

ENERGY SECURITY IN CENTRAL AND EASTERN EUROPE 2009/2010: HOW GLOBAL TRENDS ARE CHANGING THE REGION

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Introduction

Shale Gas: Quiet revolution or product placement?

Energy and climate changes package: what about nuclear?

Regional (Visegrad+) cooperation in energy: wishful thinking or a regional solution?

Slovakia: former local champion turning into European loser?

Conclusions

Introduction

Energy security represents wide and complex interrelated issues of technical, economic, environmental, political and geopolitical nature. Every single entity on social hierarchy starting from family and company up to supranational level like European Union has to find answer to the basic question of energy security: *How to ensure sustainable uninterrupted supply of necessary energy sources for affordable prices?* Successful solution of this question is prerogative of survival of any entity – a poor household in tribal society of African Sahel or political and economical superpower in its postmodern stage of societal development.

The region of Central and Eastern Europe is one of Europe's sub-regions in which energy security issues have a special feature. Geopolitical changes after the collapse of an authoritarian communist regime in the Soviet Union allowed most countries in this part of Europe to choose political and security affiliation with institutions which evolved after WW II in Western Europe. Social and economical transition followed by strong integration effort resulted in most cases in EU and NATO membership within a decade 1997-2007. However despite integration in overwhelming majority of social, security and economic matters into the

European and Transatlantic structures, Energy Security remained *the issue* in which dependency on former “sovereign” in Moscow continued. During the 1990’s post-Soviet Russia was a weak state with limited influence and during this period only the Czech Republic¹ and Hungary² of the CEE countries made a decision to invest in new infrastructure projects. Czech investment was also driven more by fears of failure in Russia’s oil industry and not of threats of using oil supplies as foreign policy instrument. Situation has changed in the early 2000, when Russia after its internal consolidation started to act in a more assertive manner in international relations. Russian Energy Strategy 2020 adopted by the governmental decision in 2003 in its first sentence clearly describes energy sector as one of the tools of internal and external policy. In a revised document (Energy Strategy 2030, adopted in 2009), this notion was transformed in line with the market rhetoric stressing that diversification of export markets should be done without further extensive growth of exports. Russia shall lower the risk of its mono-dependency on European market by redirecting export flows and reaching 20-25% share of Asian-Pacific markets in its own oil and gas exports.³ Analyzing intentions found in Russian strategic energy documents should finally serve as a wake-up call for those in the CEE region who tend to believe that the series of tensions between Russia and transit countries (Ukraine and Belarus) in 2006-2010 are mainly the stuff of commercial conflicts. Due to the global nature of oil market, the growing liquidity of gas and policy issues of climate changes are just some events on the global level with significant influence on the region’s energy security challenges. Those events evolved within circumstances of global economic crises and in the time marked by the decline of energy consumption. But the framework of EU-Russian relations in the field of energy was without any doubts also influencing the energy security of Central and Eastern Europe in the time frame 2009-2010. Some trends emerged and dominated the policy-making in the region. This text has an ambition to focus on key events and provides an overview of global trends which prevail in the region.

¹ The idea of building a new pipeline connecting the Czech Republic with Germany was launched in early 90s and finalized in 1995 when 345 km long IKL pipeline was filled by oil. More information is available at www.mero.cz

² In 1996 HAG gas pipeline connecting Austria and Hungary started to operate. This connection created technical preconditions for some diversification in natural gas supply to Hungary. More information is available at www.fgsz.hu

³ Both documents are available at www.energystrategy.ru

Shale Gas: Quiet revolution or product placement?

According to the IEA World Energy Outlook 2009,⁴ intensive development of unconventional gas in United States and Canada during the last few years deeply changed the gas-market outlook both in North America and in other parts of the world. The US gas production boom resulted in the largest increase in the world for the third consecutive year and reached 593.4 bcm⁵ with unconventional gas accounting for most of this increase. In 2009, the production fell sharply in Russia 527.5 bcm (-74.2 bcm) and Turkmenistan 36.4 bcm (-29.7 bcm), in each case the largest decline on record. World gas production decreased by 2.1%, a drop that was recorded for the first time in history. US became the world's biggest gas producer in the past year and this will be most probably the case in 2010 as well. Robust increase of the indigenous production including cheaper shale gas suppressed gas prices in U.S. and literally pushed out LNG imports from the US market. As a result, LNG flow was re-directed towards other markets in Europe and Asia. Additional gas in the EU market together with depressive impact of the economic crises created the oversupply in the EU. This situation is expected to continue at least for the coming 2-3 years putting pressure on both prices and contract conditions of long-term pipeline contracts. Unusually, natural gas spot prices at liberalized markets were well under the prices set in the long-term contracts for the whole of 2009. Gazprom had resisted market pressure until the end of the year, but in early 2010 trade negotiations with European majors like E.ON, GDF-Suez, ENI or Turkish Botas resulted in compromise. Gazprom modified the volumes of gas covered by take-or-pay clause and agreed to set the price of up to 15% of annual supply according to actual spot prices. Later, some smaller companies like Lietuvos dujos (Lithuania) or Slovenský plynárenský priemysel – SPP (Slovakia) also had achieved some concessions.⁶

