with Russia. Delivery of a significant portion of Turkish exports began via the Blue Stream pipeline in the Black Sea and, in 2011, via the Nord Stream pipeline in the Baltic Sea. The direction of gas pipelines through Ukraine to Europe tends toward Poland, Slovakia, Hungary,

50 *Natural Gas Europe,* August 16, 2012, http://www.naturalgaseurope.com/shale-gas-exploitation-in-romania-postponed; T. Dborowski and J. Groszkowski, *"Shale gas in Bulgaria, the Czech Republic and Romania. Political context – legal status – outlook,"* OSW Report (Centre for Eastern Studies, Warsaw, September 2012), http://www.osw.waw.pl/sites/default/files/Shale_gas_in_Bulgaria_the_Czech_Republic_and_Romania_net.pdf; *Natural Gas Europe,* June 25, 2012, http://www.naturalgaseurope.com/romania-senate-rejects-fracking-ban; Transindex, June 21, 2012, http://itthon.transindex.ro/?hir=29748.

51 The Baltic Course, February 24, 2011, http://www.baltic-course.com/eng/good_for_business/?doc=37695; *Natural Gas Europe,* July 21, 2011, http://www.naturalgaseurope.com/latvia-pursue-shale-gas-development.

Romania, and Moldova. Gas flows through Moldova to Romania, with Belarus providing transit service in the direction of Lithuania, Poland, and Ukraine. In 2011, 101 bcm of gas transited to Europe through Ukraine, while 44 bcm flowed through Belarus and nearly 20 bcm through Moldova. Among the three western CIS transit states, Gazprom owns the Belarusian section of the Yamal-Europe pipeline, carrying Russian gas to Poland and Germany, and the trunk pipeline network of Belarus' Beltransgaz. In Moldova, Gazprom retains half of the shares in Moldovagaz, including transmission pipelines. Gazprom has no position in Ukraine.

After expiring at the end of 2011, Moldovagaz has not succeeded in acquiring new, long(er)-term gas supply and transit contracts with Gazprom. Instead, extensions to existing contracts occurred several times, the last until the end of 2012. The lack of consent largely relates the EU Energy Community Ministerial Council's adoption of the EU's Third Energy Package in October 2011. Due to its shareholding in Moldovagaz, Gazprom strongly opposes the Third Energy Package, in particular the so-called unbundling. Ultimately, Moldova, pressed by Russia, has decided to postpone the implementation of new contracts.

Transiting gas through Russia is not without cost. In 2009, Russia withdrew from the Energy Charter Treaty, thereby terminating its position as a Contracting Party. Ukraine and Moldova ratified the Energy Charter Treaty, but Belarus has not. The agreement on the CIS free trade zone, signed in October 2011 by eight nations, is in effect in four countries, but the issue of freedom of transit by pipelines awaits a solution.

In the CEE region, the three main transit routes are through Slovakia, Poland, and Romania. Gas transit through Slovakia reached a peak of nearly 85 bcm in 1999. The Yamal-Europe gas pipeline, commissioned in 1999, reduced the significance of Slovakia, while Poland became an important transit country to Germany. In 2011, 25 bcm of gas entered Germany through this pipeline whose capacity is 32.9 bcma.[52,53] Slovakia's agreement, signed in November 2008, contracts a 20–year term, for transporting 50 bcma of gas.[54] In 2011, 47.4 bcm of gas transited the pipeline.[55] An extension of the Czech Republic's RWE Trans-

52 *Slovak Republic: Energy Policy Review 2005* (IEA, Paris, 2005), 140; *OilCapital.ru,* April 23, 2012, http://www.oilcapital.ru/transport/155258.html.

53 Implementing the third energy package, in Poland, the owner of the Polish section of the Yamal-Europe gas pipeline (EuRoPol GAZ) handed over operation, and the Polish state-owned company Gaz-System became the independent system operator (ISO) in 2010. The unbundling is a serious source of conflict with Russia. It also concerns existing assets with Russian ownership.

54 Gazprom Export, http://www.gazpromexport.ru/en/partners/slovakia/.

55 A. Medvedev, "Gazprom and Slovakia: Anniversaries of Cooperation in Energy Sector," Speech by Alex-

gas agreement with Gazprom through 2035 contracts for a maximum 30.5 bcma of gas. Moreover, the operational schedule of the new transit pipeline, Gazelle, through the Czech Republic with a capacity of 30-33 bcma is January 2013. Gazelle is a continuation of Germany's OPAL gas pipeline of 35 bcma of capacity and, thus, part of the wider Nord Stream project. Gazelle will transport Russian gas delivered through the Nord Stream pipeline in the Baltic Sea. Romania's Transgaz has two transit contracts with Gazprom (one from 1987 and extended to 2012, the other from 1999 and valid until 2023), but data for quantities is unavailable.[56] In 2006, an extension of the Bulgarian contract to 2030 provides for transit volumes of 17.8 bcma (with an option to an additional 5 bcma).[57] In 2011, Bulgaria transited 15 bcm: 80 per cent to Turkey, 19 per cent to Greece, and one per cent to Macedonia.[58]

Ukraine's neighbours will (or could) find themselves in a new role as providers of transmission services to Ukraine. The Ukrainians approached Hungary to explore the possibility of a physical supply to Ukraine, and perhaps by today, both technical and legal advances allow for the pumping of gas to Ukraine from Hungary.[59] Since the Ukrainian partner must purchase gas from a foreign source, a transit system is an issue. The Slovakian transmission system's operator (TSO), Eustream, has considered construction of a new bi-directional interconnection between the gas transmission systems of Slovakia and Ukraine, but, as announced in October 2012, the Open Season had not identified sufficient binding market interest in new transmission capacities.[60,61]

4.1 Bypass pipelines and their effect on transit

The first line of the Nord Stream gas pipeline, which cost EUR 7.4 billion with a capacity of 27.5 bcma, became operational in November 2011. In October

ander Medvedev at the 50th anniversary of the Druzhba oil pipeline in Slovakia, Bratislava, September 18, 2012.

56 *Transgaz: Let the gas flow,* ING, July 16, 2008, http://www.transgaz.ro/Downloads/rapoarte_analisti/ING%20Report%20Transgaz%20company%20note.pdf; *Annual Director's Report 2011,* Transgaz, 2011, http://www.transgaz.ro/en/Downloads/Situatii_financiare/Raportul_administratorilor_2011_en.pdf.

57 Gazprom Export, http://www.gazpromexport.ru/en/partners/bulgaria/.

58 *Manager.bg,* September 30, 2012, http://www.manager.bg/news/357-mln-evro-v-ochakvane-na-nabuko%E2%80%9C-i-yuzhen-potok%E2%80%9C.

59 According to information provided to the author by FGSZ CEO János Zsuga.

60 *Eustream – News,* June 19, 2012 http://www.eustream.sk/en_media/en_news/binding-open-season-for-the-sk-ua-gas-interconnector; Eustream News, October 15, 2012, http://www.eustream.sk/en_media/en_news/open-season-for-the-sk-ua-interconnector-evaluated.

61 Following completion of this study, finally, for the first time gas deliveries to Ukraine from the west by reverse flow were managed. RWE started to supply physical gas flows to Ukraine from/through Poland, while Ukraine reduced its purchases from Russia below the take or pay minimum.

2012, the second line of the Nord Stream gas pipeline opened. Shareholders of the Nord Stream AG consortium, including Gazprom, Wintershall Holding (of the German BASF Group), E.ON Ruhrgas, Gasunie (of the Netherlands), and GDF Suez (of France), considered adding a third and a fourth line, and the preliminary feasibility study reports that the construction of these lines is economically expedient and technically possible. Before the end of January 2013, the consortium plans to sign a memorandum promoting construction of new capacities, with one line possibly serving Great Britain.[62]

The expectation there will be a high rate of utilization for the Nord Stream pipeline, since Gazprom signed ship or pay contracts for 100 per cent of the 55 bcma capacity. However, since November 2011, the first line has only carried a moderate load, about one-third of the available capacity. After the pipeline reaches 100 per cent capacity, the tariff per transmission of 1,000 cubic meters of gas, 100 kilometres, will be higher than that of the Ukrainian line.[63] Chyong, Noël, and Reiner (2010) concluded that the unit cost of shipping through Nord Stream is lower than using the Ukrainian route and is only slightly above shipping through the Yamal-Europe pipeline.[64]

The South Stream pipeline through the Black Sea will provide capacity for 63 bcma, and consists of four lanes, each of them with a capacity of 15.75 bcma. Gazprom, ENI, Wintershall Holding, and EDF (of France) are the members of the South Stream Transport AG consortium, which has the responsibility of studying, constructing, and operating the offshore section of the pipeline. Gazprom's November 2010 announcement reported that the offshore segment of the pipeline may cost EUR 10 billion, while the price of the onshore segment in Europe is EUR 5.5 billion.[65] According to Wintershall, the estimated investments necessary for the offshore sections are at least EUR 10 billion, while costs of EUR 20-25 billion represent the estimates for the project overall (onshore and offshore).[66] However, Russian involvement is not ignored: A significant amount of both the Nord Stream and the South Stream pipeline is constructed in Russia.

62 *RIA Novosti,* October 8, 2012, http://ria.ru/economy/20121008/769142388.html, http://en.rian.ru/business/20121008/176482137.html.

63 *Kyiv Post,* September 6, 2012, http://www.kyivpost.com/content/ukraine/nord-stream-tariff-still-double-that-of-ukrainian-transit-312571.html.

64 C.K. Chyong, P. NoQ64l, and D.M. Reiner, The Economics of the Nord Stream Pipeline System, *EPRG Working Paper,* Electricity Policy Research Group, University of Cambridge, No. 1026, 2010.

65 *Korporativniy Zhurnal OAO «Gazprom»,* No. 11/2010, 9.

66 "Insurance policy for Europe," Interview with CEO Rainer Seele about the European natural gas pipeline, Wintershall, http://www.wintershall.com/en/insurance-policy-for-europe.html.

According to Putin's recommendation, publicized at the end of December 2011, the construction of South Stream will begin at the end of 2012 (at least officially),[67] with commissioning projected for the end of 2015 and commercial deliveries to begin in the first quarter of 2016.[68] Bulgaria is the planned land entry point of the pipelines from the Black Sea, while it will pass through the Turkish exclusive economic zone in the Black Sea. Gazprom waited an extended period for Turkey to issue the permit for South Stream construction as a number of uncertainties involved the land route of the pipeline. The final investment decisions are scheduled for October and November 2012.

