

Challenges and opportunities of natural gas market integration in the Danube Region

The South-west and South-east of the region as focal points for future development

MARTIN JIRUŠEK, TOMÁŠ VLČEK



Úřad vlády České republiky



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ANALYSIS OF THE NATURAL GAS SECTOR IN THE DANUBE REGION

MARTIN JIRUŠEK

Introduction

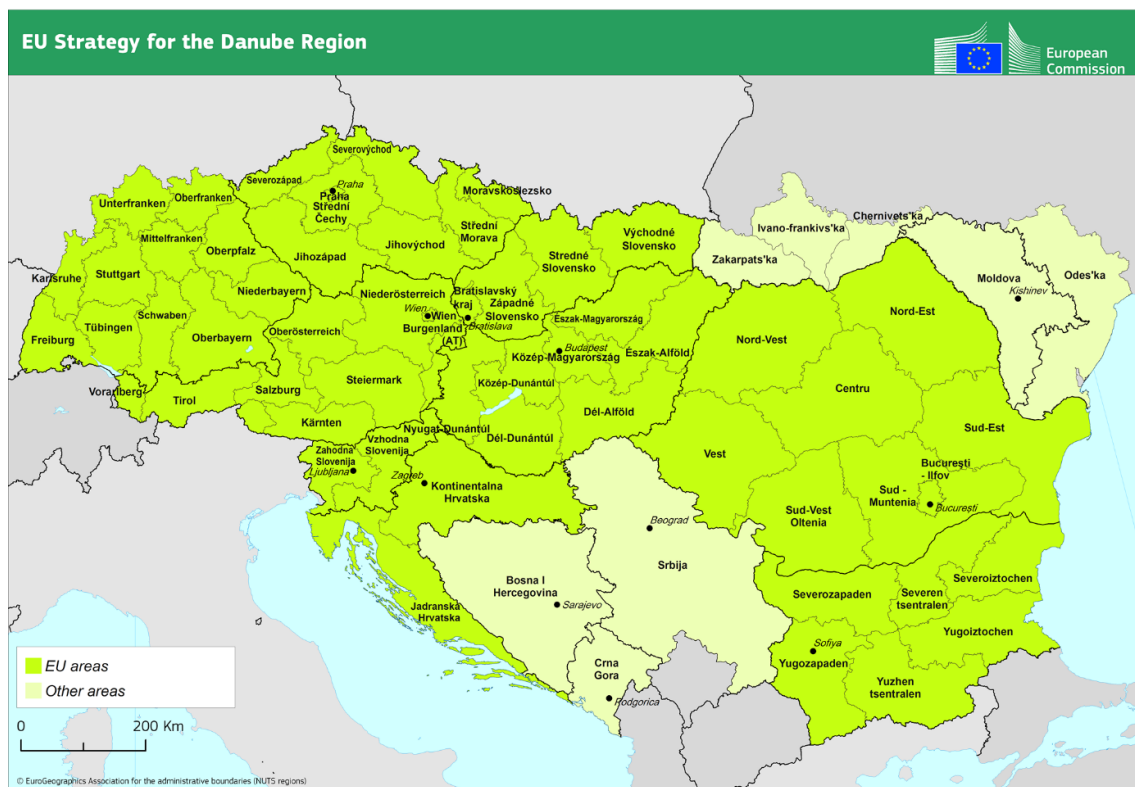
The Danube Region is a geographical area comprised of states located along the Danube River. More broadly, the area may be seen as taking in 14 states that lie either partially or completely within its confines. They are Austria, the Czech Republic, Slovakia, Hungary, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Bulgaria, Romania, Moldova, and some areas in southern Germany and southwestern Ukraine that are immediate neighbours of the region's core. At the European Union level, the region is represented via the European Union Strategy for the Danube Region, established in 2010 (European Commission, 2010). It is the EU region's second such strategy, coming after the similarly formulated Baltic Sea Region (Danube Region Strategy a), n.d.). Its overall goal is to provide individualised support and enhance cooperation on a more granular, region-oriented basis. The full scope of the region is depicted in Figure 1. Including as it does both developed Western European states and others in its eastern environs that are still mired in the transition process, it may seem too diverse in character to form a coherent region. But these differences do not impede its members' ability to share knowledge and experience – in this sense, in fact, the region's sheer diversity may be seen as a plus.

The EU's Danube Region Strategy is focused on a series of issues that are divided into 4 pillars and 12 priority areas. It is obvious that the region faces a large number of challenges in various sectors. Given the importance of energy to economic development, it is no wonder that cooperation within the energy sector is one of the strategy's top priorities (Danube Region Strategy b), n.d.). The 'Sustainable Energy' priority area has three major objectives: coordinating individual energy-related policies to fully exploit the potential of the EU's Internal Energy Market (IEM), integrating the energy markets of non-EU countries and helping them to implement the related legislation, and helping countries to introduce higher energy efficiency, renewables, and related technologies (Danube Region Strategy a), n.d.).

While the westernmost regions, Germany and Austria, possess established market-driven economies, other parts of the region have struggled to greater or lesser degree

with the transition from a planned economy. On top of this, stark differences have persisted even among the group of former communist states. While the Central European states of the Czech Republic, Slovakia, Hungary, Slovenia and to some extent Croatia have emerged from the transition period relatively successfully, other states face problems that have not been satisfactorily resolved to this day. The region thus encompasses a level of geographical, historical, economic, and political diversity that without doubt renders it an analytical challenge.

Figure 1: The Danube Region



Source: (Danube Region Strategy a), n.d.)

Given the role played by natural gas in the energy sectors of several states in the region and the numerous infrastructural projects in planning that would cross the area – potentially establishing the region as an important crossroads of energy infrastructure and supplies bound further on to Europe – the natural gas sector in the Danube Region is an intriguing case for study. Current developments in the natural gas market, changes in natural gas marketing, and the emergence of new actors and new means of transport are all adding to a plethora of incentives for closer examination.

The actual development of the natural gas market, changes in natural gas marketing, emerging actors and new means of transport are only adding up to the plethora of

incentives for a closer examination. An additional incentive for analysis is the region's historical ties to Russia as the long-time principal supplier. The importance of this is highlighted by current developments in international relations and shifts in Russia's geopolitical position. In this sense, the oft-cited perception of energy sources as potential tools of foreign policy must also be taken into account. Simultaneously, the ongoing transformation of the majority of countries within the region calls for a thorough examination that might eventually serve as a model for analogous situations and states in the future.

The aim here is to provide a sober, evidence-based analysis of the contemporary issues that shape the environment within the natural gas sector in the Danube region. The project further aims to address the main challenges that have arisen from current developments in the sector and to formulate policy recommendations that may help achieve successful market integration in the future. The character of the natural gas sector is such that a comparison to the oil sector may be enlightening, and it is worthwhile to gain a full understanding of the structural and market characteristics involved, since the market position of these two sectors has been partially intertwined for most of their history in Europe.

Given the nature of the natural gas sector, it is also worth comparing it with the oil sector and to fully understand the structural and market specifics as their marketing position had been partly intertwined for the bulk of their history in Europe. To this end, a comparison and examination of ongoing trends in the oil sector has been included at the conclusion of this report.

This data utilised was collected from open sources and semi-structured interviews conducted with relevant figures and representatives of the energy sector and natural gas and oil subsectors in the countries examined. This field research has yielded unique insights into the natural gas sectors of the countries and allows specific recommendations to be formulated to enhance the market integration process. This evidence-based approach offers a comparative advantage and unique added value.

The Danube Region: Current Environment and Issues

The goals of the Danube Region Strategy make clear that integration of the energy market is at the central locus of the strategy. The underlying assumption is that market integration will help to achieve effective utilisation of energy commodities and share

costs at the same time it improves the overall energy security of the region.¹ In this sense, market integration has two dimensions. The first refers to the actual infrastructure that enables the flow of natural gas, which is the ‘hardware’ of the integrated natural gas market. The second dimension is the ‘software’, which sets the rules of the market – the legislation and the politics behind it. Therefore, any integration effort needs to address both of these dimensions.

Development in the Danube Region has been uneven, and diverse sets of historical experiences have left their mark in individual countries. In the west of the region, occupied by the south of Germany and by Austria, market-based economies have been in place for the past 70 years; elsewhere, planned economies were the rule during the decades that followed the Second World War. As a result, there are significant differences in both the aforementioned dimensions – hardware and software. Furthermore, there were significant differences among the communist, centrally-planned countries. While the Central European countries function as EU members implementing IEM rules, the further East and South we go, the greater the issues we encounter. More specifically, while those Danube Region states located in Central Europe emerged relatively successfully from the transformation period after the fall of communism, the countries of the South-East Europe region (SEE) **face obstacles that have hindered market development and integration with the rest of the region.** The principal challenges and issues are described in the following pages.

1) Lack of (political) will to cooperate, diverging interests and country-specific stumbling blocks

Examples may be found in both the central and south-eastern part of the region. The Visegrad Four (V4), although not part of the Danube Region as a whole (Poland does not belong to the Danube Region), are a great example of diverging policies and interests that undermine the development of the natural gas market. There is no unanimous agreement among the V4 countries on how it should take place, nor on what the main incentives are for integration.

The focus of the Czech Republic seems to be on cooperating closely with the Western European markets while simultaneously stressing the incompatibility of the V4 markets (Osička, Plenta, & Zapletalová, Diversity of gas supplies as a key precondition for an effective V4 gas market, 2015, pp. 10–23). The Czech Republic has been in the position

¹ This report works with a basic definition of energy security as given, e.g., in the United Nations Development Programme, where it is referred to as “(...) *the continuous availability of energy in varied forms, in sufficient quantities, and at reasonable prices (...)*” (United Nations Development Programme).

of a key transit country for Russian gas supplied via Ukraine to Western Europe since the early 1970s (Högsleius, 2013, pp. 89–94). Although this east-west flow has been called into question because of disputes between Russia and Ukraine in recent years, the Czech Republic seems on its way to at least partially retaining its position as a transit state, this time in the north-south direction. With the introduction of the Nord Stream pipeline and successive infrastructural projects supplying Western Europe with natural gas of Russian origin, the Czech Republic has a solid chance to play a fairly important role in this scheme. With the introduction of the Gazelle pipeline in 2013, the Czech pipeline system was connected into the infrastructure transiting the gas from Nord Stream further to the South (Stroytransgaz, n.d.). With plans to expand Nord Stream capacity to include a second parallel pipeline, it is likely that a good connection with Germany will keep the Czech Republic an integral part of the Western natural gas market, forming a defining principle in the country's natural gas sector development.

