OPPORTUNITIES OF CAPITALIZING ROMANIA’S NEW OFFSHORE GAS RESERVES BY INCREASING DOMESTIC CONSUMPTION AND CREATING A REGIONAL GAS HUB

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Abstract: *This paper aims to analyze the possibility of capitalizing Romania's new gas reserves by increasing domestic consumption as an input for economic growth and creating a regional gas hub. In the first part of the article it will be described the situation of natural gas production in Romania. At the same time, the prospects for possible resources in the Black Sea, concession companies and conditions of concession agreements will be analyzed. In the second part it will be presented the gas hubs in Europe which are relevant for the gas export from the Black Sea and in the last part of the paper it will be analyzed the Romania’s opportunities and chances to create a regional gas hub, from the point of view of the necessary conditions, the advantages and competitors.*

Keywords: *hub, natural gas, policies, analysis*

JEL Classification: *Q30, Q32, Q35, Q48*

1. Introduction

In the regional energy equation, Romania has been, by tradition, a relevant actor in the natural gas industry, and currently, after the announcement of ample discoveries of natural gas in the country's continental platform in the Black Sea, the growth potential in this energy sector is prefigured to be an extremely important one, both by capitalizing its own gas resources but also by an active role in redistributing energy products from regions such as the Caspian Sea, the Middle Eastern Mediterranean to the European market.

Economic interests related to the discovery of crude oil and natural gas reserves in the Black Sea, Caucasus and central Asia have transformed the Black Sea basin into a geostrategic stake for the world's big actors. Valuing the commercial potential of the Black Sea and its position as a bridge between Europe, central Asia, the South-Eastern Mediterranean and the Middle East has led to the involvement in the area of the world’s power factors (USA, Russia, and EU countries). The control and management of this region is, under the current conditions, not only a challenge that arouses interest in the context of fierce economic competition, but also requires the need to harmonise efforts to develop and materialize projects aimed at boosting cooperation and strengthening the energy security.

In 2008, the Romanian Government signed several concession agreements of gas perimeters in the Continental plateau of the Black Sea. The largest concessors are the

Exxon group, OMV Petrom, Romgaz, Lukoil, Black Sea Oil & Gas. In the Neptune Perimeter, which was leased to the Exxon-OMV consortium, a large-scale gas deposit was discovered. The concessors estimated it in 2012 to 40-80 billion cubic meters, then in 2018, revised the initial estimation to 100-200 billion cubic metres, and the specialists from the National Agency for Mineral Resources (NAMR), at over 300 billion cubic metres. Romania annually consumes around 10 billion cubic metres of gas. The reserves in this area would equate to the consumption of Romania over a period of 8-30 years, which would guarantee Romania a long-term energy autonomy. The estimated monetary value is between 30 and 100 billion euros.

The essential challenges for Romania are on the one hand, the revenues that the state could earn from the exploitation of these reserves and on the other, how it can manage and capitalize this gas for the benefit of the country.

2. The evolution of natural gas production in Romania

Natural gas production was one of the most important pillars on which the industrialization of Romania was based, before the 1989 revolution, Romania being among the top 10 natural gas producers in the world. During this time, the annual consumption was of 40 billion cubic meters, more than three times higher than the current one (ZF, 2018a).

This dynamic recorded in the natural gas industry contributed to the industrialization of Romania. Benefiting from important natural gas resources, Romania has primarily used it for domestic economic and social development, as raw material for chemistry and a much cleaner energy source than coal, in contrast to the rest of Europe which used mostly coal as an energy source. It is worth mentioning that in Romania, natural gas secured and is still an important component of household consumption, but not as important as the country's potential gas would have been given. Thus, only 32% of the 8 million households heat up with natural gas. In the '60-'70, Romania exported natural gas to Hungary at a level of 200 million cubic metres annually.