The earlier plans envisaged two branches of the South Stream pipeline, a northern and a southern route beginning in Bulgaria; however, the agenda removed the southern branch. During the presentation of the project in Brussels in May 2011, Gazprom suggested four options for the route of the South Stream gas pipeline, with Romania as one of the routes. However, Romania did not join the South Stream project (because it issued no intergovernmental agreement) although the country conducted a feasibility study for building a possible section through its territory. A new development, in May 2012, was Gazprom's corporate magazine announcing that gas would traverse Bulgaria, Serbia, Hungary, and Slovenia to northeast Italy, and plans include building a subsection to link the Bosnian Serb Republic and Croatia through Serbia, Greece, and Bulgaria. The announcement included other states, such as Macedonia and Montenegro, but left unmentioned plans for expanding into Austria and southern Italy.[69] Austria's failure to purchase shares in the Central European Gas Hub (CEGH) significantly influenced Gazprom's exclusion of the country. For the northern branch, the preparations have not gone smoothly in the other countries either. The projects were beset with problems, not only in Bulgaria (enjoying the strongest bargaining position) but also in Hungary, and in August 2012 news suggested Croatia could replace Hungary.

Europe faced gas supply interruptions in conduits that pass through the western CIS transit states four times over the 2000s, two in Belarus and two in Ukraine. While interruption of gas supplies through Ukraine affects all CEE buyers except the Baltic States, interruption of the Belarusian transit is a serious problem for Lithuania and Poland.

67 *RIA Novosti,* December 30, 2011, http://ria.ru/economy/20111230/529997206.html.

68 *Korporativniy Zhurnal OAO «Gazprom»,* No. 5/2012.

69 Following completion of the study, Austria's, Greece's, and southern Italy's exclusion from construction plans for the South Stream pipeline became certain.

Nord Stream helps to balance the influence of Russia and, equally importantly, Ukraine against the EU's other gas suppliers.[70] The Nord Stream pipeline has caused reductions in the Ukrainian transit, which consequently reduces transit through Slovakia and the Czech Republic, and in the transit fees for these states. However, transit through the Czech Republic will encounter further difficulty from the Nord Stream pipeline, because upon completion Gazelle will increase transit through the Czech Republic. In May 2011, six months prior to commissioning Nord Stream, Miller said the plan included redirecting 20 bcm of gas in transit to Europe via Ukraine to Nord Stream. The amount of gas is just under one-fifth of what Ukraine transported to Europe in 2010 and 2011.[71] The aim of the redirection is apparent from the November 2008 contract between Gazprom and Slovak TSO Eustream[72] and from data obtained from Eustream. According to Mikhail Korchemkin, Gazprom is unlikely to fulfil its transit contract with Eustream.[73] However, Slovakia's position is secure by the ship or pay provision. At the same time, the 2009 transit contract between Ukraine and Russia does not contain ship or pay obligation, so Gazprom can lower volumes without facing penalties. Belarus and consequently Poland are in a much safer positions than Ukraine, since Gazprom has full ownership of the Belarusian gas pipelines. In fact, Gazprom could increase transits through Belarus at the expense of Ukraine.

South Stream has the potential to significantly impact transit. According to the May 2011 announcement, it will add very large capacities by filling the pipeline's capacity by two-thirds, completing existing contracts and reinforcing the pipeline's role as a bypass. But despite South Stream, Bulgaria's Prime Minister explained in July 2010 that Gazprom would continue to transit the same amounts of natural gas through Bulgaria to Greece and Turkey using the existing pipelines.[74]

In June 2011, Alexei Miller emphasized that the implementation of the Nord Stream and South Stream projects represents the pursuit of a noble aim to completely eliminate the risks that threaten the transit of Russian gas to Europe.[75] In February 2012, during intense debate Gazprom stated that the South Stream's full capacity and Nord Stream, together with additional lines and existing capacity through Belarus and the Black Sea, would reduce Ukraine's importance

70 Reuters, November 7, 2011, http://in.reuters.com/article/2011/11/07/idINIndia-60372320111107.
71 Reuters, May 25, 2011, http://ru.reuters.com/article/idUKLDE74O27O20110525?sp=true.
72 *East European Gas Analysis,* February 15, 2011, http://eegas.com/south-str-2011-02e-15.htm.
73 *East European Gas Analysis,* July 2, 2012, http://www.eegas.com/slovakia-eustream.htm.
74 *Novinite.com,* July 10, 2010, http://www.novinite.com/view_news.php?id=117974.
75 Gazprom, press conference, http://www.gazprom.com/f/posts/94/248065/gazprom-final-press-conf-2011-06-30-en.pdf.

for transit to zero.[76] The pessimistic scenario embodied in the updated draft of the Energy Strategy of Ukraine for the period through 2030 envisions drastic decline in transit.

5. The role of Russian gas in Central and Eastern European countries

On 4 February 2011, the European Council concluded that no EU Member State should remain isolated from the European gas networks after 2015 or jeopardize its energy security because of a lack of appropriate connections. According to the October 2010 EU regulation concerning measures to safeguard the security of gas supplies, with some exceptions the transmission systems' operators must enable permanent bi-directional capacity on all cross-border interconnections between member states by December 2013 at the latest. The European Commission's November 2010 communication on energy infrastructure priorities identified priority projects in the CEE region: the North-South Corridor in Central Eastern and South-East Europe, the Southern Corridor and the Baltic Energy Market Interconnection Plan (BEMIP). Building gas interconnections has been a long-standing, unresolved issue in Central and Eastern Europe, but it has recently progressed to a degree.

Central and Eastern European countries have attempted to interrupt, or at least ease, Russia's domination, but reports indicate very few results. The January 2009 gas crisis and the emergence of the "two price" or "hybrid price" market (i.e. the relatively very expensive Russian contracted gas prices, compared to spot prices) provided new impetus. Market segmentation has always been a significant advantage for Gazprom (the possibility to execute price discrimination), but while some assert that Gazprom tried to prevent diversification or the free flow of gas, the lack of diversification could have simple economic explanations, such as the price of Russian gas, compared to other options. Another consideration is the discounted prices from the Baltic States that ended in 2008, thus ensuring equal profitability, compared to the European markets, and the practice of "gas for transit" had to be abolished in the Central and Eastern European transit states. In some countries, legislation requires a minimum level of diversification. Poland, in 2000, established annually through 2020 the maximum share of imported gas from one country of origin relative to the total volume of imported gas. The regulation applies to all wholesalers buying gas from abroad. In Lithua-

76 Reuters, February 22, 2012, http://www.reuters.com/article/2012/02/22/russia-ukraine-gas-idUSL5E8DMAU920120222; "Gazprom Gas Pipeline Projects Mean 'Zero' Need for Ukraine," *Bloomberg,* February 22, 2012, http://www.bloomberg.com/news/2012-02-22/gazprom-sees-zero-need-for-ukraine-gas-transit-with-new-links.html.

nia, the LNG terminal project dictates minimum limits to diversification and requires at least 25 per cent of the country's natural gas needs to be purchased via the terminal.[77] In Bulgaria, the government's main objective is to prevent a single supplier from having a market share greater than 50 per cent by 2020 (or earlier).[78]

Various types of intermediaries have been involved in gas import and trade. Eural Trans Gas, registered and operated in Hungary as an offshore business entity, and the Swiss-based Rosukrenergo comprise just two intermediaries. Some joint ventures such as Panrusgáz in Hungary, Yugorosgaz in Serbia, or Overgaz in Bulgaria have registration in these particular countries. In Bulgaria and Romania, intermediaries such as WIEE also operate.[79]

Interpretation of statistics for gas imports to each country are very different, thus without explanation, they can be misleading. For example, BP indicates in its statistics that flows are on a contractual basis and may not correspond to physical gas flows in all cases. Importantly, the physical flow of gas can be different from the commercial flow of gas. In such cases, the two flows appear in records as if gas volumes purchased had come physically to a particular point. For example, delivery of gas does not move physically from Germany to Hungary or from Austria (Baumgarten an der March) to France by long-term gas supply contracts with E.ON Ruhrgas and GDF Suez, respectively.

Among the Central and Eastern European countries, only Estonia and Latvia receive gas from Russia without transit through intermediate countries. Lithuania is not only dependent on transit through Belarus but also provides transit to Russia's exclave Kaliningrad Oblast. Latvia's underground gas storage facility has a significant role in the region; during the winter, this gas storage supplies not only Latvia's consumers but also Estonia, Lithuania, and back to Russia. Expansion of interconnected supplies between Latvia and Lithuania is in progress.[80]

77 *15min.lt,* June 12, 2012, http://www.15min.lt/en/article/business/lithuanian-parliament-approves-lng-terminal-construction-527-225787.

78 Ministry of Economy, Energy and Tourism of the Republic of Bulgaria, http://www.mi.government.bg/bg/interviews-type-detail-21-.html; *24chasa.bg,* November 24, 2011, http://www.24chasa.bg/Article.asp?ArticleId=1125602

79 Wintershall Erdgas Handelshaus Zug AG (WIEE) is a subsidiary of the Berlin-based Wintershall Erdgas Handelshaus GmbH & Co. KG (WIEH), which is, in turn, is a joint venture of Gazprom and Wintershall.

80 Gazprom has stakes in all three "national" gas companies (in Estonia 's Eesti Gaas, Latvia's Latvijas Gze, and Lithuania's Lietuvos Dujos) of the three Baltic States, respectively; therefore, unbundling affects these assets. Among the three Baltic States, Lithuania was the first to nationalize its transmission system. In June 2011, Lithuania's parliament voted in favor of unbundling full ownership by approving separation of the country's gas transportation and supply assets. The government, in October 2011, set an October 2014 deadline for the unbundling. Since announcing the reorganization in spring 2010, the dispute between Lithuania and

The three Baltic States do not have interconnections with Central Europe as they purchase gas only from Russia. In Estonia, only Eesti Gaas imports gas, according to contracts with Gazprom valid through 2015. Previously, the fertilizer producer Nitrofert purchased gas directly from Gazprom, but in February 2009 Nitrofert suspended production due to high gas prices and, consequently, drastically reduced Estonia's imports of gas. Eesti Gaas also purchases gas from Latvia's Itera Latvija but in small quantities. According to a 2009 presentation by Itera, in 2008 a chain of gas sales that followed the path of gas originating with Itera arrived from Gazprom Export and transfered to Eesti Gaas and Latvijas Gāze. Itera has a long-term contract to supply 0.6 bcma of gas to Latvia through 2030, while supplies to Estonia are only 0.1 bcma.[81] In Latvia, Latvijas Gāze handles all import operations on the basis of a long-term contract with a consortium of Latvijas Gāze, Gazprom, and Itera Latvija.[82] In February 2009, Latvijas Gaze and Gazprom extended the contract, previously due to expire in 2015, to 2030. Gazprom exports gas to five companies in Lithuania: the vertically integrated gas company Lietuvos Dujos, the nitrogen fertilizer producer Achema, the gas trading company Dujotekana (the second largest gas supplier to both wholesale and retail markets), the Kaunas power plant ("Kauno termofikacijos elektrinė"), and Haupas, which supplies gas to the Druskininkai region. Since October 2008, Gazprom has supplied gas through the intermediary LT Gas Stream AG to Dujotekana, whose contract is effective through the end of 2012. The contract with Haupas lasts until 2013,[83] while those with Lietuvos Dujos and Achema remain until 2015,[84] and, according to Lithuania's Energy Ministry, contracts with Kauno termofikacijos elektrinė will last until 2017.[85] Obviously, several contracts for supplying gas remain, and arguably prices differ; for example, Achema purchases gas at a lower price than Lietuvos Dujos.[86]

Russia became intense, with national courts, arbitral tribunals, and the involvement of the European Commission. In early June 2012, Estonia's parliament also legislated unbundling. Accordingly, Eesti Gaas must sell its natural gas transportation network before the end of 2014, and the government must approve the sale. In April 2012, Latvia announced its intention to unbundle Latvijas Gaze's monopoly, with a deadline of no later than 2017.