Slovakia, on the other hand, seems to be generally preoccupied with its rather uncertain transit role in the future. Slovakia's effort to remain a transit country whatever the status of neighbouring Ukraine is illustrated by its effort to involve itself in projects that essentially compete with the current Ukrainian transit route. The best example is the government's support for the Eastring project which, in its most likely variant, would exclude Ukraine from gas transit (Eastring, n.d.). Slovakia also seems rather reluctant to take steps that might aggravate its relationship with Gazprom, as happened with the reverse flow of gas supplies to Ukraine (Reuters, 2015). To sum up, Slovakia does not seem overly attracted to the idea of gas market integration within Central and Eastern Europe; rather, it seems to be aiming at maintaining its status as an important transit country (Osička, Lehotský, Zapletalová, & Černocho, 2017, p. 3).

Last but not least, Hungary appears to have followed a different foreign policy path by showing a friendlier face to Russia. Under the government of the Prime Minister Viktor Orbán and his FIDÉSZ party, the country's mild foreign policy stance towards Russia facilitated talks on alleviating the terms of use of natural gas delivered under the take-or-pay clause² (Soldatkin & Than, 2015). Earlier, in 2014, Vladimir Putin and Viktor Orbán had sealed a controversial deal for expansion of the Pakš NPP, exclusively granted to Russian companies in exchange for the loan that allowed the project to be realized.³ The image of a friendlier stance vis-à-vis Russia in times of growing dissension between the Kremlin and the US and EU is further reinforced by Orbán's criticism of the sanctions levelled at Russia (BBC News, 2014; Byrne, 2017). Hungary thus seems not overly attracted

² The talks focused on conditions under which Hungary could use the unused gas beyond the current contract expiration date – a solution that is rather unusual in this type of the contract.

³ After a lengthy investigation to the case, the European Commission approved the project in March 2017 (European Commission, 2017).

to the idea of market integration. Instead, its focus has been on securing its own position.

Another factor that serves to amplify the differences in energy policy between the individual states within the region is price difference. It is debatable whether these states all have an equal commitment to market integration, given the price divergences determined by individualized supply contracts and the internal conditions within the markets concerned. A paradigm example is once again Hungary; another is Romania, in the southeast of the region. Although evidence points to the fact that Romania, given its current and prospective natural gas resources, could become a significant player in the region, potentially also supplying some neighbouring countries, progress has been slow. Although the country is an EU member and is committed to development of the Internal Energy Market, a lack of political will is hindering interconnectivity. This is dictated by the reality that once the country was interconnected with its neighbours, domestic suppliers would shift their attention to neighbouring markets in search of higher profits.⁴ The result would be a lack of domestically produced gas and the need to import more expensive gas from abroad. Such an outcome is clearly undesirable for any political figure (Interviewee 1, 2015).

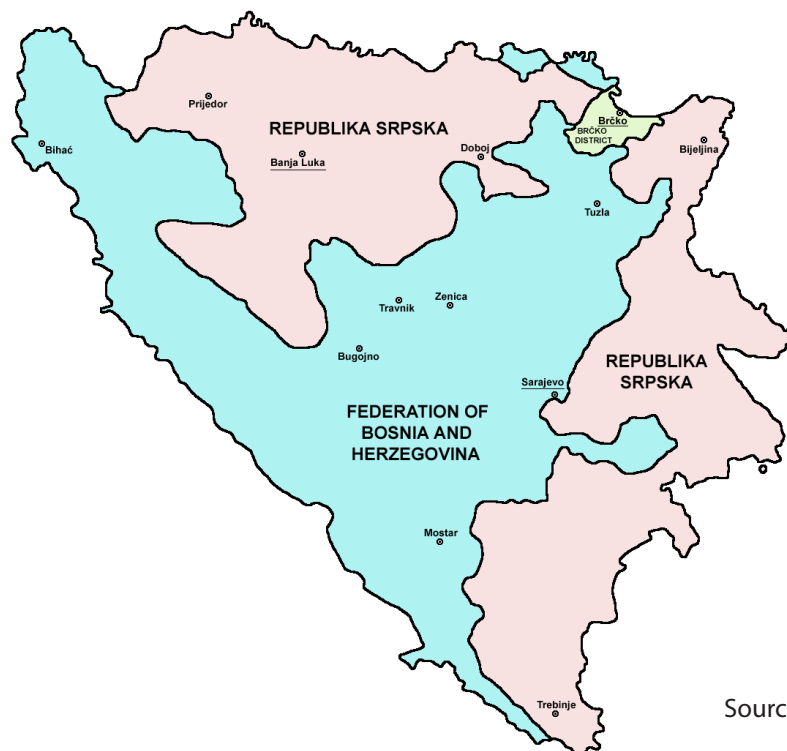
On the opposite side of the region, Slovenia finds itself in a substantially different position, possessing a well-diversified and thus secure gas import portfolio (Cimerman, 2009; Plinovodi, n.d.). This allows it to use a different scheme than majority of SEE states. Thanks to its connections to the Austrian and Italian markets and good pipeline flexibility, Slovenia relies to a great extent on a hub-based supplies. In 2014, majority of gas supplied to the Slovenian gas sector – 61% – came from the Austrian gas hub at Baumgarten. Although it is likely the gas was of Russian origin, like much of the rest of the gas supplied, this nevertheless represented an important shift towards a more market-based approach to trading versus the original pattern involving long-term contracts (Agencija za energijo, 2014, p. 5; Interviewee 2, 2016).

The factors that undermine transparent policies whose objective is market integration can be found not only at the level of the states themselves but may be deeply embedded among insiders within the state administration. A conspicuous example in this regard is Bosnia and Herzegovina (BiH). Here, deep ethnic cleavages have hindered effective state administration and thus the implementation of comprehensive energy policy. The country's three main ethnic groups – Serbs, Croats and Muslims dispersed within two main state entities, Republika Srpska and the Federation of Bosnia and Herzegovina, are hardly able to find common ground for conducting the day-to-day affairs of the country. Regulations are in effect at the level of each of these state entities, and several different corporations have charge of various sector-related tasks. And in addition to this, each

⁴ On the domestic market, gas suppliers are legally bound to maintain gas prices at a certain level.

ethnic group requires its fair share of representation in practically all parts of the sector, be it legally within state companies, or on a custom or path-dependency basis in private companies (Interviewee 3, 2017). And in addition to the disputes between these entities based on historical tensions, their foreign policy discourses differ. This may influence the future development of the natural gas sector. While the Serb-dominated Republika Srpska is oriented more towards Russia and neighbouring Serbia, the Federation of Bosnia and Herzegovina aims at closer cooperation with the European Union. The finest example of the divergence of the two entities' discourses was evident in the de facto unilateral actions of Republika Srpska regarding the South Stream project. In this case, building a spur line to the country was negotiated single-handedly by the entity's president, Milorad Dodik, without support at the federation level (Jukic E. , 2012; Gazprom, 2012). Although the project did not materialize, it illustrates the fundamental lack of consensus that is present at the level of the federation.

Figure 2: Administrative division of BiH



Source: (Wikipedia, n.d.)

The relations of Bosnia's neighbour Serbia with the West have been rather ambiguous. The relationship is burdened by still vivid memories of the bombing of 1999 and the fact that a majority of EU members have recognized Kosovo as a sovereign state – something that many Serbians still perceive as an act of deception. For these reasons,

Serbians often perceive Russia as the nation's protector and main supporter even though this notion is mostly based on a false image created by various pro-Russian elements, including some political representatives and members of the press. In the energy sector, this was evident in the sale of NIS, formerly a state-owned company, to Gazprom under very unfavourable conditions (Koseva, 2008; Radio Slobodna Evropa, 2014; Shchedrov, 2008). Nor was Gazprom hesitant to threaten Serbia with a cut-off of gas supplies should the country's debt not be resolved (Daskalovic, 2014; Novinite, 2014). Still, Serbia seems to champion natural gas of Russian origin and related infrastructure. Russia, for its part, seems to depend upon Serbia as a stable partner in its plans for natural gas deliveries in the region, including the already-cancelled South Stream project and the planned Tesla pipeline (Daborowski, 2015). Combined with the fact that Serbia is still falling behind in its implementation of the Internal Energy Market Rules (Energy Community, n.d.), it becomes debatable whether the country will be able to generate enough momentum to take part in market integration in the foreseeable future.

Moldova is a country in the grips of internal problems that hinder comprehensive policies in virtually all sectors of the economy. Its chief issue is the separatist region of Transnistria which, unfortunately for the rest of the country, also houses its main electrical production facility – the Kuchurgan gas-fired power plant. Since Transnistria strongly leans toward Russia, Gazprom's home country has not been reluctant to use the opportunity to meddle in the internal politics of Moldova. More specifically, through its deputy Prime Minister Rogozin, Russia has coupled settlement of the Transnistria issue with future gas supplies and was unhappy at the country's decision to implement the EU's Internal Energy Market rules (Natural Gas World, 2013; RBC.ru, 2012). Recently, a new pro-Russian president, Igor Dodon, was elected. This choice, however, proved to be a double-edged sword from the outset. Although relations with Russia have improved – even providing for signature of the first multi-year gas supply contract since 2011 – the newly-elected president recognized the Transnistrian debt for unpaid gas deliveries as a debt of mainland Moldova (Vlas, 2017). The settling of this debt is, it would seem, a dominant issue with which the country will have to contend, with not enough money left over to fund much needed expansion of interconnectivity. Another particular example of missing momentum and money is the stalling of the natural gas interconnector between Moldova and Romania. Although the so called Iasi-Ungheni Pipeline was put into operation in spring 2015 (Info Market, 2015), marking the first gas diversification project in the country's history, the project has made little progress since then. It is still far from being able to supply the main centres of consumption, mostly due to a lack of funds but also because of tacit opposition by MoldovaGaz, a company controlled by Gazprom that dominates the country's natural gas sector (Interviewee 4, 2015). The internal cleavage

that has split the country into two non-collaborating entities, coupled with a general lack of funds and a susceptible state administration, then, have conspired to make Moldova the most troubled country among the members of the Energy Community. Any notion that it would be able to help form the regional gas market is thus far from realistic (Interviewee 5, 2016).

Figure 3: Mainland Moldova and the separatist region of Transnistria



(Deutsche Welle, 2015)

As is obvious from the examples above, policy-level issues are widespread among most of the Danube region countries. The Central European countries must primarily confront the issue of diverging political goals as the biggest likely obstacle in their path to an integrated gas market, but the states in the south-eastern part of the region must find a way to deal with many more impediments, some of them at a foundational level.

2) Lagging harmonization of pertinent legislation

As noted above, a number of states mainly in the southeast of the Danube Region have fallen far behind in their implementation of the legislation required for the Internal Energy Market to achieve full functionality. The biggest laggards are the states of former Yugoslavia who, in addition to their political woes, lack the infrastructure needed for the physical distribution of gas within the region. Bosnia and Herzegovina, Serbia, and Moldova are the most notable examples.