Oversupply of LNG on European liberalized gas market was the most important, but indirect impact of the US shale gas revolution on Europe. Would this phenomenon last for a longer period? Pipeline shipments contracted globally in 2009 increased by 5.8%, more than offsetting the 7.6% increase in LNG trade. The continued ramp-up of Qatari exports and the emergence of Russia as an exporter drove the LNG exports, which accounted for 30.5% of

⁴ World Energy Outlook 2009, www.iea.org

⁵ See BP Statistical Review of World Energy 2010, www.bp.com

⁶ In case of SPP the mutual agreement valued around USD 180 Mio was achieved after the Slovak company addressed the issue of compensation for non-deliveries during gas crises in January 2009 (Цена газового мира, 30.03.2010, www.rbcdaily.ru). Better conditions for Lithuanian gas company were possible partly due to the abolition of price regulation for industry consumers and partly due to the transit function for Russian enclave of Kaliningrad (Литва ждет от Газпрома европейских скидок, 01.03.2010, www.kommersant.ru)

gas trade (excluding intra-Former Soviet Union).⁷ In 2009 and 2010, the global liquification and re-gasification capacities were rising sharply. Changing consumption patterns in Asia, North America and Europe, together with higher than ever mobility of gas supply (LNG cargoes) made gas-to-gas price competition a real issue. Low levels of spot prices presented most EU companies with an alternative to more expensive oil-indexed pipeline contract supplies. However, the majority of EU new member states did not enjoy such opportunities due to the non-existent re-gasification utilities. Thus, the interruption of gas exports to the Ukraine and Europe in January 2009 undermined Russian image of reliable gas supplier and in conjunction with other factors ended with higher flexibility in long term gas contracts. This is definitely a progress towards a more flexible and better integrated global gas market, which could in 10-15 years, become similar to the oil world market. Nevertheless, the issue of gas-to-gas competition has two layers. While the balance between LNG vs. pipeline gas price could be reached in 2-3 years, the medium and long term issue is linked to the potential of unconventional gas extraction outside of North America.

For obvious reasons Russian experts are on the frontline in opposing of new technology possibilities of shale gas extraction worldwide. They are pointing out that shale gas production purely a North American phenomenon. Geological preconditions, US control over know-how and technological gap are key arguments mentioned for questioning the future of shale gas impact on global gas market.⁸ Especially some analysts close to Gazprom used to downplay shale as purely a PR game focused on price negotiations with Russian export monopoly. Among other industry experts, there a consensus that before 2020, the commercial production of shale gas in Europe is highly unlikely.⁹ Drilling results in the Makó reservoir (estimated gas reserves of 600 bcm) in Hungary showed that natural conditions in unconventional gas reservoirs vary and available technology is not suitable for all cases. What's more, the ongoing exploration in Poland did not result in commercially viable results as of yet. It needs to be mentioned that in the U.S., the technology has been developed locally for almost 20 years to achieve significant flows of natural gas from this source. In principle, all oil and gas basins worldwide contain large volumes of shale rocks, which were traditionally considered as a non-viable source because of limited permeability and isolation of gas in rocks. Despite the technology lead of the U.S, it is reasonable to expect that

⁷ See chapter gas in the Statistical Review of World Energy 2010, www.bp.com

⁸ www.ng.ru 13.04.2010, С.Мельникова, Е.Геллер, Сланцевая революция под вопросом

⁹ www.europeanenergyreview.eu, R.Komduur, Europe not ready for unconventional gas, yet.

commercially effective horizontal drilling and hydro fracturing would be, after adjustment for local conditions, also applicable elsewhere. Especially high importance this technology could be achieved in less densely populated areas of Ukraine, Russia, North Africa and mainly in China. The management of environmental impact of fracturing and drilling and further technological progress in this realm would potentially make this resource acceptable even in more populated areas in Europe. In the coming 10 years, unconventional and mainly shale gas will likely become the most quickly increasing portion of gas reserves and production worldwide.