3. Current situation

At the moment, Romania consumes only 11-12 billion cubic metres of natural gas annually. The deep decline of the chemical industry, one of the industries that grew amid this internal wealth, was one of the factors that led to the dramatic collapse of natural gas consumption in Romania.

At the end of 2017, Romania still had natural gas reserves that amounted to 100 billion cubic metres, according to the centralized data of British Petroleum (BP). At European level, Romania has the fourth largest reserve of gas after Norway (1,700 billion cubic meters), the Netherlands (700 billion cubic meters) and the UK (200 billion cubic meters).

In 2017, Romania's gas production was 10.3 billion cubic metres - also the fourth largest in Europe, excluding the Russian Federation. The production registered last year is comparable to that of the years 2008 (10.5 billion cubic metres), 2009 (10.4 billion), 2014 and 2015 (both with 10.2 billion cubic meters).

In 2017 Romania consumed 1.6 billion cubic metres more than it produced. Thus, consumption reached 11.9 billion cubic metres, more than the average of the 2013-2016 period, but less than in 2007 with approximately 2.9 billion and 2.2 billion cubic meters compared to 2008 (ZF, 2018b).

4. Perspectives of Black Sea natural gas resources

Romania's position as a player on the natural gas market will depend more than ever on the ability of the Romanian authorities to promote the national interest in the context where pressures and external interests on market opening are very high. The newly discovered reserves already provide a second or third place in Europe, both in terms of reserves and production.

At the moment, Romania is on the verge of launching new production fronts, from the deep Black Sea area, but according to Romanian legislation, otherwise specific to all concession contracts worldwide, the resulting output returns to the investors, in exchange of **royalties**[1] **and taxes** paid to the concessionary state, if prior to the settlement of the agreement, no other favouring clauses were negotiated, such as acquiring a quota of the extracted production (the so-called sharing of production). Without additional clauses, *investors assumes rights, often exclusive, of exploration, development, sale and export of crude oil/gas extracted from a given area for a specified period of time.*

Resources in the Black Sea represent huge political, geostrategic and financial stakes. Unfortunately, the Romanian State had no access to real data on the results of offshore prospecting carried out over the last few years, the expertise reports up to 2018 presenting amounts that were much lower than the real amounts identified in the deep Black Sea.

5. Advantages and disadvantages for Romania

Despite the pressures that are made in terms of changing the offshore law in a more favourable sense for the multinational companies, and even in terms of additional concessions, the companies will not take everything. But even Romania will not get the proper part. The country will basically win, regardless of the quantity to be extracted, about half of what would have been right to win according to global standards.

If Romania, the rightful owner of the resources would have known before the awarding of concession agreements, the much more important volume of resources, it would have had a major asset to the negotiations in order to request a production settlement agreement, in such a way as to give to the resources owner a share of at least 20% of the production to directly capitalize on, and also to be able to impose much more firmly the other payment conditions.

Although the plans of the companies that extract oil and gas from the Black Sea were partially thwarted by some changes in the content of the offshore law by the

[1] The owner of oil deposits or mineral resources may grant an operating licence to a third party, for which he perceives a resource rent, or a royalty as a percentage of the value of the production or the resulting profits. When a government is the owner of the resources, the license terms and the royalty rate are usually legislated or regulated.

Romanian Chamber of Deputies, there are enough advantages to lead them to continue operations in the Black Sea:

- The royalties were maintained at the 2008 level, respectively between 3.5 and 13%, visibly lower than those practised by other countries: 25% in Bulgaria, between 18 and 40% in Germany; between 19 and 22% in Austria. With regard to taxation of additional revenues, the Netherlands has a tax of 50%, Norway of 53%, UK 62.5%, all higher even than the progressive taxes imposed by the Romanian state;
- The extraction of gas deposits in the Black Sea will certainly begin in the coming years. Exxon and OMV-Petrom have already reserved an entry capacity for 120 billion cubic meters, over 15 years (2021-2035), in the National Transport System, in Tuzla, on the Black Sea coast. 100% of the allocated capacity, for each year, has been reserved, what it proves that the two companies have the firm intention of starting extraction, and then the export.