Bosnia and Herzegovina is, as indicated, convulsed with internal ethnicity-based issues that have hindered the enactment of virtually any policy, especially at the federal level. These issues are deeply embedded in the country's troubled past and the war that followed the breakup of former Yugoslavia. On the level of the federation as well as that of the individual entities (i.e. Republika Srpska and the Federation of Bosnia and Herzegovina), policy enactment is being slowed by rows over the fair representation of all three ethnic groups (Serbs, Croats and Bosniaks). In fact the disputes extend even further down, below the level of the federation and entities established under the Dayton Peace Accords (Organization for Security and Cooperation in Europe, 1995) to the level of local municipalities and even the private sector. The country's administrative apparatus also suffers under the weight of pervasive nepotism, cronyism, and corruption (Interviewee 6, 2015). When it comes to implementing the IEM legislation, not does the country fail to comply with the Third Energy package of 2009, it even fails to comply with some provisions of the Second Energy Package of 2003. The main issues centre on the unbundling provision and third party access regulation. In terms of the unbundling provision, TSO activities, supply, and trade remain bundled. In the case of the third party access provision, systematic legislation has not been adopted and third party access is dependent on ad hoc decisions by the ministry (Energy Community, n.d.).

Serbia has so far performed better in terms of implementing the IEM rules than its western neighbour, but it is certainly not a problem-free case. Mainly due to the way the relationship is structured between state-owned Srbijagas, Yugorosgaz (50% owned by Gazprom, 25% by Srbijagas and 25% by Centrex Group) and the fact that these companies are active in all links in the supply chain, the country is not in compliance with the unbundling rule (Energy Community, n.d.; Gazprom Export, n.d., p. 30; Serbia Energy, 2013). Legislation tied to the third-party access principle still contains some discriminatory provisions and thus also falls short of full compliance with IEM rules (ibid.). And the very conditions of supply between Gazprom (as the country's sole supplier), Srbijagas, and Yugorosgaz are subject to territorial restrictions and therefore constitute an example of a so-called destination clause – a clause that, in breach of IEM rules, prohibits the resale of gas (ibid.).

Moldova is similarly out of compliance with IEM rules. As with the examples just given, its failure is chiefly due to its inability to meet the requirements of the unbundling principle. This is because Moldovagaz (majority-owned by the country's main supplier, Gazprom) basically dominates the entire supply chain, including transmission, distribution, and marketing (Jirušek, et al., 2015, pp. 199, 537–538). It is also safe to say that, based on the track record of liberalization so far, further progress in liberalizing the sector will be slow. Strong lobbying both within the sector and in the

state administration is retarding the entire process (Interviewee 7, 2015). This opposition is related to the substantial presence of Russian capital and corruption – problems that seem strongly intertwined and generally divide the country, as described in the previous subsection.

Although Ukraine falls within the Danube Region only partially – only four border areas are considered to be a part of the broader Danube Region (see Figure 1 above) – its situation is also worth noting. Despite significant advancements in market liberalization and the security of supply achieved by the country in recent years, it is still not fully compliant with the IEM legislation. As in the aforementioned examples, the chief stumbling block remains the unbundling rule. Specifically, the transmission system operator, Ukrtransgaz, is not fully unbundled from state-owned Naftogaz. Some minor shortcomings may also be found in the rules governing third party access and market opening (Energy Community, n.d.; Naftogaz of Ukraine, n.d.).

Ironically, Montenegro, although it lacks a natural gas sector of its own and sits in a preparatory phase awaiting a major infrastructure project to bring gas into the country, performs much better than the countries noted above when it comes to implementation (Energy Community, n.d.). Only some minor legislation fails to conform to the IEM rules. This finding only highlights the gravity of the internal issues confronting the previously noted countries at the state administrative level – their reach into the natural gas sector is deep.

3) Ineffective or entirely missing sectoral policies

As the evidence shows, a number of states in the south-eastern part of the region lack strong, clearly formulated sectoral policies or, if they have them, fail to follow through on them. Where these documents are available, they serve as a façade. This is especially true in states whose natural gas sectors are underdeveloped. It is thus hard to proceed with development no clear development plan is in place that sets out an overall vision of a regional gas market. This basically applies to all non-EU states in the region, the most obvious examples being Bosnia and Herzegovina, Moldova, Montenegro and, to some extent, Serbia. Although there are policy documents that mention the construction of interconnectors to join these countries to their neighbours, there is hardly any sign of a clear plan for the mid- to long-term future with market integration in mind. To an extent this understandable; given the low presence (Bosnia and Herzegovina, Serbia) or practical non-existence (Montenegro) of natural gas in their energy mix, their motivation is minimal. It is also understandable that these states would feel they need to resolve their internal issues before even thinking about launching into integration on a

broader scale. But with sectoral development in these countries is only loosely guided, it is no wonder they have had problems adapting to the IEM legislation. A clear example is Moldova, whose ambiguity on the policy level is undermining the country's very energy security basis. Because the sector demands long-term policies for predictability and stability, the uncertainty caused by these missing policies provides for an unstable investment environment, further hindering progress in building infrastructure (see below).

Another effect of the absence of clearly formulated, long-term policies is an inability to fight energy poverty. Although energy poverty is an imminent threat in several countries of south-eastern Europe, a comprehensive solution to the energy supply problem is often passed over in favour of short-term solutions and policy bargaining. Surprisingly, this issue is not exclusively bound to the very poorest non-EU states of the region. Bulgaria, a country that joined the EU in 2007, is one of the most energy impoverished countries in Europe⁵. Naturally, Bulgaria is not the only country facing energy poverty in the region. But it still presents a good example of how ineffective administration and slow progress in realizing interconnectivity can amplify the impact of related issues, especially when the source in case is so important for some of the most sensitive subsectors like heating. Here, the problem is further coupled with dependence on a single supplier, which places the country in a hazardous position should any curtailment occur. This was borne out during the 2009 gas crisis. Excessive dependence on a single supplier (Russia) is also likely reflected in the relatively high price the country pays for gas. Gazprom charges Bulgaria more than USD 400/tcm (Radio Free Europe, Radio Liberty, 2015) – the average price for European customers is more than 100 USD lower (Mazneva, 2014). Such conditions obviously do not constitute a firm basis for solving the energy poverty issue. Although it is likely that interconnecting with neighbouring countries would enable gas to be gotten from various sources and might improve at least the security of supply, not much has happened in recent years. The widely debated interconnector to Greece is still pending, its date of operation still unknown, and full operation of the interconnector to Romania has been postponed until 2019 due to lack of pipeline pressure on the Romanian side⁶ (Bernovici, 2016; Gotev, 2016).

The prevailing impression is therefore that an absence of focused guidance, coupled to a lack of political will and various sector-specific issues, poses the greatest challenge to the harmonization of legislation. It is these hurdles that stand, then, in the way of the 'software' of the market, i.e. the rules, policies, and legislation. Another reason for the apparent inability to implement the needed measures seems to lie in the missing

⁵ Over 1/3 of Bulgarian households are unable to keep their homes adequately warm and 60% of households use wood for cooking and heating (Vassilev, Traikov, Mancheva, & Holliday, 2014, p. 32).

⁶ Here, the reason lies rather in the Romania's reluctance to proceed with natural gas exports (see above).

or inadequate infrastructure and the lack of strong incentives to do anything about the situation. These issues are described below.

4) Instability, corruption and politicization as additional obstacles to development

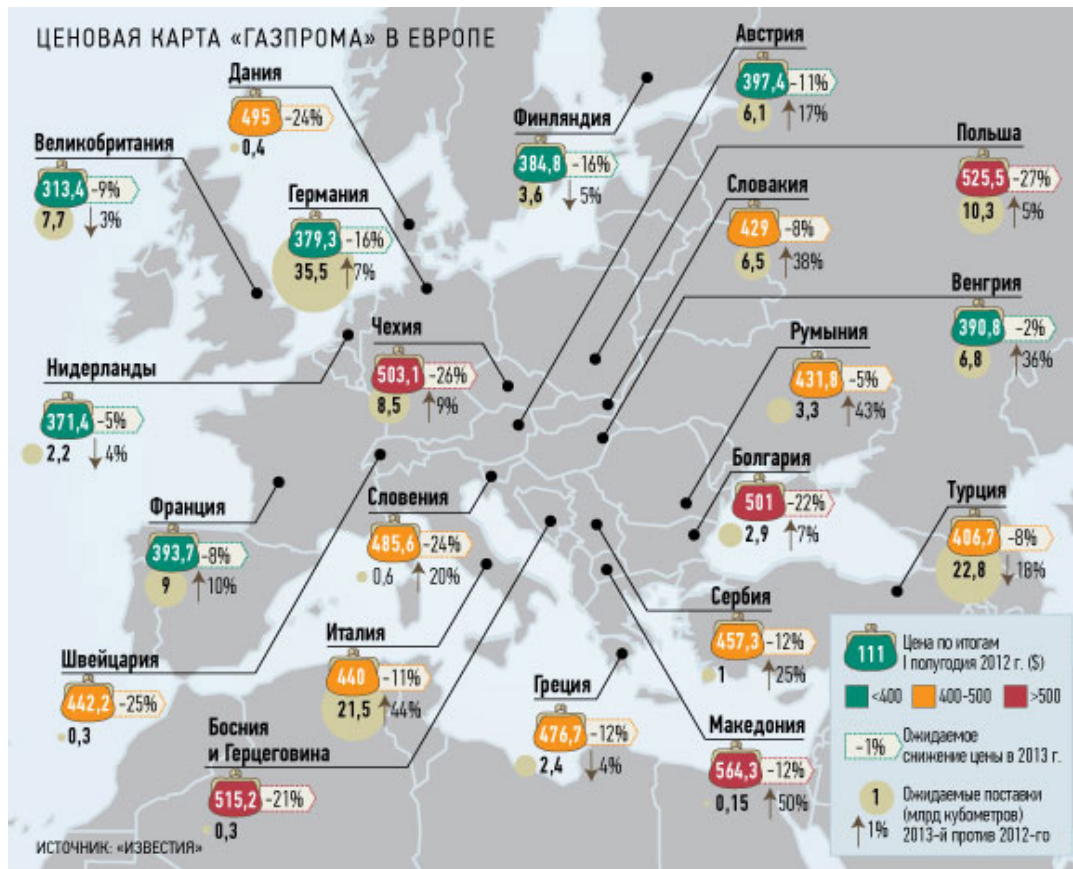
a) Supply deals are often influenced by corruption & non-transparency

The traditional method of gas marketing based on long-term contracts was not entirely transparent: the formula for calculating individual prices was not entirely clear, and case-specific conditions very probably did influence contracts. Figure 4 shows the price divergence of Gazprom natural gas among European countries in 2014. This graphic contradicts the widespread notion that Gazprom charges its customers based on their relationship with Russia. Although there are states such as Hungary with a good or at least nonproblematic relationship that are paying a fairly decent price, many states with traditionally close ties like Serbia, Greece, and Macedonia pay prices that are among the highest. What motivates these price differences remains largely unknown – the specific conditions are usually kept confidential, thus highlighting the transparency problem.