81 J. Henderson, *Non-Gazprom Gas Producers in Russia,* Oxford Institute for Energy Studies, Oxford, 70.

82 *2010 Annual Report of the Public Utilities Commission of the Republic of Latvia on the National Energy Sector,* Prepared for the European Commission, 2011.

83 *Annual Report on Electricity and Natural Gas Markets of the Republic of Lithuania to the European Commission,* Prepared by the National Control Commission for Prices and Energy, Vilnius, 2012.

84 *The Lithuania Tribune,* February 25, 2012, http://www.lithuaniatribune.com/2012/02/25/achemas-leader-says-pms-letter-was-not-the-reason-for-cheaper-gas-supply/; *The Lithuania Tribune,* October 22, 2012, http://www.lithuaniatribune.com/2012/10/22/gazprom-has-strong-commercial-reasons-to-maintain-its-current-pricing-in-europe-russian-expert/.

85 *Energetikos ministerijos ekstremalisjs situacijs valdymo planas,* Lietuvos Respublikos energetikos ministerija, Vilnius, 2012, http://www.enmin.lt/lt/activity/kita/EM_Ekstremaliu_situaciju_valdymo_planas.pdf. According to this report, Haupas contract ends in 2015.

86 *15min.lt,* July 4, 2012, http://www.15min.lt/en/article/politics/ethics-commission-clears-lithuanian-

The Baltic States have been unable to agree on a regional LNG terminal; therefore, they turned to the European Commission to determine the proper location. Lithuania, however, insisting on an exclusive facility, signed, in early March 2012, a lease agreement for a floating liquefied natural gas storage and regasification unit (FSRU). In mid-June 2012, the Lithuanian parliament adopted legislation concerning the terminal,[87] but contracts for supply are pending.

While the deadline for the LNG terminal is the end of 2014, expected commissioning of the interconnection between Poland and Lithuania (GIPL) will not occur until the late 2010s. The feasibility study is due for completion in the first quarter of 2013. The Balticconnector between Finland and Estonia remains in the planning phase, and in principle, a final decision is expected to occur in 2013-2014.

Poland has the opportunity to purchase gas from the east, west, and south, but the southern and western borders have limited capacities. Some of the cross-border pipelines only supply local needs (the transmission grid does not include gas).

Poland can physically receive gas

- from the east through Belarus (through two entry points from the Beltransgaz network, one entry point through the Yamal-Europe gas pipeline) and from/through Ukraine (through two entry points),
- from the west from/through Germany (through three entry points),

and

- from the south from/through the Czech Republic (through three entry points).[88]

prime-minister-of-conflict-of-interest-suspicions-526-231422.

87 *15min.lt,* June 12, 2012, http://www.15min.lt/en/article/business/lithuanian-parliament-approves-lng-terminal-construction-527-225787.

88 PGNiG, https://www.pgnig.pl/binSrc?docId=34683&paramName=BINARYOBJ_FILE&index=0&language=EN&forceSave=yes; *Report on the Results of Monitoring the Security of Gaseous Fuel Supply for the Period from 1 January 2010 to 31 December 2010,* Minister of Economy, Warsaw, 2011, http://www.mg.gov.pl/files/upload/8356/sprawozdanie%20za%202010%20r.%20-%20ang..pdf; *Feasibility Study: Cross-border Gas Pipeline for Improving the Logistics in Central and Eastern Europe,* Gazoprojekt, Polish Chamber of Chemical Industry, November 2010, http://www.central2013.eu/fileadmin/user_upload/Downloads/outputlib/Chemlog_feasibility_study_Poland_uploaded.pdf.

Recently, Poland's import possibilities from the non-eastern directions have increased by 3.3 bcma, representing about 30 per cent of current imports. First, since November 2011, virtual reverse flow service on the Yamal-Europe gas pipeline has become possible (with a volume up to approximately 2.3 bcma). Second, since January 2012, import capacity from Germany through Lasów has increased by about 0.5 bcma to 1.5 bcma.[89] Third, in September 2011, a new cross-border gas pipeline, STORK, opened between Poland and the Czech Republic, with a capacity of 0.5 bcma in the first phase (Cieszyn entry point). (The deadline for the STORK II project is 2017.)[90]

In 2011, 9.3 bcm of gas, or 85 per cent of imports to Poland, were purchased according to a long-term contract with Russia, while 1.6 bcm arrived (mostly) from Germany and (in small volumes) from the Czech Republic. Domestic production of 4.3 bcm of gas supplemented these imports.[91] While other countries had concerns for having contracted for excess volumes of gas, Poland's attention in 2009–2010 was focused on adjusting a negative balance between contracted and delivered volumes, which was caused by the elimination of the intermediary Rosukrenergo in early 2009. After a short-term 2009 contract, a 2010 addendum to the existing long-term contract allowed increased gas purchases. This step expanded Gazprom's role in Poland's gas supplies; however, the expiration of the contract remained for 2022 rather than 2037 as requested. The earlier date is advantageous, since it allows evaluation of shale gas potential and other options. Due to the high oil-indexed contract prices of Russia's gas, PGNiG planned, in March 2012, to minimise purchases that year to the contracted take or pay level (85%) and supply the remaining need through the interconnections with Germany, the Czech Republic, and the virtual reverse on the Yamal-Europe gas pipeline.[92]

The 1990s produced a stream of diversification announcements regarding gas piped from Netherlands, Norway, and Denmark to Poland. Despite negotiations and contracts, only a "small contract" provided supply from Norway of 0.5 bcma for 2000 to 2006.[93] Poland had received gas from Germany and the Czech

89 Total import capacity available from Germany, including capacities for local needs, is minimally more than actual capacities.

90 *Gaz-System – News,* January 10, 2012, http://en.gaz-system.pl/press-centre/news/information-for-the-media/artykul/201338.html.

91 *National Report 2012,* The President of the Energy Regulatory Office in Poland (URE), 2012. Compare with data given by, for example, the IEA (6.2 bcm in 2011).

92 Reuters, March 20, 2012, http://www.reuters.com/article/2012/03/20/pgnig-gazprom-idU.S.L6E8EK2PY20120320; *Bloomberg,* March 20, 2012, http://www.bloomberg.com/news/2012-03-20/pgnig-plans-to-cut-gazprom-gas-purchases-to-85-of-upper-limit.html.

93 J. Stern, *The Future of Russian Gas and Gazprom,* Oxford University Press for the Oxford Institute of

Republic in the 1990s but only a very small amount for local needs. Before 2009, first from Eural Trans Gas and then from Rosukrenergo, Poland achieved a specific diversification from the east. Also, Ukraine's Naftohaz provided a very small quantity of gas for local needs under a long-term contract, signed in 2004, for a period ending in 2020, but Ukraine recently suspended deliveries. Once completed in 2014, the regasification terminal will create a new dimension for Poland. To date, only one agreement, with Qatar, will supply 1 mmtpa of LNG for 20 years. As to the missing link for gas with neighbouring Slovakia, signing a letter of intent in January 2011 initiated cooperation for the development of an interconnection between Poland and Slovakia. The feasibility study, scheduled for early 2013, precedes the in-principle deadline for completion of the pipeline in 2017. The interconnection between Denmark and Poland, the Baltic Pipe, could connect the Norwegian–Swedish–Danish Skanled gas pipeline project (the latter suspended in 2009); however, the date for commissioning has been rescheduled for 2020 (depending on the market interest).

Under normal circumstances, gas physically enters Slovakia from Ukraine and leaves Slovakia for transmission to the Czech Republic (Lanžhot) and Austria (Baumgarten).[94] During the January 2009 gas crisis, for the first time, gas entered Slovakia from the west to the east (i.e. physical flow of gas transited through the Lanžhot border transfer station, however, only in small amounts).[95] The Slovak transmission network is now able to transport gas from the west to the east in standard operating mode.[96] Another Austrian–Slovak gas pipeline, the Kittsee-Petržalka gas pipeline (KIP), commissioned in 2009, is available for emergencies. The gas crisis prompted swift completion of KIP, with only a few

Energy Studies, Oxford, 2005, 116.; Statoil.ru, http://www.statoil.ru/statoilcom/inf/svg01429.nsf/html/e1999_1999gas.

94 Slovakia's Mokrý Háj is an entry point into the inland transmission system of the Czech Republic (and not into the transit system). Mokrý Háj connects the Czech system with the Láb underground gas storage facility in Slovakia. However, an additional cross-border pipeline between Slovakia and the Czech Republic exists. A storage facility in the Czech Republic at Dolní Bojanovice directly connects the Slovak system. (Energy Policies of IEA Countries: The Slovak Republic: 2012 *Review* (IEA, Paris, 2012); *The Czech Gas Industry: Facts and Figures,* Energy Regulatory Office of the Czech Republic (ERU), http://www.eru.cz/user_data/files/plyn/40_Statistic/charakteristikaEN.pdf.

95 *Gas Crisis in January 2009 – Review and Outlook,* SPP, a.s., Bratislava, January 27, 2009, http://www.spp.sk/download/presskit/2009-01-27-SPP-Presskit-ENG-final-WEB.pdf; *The Czech Republic's National Report on the Electricity and Gas Industries for 2009,* Energy Regulatory Office of the Czech Republic, July 2010, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/National%20Reporting%202010/NR_En/E10_NR_CzechRep-EN.pdf; *The January 2009 Gas Supply Disruption to the EU: An Assessment, Brussels,* SEC(2009) 977 final, July 16, 2009, http://ec.europa.eu/energy/strategies/2009/doc/sec_2009_0977.pdf.

96 *Eustream – News,* November 30, 2011, http://www.eustream.sk/en_media/en_press-releases/reverse-flow-project-is-completed.

metres of pipeline missing on the Slovakian side.[97] Among its neighbours, Slovakia has no interconnection with Poland and Hungary. As opposed to the non-binding phase in 2009, the binding phase of the Open Season process for the development of the interconnection between Slovakia and Hungary yielded unsuccessful results twice in 2010. Subsequently, Hungary's state-owned electricity company MVM Group replaced Hungary's TSO FGSZ, owned by Mol, and operates as an ITO (independent transmission operator) for the project. Now, MVM and MFB Invest, the latter is a subsidiary of Hungary's state-owned MFB Hungarian Development Bank, equally own the pipeline and are responsible for the project. The pipeline would begin operations in January 2015.