6. Solutions for capitalizing on the new gas resources. Pros and cons.

With 8 billion cubic metres that would be withdrawn annually on Horizon 2021, Black Sea will almost double the production of Romania's gas. At the moment, the country cannot "swallow" this quantity, the local consumption being only 11-12 billion cubic metres. In these conditions, without a coherent strategy to internalize the most important part of the extracted production, much of the gas could be exported and Romania would be a simple transit pipe for this gas. The high stake, however, is to keep as much in the country as possible, to bring value from exploiting this resource.

How can this be done? By increasing domestic consumption.

A favourable premise is the law provision which stipulates the sale of a 50% share of the production on wholesale centralized markets in Romania in a transparent and non-discriminatory manner. The fact that all participants in the energy exchanges must be registered in Romania in order to be able to trade, will make it harder to export those quantities. On the other hand, however, Romania does not have a competitive market, and the number of traders is relatively low.

But the most important measures should include: the development of the gas distribution network by connecting to the distribution systems of about 1 million new households, the construction of new capacities for the production of electric and thermal energy based on natural gas and/or the conversion of the capacities to gas and, last but not least, the rehabilitation or construction of new capacities in the chemical industry.

With regard to the 1 million consumers who might be able to enter the distribution network, it should be noted that this is a hypothetical situation, because there is no real option from two points of view: rural areas or even small towns are not connected because there is no interest of the large distributors to extend the network, and on the other hand, because it is very expensive to connect, which is not affordable from the consumers point of view. The costs are far too high than the benefits. The state could take over the burden of expanding the network in rural areas, especially now that the legislative framework exists. Gas connection was passed by law to public utilities, and mayoralties and local councils can delegate it to a private person, although it is difficult to assume that municipalities will, within a reasonable period of time, achieve 1 million new gas connections. And even if they do, these new consumption points would only mean about 1 billion cubic metres of gas annually.

The high stake remains the chemical industry, especially the chemical fertilizers industry, the more so as that the fertilizers facilities are out of function and Romania is forced to import large quantities.

The Black Sea companies, especially ExxonMobil, said that it has no investment plans in a local chemical industry, being more interested in the development of the transport network, a sign that they are particularly interested in exporting.

7. Potential hubs in Europe relevant for the export of Black Sea gas

Currently, Austria is considered the main player in central european countries due to its natural gas hub in Baumgarten, and the new project of the BRUA pipeline (Bulgaria-Romania-Hungary-Austria) was viewed by Vienna as a perfect tool in order to consolidate its position on the European gas market (Business Review, 2018).

So, Central European gas hub AG (CEGH) is the most important commercial Hub, a trading centre for natural gas in Central and Eastern Europe. As an operator of the virtual trading point, CEGH opens to international natural gas traders an access path for trading in the area of entry/exit of the Austrian market. In 2017, CEGH reached a total trading volume of 622 TWh of natural gas on the VTP (Virtual Trading Point) Market and 89 TWh on Gas Exchange. Due to this excellent development, CEGH is the leader of natural gas hubs in Central and Eastern Europe.

CEGH works as a trans-regional balancing platform offering trading activities and services for different markets:

- CEGH OTC Market (over-the-counter);
- Products on the Pegasus CEGH Gas Exchange with delivery on Austrian VTP (Virtual Trading Point) offered through the Pan-European PEGAS Platform;
- Czech gas stock market PEGAS CEGH with delivery on Czech VTP in cooperation with PEGAS.

The unique combination of OTC services (over the counter) and products transforms CEGH into a unique counter for gas traders and also into the most important hub in Central and Eastern Europe. The main CEGH success factors are reliability, flexibility, high-performance personalized technology, combined with knowledge of liberalised gas markets.