This lack of transparency impacts more than just price, though. In countries such as Serbia and Romania, the activities of intermediaries working in the sector are murky. They serve as middlemen, reselling gas to suppliers based on a contract with Gazprom, as the country's supplier (Bloomberg, n.d.; Jirušek, et al., 2015, p. 566). It is worth noting that Russian-based capital often lies behind these intermediaries. Serbia is likely the clearest example of non-transparent conduct by an intermediary. Yugorosgaz⁷ operates as an intermediary in the country between Gazprom and state-owned Srbijagas, sells gas to the national gas company, and at the same time operates pipelines in the country's south, for which it buys natural gas at a price alleged to be even lower than what Srbijagas pays Yugorosgaz⁸ (Serbia Energy, 2013).

⁷ Yugorosgaz is a joint-venture of Gazprom (50%), Srbijagas (25%), and the Centrex Group, a Vienna-based international investment group focused on the natural gas sector that is believed to work closely with Gazprom, although often through a nontransparent network of subsidiaries registered in various tax-havens (Tillack, 2007; Yugorosgaz, n.d. a).

⁸ Due to this setup, the country is not in compliance with the Internal energy market rules, most notably the unbundling rule.

Figure 4: Examples of gas prices paid for Russian gas in Europe in 2014

Source: (BNE Intellinews, 2014)

b) Coupling infrastructural projects with politics

The general objective of the Internal Energy Market is to create a common space in which energy can be traded based on conditions that it is widely recognized would equalize the playing field for all actors, in a way that is immune to distortions and special interests. Secondly, by improving mutual interconnectivity and internal flexibility, the dependent countries would be released from their bonds to what are currently their sole suppliers and would thus be far less susceptible to any politicization of energy supplies – a problem that is frequent in the SEE. Any effort, therefore, to link supplies or the construction of new infrastructural projects to specific interests goes directly against the IEM's overarching effort.

Probably the most infamous such project was the South Stream pipeline. This project aimed to bring Russian gas through the Black Sea to Bulgaria and further on to central Europe and had a long track record of being used as both carrot and stick in the course of negotiations. Moreover, there were political divisions: with its generally pro-European rhetoric, the Bulgarian centre-right party GERB of Boyko Borisov took a cautious

stance, while the socialist party was openly in favour of building the pipeline and even engaged in backroom negotiations leading, eventually, to corruption. Ultimately, all the states along the pipeline's planned route signed bilateral deals with Gazprom later found in breach of the IEM by the European Commission. Although it was this legal conflict, coupled with alleged financial struggles, that in fact spelled the end of the project, this did not dissuade Vladimir Putin from scapegoating Bulgaria for its failure. The affair is thus a clear example of how a pipeline deal should not be negotiated. The non-transparency, conditionality, and politicisation involved definitely ran counter to the very principles of the Internal Energy Market.

Although the South Stream pipeline project is probably the best example of a gas-related project falling prey to international political clashes, these can happen on the national level, as well. Here it is internal state infrastructure and policies that are mostly the centre of attention. The standout example is probably Bosnia and Herzegovina, where the usual political cleavages are highlighted by ethnic disputes between individual state entities and ethnic groups. Serb-dominated Republika Srpska traditionally roots for Serbia and Russia and thus favours projects of Russian origin. The Federation of Bosnia and Herzegovina, by contrast, where Croats and Bosniaks constitute the majority, is more pro-European. This division resulted in unilateral negotiations by Republika Srpska representatives on building a spur line of the South Stream to Republika Srpska (Jukic, 2012). It was presented by the entity's president, Milorad Dodik, as a great success and had the effect of helping his approval ratings. But it was clear from the start that the deal is a long ways from fruition, and it is likely that the entire endeavour was really a show put on for Dodik's potential voters.

Romania is another example. Its lack of willingness to speed up the construction of interconnections, compression stations, and market openings means that there is reduced availability of subsidized, domestically-produced natural gas for domestic consumers (mainly households) and thus a need for more extensive imports of more expensive gas from abroad. Here, the cleavage runs between Romania and the European Commission.

These political clashes over sector development often centre on short-sighted political disputes in which long-term vision is sacrificed for short-term political gain. This is especially true in the SEE, where the political culture is not as developed as in established democracies, and where consensus is scarce.

5) Insufficient infrastructure

The infrastructure in SEE is mostly east-west oriented, enabling these states to import the commodity predominantly from a single source: Russia. The situation is deeply embedded in the sector's developmental history. Although natural gas came into substantive use in the region at the same Western Europe was being connected to the Soviet Union, no major change came with respect to pipelines (Högsleius, 2013, pp. 89–103). The original Brotherhood pipeline was intended to supply western markets and soviet satellites along the way. After the fall of communism, the former communist countries followed various paths of development. Only a few achieved supply diversification. The Czech Republic and Slovenia are examples of successful diversification efforts that date back to 1990s and later enabled these countries to enjoy the benefits of source and route diversification⁹ (Cimerman, 2009; Plinovodi, n.d.; Strejček, 2011). Apart from increased supply security, diversification is probably the reason that the supply of Russian gas to these countries has remained depoliticized ever since.

Figure 5: Major natural gas transit pipelines transiting gas through Ukraine



Source: (US Energy Information Administration, 2014)

⁹ Slovenia, for its part, poses a unique case as it not only reached source diversification in 1992 but also reached a milestone in 2014 when two thirds of its gas supplies came from the Austrian gas hub in Baumgarten (Agencija za energijo, 2014, p. 5).

One-third of the post-communist countries in the Danube Region, however, remain 100% dependent on Russian gas with no viable alternative. They are Bulgaria, Serbia, Bosnia and Herzegovina, and Moldova. Natural gas may not play a crucial role in the overall energy mix in these states, but outages and supply cuts do pose a serious threat to industry as well as to the heating and household sectors, usually the two biggest natural gas consumers. To make matters worse, the economic output of these states is characterized by the pronounced role played by the industrial sector. This economic structure was considerably influenced by the Soviet model and its use of central planning, which focused on industrial production. Because of this, the economies of the former communist states in the SEE (as well as those in the CEE) are highly energy-intensive (i.e. a relatively large amount of energy is needed per unit of production) (Ürge-Vorsatz, Miladinova, & Paizs, 2005). Since the use of natural gas in the industrial sector is intensive, it becomes a crucial factor in production, one for which a supply curtailment might have a severe impact both within the industry and on the economy as a whole. A similar impact might be felt on households and heating systems, also ordinarily leading consumers of natural gas. Here, there may also be a substantial political impact – freezing citizens are a serious issue for any government.

Among the developmental woes of the natural gas sector in the Danube Region, development is uneven in terms of the countries' internal infrastructure, as well. Some states are crisscrossed with pipelines, others are less developed. The first group most notably includes the Western portion of the region, particularly southern Germany, and Central Europe. The other mainly consists of the states of former Yugoslavia. But density is not the only factor of importance. Flexibility, too, is key – it enables states to be fully functional in market terms by obtaining gas from various sources and directions using a variety of supply routes. Therefore, although some SEE states boast a relatively dense domestic infrastructure, it is sometimes insufficiently flexible, either by being dependent on a single supplier, lacking interconnectivity, or both. Clear examples are Bulgaria and Romania. The first, Bulgaria, has a relatively developed domestic infrastructure but remains unilaterally dependent on a single supplier with no interconnections to neighbouring states. This not only makes it unfit for the Internal Energy Market but leaves it extremely vulnerable, as was evident during the infamous 2009 gas crisis (Pirani, Stern, & Yafimava, 2009, p. 54). (European Commission, 2015, p. 227). In addition, Bulgaria falls short with regard to interconnectivity, because it has been slow to build interconnections. The two interconnectors that could improve the country's energy security and the interconnection with neighbouring states that is necessary still have not been completed or are not fully operational.

The second case, Romania, is relatively a country with a relatively low level of dependence. The amount of gas that needs to be imported annually to cover peak winter demand is in the single digits. A lack of interconnectivity thus does not affect its own energy security to any great extent. It does, however, undermine the energy security of neighbouring countries¹⁰ that could potentially benefit from non-Russian gas and eventually create a regional market cluster.

Figure 6: Natural gas infrastructure in central and south-eastern Europe.



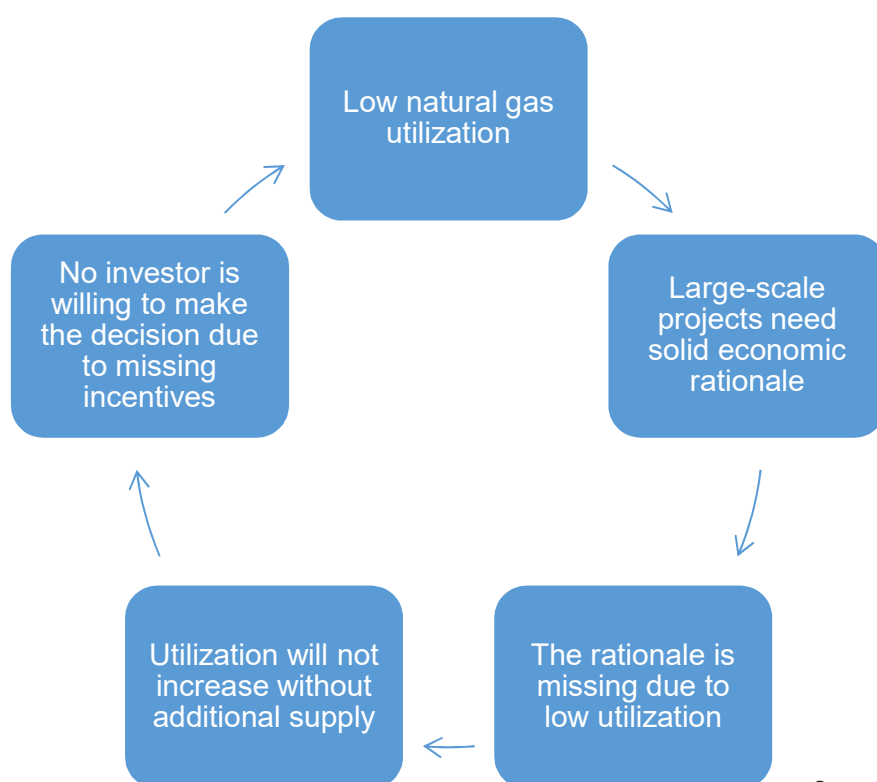
(ENTSOG, 2016)

¹⁰ Although the interconnection between Romania and Moldova was put into operation in 2014, the interconnector has not progressed to the second phase. Although this pipeline may be a game-changing move for Moldova, it is yet to be connected to the main centre of consumption in the country's capital.