Before 2004, Gazprom was the sole external gas supplier for Slovakia. Alternative supplies from Norway or the Netherlands gained consideration in the second half of the 1990s but did not materialise.[98] In the end, Eural Trans Gas and then Rosukrenergo remained as options. SPP and Gazprom Export signed a new long-term gas supply contract in November 2008 to begin in January 2009, supplying SPP with 6.5 bcma of gas over a 20-year period. The gas crisis of January 2009 followed, shortly after signing the contract, which finally provided the impetus to begin diversification for supply. After the January 2009 gas crisis, SPP signed (diversification) contracts with E.ON Ruhrgas for ten years and GDF Suez for five years.[99] These agreements can ensure up to 20 per cent of Slovakia's annual gas consumption. In case of disruption of supplies from the east, the contracted volumes arrive by reversed flow through a system of pipelines[100] Hungary (more precisely Mol) contracted in the 1990s with E.ON Ruhrgas and GDF Suez, the owners of SPP, with a 49 per cent share.

Gas can enter the Czech Republic not only from Slovakia but also from Germany through four cross-border entry points. The Czech Republic, having only marginal domestic gas production, attempted to undermine the dominant position of Russian gas supplies in 1997, when the then state-owned Transgas of the Czech Republic signed a 20-year gas supply contract with Norwegian companies. The contract envisaged annual supplies gradually, increasing to 3 bcm by 2002.[101] Transgas had previously signed a long-term gas supply contract with

97 Gas Connect Austria GmbH, http://www.gasconnect.at/de/Unser-Netz/Leitungssystem/KIP; ICIS Heren, January 28, 2009, http://www.icis.com/heren/articles/2009/01/28/9309362/russiaukraine-crisis-wake-up-call-for-europe.html; *Správa o zabezpe ení dodávok energií a rieaenie prípadných núdzových stavov s urením prísluanej zodpovednosti za ich rieaenie,* lrv.rokovania.sk/data/att/122258_subor.doc.

98 *Slovak Republic: Energy Policy Review* 2005, 138.

99 In addition to these, SPP signed a short-term contract with Germany's VNG for 30 mmcm of gas in case of an emergency.

100 *Oil and Gas Emergency Policy – Slovak Republic 2011 Update* (Paris: IEA, 2011).

101 *Europolitics,* April 23, 1997, http://www.europolitics.info/czechs-and-norway-sign-natural-gas-supply-

Gazexport[102] in 1998 for 15 years, and extended the contract in 2006 so as to receive 9 bcma of gas to 2035. Until 2005, RWE Transgas was the sole importer of gas to the Czech Republic, but in 2006, new gas importers Vemex[103] and Wingas (a joint venture of Wintershall and Gazprom) began operations in the Czech market. The importers, supplied by Gazprom Export, developed a negligible market share, approximately 0.5 per cent. In 2007, Vemex, the only other importer of gas apart from RWE Transgas, allowed Gazprom to diversify its exports to the Czech Republic and reached final consumers, thereby circumventing RWE Transgas. A March 2006 short-term supply contract between Vemex and Gazprom Export preceded a long(er)-term agreement in October 2007.[104] The contract for 2008 to 2012 accounted for the delivery of only 0.5 bcma of gas, with a possible extension for five more years. In 2010, the number of importers increased to 19 (from 12 in 2009, and 5 in 2008). The most important additions were RWE Transgas and Vemex, but the market share of RWE Transgas has quickly declined in the Czech Republic.[105] The difference between the long-term contract prices and market prices has affected the company as a result of many new traders purchasing gas at advantageous prices in Western European markets for the Czech Republic. In 2009, the share of Russian imports fell dramatically to 58.8 per cent from 73.6 per cent in 2008. In 2010, Russia accounted for 64.1 per cent of gas imports, Norwegian gas for 12.4 per cent, and gas from EU member states for 23.5 per cent. In 2009, gas supplied by German companies represented 6.6 per cent of total imports, compared to 2.5 per cent in 2008. In 2007, only 2 mmcm of gas came from Germany for Vemex from a VNG storage facility. The share of supplies from the EU and Russia increased at the expense of those from Norway.[106] Concerning the interconnections with neighbouring countries, no interconnection exists between Austria and the Czech Republic,[107] but three pipelines are currently being planned.

deal-artr196930-10.html; *The Role of Natural Gas in Europe,* EU Enlargement Watch, October 2000, http://www.eu-energy.com/EUEW-Gas.pdf.

102 This was the old name of Gazprom Export.

103 At that time, ZMB GmbH and Centrex Europe Energy & Gas AG each held 33 per cent in Vemex. In 2009, Gazprom Germania integrated its trading subsidiary ZMB. Now, Gazprom Germania has a 50.14 per cent stake in Vemex. *(ICIS Heren,* August 27, 2009, http://www.icis.com/heren/articles/2009/08/27/9313589/gazprom-germania-integrates-trading-subsidiary-zmb.html.)

104 *redOrbit,* October 12, 2007, http://www.redorbit.com/news/business/1100068/gazprom_and_vemex_reportedly_sign_gas_deal/.

105 *Annual Report 2011,* RWE Transgas, 2012.

106 Information is provided by the annual reports of the Energy Regulatory Office of the Czech Republic. See http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS; http://eru.cz/dias-browse_articles.php?parentId=271!

107 Border crossing between Hevlín (the Czech Republic) and Laa an der Thaya (Austria) is a different thing. It is a connection to Austria's distribution network.

Hungary purchases gas through cross-border pipelines with Ukraine and Austria. Due to high Russian contract prices, imported quantities through the Ukrainian–Hungarian border (at Beregovo point for domestic use) have fallen dramatically since 2008, while the role of the HAG pipeline between Austria and Hungary has become very significant. Due to increased interest, the capacity of HAG has expanded from, in part, necessity driven by the new strategic gas storage facility in Hungary. The Hungarian–Romanian interconnection, inaugurated in 2010, preceded the Hungarian–Croatian pipeline of 2011.[108] Apart from the missing Hungarian–Slovakian interconnection, Slovenia proposed a small-capacity pipeline from Hungary and Slovenia, but interest did not extend beyond a completed feasibility study.

The main gas supplier to Hungary is Gazprom Export through the intermediary Panrusgáz. E.ON Földgáz Trade's long-term gas supply contract with Gazprom Export expires in 2015.[109] This contract, concluded by Mol, was subsequently assumed by E.ON Ruhrgas, who acquired, among others, Mol's gas wholesale, marketing, and trading subsidiary Mol Földgázellátó (Mol Natural Gas Supply Co.) in the mid-2000s. As mentioned, in the second half of the 1990s, Mol signed supply contracts with Ruhrgas (until 2015) and Gaz de France (until 2012). In 1998, long-term gas supply contracts involved O&G Minerals, Ltd. and the Hungarian-based Euro-bridge Kft. (a subsidiary of Gaz de France) for delivery of gas from Ukrainian sources. But, in early January 2005, Mol abrogated the Euro-bridge Kft. 2 due to breaches of contracts. The Swiss-based Bothli Trade AG replaced Euro-bridge Kft. by a 2004 contract with Mol for gas Bothli marketed for Eural Trans Gas.[110] Since Eural was an offshore company, registered in Hungary, its activities had restrictions, but with the appearance of the Hungarian-based company Emfesz, Bothli-Trade assigned its two gas supply contracts with Mol to Emfesz.[111] Rosukrenergo replaced Eural and after the January 2009 gas crisis and the elimination of Rosukrenergo from the system ended Emfesz's presence in the market.

Serbia receives gas from and through Hungary and provides transit services to Bosnia-Herzegovina. Serbia has no other cross-border entries or exits. The share

108 According to CEO FGSZ János Zsuga, physical reverse flow is possible on all cross-border interconnections with the EU Member States.

109 This study does not discuss the future role of MVM and the planned takeover of E.ON's gas business in Hungary.

110 *FigyelöNet,* April 8, 2004, http://fn.hir24.hu/itthon/2004/04/08/gazmosas_svajcon_at_kapna/?action=PrintPage; *Mol Annual Report 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004; Mol's Base Prospectus dated 31 August 2004.*

111 Case No COMP/M.3696 E.ON/MOL. http://ec.europa.eu/competition/mergers/cases/decisions/m3696_20051221_20600_en.pdf.

of domestic gas consumption has increased, accounting for 19 per cent in Serbia in 2011. With the exception of a small amount of gas, imported from Hungary, Russia is the dominant gas supplier to Serbia[112] based on its long-term contract with Gazprom; however, the contract adds annexes every year, making the practice of extending the Russian–Serbian contract an annual event.[113] According to earlier statements, the take or pay principle does not remain applicable to Serbia. In mid-October 2012, intergovernmental agencies signed an agreement between Serbia and Russia for gas supplies through 2021, which is necessary for the new long-term (commercial). The agreement envisions gas supplies of up to 5 bcma, more than double the current level of imports, and is only for domestic use. According to media information, Gazprom and Srbijagas will complete accords that regulate the price and delivery volumes every year throughout the life of the new agreement.[114] In mid-December 2011, Srbijagas' general manager, speaking about discounted prices, revealed that Serbia would be required to draw 85 per cent of the agreed quantity but would not have to pay penalties for not accepting the remainder, and a possibility exists for Serbia to renegotiate commercial terms each year.[115]

Regarding the issue of gas interconnection projects in Serbia, the schedule for the planned bi-directional Serbian–Bulgarian interconnector targets the end of 2015 for operations, and the construction is expected to begin in 2013. The project is part of the Energy Community Gas Ring, which is a concept for linking the networks in Albania, Bosnia-Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, and Serbia to develop a regional gas market. The Ionian Adriatic Pipeline (IAP), planned to follow the Adriatic coast from Albania through Montenegro and Bosnia-Herzegovina to Croatia, would be part of the Gas Ring. The bi-directional IAP could connect Croatia with the planned Trans Adriatic Pipeline (TAP: Greece–Albania–Italy; see below) in Albania. Apart from the

112 Concerning purchases from Hungary, all the information we have is that in October 2009, Srbijagas and E.ON Földgáz Trade signed a gas sale contract for 200 mmcm of gas in the winter of 2009/2010. *(E.ON Földgáz Trade – News,* October 29, 2009, http://www.eon-foldgaz-trade.com/en/media/press/news/e-on-seals-gas-supply-agreement-with-srbijagas.)

113 *Energy Agency Activities: Energy Market in Serbia 2005-2010,* Energy Agency of the Republic of Serbia (AERS), 2011, http://www.aers.rs/Files/Izvestaji/Ostali/Eng/AERS%20Report%202005_2010_eng.pdf; *Energy Agency Annual Report for 2011* (Report on the Energy Sector of Serbia. Energy Agency Annual Report and Financial Report), AERS, Belgrade, May 2012, http://www.aers.rs/Files/Izvestaji/Ostali/Eng/AERS%20Annual%20Report%202011.pdf; Gazprom Export Gas market news, December 30, 2010, http://www.gazpromexport.com/en/presscenter/news/98/.

