An Overview of the Gas Market in Romania in the Context of the Liberalization Process

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Abstract

Romania has the largest natural gas market in Central Europe, and it is known as the first country to use natural gas for industrial purposes. The natural gas market reached high records in the early 1980s because of the implementation of government policies aimed at removing import dependence. The enforcement of these policies led to an intensive exploitation of domestic resources, resulting in a decline in domestic production. In the context of radical structural and institutional reforms that characterized the Romanian economy after 1989 and aimed at decentralizing services to increase their quality and efficiency, the Romanian energy market was gradually opened to competition, as an integral part of the concept of liberalization of the national economy and free movement of goods and services. In this paper, the authors are making an analysis of the gas market in Romania, from the perspective of the liberalization process.

Keywords: *Gas Market, liberalization process, final consumers, regulation, competition*

JEL classification: D47, F12, L95
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1. Introduction

The Natural Gas Sector, part of the energy sector, represents a strategic component of the national economy and a support for the development of the other sectors of the Romanian economy. Romania ranks 3rd among the Member States of the European Union in terms of the level of natural gas reserves and has a long tradition in the energy industry, capitalizing on human resources with extensive experience in the oil and gas industry (Andrei, 2015; Ban, 2012; Stern, 1998).

The process of transition to a competitive market in the natural gas sector is an integral part of the energy policy, aimed at achieving three closely linked European objectives: a competitive and efficient energy sector, security of supply and sustainable development (Austvik, 2009; Haar and Marinescu, 2011; Busu, 2020).

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The central objective of this paper is to carry out an in-depth analysis of the functioning of the entire sector and to identify its potential dysfunctions, that might concur to the detriment of the consumer welfare. Given the general purpose of the sector investigation, the main objectives are the degree of concentration, integration, transparency, and liberalization of markets in the sector, the impact of regulations on the competitive segment and the analysis of competitive mechanisms in the sector in the context of the transition from regulated to competitive area.

2. A brief description of the Natural Gas Market

According to the National Energy Strategy, Romania has a diversified range of mineral and fossil primary energy resources: natural gas, crude oil, uranium ore, coal as well as a significant potential for renewable energy resources (Tantau and Santa, 2019; Pirvu and Badircea, 2013).

In Romania, natural gas covers about 30% of domestic primary energy consumption, followed by petroleum products by 26%, solid fuels by 20%, renewable energy sources by 16% and nuclear energy by 8%. The evolution of natural gas consumption and sources of consumption coverage in the period 2010 - 2016 can be perceived in the chart below.

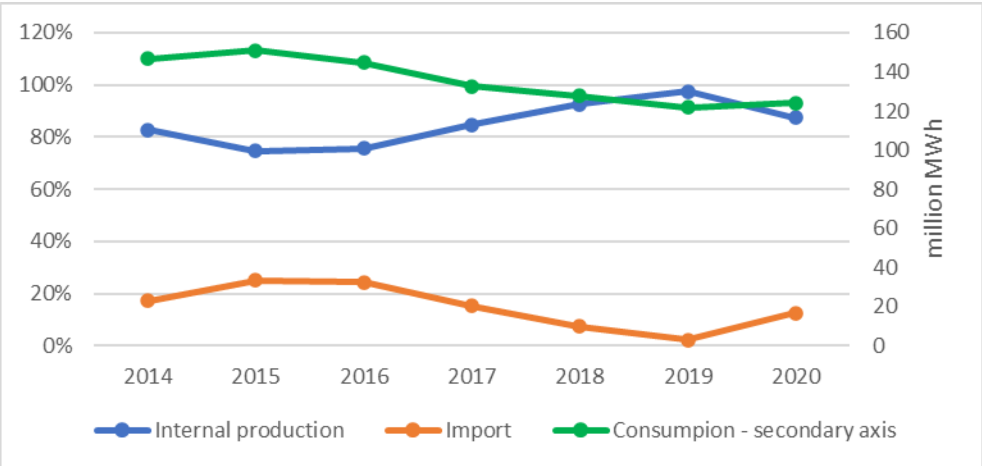

Figure 1. Evolution of consumption, domestic production and import of natural gas
Source: ANRE

As we could see in Figure 1, the evolution of the natural gas consumption at the national level registered a strong downward trend, from 156.4 million MWh in 2015 to a minimum of 122.2 million MWh in 2019. The main reason for this decrease is, on the one hand, by the measures to make natural gas consumption more efficient by the companies and, on the other hand, by the restriction of the industrial activity.

The decreasing trend could be also explained by the decrease in the household consumption.