According to its management, CEGH is a dynamic company that adapts its activities to the special needs of its customers and the market. The company's goal is to continuously expand the range of products to make trade with natural gas easier and more attractive (CEGH, 2018).

8. Opportunities, chances and possible competitors of to Romania's idea of becoming a regional gas hub

Among the conditions that a country must meet in order to become a natural gas hub are the following: strategic geographic positioning, interconnected transport networks, storage capacities, trading platform, access of multiple supply sources to the hub, a regulatory framework governing the hub. According to the Ministry of Energy, Romania does not lack any of these components. So, Romania already owns all the constituent elements of a natural gas hub. However, all these components must be intensified. These elements that are still in different stages of development and improvement require intensified short and medium-term investment efforts (A3, 2018).

At national level, ensuring energy security as a strategic objective aims to trigger actions to facilitate access to energy resources, greater predictability for external and internal developments, good resource management and ensuring the best solutions. It is necessary to develop strategic partnerships in the energy system on the dimensions of investment, transfer of know-how and security of infrastructure. Romania needs substantial investments in the energy sector in the coming years.

The interconnection projects that Romania is currently party to, with Bulgaria, Hungary, the Republic of Moldova and, in perspective, with Serbia, as well as the participation in the Vertical Corridor, including the main BRUA component, highlight Romania’s potential for cooperation and the possibility of establishing a common space between Member States. The Danube and the Black Sea represent two elements of utmost strategic importance, which gives Romania the position of European gateway, whether we are talking about the transit of goods, oil and gas pipelines, electricity transmission networks or financial flows.

According to experts, the necessary support investments are estimated at 15 billion euros. Therefore, a hub can be built, but more important is that Romania generates influence, with participation in the European energy platform where it has the chance to become a key factor. At the same time, with regard to the issue of independence versus energy security, the security involves internal and external interconnection. The new paradigm is connectivity. Infrastructures crossing borders have won the battle with borders. Interconnection provides security even when you have no resources. According to a study published by Deloitte, from the advantages point of view, the creation of a hub in Romania could create all around 30,000 jobs.

It should be taken into account that Romania is already an important player in the sector, independently, with its own natural resources, and a balanced portfolio of projects. But it must maximize its position at regional level. According to Rompetrol company, Romania is missing an articulated strategy for maximizing benefits, as a result of all these strategic advantages, the country benefiting from all the elements (expertise, qualified personnel) in order to develop.

It should also be taken into account that Romania has an ageing infrastructure, about 60% of the pipelines have been in operation for a long period of time and therefore require massive investments. It is estimated that at the level of the 8 distribution operators, about 10 billion euros are needed only to replace all the infrastructure with expired life span. Although this has been one of the main condition imposed by the state to the gas distribution companies, with the occasion of privatization, the investors have delayed it a lot. There is a need for an extremely active dialogue between the private sector and the authorities and a predictable, stable and particularly stimulating primary regulatory framework. Only such a framework can ensure the attraction of resources in order to reach energy security, functional markets and development sustainability.

Mariana Gheorghe, until recently the CEO of OMV Petrom said, within the Profit Growth forum that Romania has the potential to become a regional energy hub, but that she would not hazard to say that this would be accomplished immediately. She said that interconnection is only a necessary, but insufficient condition for Romania to become a regional energy hub. "Currently, Romania has problems with the interconnection to the gas infrastructure of neighboring countries. In addition to the interconnection, a regulatory component, but also a commercial one, is needed. The commercial part depends on how the demand and supply are met, if the two intersect on a route that passes through Romania". In this respect, the former CEO of OMV Petrom declared she is optimistic, following the possibility that, in the coming years, pursuant to a possible decision to start the gas production activity in the Black Sea, Romania would reach the position of producing more gas than the necessary internal consumption.