114 *RIA Novosti,* October 13, 2012, http://en.rian.ru/world/20121013/176601838.html; *Itar-Tass,* October 13, 2012, http://pda.itar-tass.com/c1/544850.html; Interfax, October 15, 2012, http://interfax.az/view/555093; *Gazprom Export – Gas market news,* October 13, 2012, http://www.gazpromexport.com/en/presscenter/news/701/.

115 Reuters, December 21, 2011, http://www.reuters.com/article/2011/12/21/serbia-gazprom-gas-idUSL6E7NL4H320111221.

Bulgarian-Serbian interconnection, Croatia–Serbia, Serbia–Macedonia, Macedonia–Albania, and Croatia–Bosnia-Herzegovina are suggested projects.

Bosnia-Herzegovina can only receive imported gas import through the border with Serbia, and is entirely dependent on gas purchases from Russia. Energoinvest d.d. Sarajevo and Gazprom extend the gas supply contract annually. At the end of 2011, at the extension of the contract for 2012, the news reported negotiations for a long-term gas supply contract are continuing.[116] In Bosnia-Herzegovina, due to poor conditions in the industry, gas consumption is lower than in 1990. Although the current gas consumption is well below pre-war levels, this rate is expected to significantly increase by 2020.[117] As to the gas transmission pipeline development projects, apart from the leg from the Ionian Adriatic gas pipeline, future examinations will most likely include the possibility of other interconnections between Croatia and Bosnia examined,[118] with the intent of building three more interconnections between Bosnia-Herzegovina and Croatia. However, despite these plans, implementation remains still only a distant projection.[119]

Croatia has substantial gas production compared to its consumption. Its gas supply contract with Gazprom Export expired at the end of 2010. Until the end of 2010, Croatia had imported around 1 bcma of gas from Gazprom Export and received a negligible volume of gas, only a few million cubic meters a year, from other suppliers.[120] At the end of 2010, Prirodni Plin, a subsidiary of Croatia's INA, contracted with ENI for only 750 mmcm of gas per year for three years. This agreement, in June 2011, preceded another unpublished agreement, not specifying a volume, between Croatia's Prvo Plinarsko Društvo and E.ON

116 *24sata.info,* December 1, 2011, http://www.24sata.info/vijesti/bosna-i-hercegovina/79468-Moskva-Energoinvest-Gazprom-dogovorili-produzenje-isporuke-gasa-BiH.html.

117 A. Softić and L. Glamočić, *National Background Report on Energy for Bosnia and Herzegovina,* Prepared in the frame of the WBC-INCO.NET project, Sarajevo, 2012, http://wbc-inco.net/attach/0_National_Background_Report_Energy_BiH_2012.pdf.

118 Western Balkans Investment Framework, http://www.wbif-ipf.eu/index.php?page_id=377&id=88, http://www.wbif-ipf.eu/index.php?page_id=377&id=89; V. Đurović, "Interconnections and Transit," Energy Charter – Stakeholder Event on Gas Transit and Cross-border Cooperation, Brussels, June 19, 2012, http://www.encharter.org/fileadmin/user_upload/Conferences/2012_June/Durovic.pdf; G. Frančić, "Plinacro Ltd: Security of Supply by TSO," Enlargement and Integration Workshop, "Assessing Infrastructure in the Electricity and Gas Sector," Dubrovnik, Croatia, October 5-7, 2011, http://ses.jrc.ec.europa.eu/sites/ses/files/documents/events/2011_10_ei_ws_croatia/francic_plinacro.pdf; BH-Gas http://www.energy-community.org/pls/portal/docs/708184.PDF.

119 *Business.hr,* July 12, 2012, http://www.business.hr/ulaganja/antunovic-rok-za-lng-na-krku-kraj-2016-godine/print.

120 For example, in 2009, on paper, imports from Italy, Slovenia, Germany, France, and Switzerland were minimal *(Annual Report 2009,* Croatian Energy Regulatory Agency [HERA], 2010, http://www.hera.hr/english/documents/pdf/HERA_Annual_Report_2009.pdf).

Ruhrgas.[121] This second arrangement is significant in terms of diversification by arranging for gas supplies through the Hungarian–Croatian interconnection to begin in 2011 and terminating the exclusive, long-standing avenue for importation to Croatia. But since a leg will connect Croatia to the South Stream project (see below), clearly in the future Croatia will again be a Russian customer. As to the progress of other projects, according to end-2011 information, the Croatian–Italian interconnector is operating as an upstream pipeline.[122] Apart from the Croatian–Serbian and Croatian–Bosnian interconnections, plans also include interconnections between Croatia and Slovenia. Moreover, if the original plans had moved forward, Croatia's LNG regasification facility would have be operating, but in Croatia, the Adria LNG project of an international consortium, planned on the island of Krk, has stalled. Meanwhile, Croatia is not idle; the Croatian state-owned TSO Plinacro is examining a three-phase alternative project, the so-called "migration concept," starting with an LNG Regasification Vessel (LNG RV) and reaching the third phase with an onshore LNG terminal. However, according to the feasibility study, as the terminal is due for release by September 2013, with investment decisions made by the end of the same year, skipping some phases is possible.[123]

Slovenia, with a volume of barely more than 1 bcma, is almost entirely dependent on external supplies of gas. Slovenia receives gas from both Italy and Austria. Since 2003, the share of Russian imports declined steadily from 59 per cent in 2003 to only 47 per cent in 2010. In 2011, 48 per cent was Russian, 23 per cent Algerian, 22 per cent Austrian, 7 per cent Italian, and the remainder from other countries. Geoplin d.o.o. Ljubljana is the largest importer of gas, with a 92.8 per cent share of the Slovenian market in 2011. The same year, Adriaplin, belonging to ENI, and Petrol were the other two importers.[124] In 2009 and 2010, the role of short-term contracts for gas imports saw dramatic increases, followed by a slight decrease in 2011. Geoplin's long-term gas supply contract with Gazprom is effective through 2017. In 2009, the Slovenian side proposed revising the

121 In July 2012, Croatia's largest fertilizer producer, Petrokemija d.d. signed a gas supply contract with E.ON Ruhrgas only for the August-September 2012 period.

122 Dr. Zsuga Jones, "MET Energiamuhley, 2011.10.14 Budapest," http://www.e-met.hu/files/cikk2661_Dr_Zsuga_Janos_Energia_Muhely_2011-10-04.pdf.

123 Presentation given by Dubravko Proštenik (Plinacro) in Budapest on May 31, 2012; Ministarstvo regionalnoga razvoja i fondova Europske unije; *ICIS Heren,* July 4, 2012, http://www.icis.com/heren/articles/2012/07/04/9575385/first-phase-of-croatian-lng-terminal-ready-for-2016.html; Plinacro – Novosti, http://www.plinacro.hr/default.aspx?id=371; Western Balkan Investment Framework, http://www.mrrfeu.hr/UserDocsImages/EU%20fondovi/b03%20WB5-HR-ENE-01-LNG_Regasification_Vessel%2020%2002%202012.pdf.

124 Information is derived from the annual reports of Slovenia's Energy Agency (as an energy regulator). See http://www.agen-rs.si/en/informacija.asp?id_meta_type=36&id_informacija=708, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS!

contract and extending it through 2035. In August 2009, Gazprom Export and Geoplin signed a letter of intent to extend the contract and review the possibility of increasing the amount of gas within the framework of the South Stream project.[125] In March 2011, the CEO of Gazprom commented on negotiations to extend the contract through 2035 and increase exports from 0.5 to 1.7 bcma.[126] Currently no contract is in force.

With the commissioning of the Hungarian–Romanian interconnection, Romania receives gas through three entry points. Previously, only two cross-border entry points with Ukraine were available. However, Romania's energy strategy for 2007–2020 and 2011–2020 plans a third Ukrainian–Romanian gas pipeline; the second plan updates the 2011 version. Romania attempted diversification in the 1990s but without success.[127] The activity of the intermediary Rosukrenergo allowed some diversification, but the first real success, albeit small, was the interconnection between Hungary and Romania, which began operations in 2010. Two intermediaries, the Swiss-based WIEE and Romania's Conef Energy S.R.L., manage Gazprom's gas sales to Romania, and the situation will not change in the near future, since Gazprom signed long-term contracts in 2007 with the two companies, effective through 2030. WIEE will supply 5 bcma of gas to Romania from 2013, while, according to the contract, Conef has been supplied by 2 bcma since 2010.

The Romanian–Bulgarian interconnection is under construction, and an additional planned interconnection between Romania and Moldova may also enter service by 2013. In principle, Romania could construct an LNG regasification facility within the framework of the AGRI LNG project (see below), but a feasibility study is incomplete.

Despite its favourable geographic location, Bulgaria buys gas only from Russia and, at present, has only one supply route through Romania.[128] Bulgaria's

125 *RIA Novosti,* February 16, 2011, http://www.ria.ru/economy/20110216/334797983.html.

126 *RIA Novosti,* March 22, 2011, http://ria.ru/economy/20110322/356819989.html.

127 Stern, 117.

128 During the January 2009 gas crisis, at the last minute, reverse flow from Greece to Bulgaria (and, as mentioned, from the Czech Rebublic to Slovakia) became operational. The CEO of Bulgargaz said in October 2009 that Bulgaria had concluded a framework agreement with Greece to receive about 3 mmcm of gas per day in case of emergency, adding that an agreement in principle also existed with Turkey's BOTAŞ for about 2 mmcm per day. According to Bulgaria's Energy Ministry, Bulgaria can receive more than 2.4 mmcm of (reverse flow) gas per day through the two cross-border pipelines in an emergency *(dnes.dir.bg,* October 8, 2009, http://dnes.dir.bg/news.php?id=5189791&tag_id=63160; *Byuletin za sastoyanieto i razvitieto na energetikata na Republika Balgariya,* 2012, http://www.mi.government.bg/files/useruploads/files/epsp/buletin_energy_2012&annex.pdf; *Annual Activity Report, Independent Auditor's Report, Financial Statements,* Bulgargaz EAD, December 31, 2009, http://www.bulgargaz.bg/UserFiles/File/Annual%20Finan-

long-term gas supply contracts are due to expire at the end of 2012. The new contract should solve four problems. First, gas should be cheaper than currently (introducing a spot component into the formula, similar to oil products). Second, the new contract should eliminate intermediaries, such as WIEE and Overgaz. Third, the term of the contract should be shorter. Finally, allowance for re-export should be possible. Bulgaria seeks to avoid the constraints of a long-term commitment, but prefers to pursue opportunities to diversify, with domestic (mainly Black Sea) gas production, or gas through planned interconnectors.[129] However, apart from the Romanian–Bulgarian pipeline, no international projects exist with final investment decisions. According to the draft ten-year natural gas transmission and storage infrastructure development plan 2013–2022 for Bulgarian TSO Bulgartransgaz, which was formulated in September 2012, the Interconnection Bulgaria–Romania (IBR) has a planned completion and commissioning in 2013, the Interconnection Turkey–Bulgaria (ITB, from Malkoclar to Lozenets) in 2014, the Interconnection Greece–Bulgaria in 2014-2015, the Interconnection Bulgaria–Serbia (IBS) in 2015, and the CNG (compressed natural gas) facility in 2015-2016.[130]

Before the gas crisis of January 2009, Bulgaria had begun initial steps to purchase Azerbaijani gas. The protocol of intention in June 2008 envisaged the possibility of a contract for 1 bcma of gas to Bulgaria through Azerbaijan.[131] In November 2009, a new possibility appeared, the CNG option, in addition to the pipeline gas[132]; however, Azerbaijan would choose the land route through Turkey over the CNG option.[133]

cial%20Report%2031.12.2009.PDF; *The January 2009 Gas Supply Disruption to the EU: An Assessment).*

129 Following completion of this study, the new contract was signed in November 2012.

130 *Ten-Year Natural Gas Transmission and Storage Infrastructure Development Plan 2013-2022 (Draft for public consultation),* Bulgartransgaz, September 2012, http://www.bulgartransgaz.bg/UserFiles/File/News/Bulgartransgaz%20TYNDP%202013-2022_ENG.pdf.