Energy and climate change package: what about nuclear?

Nuclear technology can deliver power generation with very low greenhouse emissions and according to the Intergovernmental Panel on Climate Change, has the largest mitigation potential at the lowest average cost of electricity supplies.¹⁰ However, nuclear power is excluded from both flexible mechanisms created to help countries to meet their specific reduction targets of the Kyoto Protocol within the UN Framework Convention on Climate Change. Along with wind and hydropower generation, the nuclear option has the lowest life-cycle greenhouse gas emissions equivalent to approximately 10 g CO₂/kWh. Solar photovoltaic and biomass power generation account for 60-80 g CO₂ per kWh, while fossil fuel generation ranges from 200 g (with Carbon Capture Storage systems) to more than 1000 g CO₂ per kWh (lignite).¹¹ But in base load power generation, only nuclear and hydro option could fully replace the highly polluting fossil fuel power plants. Due to their intermittent nature, other renewable energy sources cannot provide reliable base load electricity yet, they can rather complement the existing sources.

In the Central European region, nuclear power generation is considered a reliable and environmentally acceptable source of energy and one of suitable ways of reducing CO₂ emissions. Slovakia and Czech Republic are big promoters of the idea of European Nuclear Forum (ENEF), which meets reciprocally in Bratislava and Prague. Its 5th meeting held in Bratislava on 25-25 May 2010 stressed that nuclear energy could play a significant role in the gradual transition towards a low carbon economy. To be ready for such a task, the legal framework for nuclear energy in the EU should be supplemented by legally binding instructions for the treatment of radioactive waste. Moreover, for further development of

¹⁰ H-H.Rogner, F.L.Toth, A.McDonald: Judge Nuclear on its Merit, I.A.E.A. Bulletin 51-2, April 2010, p.16

¹¹ H-H.Rogner, F.L.Toth, A.McDonald, Ibidem, pp 17-18

nuclear energy and technological capabilities it is necessary to focus on education and training to bridge the gap of two decades of nuclear standstill. Additionally, for, new growth of nuclear power on a global level, the reinstatement of industrial capacity to create large new production projects is necessary.¹² In Central Europe building of new reactors is predominantly linked to the sites, where extension of existing facilities was initially planned during the communist era. In Slovakia, two blocs of Mochovce 3, 4 are presently under construction, the environmental impact assessment of which was successfully accomplished in April 2010. In Czech Republic, the public tender procedure for a supplier was opened by ČEZ in August 2009, with the decision on the winning bidder expected by early 2012. In Poland, the government decided in April 2010 to build a first nuclear power plant in Zarnowiec, where a Soviet-engineered project began already in the 1980s, but was abandoned in 1990. The Hungarian parliament had allowed preparations for construction of new bloc(s) in Paks plant by its decision in March 2009.

Country	No. of nuclear blocs	Nuclear electricity generation (net TWh/year)	Nuclear percent of total electricity supply	New blocs under consideration or construction – expected date of production
Czech Republic	6	25,0	32,4 %	Temelin 3,4 after 2020
Hungary	4	14,0	37,7 %	Paks 5 (6) after 2025
Poland	-	-	-	Zarnowiec 1,2 after 2021
Slovakia	4	15,4	57,0 %	Mochovce 3,4 - 2012/2013

Table 1: **Nuclear Energy in Visegrad Countries** by 1.1.2009 (according to the Nuclear Energy Agency www.nea.fr/general/facts adapted by author)

Despite massive development of renewable energy sources by new EU member states in the region, they are still far behind Austria, the regional champion (see Tab.2). According to the EC Directive 2009/28/EC member states are preparing their National Renewable Energy Action Plans focused on fulfilling EU 20-20-20 targets in share of renewable energy in their energy consumption. Achievement of indicated goals would additionally foster the energy security of Slovakia and Hungary by replacing imported fossil fuel with indigenous renewable sources. However for Czech Republic, and especially for Poland relying on an important

¹² Y. de Siant Jacob: *Rebuilding of the nuclear network*, European Energy Review IX/X 2009, pp. 63-64

share of coal in their energy mix, part of this replacement would constitute gas, which is mainly imported to the region.