Also, between 2015-2019, the consumption of natural gas in Romania decreased by 16%. After this drop, which had its minimum in 2019, when the consumption at national level totalled 121.7 mil. MWh, in 2020 there was a slight revival of about 2%.

The main categories of natural gas consumers are domestic and non-domestic consumers.

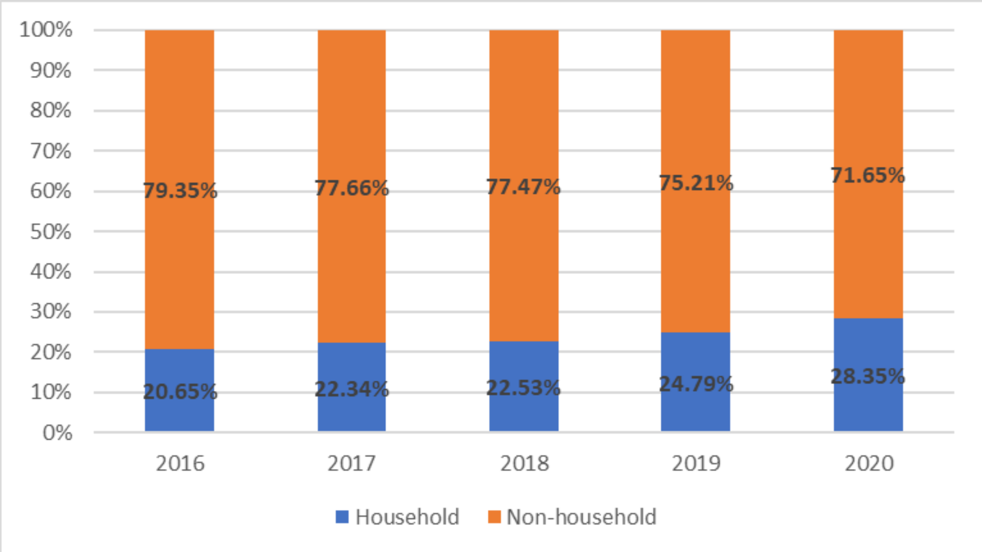

Figure 2. Share of household and non-household consumers in total consumption
Source: ANRE

In the period 2016-2020, the main non-household categories of consumers of natural gas were: producers of electric energy and thermal energy (13% - 15%), producers of thermal energy for population (7% - 16%), technological consumers (8% -9%), commercial consumers (6% -7%) and industrial consumers (5%-6%).

Although in Romania the consumption has decreased, internal production succeeded, at least until 2016, to fill completely the internal demand, being needed amounts of natural gas from other sources from imports. Alternative sources, traditionally, is represented of gas imported from Russian Federation (Ungureanu and Baldan, 2016; Lenz and Grguerev, 2017).

In the period 2016-2020, the annual production of natural gas in Romania has grown by 3.4%, the annual average of production being of 118 million MWh. The year 2020, represented an atypical year reported to previous period, in the meaning in the which the productions dropped by approximately 11% with respect to the year 2019.

The internal production of natural gas (ie. production stream and production extracted from quantities of natural gas injection previously in the deposit of underground storage) covers up between 76% - 97% from the internal consumption, the difference between 3% -24% being covered from imports (ie. amenities of gas underground storage).

The main leading producers of natural gas from Romania are SNGN Romgaz SA (Romgaz) and OMV Petrom SA (OMV Petrom), these two companies covering between 95-97% of the internal production with the scope of consumption.

Being the main producer of natural gas from Eastern Europe, Romania held an important position in this region, through limited exposure of outer natural gas sources. However, imports are needed due to the lack of flexibility of the internal production of natural gas, combined with big seasonality variations of the natural gas consumption.

Existence of such fluctuations of internal consumptions and the lack of technical conditions for exports of natural gas generates, in the periods with reduced demand, difficulty to the producers to ensure the sale of the current production, one alternative – while avoiding output interruption - being to make inventories in the deposit of the extracted quantities, what will eventually lead to a higher price of the product.

3. The structure of natural gas sector

According to the provisions of the Law no. 123/2012, the natural gas market is composed by the regulated market and the free competitive market, including transactions of natural gas on the wholesale and the retail markets.

Market activities relate to the following:

- providing natural gas to regulated prices according to the framework contract-based agreement until 30 June 2021 for householding consumers;
- transport of natural gas;
- transport of gas through ducts of feeding from upstream, according to the terms and conditions of validity of the licenses;
- underground storage of natural gas;
- storage of natural gas in the pipe;
- distribution of natural gas and biogas / biomethane;
- related activities conducted by licensed operators;
- activity related to LNG terminal operation.

For activity related to regulated market, price and charges are established on the base methodologies approved and published by ANRE.