Competitors

Hungary has recently made two key moves to secure a seat at the table of energy gamers. First, in July 2017, Budapest announced that BRUA, designed to connect Bulgaria, Romania and Hungary with the Baumgarten gas hub, will be completed in Hungary and will not be linked to Austria. While many experts viewed this move as an attempt to ensure Hungary an advantage over Vienna, the second movement raised questions about why Hungary, a country with almost no energy resources, is trying to position itself as a dominant player on the regional energy market (Business Review, 2018).

Greece's gas and oil sector attracts "intelligent" money, thanks to the projects launched and to hydrocarbons discovered in the Eastern Mediterranean. For the Chinese, for example, Greece is at the heart of one Belt, one Road initiative. They chose Greece, especially the port of Piraeus, as their hub for Western Europe (ZF, 2017).

If it takes advantage of the opportunity to become an energy hub, **Greece can become the natural gas inlet gate in Europe from three sources:** from central Asia and Turkey, the Eastern Mediterranean and also from its own resources. But its major chance is that the **US considers Greece essential to ensure the Western energy needs and to restrict Russian influence in the region.**

But if it wants to become a gas inlet gate in Europe, Greece must move quickly to finish its own segment of the so-called Southern Gas Corridor, an initiative by the European Commission to bring gas from the Middle East to Europe, independent of Russia. Construction works on this segment are half-finished, and gas could be pumped from Azerbaijan to Europe by 2020.

Regarding Bulgaria, the geographical position of this country seems to be a more advantageous one in terms of transit routes, by its location in the way of potential gas flows, thanks to: (Energy Center, 2017)

- The transport system operating at 55 bar pressures, interconnected with the transport systems of all its neighbors: Romania, Serbia, Macedonia, Greece.
- The border with Turkey, which allows Bulgaria to become a gateway to EU gas from the Caspian Sea area, Iran, Iraq, Egypt.
- The border (agreements) with Greece, which creates the EU gas entry gate from the area of Israel and Cyprus (via Greece), but also the only route of access to LNG of Southeast European countries, on the Greece-Bulgaria route. It should be noted that the use of LNG will grow strong in the future and the possibility of access to a LNG terminal will have an important role in the development of hubs.
- Access to the possible South Stream route (the route that could be back in actuality, in the situation where Nord Stream 2 will win in the battle despite the strong opposition of USA).
- Last but not least, the European Commission strongly encourages Bulgaria's endeavor to become a gas hub.

9. Uncertainties regarding the creation of an energy hub in Romania

A hub is primarily a meeting space of demand and supply and only ideally the meeting point of several physical gas flows through the related infrastructure. The gas hub is the place where transactions are made freely, transparent and competitive, where speculation is made, it is the place where a market must actually operate. But a market needs, in addition to specific mechanisms, the following conditions: *confidence* from those working (suppliers, traders, etc.), *a sufficiently large number of important traders* (with important financial resources) to eliminate the possibility of influencing the market, *major gas flows* and a *predictable environment* (Energy Center, 2017).

Confidence: Unfortunately, the US does not encourage Romania's aspirations to become a regional gas hub, its interests going rather towards the export version. There is a discreet controversy surrounding the Black Sea gas exploitations whose full content has not been made public. Although the project involving two major American companies seemed to be a success story, a tense situation has been created in the last period. It is natural to have complications in the course of negotiations, but this time it emerged that pressures are exerted on the authorities in Bucharest.

Traders: In Romania there are no traders, except in relatively low numbers, there are wholesalers and retailers who, naturally, only want a functional market up to a level that is controllable by them.

Insufficient storage spaces (about 3.5 billion cubic metres). There are two reasons for this: 1) Romania is a gas producer and 2) Russia that was going to build a huge storage space in Romania gave up, in order to keep Romania's dependence on importing from this country, although this degree of dependence is currently of maximum 5-7%.

Predictability: It is a concept ignored by Romania in several areas.