6) Vicious circle of low natural gas utilization and sector development

It is a fact that in terms of the size and consumption, the natural gas sector of the SEE states cannot match that of Western Europe. Apart from formative events on the grand scale like the 2009 gas crisis, the natural gas sector in the SEE countries has mostly remained on the back burner, sidelined in favour of topics like general economic output and crises, ethnic issues, criminality, and recently migration. The overall consumption and relative share of natural gas in these countries' energy mixes is relatively low. Apart from Romania,¹¹ consumption levels in other states in the region sit at around 2–3 bcm per year.¹² Low relative utilization of natural gas is especially common with the countries of former Yugoslavia which, apart from Slovenia and Croatia, also suffer from poor diversification. Apparently, increasing utilization is dependent upon the availability of gas and the demand in pertinent markets. However, it appears that construction of the local and transit infrastructure needed for higher utilization faces several obstacles. In fact, the problem resembles a vicious circle which is displayed below.

Figure 7: Obstacles to gas utilization in SEE



Source: the author

¹¹ The Romania's annual consumption is around 13 bcm, which, however, mostly come from domestic sources (Natural Gas Europe, 2014; Pachiu, Dudau, & Mustaciosu, 2014)

¹² The smallest consumers of the region – Slovenia and Bosnia and Herzegovina – are consuming 0,8 and 0,18 bcm per year respectively (Energy Community Secretariat, 2015, p. 62; Geoplin, n.d.).

Figure 8: Energy Community Gas Ring

Source: (Energy Community, 2008)

Demand in the region is inadequate because too few customers are connected to the grid in the individual countries, lowering consumption. Consumption will not increase until more consumers can get affordable gas, and this demands that domestic infrastructure be built and that more gas be brought into the country via expanded or additional transit infrastructure. However, the building of new infrastructure requires financing that is challenging to find, because the low utilization levels do not justify the investment. Plainly said, the region lacks incentives for infrastructural projects that would change the situation, both internal and external. Anchor loads (the threshold for making projects viable) for projects like the Energy Community Gas Ring and the Ionian-Adriatic Pipeline¹³ (see below) are currently higher than demand (Economic Consulting Associates, 2009, p. 44; Giamouridis & Paleoyannis, 2011), as are the anchor

¹³ The Energy Community Gas Ring project is aimed at gasification, diversification, and infrastructure enhancement within the Western Balkan region, building on multiple existing and proposed projects intended to supply states in the Western Balkans with natural gas of varied origin. It would connect seven countries (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, and Serbia), allowing them to get both Russian and non-Russian gas and would form a ring infrastructure facilitating the gasification of the entire Western Balkan region.

The Ionian-Adriatic Pipeline aims to connect the Western Balkan states with TAP and with existing (and planned) infrastructure in the Balkans. The pipeline is to be laid along the Adriatic coast.

loads for new LNG terminals.¹⁴ Needless to say, without this infrastructure, the SEE will remain a region of segregated markets, small in size and unable to become an integral part of the planned integrated market in the Danube Region.

7) Lack of indigenous resources

Despite reports of potentially promising natural gas reserves in some parts of the SEE, the region generally lacks production adequate to meet demand or to spur infrastructural development. There are, however, regions with potentially significant resources. These are mainly in Romania, Croatia, Montenegro, and to some extent in Serbia.

Romania has around 100 bcm of conventional gas reserves and estimated overall reserves of 1.5 trillion cubic metres of shale gas. Thanks to structural changes in the Romanian economy and declining demand in power generation,¹⁵ gas imports have been generally declining since 2006 (U.S. Energy Information Administration, 2014). Furthermore, future prospects seem positive: promising offshore sources might be available in the Black Sea.¹⁶ Domestic production also rose slightly recently as methods to enhance the production of old wells were implemented (Dudau, 2014). As for unconventional sources, although Romania has gone quite far with shale gas development, economics, a previous moratorium on extraction, and some public opposition have so far prevented this source from being added to the country's gas portfolio¹⁷ (Higgins, 2014). Along with the previously noted slow progress in creating interconnectivity, these issues have held back Romania's potential. Given the country's annual domestic consumption, which is around 3 bcm per year higher than current production, it is unlikely the country will be a game-changer for the SEE in terms of supply security in the short-to medium-term future (Natural Gas Europe, 2014 b; Pachiou, Dudau, & Mustaciosu, 2014).

¹⁴ The needed anchor load for a new LNG terminal is around 5 bcm per year, around twice the size of the demand the Western Balkan states could provide given anticipated growth in demand (The World Bank, 2010, p. 134).

¹⁵ The trend towards declining gas demand in power generation accelerated in 2000s with the commissioning of a new reactor at the Cernavoda NPP and the advent of renewables. However, it is possible that the need for gas-fired power plants able to meet the changing load in the grid related to the higher use of renewables will rise in the future.

¹⁶ With regard to Black Sea resources, it is worth mentioning that the annexation of Crimea means a substantial change in the ownership of underwater resources on the continental shelf. This applies to gas plays, as well. Most are located in the Eastern section of the sea. Romania, for its part, will likely need to decide whether to recognize the annexation of Crimea or not, if it is to reach deals related to natural resources.

¹⁷ In February 2015, the U.S. energy giant Chevron gave up its shale gas exploration plans in Romania because of a lack of economic viability (Marinas & Pomeroy, 2015). Apart from this US major, more than ten other corporations remain active in terms of shale gas exploration (Natural Gas Europe, 2013 d). Nevertheless, significant shale gas production is still pending.

A similar situation may be found in Croatia. The country produces around 2 bcm per year of natural gas and consumes around 1 bcm per year more (Index Mundi, 2016), while exporting a rather modest amount. In 2013, exports totalled 0.3 bcm but production rates have been declining in recent years, while consumption rates have headed in the opposite direction¹⁸ (Rajal & Šantić, 2016). The country is thus expected to become more import-dependent in the future if no other significant gas fields come online. Although the country possesses some potentially promising natural gas reserves, their scope is yet to be determined¹⁹ (Indeo, 2015; Rajal & Šantić, 2016). That said, Croatia might nevertheless play an important role when the LNG terminal planned for the island of Krk is finished. The terminal, with an envisaged capacity of 4–6 bcm per year, would not only make a great contribution to Croatia's supply portfolio, but if its capacity is expanded, it could help bring gas of varied origin all the way to Hungary, Slovakia, and (via reverse flow through the previously noted countries) even as far as Ukraine (Plinacro, 2014, p. 46). Similarly, the terminal might facilitate building of the Omišalj – Casal Borsetti interconnector, which would connect the facility directly to the Italian gas grid (Kolednjak, et al., 2014, p. 209). In any case, the terminal would make a great contribution to the Energy Community's Gas Ring project (European network of transmission system operators for gas, 2012, p. 13). Plans also call for the terminal to serve as an entry point to the North-South Corridor (see Figure 9), an initiative encompassing a series of related infrastructural projects connecting countries within Central Europe.²⁰ Nevertheless, the Croatian LNG terminal project is now in the preparatory phase, and after some delay, the bidding process for potential investors was finished in early 2016²¹ (Reuters, 2016 a). To speed up the project, the Croatian government switched plans and now aims to build a floating terminal whose construction timetable would be shorter than an onshore terminal and might be ready for operation in 2018 (Fisher, 2016).

¹⁸ The country had the second-highest growth in consumption of any EU member in 2015 (European Commission, 2014).

¹⁹ For the time being, further exploration work is underway in the Adriatic Sea (Natural Gas World, 2015 c).

²⁰ This infrastructural project is intended to provide the central European states with greater mutual interconnectivity and the ability to acquire supplies from related LNG terminals, one being the above-noted Adria LNG terminal on the island of Krk, the other the LNG terminal in Swinoujscie, Poland, which was put into operation in late 2015 (Černoč, et al., 2011, p. 186; Denková, 2015 b)

²¹ The bidders had not been disclosed at the time of writing.

Figure 9: North-South gas corridor

Source: (Posaner, 2015)

Another country in the region that would surely appreciate the availability of alternative sources of gas supply, and that sits on a potentially promising shale gas play, is Bulgaria. Reportedly, Bulgaria may boast up to 481 bcm of shale gas (U.S: Energy Information Administration, 2013). However, this vast potential is still untapped due to a moratorium on not only shale gas extraction but exploration the issued by the Bulgarian government in 2012. The moratorium was recently prolonged and the future of shale gas extraction in Bulgaria thus remain unclear (Reuters, 2012; Novinite, 2015 b; Shale Gas Europe, 2014).

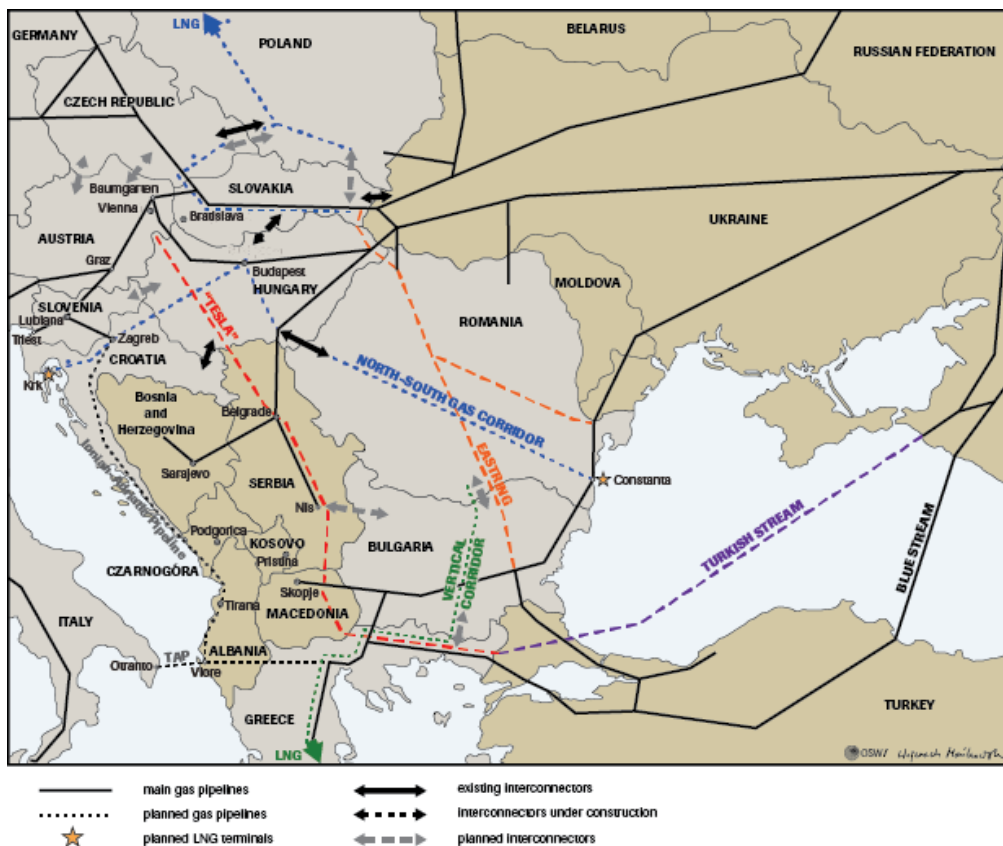
In Montenegro, the Ministry of Economy and Development says that the country is sitting on about 400 bcm of natural gas reserves. Currently, exploration is still underway, so the total amount is yet to be determined (Ministarstvo za ekonomski razvoj – Crna Gora, 2007, p. 34). As in the case of Croatia, exploration has focused on the area off Montenegro's Adriatic coast. However, the yet unclear potential of the country's offshore plays is not the only obstacle. Montenegro is a non-gasified country with no current infrastructure in place, therefore any estimates of the country's future production and its impact on the region are more than premature.