On the competitive market, the transactions are dealt with based on the free price setting mechanism to meet the demand and supply.

The natural gas, irrespective of the sources of provenience (production, import, storage) is transported to the consumers through pipelines of high pressure (the system national of transport) and through pipelines of low pressure (the system of distribution).

At present, the number of participants, although reduced on few segments, has constantly grown due to the market liberalization. In Table 1, we could see the evolution of the number of participants in the gas sector in Romania.

Table 1. The number of participants in the Gas Sector

Year / no. of operators	NTS	Producers	Storage	Suppliers in regulated regime	Suppliers in competitive regime	Distribution
2016	1	6	2	41	43	41
2017	1	5	2	41	54	39
2018	1	6	2	39	63	39
2019	1	6	2	39	76	40
2020	1	7	2	37 *	79	38 *

**starting up with 30.09.2020.*

Source: ANRE reports

Depending on the activities carried out, the sector has the following structure: exploration, development, production, supply, trading, transport, storage, and distribution.

Exploration, development, and production activities represent the set of operations performed to know the geological conditions of accumulation, identification of deposits, their quantitative and qualitative assessment, determination of technical and economic conditions of recovery and finally, commercial recovery of deposits. On this bearing, the number of participants does not significantly vary in time. At present, the main leading producers are Romgaz and OMV Petrom, being followed by Amromco Energy and Stratum Energy.

The natural gas transmission activity is a public service of national interest, being included in the regulated segment of the internal gas market. The provision of the internal transport service designates the set of activities and operations carried out for and in connection with the reservation of the transport capacity and the transport by SNT of the determined quantities of natural gas. The transport service is provided under a natural monopoly regime based on a tariff established by ANRE. The transport of natural gas quantities is carried out from the commercial delivery / takeover points at the entrance to the NTS to the commercial delivery / takeover points at the exit from the NTS.

Transgaz is the transmission and system operator of the national natural gas transmission system, and it is responsible for its operation in terms of quality, safety, economic efficiency, and environmental protection. The purpose of Transgaz is to fulfil the established national strategy for domestic and international natural gas transmission, and to dispatch natural gas. It operates SNT based on the Concession Agreement concluded with the National Agency for Mineral Resources (ANRM) valid until 2032, the national natural gas transmission system belonging to the public domain of the state.

Storage is the set of activities and operations carried out by the storage operator for or in connection with the reservation of storage capacity in underground storage facilities and for the injection, storage, or extraction from these capacities of certain quantities of natural gas. The gas storage activity is included in the regulated segment of the internal gas market.

Access to storage is of fundamental importance as it ensures the continuity of natural gas supply. Thus, the peak hourly and seasonal consumption peaks are taken over, caused by the fluctuating character of the gas demand and by the possibilities of extraction and import.

The main storage operators are Romgaz and Depomures. The total capacity of the deposits operated by Romgaz is approximately 3 billion cubic meters / cycle. Depomures operates a single warehouse with a storage capacity of about 300 million cubic meters / natural gas cycle.

Distribution is the activity of conveying natural gas through a system of distribution pipelines to be supplied to customers, but not including supply. The distribution system consists of pipes, connections, control stations and stations with or without measuring, measuring systems, devices, and accessories, which operate at a working pressure of up to 6 bar inclusive, except for the use installation, on which the operator licensee intervenes through specific works and regulated by revisions, verifications, interventions in case of damages, etc.

The access to the natural gas distribution system is made in a regulated regime, according to Decision no. 1043 of July 1, 2004, for the approval of the Regulation on the access to the National Natural Gas Transmission System, of the Regulation on the access to the natural gas distribution systems and of the Regulation on the access to the upstream supply pipelines. Access to the distribution system has two components: capacity reservation and connection to the system.

The capacity reservation represents the capacity that the distributor undertakes to maintain at the disposal of the beneficiary, at any time during the entire validity period of the contract, being established according to the maximum quantity requested by the beneficiary and accepted by the distributor to be circulated through the distribution system in an hour and is expressed in m3/ hour.

The connection to the system involves the construction of a new connection installation (connection installation means the installation made between the connection point to the distribution system and the delimitation point, being composed of the connection and the measuring control station / station).

Historically, the distribution of natural gas is dominated by two companies, E.ON Distributie Romania and Distrigaz Sud Retele, each with a number of about 1,500,000 domestic customers. The two companies are the successors of the former Distrigaz Nord and Distrigaz Sud monopolies.