Gas flows: A Hub is also the meeting place of several gas flows, which are important both in terms of inputs and outputs in the system, and as a competition indicator. Unfortunately, in the near future, Romania is no longer in a position to be transited by large gas flows, due to US intervention that blocked the Nabucco project, relying on Romania’s shale gas and especially on the Black Sea reserves. Romania also doesn’t have the technical capability to allow the passage of such streams. Romania has an obsolete transport system designed to operate under pressure regimes below the operating pressure of the systems in its vicinity, which does not make it suitable to be used in the transit system.

10. Conclusions

1. The problem of capitalizing natural gas resources in the Black Sea started long before this year, based on a sequence of classified Emergency Government Ordinances, which represent as many acts of neglecting the interests of the Romanian state because, besides the secret character, they were based on *blind* negotiations, respectively, hiding the Romanian side knowing the real amount of possible resources and implicitly depriving it to negotiate better contracts’ terms. The bigger are the reserves, the higher are the claims that the owner of the resources can impose.

2. The carried out events related to the voting of the Offshore Law, the hesitation and delay to finalize the decision, shows the lack of firmness of the government in

supporting a project of vital importance for energy security and economic prosperity of Romania (Papatulică, Prisecaru, 2018).

3. The economic, energy and geopolitical stakes of the exploitation of these reserves is so large that it has generated extremely strong external political pressures both from countries whose companies are involved in the project and from and others (the case of Hungary) that without rights on these resources, are lobbying only for their own interests and against Romania' s ones.

4. The current revision of the offshore law must outline some provisions such as the share of production (50%) which would be traded on the internal market, and which should be accompanied by a set of methodological rules to clarify the conditions for traders to be involved in these transactions. It should be noted that there will be no a kind of a buy-back arrangements of gas to the Romanian state at preferential prices, but the quantity will only be traded transparently at real prices on the market, in order to encourage that gas remains in the country and contributes to internal economic development (Papatulică, Prisecaru, 2018).

5. The attitude of the authorities (NAMR, ministries), and especially the governments that were in place, to the problem of capitalizing the gas resources in the Black Sea, shows a kind of a *loser's complex*, negotiating each time against Romanian interests, with or without intent, from the lack of practice in this area, without regard to the fact that Romania had four years to set up a strategy for addressing the negotiations. (The tax adjustment has to be made in 2014-2015, but it was delayed until 2018).

6. It is obvious to assume that Black Sea operators will try to maximize their profits, and even disguise them in various forms, at the expense of the Romanian state's interest. This will not happen immediately, because it is a medium and long-term affair. Romania must do all its calculations and evaluate the gains, but also the losses that can afford. Romania can become the third largest player in Europe as it is as possible it does not matter on the European gas market . Romania can occupy the third place as a volume of exploitation, but will it be a country that will benefit economically from this honorable third place? **This is why** the regulatory framework should have been drawn up thoroughly and more transparently. In reality, things happened the other way around. The Offshore Law was used politically in underground negotiations, and recently, on the last hundred metres, the urgency of its adoption was invoked, with an at least doubtful text (Papatulică, Prisecaru, 2018).

7. Despite the estimated potential for the gas deposits in the Black Sea, the plans of the gas concession companies in this area aim mainly for export, rather than participating in the construction of domestic consumption opportunities. However, Romgaz is the only company that is running a concrete project for the use of new resources internally, through a new power plant.

8. When oil prices are rising (as presently) the resources owners tend to capitalise on the advantages of higher energy prices by imposing higher fees and royalties, but Romania acted against its own interests, by freezing them at the former levels.

9. The interconnection projects we are currently party to, with Bulgaria, Hungary, the Republic of Moldova and, in perspective, with Serbia, as well as participation in the Vertical Corridor, including the main BRUA component, highlight Romania's potential for cooperation and the possibility of establishing a common space between Member States, **with the condition that there is a political will to finalise them, which would expedite our access to regional hub status.**

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