	2006	2007	2008	2020 target
EU27	8.8	9.7	10.3	20
Czech Republic	6.4	7.3	7.2	13
Hungary	5.1	6.0	6.6	13
Austria	24.8	26.6	28.5	34
Poland	7.4	7.4	7.9	15
Slovakia	6.2	7.4	8.4	14

Table 2: Share of renewable energy in Central Europe (in % of gross final energy consumption, source Eurostat)

The general policy trends towards low carbon economy and enhancing higher energy efficiency, especially in housing in the region of Central Europe could strengthen energy security of the region to a certain level, but will not solve the inherited dependency on Russian sources. Nuclear power generation is widely accepted in the region and existing projects in this realm go beyond simple replacement of ageing fleet of Soviet reactors.

Regional (Visegrad+) cooperation in energy: wishful thinking or a regional solution?

The energy market in Central Europe is far from ready to become a fully integrated part of the EU single market. Continuous implementation of the provisions of the Third Energy Package introduced on the national levels is hindered by the limits of national transmission systems. As it was described earlier, even in the communist past the regional approach was taken into the consideration in decision-making on energy. Oil and gas transportation systems were built to supply the whole region, but needless to say, the logic was different. Today, the challenge is clear: how to complement the East-West lines crossing the region by North-South interconnectors to create a real functioning network. At the regional political level, this need is well understood and communicated. The Declaration of recent V4 + Energy Security Summit in Budapest on 24-25 February 2010 was very explicit on this topic.¹³ However, the government's role in creation of new infrastructure is very limited. Energy transmission assets were largely privatized and commercial interest not always coincide with general wishes of diversification of sources and transport routes. The case in point is the bidding phase of the Open Season Procedure of the Hungarian-Slovak gas interconnector when the Slovak operator

¹³ Full text of the Declaration is available at www.visegradgroup.eu

eustream a.s. has announced on 15.7.2010 the procedure as successful and its Hungarian counterpart FGSZ Zrt. Made exactly the opposite claim.¹⁴ This project in the approximate amount of € 180 million was approved as one of priority EU projects with the financial contribution of € 30 million within the EU recovery package aimed at addressing vulnerability of the gas supply in the region following the January 2009 gas crises. It goes without saying that implementing of the Hungarian-Slovak interconnector is vital for the future North-South gas interconnection, but its fate remains unclear so far. Thus, the significantly higher financial contribution from the EU budget could solve the situation of cross-border interconnection necessary for the goal of an integrated EU market in cases of sufficient commercial value for market players across borders. In 2009 the V4 High Level Working Group on Energy Security was created and has met several times since then. Under its auspices, in Spring 2010, V4 ministers responsible for energy matters made an effort to extend the findings of the *EC study on the technical aspects of variable use of EU pipelines entering the EU from third countries* to the impact of the ageing Druzhba pipeline system on the oil supply of Central Europe. Ad hoc V4 working groups on different regional energy security issues were tasked to prepare project proposals for the implementation as well as coordination of the EU decision-making process in the energy sector.

It is early to judge the efficiency of V4 regional cooperation in energy security. On one hand, due to the limitations of national markets, even Poland's as the region's biggest one could not generate enough profit to opt for a single country solution. Even though there is an urgent political need for tighter cooperation in the region, across many energy companies, operating in local markets competitive approach prevails. Therefore, any attempt at implementing cross-border energy projects without a strong political mandate and continuous political support is doomed to fail. The loose "framework" of V4 cooperation (e.g. working groups created by reps from state bodies) is not efficient enough. This is partly because the same persons who are in charge of V4 cooperation also have to deal with domestic energy security agenda priorities, which do not necessarily fully overlap with the proclaimed regional goals. The creation of the permanent Visegrad energy policy secretariat, as was suggested by the recent Energy Security Policy Paper prepared by the Visegrad Security Cooperation Initiative,¹⁵ is along

¹⁴ http://www.eustream.sk/sk_media/sk_tlacove-spravy/eustream-a-fgsz-vyhodnotili-zaujem-o-vyuzitie-plynarenskeho-prepojenia-medzi-slovenskom-a-madarskom

¹⁵ Nosko, A., Orban, A., Paczynski, W., Cernoch F., Jaros, J.: Energy Security Policy Paper for Visegrad Security Cooperation Initiative, ATA-SAC, Bratislava, 30 July, 2010. <http://www.ata-sac.org/article-88-415-Energeticka-infrastruktura-krajin-V4-by-sa-mala-prepajat>

with robust EU financing, the condition for successful practical implementation of any V4 energy infrastructure projects. Without a strong team of dedicated and empowered professionals, politicians would be unable to materialize their ideas like the South-North gas interconnection or take coordinated stands on oil import via Druzhba pipeline.