Although not part of the Danube Region, Greece undoubtedly must be taken into account because of its position along the current and planned transit pipelines and its access to various sources of supply, including LNG. Currently, Greece imports natural gas from Russia's Gazprom, Turkey's BOTAS and Algeria's Sonatrach. The country is also able to procure deliveries via its LNG terminal Revythoussa²² (Prometheus Gas, 2014).

²² Recently, Greece has introduced plans to build a floating LNG terminal harboured in Northern Greece

This well-diversified import portfolio and relative proximity to the Danube Region make Greece an important part of the region's future plans to enhance its natural gas infrastructure. More specifically, Greece may play a major role in the planned Ionian-Adriatic Pipeline (IAP), a spur line connected to the Trans-Adriatic Pipeline (TAP). The countries that will lie along the IAP's route are Croatia, Bosnia & Herzegovina, Albania, and Montenegro. However, contrary to the TAP already under construction (Trans Adriatic Pipeline, 2016), the IAP's future is unclear, as it needs to aggregate demand to demonstrate economic viability before construction can commence. Greece is also likely to feed the planned gas corridor supplying gas northwards through Bulgaria and Romania, though the necessary infrastructure is yet to be put into operation (see the subsection on insufficient infrastructure).

Figure 10: Map of existing and proposed pipelines in South-eastern Europe



Source: (Daborowski, 2015)

near Alexandroupolis and possibly another near Kavala (Gas Trade, 2013). The proximity of this facility to Turkey – and therefore to the TAP/TANAP and Turkish Stream pipelines – makes the project a priority for the Greek government and potentially for the European Union, as well (Gas Trade, 2012; Gas Trade, n.d.).

8) Lack of reliable information sources

An often overlooked issue is a lack of data and information sources covering the SEE portion of the Danube Region. Though the problem may seem marginal compared to the lack of infrastructure, political will and non-harmonized legislation described above, the absence of solid up-to-date information is a major hindrance to an integrated market. Without it, much-needed reforms cannot be carried out. It is no coincidence that the most obvious cases were found in states that also lack comprehensive sector policies – Bosnia and Herzegovina, Moldova, and Serbia. Here, some of the basic pieces of information were hard to find, outdated or diverged based on the source. The availability of information also strongly correlated with the general level of transparency in the sector.

Recommendations

Since the chief hindrances to the development of the natural gas market in the Danube Region are centred in those countries that lie in its south-eastern section, what follows concerns mainly those countries.

1) Implement and enforce the IEM rules

With the introduction of the so-called Third Liberalization Package into the natural gas sector in 2009, the European Commission outlined clear rules for the Internal energy market, including those that affect natural gas trading (EUR-Lex, 2009). The Package targeted market incumbents that had dominated the market in the past, including Gazprom, which is also dominant in the SEE. Gazprom was not alone in utilizing the targeted marketing tools. They were also used by other suppliers, basically to offset the cost of infrastructure and to secure a certain level of stability and economic viability for their contracts. Gazprom, along with similar companies, held a position within which it could dictate the rules and was, in essence, the creator of the environment. After introducing the Third Energy Package, the situation changed in that the suppliers, including Gazprom, no longer created the environment. Rather, given that every actor active within the market was now subject to rules imposed by a superior authority – the European Commission – the former market creators essentially became market subjects alongside the others (Jirušek, et al., 2015, pp. 384–388).

No doubt in formulating its pro-market rules, the IEM took negative inspiration from Gazprom's conduct. For this reason, although the rules did not explicitly target Gazprom, the Russian giant has felt particularly endangered: the tools the commission prohibited are precisely those the company was accustomed to using. They included control over infrastructure, destination clauses, and prohibitions on reselling gas. The European Commission also pointed to the linkage (indexation) of gas prices to oil prices as one of the causes of unfair pricing²³ (Jirušek, et al., 2015, pp. 384–388). The very logic of the integrated, flexible market also questioned long-term contracts, instead putting forth as the preferred scenario a flexible, competitive market open to anyone willing to enter, with customers buying gas based on their actual needs. Long-term contracts have thus come under growing pressure from the European Commission (Jirušek, et al., 2015, pp. 382–388; Talus, 2011).

Evidence from the post-communist EU members reveals that the introduction of the IEM rules (specifically the Third Energy Package) strengthened the position of consumers at the expense of suppliers, effectively helping them to acquire better prices and conditions of supply, and increasing transparency on the market in general. Naturally, the availability of varied sources of supply is still a key precondition for energy security, but it appears that even countries in a less favourable situation derive solid benefits from the IEM. Naturally, any supplier aims at securing the maximum capitalization, and Gazprom, as the dominant player in the Danube Region, is no exception. In April 2015, Gazprom was accused of abusing its dominance in the Central and Eastern European gas supply markets, namely the market involving Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, and Slovakia. The Commission stated that Gazprom had imposed territorial restrictions on gas, an unfair pricing policy, and various conditions in its supply contracts to these countries (European Commission, 2015). In the spring of 2017, the Russian company signalled that it was inclined to agree with a settlement, revealing an important shift in its strategy in the post-communist area of Europe. It seems that although the Russian gas giant is naturally not keen to abandon its dominant position, it will eventually come under the sway of the rules that now form the playing field (Denková, Gotev, Kokoszczyński, & Szalai, 2017). This is important to note for all countries that have struggled with dependency on Russian supplies and that have been complaining about the prices they pay for deliveries.

It is important to recognize that, by introducing the IEM rules, the European Commission has not only challenged the traditional market incumbents. More importantly, it has levelled the playing field by setting transparent, universal rules.

²³ The questioning was based on accusations that Gazprom misused its position with the group of Central and Eastern European states (Jirušek, et al., 2015, pp. 384–388).

Theoretically, when implemented and backed by functioning infrastructure and a diversified gas portfolio, these rules should prohibit the non-transparent price-setting the European Commission accused Gazprom of engaging in and that has been the rule in the SEE. Therefore, well-implemented IEM rules should definitely be an objective of the SEE markets.

Despite what has been said about the lag in implementing the Internal Energy Market rules in some countries, these should be nevertheless credited for providing clear guidance for the sector's development. For most of the post-communist countries of the region, the IEM rules have served as a visible goal for their reform efforts in years past. Any state wishing to join the market must subscribe to these rules and implement the pertinent legislation. Therefore the rules provide a comprehensive 'checklist' that allows progress in individual countries to be monitored. All of the countries under examination have either already subjected themselves to the rules as EU members, subscribed to them as members of the Energy Community, or are in the process of doing so.

2) Increase and maintain transparency within the sector

Non-transparency or outright corruption are barriers that stand in the way of a flexible, open, competitive market. Unfortunately, in the SEE, non-transparency is often the rule. Shady intermediaries, as in the case of Serbia or Romania; politicization of supplies, as in Bulgaria or Moldova; the personal aspirations of local leaders, nepotism, and cronyism as in the case of Bosnia and Herzegovina – these are all examples of non-transparent conduct that should be eradicated, and not just in the energy sector. The existence of non-transparent proceedings also deters the foreign investors the SEE needs, particularly for the construction of new infrastructural projects. To sum up, if the countries of the SEE are to become integrated in a functioning market, they need to eliminate the problem.

3) Invest in domestic infrastructure; aggregate demand within larger clusters

The SEE region is trapped in a vicious circle of low demand, underfinancing and a related lack incentives for infrastructural development. Because of this, proposed large trans-border pipelines that could supply the region with additional gas are often deemed not economically viable. To overcome this problem, the SEE states should focus on enhancing their domestic infrastructure and connecting as many consumers to the grid as possible to aggregate enough demand so that further investment is justified. Demand

may also be aggregated by creating regional clusters of states that, together, would make transit pipelines viable by providing the needed anchor load. The states of the Western Balkans especially cannot provide sufficient demand on their own. A project like the Energy Community Gas Ring would seem to meet the need. The project builds on existing infrastructure and interconnects neighbouring states while using various entry points and utilizing natural gas from various points of origin. The project thus promises to significantly improve the supply situation in the Western Balkans and by doing so may better the situation in the SEE as a whole by effectively utilizing existing infrastructure and targeted investment. By interconnecting several states into a circular infrastructural system, it also aggregates demand and provides a potential springboard for future projects.

4) Increase interconnectivity to take advantage of gas supplies of varied origin and transport it in various directions (source & route diversification)

The basic precondition for a functioning market in the proper sense of the word is infrastructure that can handle flexible supplies of gas based on the demand–supply nexus. Here, the biggest obstacle lies in the uneven development within the Danube Region. The SEE, especially the states of former Yugoslavia, not only need to improve their domestic infrastructure as mentioned above, but also to improve their mutual interconnectivity. This interconnectivity and flexibility (the ability to supply gas in various directions based on current need) is also fundamental to alleviating the prevailing dependency on a single supplier and the east-west orientation of the flow of natural gas.

Though the issue has been apparent for some time, progress has been relatively slow, as is evident from what has been said about Bulgaria, Serbia, Bosnia and Herzegovina, Romania, and Moldova. The reasons for these slowed and in some cases stalled projects have been varied and have arisen despite obvious need. The SEE states must thus focus on completing the interconnections. As noted above, an interconnected region can aggregate demand much more easily and therefore provide financial viability through higher anchor loads than individual states or a region that remains fragmented.

5) Implement stable, predictable sectoral policies

Although the goal of an integrated energy market helps to set guidelines and provides an objective to which the states in the region may approximate, comprehensive

sectoral policies are still lacking. The need for them is urgent, particularly in countries with an underdeveloped natural gas sector. Although the IEM rules serve well in the ways described above, every country needs a comprehensive energy policy that also outlines measures on a more granular level and in country-specific cases that cannot be addressed by the more narrowly oriented IEM rules. Such a policy should target the country's biggest issues and not just the energy subsector, since energy security in natural gas must be treated contextually, taking into account the overall situation in the country and the energy sector as a whole. Finally, state policies provide the stability and predictability needed to encourage investment. In cash-strapped SEE states in urgent need of infrastructure investment, this is a matter of prime importance.