4. Liberalization of the natural gas market

The natural gas market of Romania has been gradually opened since 2001, when the market opening degree of the internal market was about 10% of the total consumption for the year 2000, reaching in 2006 a degree of opening of the natural gas market. of 75%. With the start of the process of accession to the European Union, Romania had to establish a clear timetable for the liberalization of activities in the energy sector, the stages being included in the commitments that Romania had assumed before the European Commission.

In this regard, a timetable for the liberalization of the natural gas market has been set, which has mainly aimed at the gradual increase in the number of consumers who can freely choose where and from whom to procure the natural gas needed for consumption, simultaneously with the elaboration of an appropriate regulatory framework in this regard. On the other hand, liberalization has also meant deregulating the prices paid by consumers for the purchase of natural gas.

From a legal point of view, the process of liberalization of the Romanian natural gas market was completed on January 1, 2007, when the market was fully liberalized.

The evolution of the real annual degree of opening of the internal market of natural gas is presented in the graph no. 3.

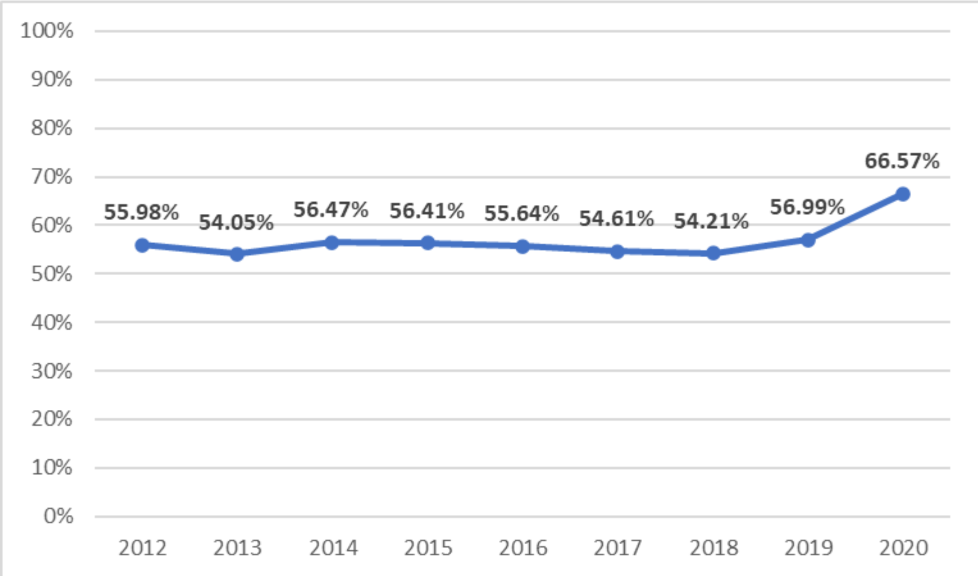

Figure 3. Annual degree of opening of the internal market in the period 2012-2020
Source: ANRE

In 2015, an increase of about ten percentage points of the real degree of opening of the natural gas market compared to 2014 was recorded, reaching about 67% of the total consumption. The increase was due to the full liberalization of the gas market for non-household consumers on January 1, 2015.

From a legal point of view, Romania has fulfilled the conditions established by the European directives in the field, in the sense that it has created the mechanisms and permanently adapts the legislation necessary to go through the stages towards liberalization.

The full liberalization of the market means that, from a legal point of view, all natural gas consumers can freely choose their suppliers (from those licensed by ANRE) and to directly negotiate sale-purchase contracts with them.

If in terms of the implementation of the concept of eligibility (possibility of free choice of supplier), it was reached that in July 2007 all consumers could be legally eligible, regardless of status, residential or industrial, in terms of prices, the evolution of deregulation has been burdensome. Among the factors that influenced this evolution can be mentioned the insufficient domestic production for consumption, the existence of a non-stimulating mechanism of price regulation, a low purchasing power of consumers.

The liberalization of the internal market of natural gas for non-household consumers took place on January 1, 2015 (except for thermal energy producers, only for the quantities of natural gas used to produce thermal energy for consumption by the population). Of the total number of final gas customers, 5.24% were non-household customers and 94.76% household customers.

2015 was the first year of full operation of the natural gas market, in a competitive regime, for non-household consumers, about 170,000 non-household consumers entering the free market on January 1, 2015.