131 *Novinite.com*, June 4, 2008, http://www.novinite.com/view_news.php?id=93815.

132 *APA,* November 13, 2009, http://en.apa.az/news/111019; T. Tsakiris, Can the AGRI Project Revolutionize Regional Gas Geopolitics? EKEM European Energy Policy Observatory, October 9, 2010, http://www.ekemeuroenergy.org/en/index.php?option=com_content&view=article&id=100:can-the-agri-project-revolutionize-regional-gas-geopolitics&catid=45:caspian-sea-black-sea-and-south-east-europe&Itemid=69; News.Az, November 16, 2009, http://www.news.az/articles/2510/print.

133 *Economy News.bg,* August 18, 2010; *News.Az,* August 18, 2010, http://www.news.az/articles/21211; *Novinite.com,* October 4, 2010, http://www.novinite.com/view_news.php?id=120787; *Novinite.com,* June 23, 2011, http://www.novinite.com/view_news.php?id=129578; *Upstreamonline.com,* August 17, 2010, http://http//www.upstreamonline.com/live/article226287.ece; Trend, August 17, 2010, http://en.trend.az/capital/energy/1736279.html; Reuters, April 27, 2012, http://uk.reuters.com/article/2012/04/27/bulgaria-azerbaijan-gas-idUKL6E8FR3YX20120427; *The Sofia Echo,* September 25, 2011, http://sofiaecho.com/2011/09/25/1162402_azerbaijan-may-start-gas-deliveries-to-bulgaria-in-2013; *Natural Gas Europe,* November 15, 2011, http://www.naturalgaseurope.com/bulgaria-and-azerbaijan-finalise-gas-deal-3499; *The Sofia Echo,* April 3, 2012, http://sofiaecho.com/2012/04/03/1800619_borissov-to-push-azerbaijan-georgia-bulgaria-gas-transit-project-at-meeting-with-van-rompuy.

Despite establishing several deadlines for the start of deliveries, none are close to realization, meetings and agreements notwithstanding.

Bulgaria prefers financing the Turkish–Bulgarian interconnection (the first section of the Nabucco West [see below]) through the grant from the EU's European Energy Programme for Recovery (EEPR), or by some other entity. However, this proposal is not possible, since in October 2012, the Bulgarian Prime Minister indicated that if the plan is unacceptable, the pipeline's construction (about BGN 100 million [EUR 50 million] from Bulgartransgaz) will be only for emergencies before 2018.[134] Meanwhile, other information became apparent when, in September 2012, the former head of Bulgaria's state-run gas supplier, Bulgargaz, announced that the Bulgarian government had secretly agreed to protocols of intent with the Turkish company, Setgaz, to build an interconnector between the gas networks of the two countries. According to the announcement, the gas pipeline is to reach Stara Zagora in Bulgaria's south, and the expected completion is the end of 2014. Bulgartransgaz confirmed the news, adding that Setgaz's project has a different concept and route from the planned interconnection between Malkoclar and Lozenets.[135]

On the issue of LNG, Bulgaria is not considering a Black Sea project; rather, Bulgaria favours a CNG project, appropriate for gas from Azerbaijan.[136] The history of Bulgaria's CNG plan only began in 2009. The fact that Azerbaijan prefers to use Turkey as an export route rather than the Black Sea is not the only problem with the Black Sea CNG project. Additionally, the CNG project clashes with the AGRI LNG.[137]

134 *Darik News,* September 29, 2012, http://dariknews.bg/view_article.php?article_id=970653; *News.bg,* October 8, 2012, http://news.ibox.bg/news/id_2031338516; *New Europe Online,* October 9, 2012, http://www.neurope.eu/article/borisov-lays-down-conditions-nabucco; *Bulgarian National Radio,* October 10, 2012, http://bnr.bg/sites/en/Economy/Pages/1010NABUCCOprojectbefore2018.aspx; *News.Az,* October 5, 2010, http://news.az/articles/economy/23965.

135 *Novinite.bg,* September 12, 2012, http://novinite.bg/articles/19561/Turska-firma-shtyala-da-stroi-gazova-vrazka-s-Balgariya; *Novinite.bg,* September 12, 2012, http://novinite.bg/articles/19574/Bulgartransgaz-i-Setgaz-shteli-da-stroyat-2-razlichni-gazoprovoda-s-Turciya; *Novinite.com,* September 12, 2012, http://www.novinite.com/view_news.php?id=143172; *Novinite.com,* September 12, 2012, http://www.novinite.com/view_news.php?id=143179.

136 *The Sofia Echo,* September 22, 2011, http://sofiaecho.com/2011/09/22/1161389_bulgaria-may-help-georgia-in-joining-european-energy-network; *Novinite.com,* April 3, 2012, http://www.novinite.com/view_news.php?id=138176.

137 The Bulgarian media reported in April 2012 that Bulgaria's Prime Minister discussed transportation of LNG in Georgia. At that time, as a former Energy Minister, Traicho Traikov explained that the issue involved CNG rather than LNG. However, buying CNG would be much more expensive than pipeline gas imports from Russia. *(Money.bg,* April 3, 2012, http://money.bg/news/id_1670814083; *Investor.bg,* April 3, 2012, http://www.investor.bg/ikonomika-i-politika/332/a/traikov-vnosyt-na-kompresiran-gaz-ot-azerbaidjan-shte-struva-skypo,132524/.)

Macedonia buys gas only from Russia and through Bulgaria, having no other import capacity available. In 2012, Macedonia's Makpetrol A.D. signed a long-term, 15-year gas supply contract with Gazprom Export.[138] The gas market in Macedonia is underdeveloped and only supplies a small part of northern Macedonia. No gas distribution network exists in the country at all, with most natural gas consumed by industries and by district companies for heat.[139]

6. Diversification projects in the Southern Corridor

The Southern Corridor initiative includes routes traversing Turkey, as well as routes that could cross through the Black Sea, in order to realize the pipeline, CNG, and LNG options. The Trans-Caspian Pipeline would also be a major project in the Southern Corridor to bring new sources of gas to Europe.[140]

Apart from the delays, the common characteristic among all Southern Corridor projects (except for the Trans-Caspian Pipeline) is the bid for Azeri gas, namely gas from the second stage of the Shah Deniz field development (Shah Deniz 2). Azeri gas seems to be the only guaranteed source for Europe. The expectation is that exports from Azerbaijan would begin about the end of 2017.

So far, Greece is the only EU member state to have received Azeri gas. Turkey re-exports a small amount of Azeri gas to Greece in the first stage of gas production from the Shah Deniz field. The imported gas travels through the Interconnection Turkey–Greece, or ITG, and represents an important step, signalled by Washington's support, when U.S. Energy Secretary attended the inauguration ceremony in 2007.[141]

138 *Gazprom Export – Gas market news,* September 27, 2012, http://www.gazpromexport.ru/en/presscenter/news/682/

139 *Ten-Year Natural Gas Transmission and Storage Infrastructure Development Plan 2013-2022.*

140 South Stream is not part of the Southern Corridor initiative. See *European Parliament – Parliamentary questions,* OJ C 265 E, 09/09/2011, January 7, 2011, http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2010-9633&language=EN; *European Parliament – Parliamentary questions,* OJ C 138 E, 07/05/2011, April 23, 2010, http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2010-0970&language=DA; *European Parliament – Parliamentary questions,* OJ C 249 E, 26/08/2011, November 26, 2010, http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2010-8539&language=LT; *European Commission – Press Release,* IP/11/1023, September 12, 2011, http://europa.eu/rapid/press-release_IP-11-1023_en.htm?locale=en; "Nabucco gas pipe's prospects slim after RWE move," Reuters, January 19, 2012, http://www.reuters.com/article/2012/01/19/energy-gas-pipelines-idUSL6E8CJ2XL20120119.

141 "Greece and Turkey Open Gas Pipeline", *The New York Times,* November 19, 2007, http://www.nytimes.com/2007/11/19/world/europe/19greece.html?_r=1.

Until fall 2011, the three competing projects in the Southern Corridor, the Nabucco, ITGI, and TAP, considered a merger or another form of cooperation among the projects. While cooperation was visible and engendered discussion several times, mostly in 2011, the principals' perspectives differed, and consequently achieved no positive result.

Meanwhile, important changes have occurred in the Southern Corridor since the dissolution of this cooperation, but the outcome remains elusive. The first crucial change, in September 2011, arose from BP's concept for the so-called South East Europe Pipeline (SEEP), which would originate in western Turkey and cross Bulgaria and Romania to Hungary's eastern frontier, and would be about a third of Nabucco's length.[142] The announcement caused surprise; however, a BP executive, in March 2011, declared that the company would construct a 10 bcm line into Europe that had the capability of expansion. "We've got to stop being preoccupied by the word Nabucco," he added.[143] Shortly after the announcement, the Shah Deniz consortium received bids from the Nabucco, TAP, and ITGI consortium by the 1 October 2011 deadline, and SEEP became a fourth possible option. Not much later, on 25 October 2011, finalization of the so-called Izmir agreements included provisions to sell gas to Turkey from the Shah Deniz 2 and to transit gas from Shah Deniz 2 via the networks of the Turkish Botaş company.[144]

The second crucial change started to be outlined in the Southern Corridor occurred 2 November 2011, when the deputy head of the State Oil Company of the Azerbaijani Republic, or SOCAR announced that a consortium would be created to build a new pipeline that would carry natural gas from the Shah Deniz 2 project through Turkey.[145] On 17 November 2011, SOCAR announced that Azerbaijan and Turkey had begun a Trans-Anatolian gas pipeline (TANAP) project from Turkey's eastern border to its western border[146] with a capacity of no less than 16 bcma and assigned 10 bcm for Europe and 6 bcm for Turkey's western regions.[147] Although SOCAR denied the new project would negatively

142 "BP plans gas pipeline to Europe from Azerbaijan", *Financial Times,* September 26, 2011, http://www.ft.com/intl/cms/s/0/ed9151b8-e84c-11e0-ab03-00144feab49a.html.