6) Improve the exchange of information and data

Because of the poor information coverage of some states in the SEE region, it is highly advisable that comprehensive information services and information-sharing be introduced. States with developed natural gas sectors and functioning markets might serve as role models for others that lag in various respects. Here, we see clear potential for the Danube Region to follow up on the important assistance provided by the Energy Community, which helps to bring non-EU states closer to the IEM. The Danube Region should serve as a platform for exchanging information and sharing knowledge, experience, and best practices in introducing the IEM rules and policies related to the development of the natural gas sector. The Danube Region seems a suitable platform for this goal, as it includes states that are at various stages of gas market development, thus providing a wide variety of go-to examples and experiential resources that less developed countries can utilize.

Opportunities

The Danube Region has been presented in what has been written so far as a rather incoherent group of states with disparate historical experiences which find themselves at various stages of development economically and in terms of their natural gas sectors. But there are several opportunities that might substantially alter the current situation for the better. They are listed below.

1) New sources of gas in the Black and Adriatic Seas & LNG deliveries with the potential to spur development in underdeveloped regions

As hinted at in the sections on Romania, Croatia, Montenegro, and Bulgaria, these states have potentially substantive reserves of natural gas in both conventional and unconventional sources. When fully developed, these might substantially increase available volumes on the market and the subsequent use of natural gas in general. Higher availability might also spur infrastructural development. Related revenues and possibly lower import dependence might improve the economic situation of the countries in question.

Unfortunately, the decisive factor in all of these cases is the economic viability of individual projects, in other words, the cost of developing those natural gas fields, and progress in this regard has been rather slow. When the most promising fields are located offshore, the task of ensuring viability is definitely not easy. The inadequacy of the infrastructure would again pose an obstacle to getting the gas to the customers. Such new sources also face tough competition from Gazprom, which is well established in the marketplace and unlikely to give up its positions easily. And as the evidence shows, Gazprom is able to manipulate the price and conditions of supply in order to secure its position. The outlook for new sources therefore remains rather unclear.

Moreover, it is not just viability that poses a threat to the development of new indigenous sources of supply. As was shown with shale gas development in Bulgaria and Romania, organized public opposition, although fairly unusual in this part of Europe, may lead to postponement, as in Romania, or outright cancellation, like in the Bulgarian case.

2) Potential for large-scale transit pipelines

Another potential spur for the SEE, and one that might put this part of the continent on the map as regards the natural gas sector, is a series of infrastructural projects mostly aimed at transiting natural gas from various points of origin through the region. The opportunity here lies in building offtakes from these pipelines to bring more gas to the underdeveloped portions of the SEE. A quick look through the Projects of Common Interest (PCI), published by the European Commission (European Commission, 2013; European Commission, 2016), unveils a number of projects that vary in terms of routing, source of transited gas, transited amounts, length, etc. The most important – and most realistic – include:

a) Turkish Stream + Tesla Pipeline

Successive projects that were part of the cancelled South Stream build on the same logic of supplying Russian gas via the Southern route to Central Europe. The viability and logic of these projects is being questioned in a like manner to the South Stream itself (Kodůusková & Jirušek, 2014). Since the Turkish Stream itself is planned to terminate at the Turkey-Greece border, follow-up projects would be needed to reach European customers. It is here that the pipeline crossing Greece, Macedonia, Serbia, and Hungary and terminating in Austria, sometimes known as the Tesla Pipeline, is planned. Its future, however, remains unclear. It is likely to face the same compliance issues vis-à-vis the IEM rules as its cancelled predecessor (Natural Gas World, 2017).

b) Eastring

Backed by the Slovak government, this project aims to connect to the Turkish network at the Turkey-Bulgaria border in the south and bring gas through Bulgaria, Romania, and eastern Hungary, narrowly bypassing Ukraine. As such, the project is presented as “(...) an alternative to South Stream fully compliant with all EU rules and their spirit (...)”. Although it may effectively allow certain countries in the region to maintain their position as important gas transmitters (mainly Slovakia, the chief proponent of the pipeline), it would not provide source diversification, as it basically targets bringing in Russian gas from a different direction. In this its logic is similar to that of the South Stream pipeline. The project is currently in the early stages, undergoing feasibility studies (Eastring, 2017).

c) Energy Community Gas Ring

As described above, this project builds on various existing and planned infrastructural projects, eventually creating a ring-shaped infrastructure will connect the countries of the Western Balkans. From the standpoint of diversification (both source and route), relative affordability, and interconnectivity, this project seems the most promising. However, the anchor load for making the project happen is estimated at 2000 MW of additional gas-based power generation capacity, and that is currently missing. Furthermore, the grid investments needed to reach customers in inhabited areas located near the pipeline would require another USD 1.7 billion in investments (Energy Community, 2008).

d) IAP

The Ionian-Adriatic Pipeline (IAP) is planned as an offtake from the TAP and is already under construction. The IAP would mean spur supply to the West Balkans, especially Albania, Montenegro, Croatia, and Bosnia and Herzegovina. But though the TAP is under construction and its viability is secured chiefly by the gas it will carry to Italy, the IAP's future is much less certain. It was even dropped from the latest European Commissions Projects of Common Interest list (European Commission, 2013; European Commission, 2016).

e) Adria LNG + related infrastructure

The LNG terminal on the Croatian island of Krk would not only make a great contribution to the country's supply portfolio, if its capacity was expanded, it would help carry gas of varied origin north as far as Hungary, Slovakia, and (via reverse flow through these countries) even to Ukraine (Plinacro, 2014, p. 46). But the project has struggled with financing and viability and has also recently changed from on-shore regasification unit to a floating one.

Conclusion

On the preceding pages, we have identified the main obstacles to a functional, integrated gas market as lying in that portion of the region that overlaps the SEE, which is behind in both infrastructure and policymaking. The SEE states are also often beset by various internal problems that not only compromise their ability to pursue reform, they often imperil the very functioning of the state administration. Needless to say, such problems undermine predictability and thereby the attractiveness of investment. The corruption and lack of transparency in these countries has often led to politicization and the sacrifice of long-term developmental goals for the sake of day-to-day political bargaining. Case-specific hindrances that require a targeted approach to, e.g., ethnic divisions or the country's position in the international system, often make the situation even worse. And matters are exacerbated even further by the fairly underdeveloped state of the natural gas sector in the region and a lack of available financing. The latter is difficult to overcome, because the relatively low levels of demand provide little incentive for investment.

The SEE region thus requires a step-by-step approach to help to navigate its individual states through the needed reforms. These states should invest in their internal

infrastructure and interconnections to increase gas utilization and provide incentives for investment. Interconnected states would also better aggregate the demand, thereby justifying investment. All this should be done while implementing the IEM legislation, which sets clear rules and boundaries, and while making sure the sector is kept transparent and free of backroom negotiations, politicization, nepotism, cronyism, and corruption. Closer cooperation among the Danube Region states in exchanging their information and experience will be thus crucial.

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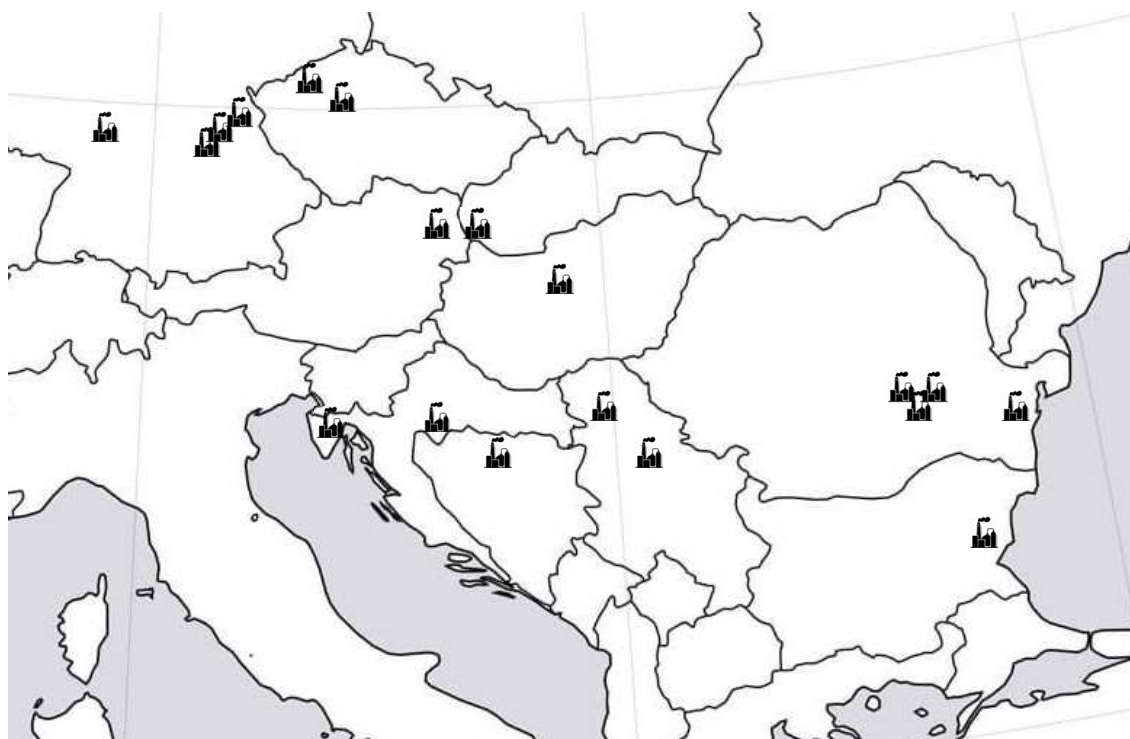
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FOR THE SAKE OF COMPARISON: SPECIFICS AND CHARACTERISTICS OF THE OIL SECTOR IN THE DANUBE REGION

TOMÁŠ VLČEK

Compared to the natural gas sector, the oil sector has its own characteristics. First of all, **crude oil is an easy-to-transport globally traded commodity**. Refineries may in principle process any type of oil, but the more this oil differs in character from that for which they were configured, the lower utilization is and the greater unit costs become. If the oil type were markedly different, operation of the refinery would be economically infeasible. A total change of technology is possible, but demanding in both time and money terms. (Vlček, 2015, p. 121) Therefore, the chemical composition of the crude oil related to the configuration of the refinery, and the price of the commodity is what decides the business.