In 2015, the total number of eligible customers was 188,156. Compared to 2014, when there were still regulated non-household customers, the total number of eligible customers increased, as follows:

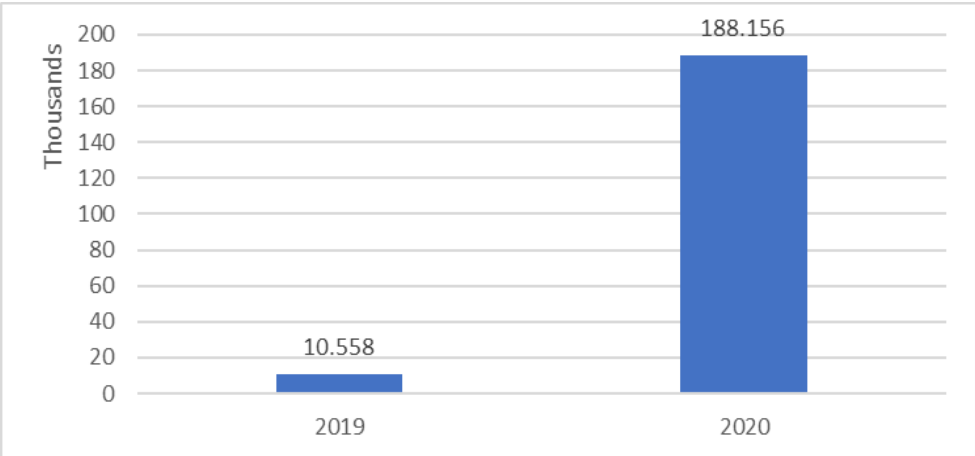

Figure 4. The evolution of the potential clients

Source: ANRE

Thus, because of the liberalization process in the gas sector, the competitive market segment has grown as consumers have moved from the regulated area to the competitive one.

The continuation of the liberalization process must be continued in such a way as to take account of the need to protect a significant category of household consumers, in the context of the effects of aligning the price of natural gas in domestic production with prices in European markets.

- the constant decrease of natural gas consumption, due to the decline of industrial consumption but also due to the energy efficiency programs applied by both categories of consumers, domestic and non-domestic;
- the decrease of the natural gas demand of the electricity producers, on the background of the entry on the market of the production capacities from renewable sources;
- the deregulation process for household consumers, scheduled to be completed by June 30, 2021, according to the provisions stipulated by Law123/2012;
- low degree of affordability at the level of household customers, in terms of natural gas prices;
- the need for a prudent approach by public authorities in supporting the process of liberalizing the supply of natural gas without producing major negative effects on household consumers;
- unforeseen changes in the market of primary energy resources, starting with the sharp decline in crude oil prices in the last period, which generated a special situation in the Romanian natural gas market, where administrative prices set in accordance with legal provisions, but also with the approval of the European Commission and international financial institutions, have become comparable and sometimes even higher than market prices.

6. Conclusions and recommendations

The natural gas sector was marked, in the period 2012-2016, by the accelerated process of changing the regulatory framework (with the transition from the regulated to the competitive regime) as well as by multiple issues regarding insufficient infrastructure development, structural technical limitations - which required specific conditions to ensure security of supply - with an effect on restricting the way the suppliers operate in the competitive market and on the current possibility of developing complex market mechanisms. These elements, corroborated with the constraints regarding the degree of affordability at the level of consumers, points out to the particularities of the Romanian gas sector and highlights on the development of the competitive market on a long-term basis taking place based on the involvement of all the relevant competent national authorities.

Given the full liberalization of the wholesale supply market, in the conditions of maintaining a regulated segment for domestic customers, it is necessary to monitor the conditions of marketing on the wholesale competitive market at least until the time of full market liberalization, respectively 2021. Monitoring would be within an institutional collaboration mechanism developed together with ANRE, and which will facilitate the obtaining of information regarding the transactions concluded on the wholesale market, either in a centralized system or through bilateral contracts.

The liberalization of the market for non-household customers, starting with January 1, 2015, generated the migration of some of the customers to other suppliers present on the competitive market, but most of the eligible consumers remained customers of the suppliers with whom they previously signed contracts. This slow progress in expanding the customer base was also due to the lack of information on the consumption of eligible customers, which would have allowed suppliers to make a relevant offer to these categories of consumers. In this context, to increase the competitive pressure on the supply level, we consider necessary to increase the degree of informing customers about the possibility of changing the natural gas supplier.

Given the characteristics of the storage infrastructure in Romania, based on biannual cycles - injection / extraction - it is recommended to analyse the opportunity to develop warehouses with a multicycle operation, which involves the simultaneous implementation of injection and extraction operations, the expected effects being to optimize commercially managing the quantities stored by suppliers and improving supply conditions during peak consumption periods.

The storage infrastructure is at a level of development that leads to the limitation of the suppliers' option in the market operation mode, so that, in this context, the increase of the extraction capacity from warehouses is a priority for the Romanian market, which must be managed by an investment program designed to consider the costs that could be generated at the level of storage tariffs.

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