143 *Natural Gas Europe,* March 26, 2011, http://www.naturalgaseurope.com/caspianeu-gas-pipeline-10-bcm.

144 *News.Az,* October 28, 2011, http://www.news.az/articles/47744/print; News.Az, October 28, 2011, http://news.az/articles/economy/47699; *Eurasia Daily Monitor,* Vol. 8, Issue 201, November 1, 2011, http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=38603&tx_ttnews%5BbackPid%5D=512.

145 *PanARMENIAN.Net,* November 2, 2011, http://www.panarmenian.net/eng/news/82691/.

146 Reuters, November 17, 2011, http://af.reuters.com/article/commoditiesNews/idAFL5E7MH1W520111117?sp=true.

147 *PanARMENIAN.Net,* November 2, 2011, http://www.panarmenian.net/eng/news/82691/.

affect the Nabucco project,[148] the situation clearly indicated termination of the last remaining chance for the full-scale version of Nabucco, or Nabucco classic, including a pipeline in Turkey.

On 26 December 2011, a signed memorandum of understanding concerned the construction of the TANAP pipeline. The agreement identified SOCAR, Botaş, and TPAO (of Turkey) as the first members of the pipeline consortium and concluded that third-party international oil and natural gas companies could participate in the consortium later during the construction process.[149] Delays postponed the intergovernmental agreement (and the host government agreement) between Turkey and Azerbaijan until late June 2012. The agreement was difficult, but, ultimately, the shareholdings remained as initially agreed at 80, 10, and 10 per cent, respectively. Consequently the Turkish share did not increase;[150] SOCAR retained 51 per cent, with the remaining 29 per cent distributed among potential partners, such as members of the Shah Deniz consortium, including BP, Statoil, and Total.[151] According to the plans, TANAP's capacity could reach 16 bcma by 2020, 23 bcma by 2023, and 31 bcma by 2026.

The Shah Deniz consortium conducted a three-round selection process for pipelines originating at the western border of Turkey. In the first round, in February 2012, the group chose the Trans Adriatic Pipeline over ITGI as a possible route, as long as the south of Italy would be the pipeline's destination. The second round, in June 2012, selected the Nabucco West project, a scaled-down version of the Nabucco classic, and rejected the South East Europe Pipeline as the option for Central and South East Europe. The final decision from the Shah Deniz consortium in mid-2013 will choose either the Nabucco West or the Trans Adriatic Pipeline.

The public became aware of Nabucco West in February 2012. Compared with the original Nabucco project, Nabuco West is not only shorter but smaller in terms of capacity. The design of Nabucco West incorporates an initial capacity

148 Reuters, November 17, 2011, http://af.reuters.com/article/commoditiesNews/idAFL5E7MH1W52011 1117?sp=true.

149 *SOCAR – News,* December 26, 2011, http://new.socar.az/socar/en/news-and-media/news-archives/news-archives/id/4086.

150 *Bloomberg,* March 29, 2012, http://www.bloomberg.com/news/2012-03-29/turkey-seeks-to-raise-stake-in-tanap-gas-pipeline-reuters-says.html; *EurasiaNet.org,* April 6, 2012, http://www.eurasianet.org/node/65233; *Bloomberg,* May 1, 2012, http://www.bloomberg.com/news/2012-05-01/azerbaijan-turkey-to-sign-delayed-tanap-pipe-deal-end-of-june.html.

151 *Bloomberg,* September 6, 2012, http://www.bloomberg.com/news/2012-09-06/socar-offers-29-of-gas-pipeline-to-bp-statoil-total-partners.html; *AzerNews,* September 6, 2012, http://www.azernews.az/oil_and_gas/43415.html.

of 10 bcma and has the ability to increase its scale up to 23 bcma. Initially, TAP's plan would surpass 10 bcma and allow an increase of up to 20 bcma.

Nabucco West's announcement was met with several negative messages from several actors at different levels. Not only Mol but also the Hungarian government, RWE, Bulgaria, the EU, and the United States expressed concerns about this project. Under such conditions, before the submission of a proposal for Nabucco West to the Shah Deniz consortium, on 23 April 2012, the Hungarian Prime Minister indicated that Mol was withdrawing from the project, because Mol, or precisely FGSZ, did not approve the 2012 budget for Nabucco Gas Pipeline International GmbH (Nabucco International Company). Having failed to pay its contribution, Mol's share in the pipeline company decreased. Not surprisingly, Russia immediately welcomed the move.

The history of Nabucco a ten-year saga that encountered serious problems since its inception. In early May 2011, the consortium once again decided to postpone start-up, and Nabucco Gas Pipeline International GmbH announced that its initial flow of gas will begin in 2017, rather than in 2015.[152] But the target date of 2015 was also the result of multi-year delays. For example, in 2004 the target was 2009, and in 2005 the start-up target was 2011.[153]

In early March 2010, European Energy Commissioner Günther Oettinger did not exclude the possibility that the Nabucco consortium could decide in 2010 to cease supporting the project altogether.[154] In late March 2010, Oettinger believed the complet ion of the Nabucco gas pipeline might be delayed until 2018.[155] In Hungary, enrgy being a highly politicized issue, finally, in July 2011, Mol Chairman-CEO Zsolt Hernádi admitted the existence of serious problems with Nabucco and stated that Mol would increase contributions upon ensured returns.[156] In October 2011, Hungary's then Minister for National Development, Tamás Fellegi, also raised doubts for the viability of Nabucco by saying that the cost scenario of about EUR 24-26 billion was very optimistic.[157] Although experts agreed that the EUR 7.9 billion planned for the Nabucco budget is an obvious underestimation, the budget received much attention, when in February 2011, BP estimated costs to be around EUR 14 billion. For example,

152 *Nabucco Gas Pipeline International GmbH – Press releases,* May 6, 2011, http://www.nabucco-pipeline.com/portal/page/portal/en/press/NewsText?p_item_id=A297E805CEADAB20E040A8C002017939.
153 This is our compilation from Nabucco presentations.
154 *EUobserver.com,* March 5, 2010, http://euobserver.com/9/29611.
155 *EurActiv.com,* March 25, 2010, http://www.euractiv.com/en/energy/oettinger-says-nabucco-will-be-delayed-four-years-news-379171.
156 *HVG.hu,* July 28, 2011, http://hvg.hu/gazdasag/20110728_Mol_Hernadi_interju.
157 Reuters, October 24, 2011, http://www.reuters.com/article/2011/10/24/idUSL5E7LO1HL20111024.

Jonathan Stern, Chairman of Natural Gas Research Programme at the Oxford Institute for Energy Studies, could not accept the cost being less than EUR 12 billion.[158] In early November 2011, Oettinger asserted that Nabucco's cost factor was EUR 10 billion or more, and the schedule for transporting the first supplies would be 2017 or 2018.[159] But BP's February 2011 statement concerning high costs and the March 2011 statement regarding a 10 bcma pipeline can produce a slightly different perspective when considering the end of September announcement of the South East Europe Pipeline came just before the 1 October 2011 deadline.[160] In February 2012, Oettinger approached the issue from a neutral position by stating that Nabucco was just one project and that any pipeline could be acceptable.[161] Notably important, the United States changed its policy towards Nabucco, and urged, in mid-November 2011, Shah Deniz producers and SOCAR to choose a smaller pipeline as the first pipeline with abilities for extension.[162] The United States expressed pessimism toward Nabucco once again in January 2012.[163] RWE's attitude has also changed due to costs, and in mid-January 2012, RWE mentioned its willingness to support other pipelines competing with Nabucco.[164] However, in May 2012, RWE declared convinced support for Nabucco in its original configuration to be the best solution.[165]

Shortly after the Hungarian announcements, OMV of Austria, Transgaz of Romania, and even Bayerngas of Germany (the latter negotiating to become a member of the Nabucco consortium in October 2011), defended the project.[166] In contrast, Bulgaria criticized the project. Apparently no significance accrues

158 *The Guardian,* February 20, 2011, http://www.guardian.co.uk/business/2011/feb/20/european-gas-pipeline-nabucco-costs-double; *The New York Times,* March 7, 2011, http://www.nytimes.com/2011/03/08/business/global/08nabucco.html?_r=1&ref=world.

159 Reuters, November 4, 2011, http://www.reuters.com/article/2011/11/04/nabucco-idUSL6E7M41SN20111104.

160 *Financial Times,* September 26, 2011, http://www.ft.com/intl/cms/s/0/ed9151b8-e84c-11e0-ab03-00144feab49a.html.

161 Reuters, February 6, 2012, http://www.reuters.com/article/2012/02/06/oettinger-gas-idUSL5E8D638K20120206.

162 *ABC.AZ,* November 16, 2011, http://abc.az/eng/news_16_11_2011_59582.html.

163 *Novinite.com,* January 19, 2012, http://www.novinite.com/view_news.php?id=135883.

164 *Novinite.com,* January 18, 2012, http://www.novinite.com/view_news.php?id=135829; RWE News, January 17, 2012, http://www.rwe.com/web/cms/de/37110/rwe/presse-news/pressemitteilungen/pressemitteilungen/?pmid=4007850; Reuters, January 19, 2012, http://www.reuters.com/article/2012/01/19/energy-gas-pipelines-idUSL6E8CJ2XL20120119.

165 Reuters, May 12, 2012, http://www.reuters.com/article/2012/05/12/rwe-nabucco-idUSL5E8GC26K20120512.

166 Reuters, April 25, 2012, http://www.reuters.com/article/2012/04/25/romania-nabucco-idUSL6E8FP71I20120425; Reuters, April 24, 2012, http://www.reuters.com/article/2012/04/24/nabucco-mol-financing-idUSL5E8FOFYC20120424; Reuters, April 26, 2012, http://www.reuters.com/article/2012/04/26/omv-nabucco-idUSL6E8FQ3OV20120426; Reuters, April 25, 2012, http://www.reuters.com/article/2012/04/25/germany-nabucco-bayerngas-idUSWEA918220120425.

to the Bulgarian's section of Nabucco becoming a national project. This is evidenced by Bulgaria's Energy Minister declaring shortly before the Hungarian announcements in early April 2012 that, by 2018, Bulgaria would be able to rely both on gas interconnections with Romania, Serbia, Greece, and Turkey and on a major energy project, "be it Nabucco or something else." Indeed, as of June 2011, Nabucco is not a part of Bulgaria's Energy Strategy until 2020. Bulgaria also clearly asserted its desire to use the national gas transmission system, transmitting up to 10 bcm through 2018, rather than build a new pipeline for the project.[167] Soon after the Hungarian announcement, Bulgaria emphasized that no opportunity exists to implement the project,[168] adding, however, that Nabucco would probably be built sometime in the very, very distant future.[169] Despite this uncertain outlook, at the end of May 2012, Bulgaria's representative in Nabucco Gas Pipeline International GmbH considered the project to be the most viable aimed at connecting the Turkish gas market to Europe.[170] While Bulgaria faces financial problems, building an interconnection with Turkey is of key priority.