Figure 11: Map of Operating Crude Oil Refineries in the Danube Region



Source: the autor

Only two countries in the Danube Region have relevant domestic resources of crude oil (more than 25% of domestic consumption). They are **Romania and Serbia**. Over 40% of consumption is covered from domestic sources in **Romania**, where proven reserves of oil are reported at 68 million tonnes. (BP, 2016, p. 6) A number of companies have prospected for oil in Romania, yet the vast majority of domestic production (98.5% in 2014) comes from OMV Petrom S.A. This company operates 232 commercial oil and gas fields in Romania. (OMV Petrom S.A., 2016, p. 24) Today, onshore exploration accounts for 96% of oil production in Romania. **Serbia** covers also over 40% of oil consumption from domestic sources, with 666 oil wells in 42 oil fields currently being exploited. (Naftna industrija Srbije a.d., n.d.) All exploration and exploitation are conducted by Naftna industrija Srbije a.d., whose major shareholder (56.15%) is PJSC Gazprom Neft, a subsidiary of OAO Gazprom. There is an interesting oil field with promise in Šamac in **Bosnia and Herzegovina's** Republika Srpska with estimated reserves of 500 million tons. A 28 year concession was awarded in 2011 by the authority in Banja Luka to Jadran Naftagas d.o.o. This company is owned by Russia's AO NeftegazInKor (Neftegazovaja Inovacionnaja Korporacija; 66%) and Serbia's Naftna industrija Srbije A.D. (34%). AO NeftegazInKor is a wholly owned subsidiary of the Russian state-owned OAO Zarubezhneft. Drilling started and the first oil was extracted near the village of Obudovac in 2015. (AO NeftegazInKor, n.d.; OAO Zarubezhneft, n.d.; Naftna industrija Srbije A.D., n.d.; "Prva naftna", 2014; "Bosnia 'Has", 2014; "NIS pronašao", 2015; "Joint Venture", 2013). Though some estimates give numbers that if correct would make this one of the largest onshore deposits in Europe, a major limitation that applies to all of Bosnia and Herzegovina is that there has been little or no research and exploration done at all in the promising oil reserve locations.

The paucity of domestic reserves makes **nearly all Danube Region countries dependent on crude oil imports**. Oil is however relatively easy to transport and diversify. Onshore refineries (Urinj, Petromidia, Burgas) have excellent access to maritime imports of crude oil, while inland refineries must rely on pipeline transport. The refineries in Germany, Austria, and the Czech Republic rely on the TAL pipeline; Hungarian, Slovak, and Czech refineries rely on the Druzhba pipeline; and the refineries in Croatia, Bosnia and Herzegovina, and Serbia rely on the JANAF pipeline system. **All these routes contain certain issues that have the potential to impact the security of supply**. For example, there are capacity issues on the TAL pipeline, a risk of disruptions and potential abandonment of the Druzhba pipeline, and the JANAF pipeline was subject to damage and cut-offs during the Yugoslav wars that prevented the supply of oil to Serbia and Bosnia and Herzegovina for a period of time. (Vlček, 2015)

The use of oil products is very simple and very well established throughout the region, including in its south-eastern portions, especially within the automotive and chemical industries. This is why the oil sector is understood to be a lucrative business and competition in the region is strong. Any subject unable to continue operations in the region will be quickly taken over by a different regional subject delighted with the opportunity to broaden its geographical scope and capitalization. This logic supports the **security of product supply for consumers**. It is, however, important to state that the **collapse of a refinery (for various reasons) usually has little impact on a country's energy security**. There are many other strong subjects in the region that will be able to supply the required petroleum products. With longer routes and cross-border transport, the price of these products could rise a little, but market forces will not leave the country without essential oil products. **The strongest impact of the collapse of a refinery is in the social dimension, particularly on employment.**

There are many **strong national champions coupled with strong foreign investors** (see Table 1). The list includes Hungary's MOL Rt (controlling also Croatian INA – Industrija nafte d.d. and Slovak Slovnaft, a.s.), Slovenia's Petrol d.d., Poland's PKN Orlen S.A. (which operates refineries in the Czech Republic), and Austria's OMV AG. These compete with Russian companies OAO NK Rosneft, AO NeftegazInKor, Naftna industrija Srbije a.d. (OAO Gazprom), and various subsidiaries of PAO Lukoil and PJSC Gazprom Neft; Kazakh company AO NK KayMunayGas (75% owner of Romania-based KMG International N.V.) and Switzerland-based Varo Energy Holding AG. The record of operations reveals a **highly competitive market**, where frequent takeovers of petrol station networks and changes in ownership structure take place. **The frequent purchases and ongoing development of retail networks in the Danube Region and the broader South-Eastern Europe region are manifestation of this strong competition.**

Table 1: List of Operating Crude Oil Refineries in the Danube Region

Refinery	Country	(Majority) Owner	Capacity (mty)
Karlsruhe (MiRO)	Germany	Shell Deutschland Oil GmbH*	16.0
Vohburg (Bayernoil)	Germany	Varo Energy Holding AG**	6.0
Ingolstadt (Bayernoil)	Germany	Varo Energy Holding AG**	4.0
Neustadt (Bayernoil)	Germany	Varo Energy Holding AG**	4.3
Litvínov	Czech Republic	PKN Orlen S.A.	5.5
Kralupy nad Vltavou	Czech Republic	PKN Orlen S.A.	3.3
Slovnaft (Bratislava)	Slovakia	MOL Rt	6.1
Schwechat	Austria	OMV AG	9.6
Duna (Százhalombatta)	Hungary	MOL Rt	8.1
Urinj (Rijeka)	Croatia	MOL Rt***	4.5
Sisak	Croatia	MOL Rt***	2.2
Novi Sad	Serbia	OAo Gazprom****	2.0
Pančevo	Serbia	OAo Gazprom****	4.8
Brod	Bosnia and Herzegovina	OAo Zarubezhneft*****	1.2
Petrobrazi (Ploiești)	Romania	OMV AG	4.5
Petromidia (Năvodari)	Romania	AO NK KazMunayGas*****	5.0
Petrotel (Ploiești)	Romania	PAO Lukoil	2.4
Vega (Ploiești)	Romania	AO NK KazMunayGas*****	0.3
Burgas	Bulgaria	PAO Lukoil	9.5

* Shell Deutschland Oil GmbH owns 32.25% of shares, the rest is owned by Esso Deutschland GmbH Hamburg (25%), Rosneft Deutschland GmbH Berlin (24%), and Phillips 66 Continental Holding GmbH Hamburg (18.75%)

** Varo Energy Holding AG owns 45% of shares, the rest is owned by Ruhr Oel GmbH (25%), Eni Deutschland GmbH (20%), and BP Europa SE (10%)

*** MOL Rt owns 49.1% of shares (though it has management rights), with the rest owned by the Government of the Republic of Croatia (44.8%) and private and institutional investors (6.1%)

**** OAo Gazprom owns 56.15% of shares through its subsidiary PJSC Gazprom Neft, and the rest is owned by the Republic of Serbia (29.87%) and other shareholders (13.98%)

***** Owned through AO NeftgazInKor, which owns 100% of Optima Grupa d.o.o., which owns 79.998602% of Rafinerija nafte Brod a.d.

***** AO NK KazMunayGas owns 48.1% through its subsidiary KMG International N.V. (until 2014 known as The Rompetrol Group N.V.), with the remainder owned by the Romanian Ministry of Energy, Small and Medium Enterprises and Business Environment (44.7%) and other shareholders (7.2%)

Source: the author

The **business is, however, regionally limited** as the result of logistical and technical issues. Given the rising price of final products with rising distance from the refinery, it is vital for all oil companies in the region to purchase or develop adequate retail chains. The control of both a refinery and a retail network within a reasonable distance is a guarantee that the products will be sold at the highest possible margin. The longer the distribution routes from the refinery to customers, the less competitive the products become due to transportation costs. Even though the existence of product pipeline networks in some countries extends the business radius, business entities are still strongest within a certain range from the refinery. The record of operations shows no investor purchases a distribution network without also purchasing a refinery. This way, product sales, income stability, and return on investment are ensured.

This logic contradicts the general perception of operations, especially in South-Eastern Europe, where some subjects, namely Russian state-owned enterprises, are accused of politicizing operations. **The ownership of a refinery itself is not a guarantee of return on investment in the oil market;** without the retail network to secure sales of its own products, business is difficult. **The development of the retail side by the individual companies, Russian and otherwise, that operate in the region is crucial to their survival.** The data on companies in the downstream sector of the Danube Region does not confirm the notion that political investment decisions control the market. Even in Serbia and Bosnia and Herzegovina, where the Russian presence is relatively strong and accepted, Russian state-owned companies, which own the refineries, have retail shares of 24% and 33.9% respectively. (Naftna industrija Srbije a.d., n.d.; Ministry of Energy, Development and Environmental Protection of the Republic of Serbia, 2013, p. 56; “*Bosnia’s G-Petrol*”, 2015) **The primary logic of operations in the oil market in the Danube Region is business and market capitalization.**

In general, subjects and business operations in the crude oil sector follow market logic. There is, however, a strong difference between the EU member countries and the Danube Region accession states in comparison to South-Eastern Europe, where the logic of the market is still different, and clientelism, nepotism, and corruption are an everyday part of doing business.

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About the authors

Mgr. Martin JIRUŠEK, Ph.D. holds Master's degree in European Studies and obtained his PhD by defending the thesis focusing on activities of the Russian state-owned companies in the natural gas sector in south-eastern Europe (SEE). Currently, he works as a specialist at the International Institute of Political Science of Masaryk University and lectures within the Energy Security Studies program at the Department of International Relations and European Studies, Faculty of Social Studies, Masaryk University. He also co-organizes the Masaryk University's annual summer school on energy security. Martin is professionally focused on energy security in the Central and Eastern Europe (CEE) and transatlantic dimension of energy security. He has also published articles on conceptual foundations of the energy policy of CEE and SEE countries and the European Union, the role of Russia in natural gas and nuclear sectors in CEE and SEE, and potential impacts of US energy exports. Martin has been also in charge of several research and educational grants focused on the aforementioned regions.

Contact: jirusek.martin@mail.muni.cz

PhDr. Tomáš Vlček, Ph.D. is Assistant Professor at the Department of International Relations and European Studies in the Energy Security Studies, International Relations and Energy Security and International Relations programs. He also works at the International Institute of Political Science of Masaryk University and is a member of the Center for Energy Studies, an independent research platform, and of the Czech Nuclear Education Network academic association. His research specialization focuses on the nuclear and oil sectors from a commodity perspective, and the energy security of Central and Eastern and South Eastern Europe from geographical perspective. He initiated and manages the widely respected International Summer School of Energy Security of the Masaryk University. Tomáš has taken part in numerous government and academic projects on energy security and energy policy and has undertaken a number of research forays to Russia, USA, and countries in Europe, especially the Central and Eastern Europe, as well as South Eastern Europe.

Contact: tomas.vlcek@mail.muni.cz

MARTIN JIRUŠEK, TOMÁŠ VLČEK

**CHALLENGES AND OPPORTUNITIES OF NATURAL GAS MARKET
INTEGRATION IN THE DANUBE REGION**

**The South-west and South-east of the region
as focal points for future development**

Typography: Zdeněk Granát
Published by Masaryk University
International Institute of Political Science
Joštova 10, 602 00 Brno
tel./fax: 549 495 769, e-mail: iips@fss.muni.cz, www.iips.cz
1st edition, 2017