Slovakia: former local champion turning into European loser?

European move towards liberalized markets of gas and electricity would have direct impact on the market share and prosperity of former local champions – gas distributors and electricity generators. There are some risks in adapting general liberalized single market rules of EU to the region of CEE which inherited the energy security solution and infrastructure from the communist past. Liberalizing the gas and electricity market would also undermine the position of traditional local energy monopolies and economic champions. Liberalized market approach is already bringing to local markets fresh suppliers offering for short-term better prices. Price competition will further put pressure on company profits, thus decreasing sources available for needed cross-border infrastructure renovation and generation. Overall, the sustainability of positive market effects depends largely on the availability of investments for such projects. Slovakia's gas and electricity industry could serve as an example of possible local risks linked to liberalization effects at the EU level.

Gas-to-gas price competition vs. flat consumption in the coming years. Slovak gas industry (SPP) is facing pressure from newcomers to the market. The needs of a limited local market (5.5-6.5 bcm/year) are physically covered by the existing 20 years contract with Gazprom. The entry of new competitors like RWE or Shell, together with Gazprom subsidiaries could offer lower price based on quantity discount or bring access to LNG spot gas in their portfolio and undermine the dominant position of the former monopoly which is still fulfilling the social function of household's regulated supplier. In the case of limited increase of gas consumption take-or-pay formula in the valid long term contract would further increase tensions within SPP.

Competition of transit flow: Eustream vs. Nord Stream (South Stream) Building and promoting additional transit routes for Russian gas to EU that would bypass Ukraine and the existing main export pipelines would create overcapacity in gas transit in Slovakia. After the completion of Nord Stream, the transit through Slovakia may drop down by 15-20% in 2012. Given the range of possible scenarios for gas demand in Europe by 2020, it is very hard to project the date of recovery of Eustream (Slovak TSO) transit volumes back to 90 bcm per year. For the time being, the long-term shipment contract with Gazpromexport with ship-or-

pay formula gives eustream some basic stability. One thing however, is clear: by diversifying transport routes on the EU level, local interests are at stake. The theoretical construction and operation of the South Stream project with the capacity of 63 bcm/year would make the whole transit capacity through Slovakia redundant altogether.

EU CO2 emission subsidies after 2013 The climate changes policy and existing EU regulation which would made it possible for all neighbors of Slovakia to be beneficiaries of free CO2 limits for energy regulation would put pressure on the competitiveness of energy generation in Slovakia. Mainly Poland, and to a lesser extend CZ and HU could use additional resources for renovation of their coal- based electricity generation.

Energy security costs vs. price regulation In addition to the above- mentioned clashes between local and EU interest, in Slovakia are witnessing a locally grown political habit of hiding real costs to be paid for energy security. All Slovak governments since the proclamation of independence have put political priority on social stability at the cost of long-term energy security. In Slovakia the real discussion of the need of investments to the energy security infrastructure is largely missing. On the contrary, the building and operation of alternative energy security infrastructure in Czech Republic (Ingolstadt-Kralupy IKL oil pipeline), in Poland (LNG terminal in Swinoustie) or in Hungary (Strategic underground gas storage Algyó) have addressed this important issue, even if it meant additional financing from state budget and/or tariffs.

Conclusions

Activities and developments in the realm of energy policy in Central Europe during 2009/2010 managed to mitigate immediate threats to energy security comparable to the January 2009 gas crises.

However, uncertainty of European and regional economic recovery despite EC liberalization efforts towards a single energy market have not brought sufficient signals for adoption of long- term investment decisions in the energy sector. Due to the anticipated adoption of austerity measures by most governments in Europe, the public support for new infrastructure projects would be even more difficult to muster than before. Without concerted political will in Central Europe (mainly through Visegrad cooperation) and with more robust financial support of the EU, the breakthrough to real regional market in gas supply and electricity would be unachievable in the short to medium term. A failure to create working regional markets with all necessary interconnections would undermine any prospects for sustainable energy security of the whole region.

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