At the end of July 2012, Azerbaijan's Industry and Energy Minister declared that Nabucco West was the best option for piping natural gas from the Caspian Sea when considering East and Central Europe to be more reliable markets for Azeri gas.[171] Obviously, Turkey has since shifted its priorities toward the Turkish TANAP project and away from Nabucco,[172] but, of course, Botaş, one of six shareholders in Nabucco Gas Pipeline International GmbH, supports Nabucco West, assuming Nabucco West to be the natural continuation of TANAP.[173]

According to Jonathan Stern, the decision to court Caspian gas was first and foremost a political one,[174] despite gas purchases being driven by the market. Stern and his colleagues emphasized that Shah Deniz 2 will be an important test case for new commercial and, specifically, pricing frameworks in Europe, and that the Europeans are willing to buy only at hub-based prices.[175] E.ON Ruhrgas, one of three shareholders in TAP with a 15 per cent stake, shares this view.

167 *Novinite.com,* April 10, 2012, http://www.novinite.com/view_news.php?id=138403.
168 Trend, April 26, 2012, http://pda.trend.az/en/2018978.html.
169 Reuters, April 27, 2012, http://www.reuters.com/article/2012/04/27/bulgaria-azerbaijan-gas-idUSL6E-8FR3YX20120427.
170 *Novinite.com,* May 27, 2012, http://www.novinite.com/view_news.php?id=139715.
171 Reuters, July 24, 2012, http://af.reuters.com/article/idAFL6E8IOFZA20120724.
172 *Novinite.com,* January 31, 2012, http://www.novinite.com/view_news.php?id=136233.
173 *Bloomberg,* May 15, 2012, http://www.bloomberg.com/news/2012-05-15/turkey-backs-nabucco-west-as-rwe-reviews-support-for-gas-link.html.
174 K. Rausch, *Pipelines on Paper,* Wingas, 2012, http://www.wingas.de/2268.html?&L=1.
175 Stern and Rogers.

E.ON Ruhrgas clearly stated, well in advance, its interest in Azeri gas only if the contract is competitive and has the right formula. In addition, the European utilities expect pricing for supplies from the Caspian to reflect conditions across the continent's freely traded gas hub markets.[176]

BP CEO Bob Dudley insisted that the rationale for the decision on pipeline projects be purely economic, so tariff levels will decide who prevails.[177] Notably, the aim of SEEP was also a less expensive project. BP argued that without competitive pipeline offers, the sale of Shah Deniz gas to distant European markets would be without economic viability.[178]

This study does not discuss the conceptualized White Stream pipeline (Georgia–Romania and Georgia–Ukraine). Apparently, the AGRI (Azerbaijan–Georgia–Romania–Hungary Interconnector) project is also not on schedule. The participation of SOCAR in the project is a clear indication of the seriousness of the endeavour. Apart from TANAP, the same level of commitment is not observed for other projects.

AGRI, beginning in 2010, is a new project in the Southern Corridor in which Azerbaijan, Georgia, Romania, and Hungary are partners, with Hungary joining the partnership in 2011. A number of countries and companies have reportedly expressed interest in the project, in particular, Serbia and Bulgaria from the CEE region.[179]

7. Conclusions

Since 2008, Gazprom's market position has changed totally. Now as a piped-gas exporter Gazprom has a locked role in the European market. In response to the volatitily of gas markets, Gazprom launched gas production in the Yamal Peninsula and is to begin construction of the South Stream gas pipeline in December 2012. However, in spite of its newfound position, Gazprom confronts an EU anti-trust probe, especially related to gas pricing. Contrary to EU standards, Gazprom prefers prices independent of market conditions, but if such discre-

176 Reuters, May 15, 2012, http://www.reuters.com/article/2012/05/15/us-energy-summit-gas-eon-idUSBRE84E0ZY20120515.

177 *Natural Gas Europe,* August 1, 2012, http://www.naturalgaseurope.com/caspian-pipeline-choice-to-be-based-on-tariff-7431.

178 *Argus,* September 27, 2011, http://www.argusmedia.com/News/Article?id=768162.

179 *Bloomberg,* November 1, 2011, http://www.bloomberg.com/news/2011-11-01/serbia-wants-to-join-agri-gas-project-to-tap-caspian-supplies.html; Trend, September 27, 2012, http://en.trend.az/capital/energy/2070276.html; AGRI LNG http://www.agrilng.com/agrilng/Home/Istoric.

tion continues, Gazprom will encounter increasing problems with gas exports. In order to avoid more arbitration, Gazprom recognizes the need to narrow the gap between oil-linked contract prices and hub-based market prices. A recent series of concessions shows that Gazprom is aware of its untenable status quo but has not yet accepted the need to shift to hub-based pricing.[180]

Central and Eastern European countries can gain limited advantage from the benefits of changing conditions and globalizing gas markets. This is partly due to the lack of necessary import capacity and partly due to the rigidity of long-term contracts. Both the gas crisis in early 2009 and the conditions in 2010 revealed the differing situations of each CEE state. The two extremes with respect to gas dependence on Russia are apparent in Croatia and Poland. First, Croatia significantly reduced dependence on Russian gas. The CEE region has no similar example; however, Croatia's participation in the South Stream project and the decision to construct a branch from South Stream to Croatia means that the country will purchase Russian gas in the future again. Second, despite various projects, Poland, due to the elimination of the intermediary Rosuknegro, has awarded Gazprom Export has an increased role in its gas supplies. Such intermediary companies offered a certain degree of diversification in Hungary and elsewhere. Excluding Croatia, Slovenia is the least dependent on the Russian gas supplies and has the most diversified portfolio of gas importing contracts.

The position of the Czech Republic and Hungary is worse than that of Slovenia, but long-term contracts with Western countries and spot markets for cheaper natural gas afford a certain degree of diversification. The January 2009 gas crisis forced Slovakia to initiate diversification and consider securing supplies through measures providing contracts with Western exporters. With the exception of very small amounts of imported gas, Serbia purchases most of its natural gas from Russia, the remainder arriving from Hungary. Romania is also able to buy gas from Hungary and accept transfers through Hungary using the Hungarian–Romanian interconnector completed in 2009. Bosnia-Herzegovina, Bulgaria, Macedonia, and the Baltic States are solely dependent on Russia for gas; however, physical reverse flow is possible for Bulgaria and Slovakia.

Nord Stream and South Stream create large additional capacities. Gas transit through Belarus and Poland is expected to be minimally affected; however, tran-

180 These are Jonathan Stern's findings about the pricing principles of Gazprom. *(Bloomberg,* January 17, 2012, http://www.bloomberg.com/news/2012-01-17/gazprom-price-retreat-offers-eon-hope-as-euro-crisis-cuts-demand.html; *Bloomberg,* March 14, 2012, http://www.bloomberg.com/news/2012-03-14/gazprom-trips-in-india-as-shale-upends-asia-gas-markets-energy.html; *Financial Times,* February 16, 2012, http://www.ft.com/intl/cms/s/0/2e57f4c4-58ad-11e1-9f28-00144feabdc0.html#axzz1oivhTm7f.)

sit through Slovakia has already encountered negative effects. In Central and Eastern Europe, South Stream has dramatically rearranged the existing transportation and transit directions, thus, some former investments may prove to be redundant.

Unconventional gas has the potential for increasing competition in the Russian-dominated markets and creates an environment for lower gas prices. Still, predicting the future of unconventional gas in Central and Eastern Europe is risky; however, Romania and Bulgaria have been focusing on Black Sea gas. Apparently, realities on the ground have started diminishing the euphoria of Polish shale gas.

It must further be evaluated to what extent the CEE region will demand additional gas. However, this remains difficult to evaluate as the forecasts are contradictory, and current economic conditions and uncertainties surrounding energy policies confound planning, predicting, or decisions. Indeed, different countries in the region have adopted various initiatives to ensure security of supply and diversification since the early 1990s and since the January 2009 crisis, in particular, but the vision or the goal of energy independence communicated in certain CEE countries (e.g. Hungary, Romania) is far off, regardless of such initiatives and statements.

Clearly, LNG and pipeline projects are moving forward very slowly with long delays. Acting on a commercial basis, these projects are acceptable but greatly erode the credibility of the involved governments' and companies' commitments. In contrast to the large projects, the importance of interconnections remains. Hungary has taken significant steps in this area, but the Slovak–Hungarian interconnector demonstrated available options when considering a project that defies the terms of the market. South of Hungary, apart from any interconnections with Hungary, progress is minute. A demonstration of the possibilities of diversification, as well as a demostration of other options aside from Russian gas, is important for progress toward this goal.

Obtaining Azeri gas is a key step towards securing a stable and affordable gas supply in Central and Eastern Europe. Since autumn 2011, important changes occured that moved the CEE toward this goal in the Southern Corridor, but still, achieving Azeri gas throughout the CEE remains far away. Previously existing "major" projects transferring Azeri gas devolved into smaller scale projects such as the South East Europe Pipeline and the Nabucco West in order to adapt to existing political and economic realities. The primary problems with the ten-year-old Nabucco classic are unsolved; despite progress on some issues new

problems have arisen. SOCAR, holding a controlling stake in the Trans-Anatolian Gas Pipeline, can be a guarantee for the Turkish project, and other members of Azerbaijan's Shah Deniz consortium can also be shareholders of the pipeline; however, Turkey will certainly have some difficulty negotiating this position. The Shah Deniz consortium will also obtain shares in a pipeline that delivers gas from the western border of Turkey.

In the future, Azerbaijan is the only definite supplier of gas to Europe in the Southern Corridor, but with high gas prices, European utilities will queue for Azerbaijani gas. Also, notably, diversification alone does not inevitably lead to supply security, and Azerbaijan has not yet demonstrated reliability as a supplier.[181]

Among LNG regasification projects in the region, the Polish and Lithuanian projects are expected to become operational in 2014, while the others are in planning stages. The increasingly protracted issue of a regional LNG terminal in the Baltic States has also shown the difficulty of achieving regional cooperation. In Lithuania, the LNG project gains assistance from the gas quota through the LNG terminal; however, in Poland, the maximum share of gas imported from one country has had an established limit since 2000. This requirement is difficult to meet.

181 Rausch, *Pipelines on Paper*.