

# Bulgaria's Ambitions for a Balkan Gas Hub

## Challenges, Opportunities and the Role of a New Offshore Gas Storage Project

*By Margarita Assenova*



December 2018



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## Key Findings

- The pending completion of two major international natural gas pipelines to the Balkans—the Southern Gas Corridor from Azerbaijan to Turkey, Greece and Italy, and TurkStream from Russia to western Turkey—have offered Bulgaria the opportunity to become a regional gas hub.
- Sofia has promoted the Balkan Gas Hub project that would require significant investment in pipeline infrastructure, adequate gas storage facilities, and gas market liberalization—three major challenges for the Bulgarian government. Bulgaria has delayed its gas sector reforms and needs to secure project financing for additional infrastructure. Its single gas storage facility is inadequate.
- Bulgaria is still European Union’s most vulnerable state to Russian gas supply interruptions: it depends exclusively on Russian gas deliveries through a single route, has limited connectivity with neighboring states, and lacks sufficient gas storage capabilities.
- The Southern Gas Corridor, a project of strategic importance to the European Union, is the only immediate option for Bulgaria to diversify its gas supply sources. TurkStream, from Russia to Turkey under the Black Sea, would deliver the same Russian gas that is currently flowing via Ukraine.
- If Sofia uses its position wisely, it can become a major contributor to energy security in Southeastern Europe. But if it fails to prioritize the diversification of natural gas supplies because of the lucrative prospect of becoming a transit country for Russian gas, it could help entrench most of the Balkans into deeper dependence on Russian gas and cement Gazprom’s monopoly in the region.
- The European Commission has stated that to become a gas hub Bulgaria should develop a genuine gas trading platform rather than becoming a gas transit country. Sofia needs to secure at least three sources of gas supplies in order to develop a gas-trading platform to other European countries.
- Provided that there would be more gas volumes coming to Bulgaria from Azerbaijan, possibly Turkmenistan, the Eastern Mediterranean or liquefied natural gas (LNG), sufficient gas storage capacity will become crucial. The existing underground gas storage facility at Chiren is aging and approaching its expansion limits. The planned increase of its capacity from 550 million cubic meters to one billion cubic meters would be a positive step,

but not enough to service a regional gas trading platform requiring larger storage facilities and more flexibility.

- A proposal to convert the Galata gas field, off the Black Sea coast, to a gas storage facility by the UK-based Petroceltic, the largest gas producer in Bulgaria, has been stalled by the Bulgarian government for a decade. The Galata gas field could be converted to a gas storage facility with a capacity of 1.5 billion cubic meters with an investment of about \$100 million. However, unlike the planned expansion of the Chiren gas storage facility, which will cost \$256 million, the Galata conversion is not included in the EU's list of projects of common interest.
- The Galata gas storage would be a private company-operated facility, and thus fully in line with the European Union's Gas Directive and the Third Energy Package, which encourages the involvement of private companies in the gas market. Increased storage capacities will also stimulate competition, as independent traders would have the option to store purchased volumes for resale when demand is high.
- The Galata gas storage would be easy to connect with the Balkan Gas Hub pipelines planned to intersect near Varna because it is located just 22 km offshore from the city. Therefore, it could become an integral part of the planned Balkan Gas Hub.
- An important change to the Energy Act in April 2018 removed a legal barrier that prevented private investors from obtaining a license to operate underground storage facilities in Bulgaria. However, the Galata project continues to be stalled.
- Vested interests by the Bulgarian state-owned monopolists Bulgargaz and Bulgartransgaz have impeded the project, despite extensive favorable geological surveys and feasibility studies. Sofia has delayed reforming its gas sector and privatizing Bulgargaz and Bulgartransgaz, which has led to obstructing gas market liberalization, discouraging foreign investors, and hurting consumers in the process.
- The proposed Balkan Gas Hub will require about two billion euros to build additional infrastructure such as a 294-mile-long pipeline to Serbia, new compression stations, pipeline loops and interconnectors. If Sofia does not speed up the process of gas market liberalization and state-owned gas companies privatization, allow access of third parties to major pipelines, and permit private companies to operate gas storage facilities, it will encounter immense problems securing financing and attracting investors for this ambitious project.

## Recommendations

Bulgaria has the chance to achieve its ambition of becoming a regional gas hub if it makes the right strategic decisions and addresses shortcomings in energy reform. The following recommendations could help in this process:

- Bulgaria needs to make a strategic choice whether to become a transit country exclusively for Russian gas or a valuable contributor to European energy security by ensuring that diversified natural gas supplies reach Central and Eastern Europe through its territory. Sofia must prioritize the diversification of natural gas supply from non-Russian sources to boost its own energy security and contribute to the implementation of the EU's energy security strategy.
- The government must speed up the delayed construction of Interconnector Greece-Bulgaria to be able to receive Azerbaijani gas from the Southern Gas Corridor in 2020 and actively seek to increase gas supplies through that pipeline from non-Russian sources in the future.
- The Bulgarian government has been quick to accommodate Russia in expanding the Trans-Balkan Pipeline from Ukraine to be used in reverse mode from Turkey to Bulgaria. Sofia should invest as much effort as possible in expanding inter-connections with the gas network of Greece for potential additional gas volumes and future LNG supplies.
- Sofia should work in coordination with the European Commission to resolve legal matters concerning the potential Balkan Gas Hub and insufficient alternative gas supply sources. The government must secure at least equal volumes of alternative gas supplies to projected Russian gas imports to reduce the region's dependence on one source.
- The future Balkan Gas Hub infrastructure should be used in full compliance with the EU Gas Directive and Third Energy Package, including reserved capacity for third party suppliers and adequate access by private companies and traders.
- The Bulgarian Energy Holding must implement long-overdue reforms in the natural gas sector by liberalizing the gas market, curbing corruption, privatizing the state monopolies Bulgargaz and Bulgartransgaz, and allowing access to the national transmission network by private companies and traders.

- Sofia must secure additional gas storage facilities to allow for sufficient volumes of reserved gas to be stored for emergencies as well as for trade within the Balkan Gas Hub trading platform. Increased gas storage capacity would help liberalize the gas market.
- The Ministry of Energy should immediately review the request for concession to convert the Galata gas field into storage capacity and, if proven feasible as several studies have shown, permit the conversion process to begin.
- The government should encourage the operation of the Galata gas storage facility to be conducted by a private company, such as the current concession-holder Petroceltic, as this would contribute to Bulgaria's gas sector liberalization and the implementation of the EU Gas Directive and Third Energy Package.

# Bulgaria's Ambitions for a Balkan Gas Hub

## Challenges, Opportunities and the Role of a New Offshore Gas Storage Project

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### Background

The Russian newspaper *Kommersant* announced, on November 22, that Gazprom had decided for the second string of TurkStream—the Russian pipeline laid on the Black Sea floor to western Turkey—to extend to Bulgaria, Serbia, Hungary, Slovakia and Austria in 2019.<sup>1</sup> The selected route largely replicates the path of the canceled South Stream pipeline with a designed capacity of 63 billion cubic meters a year (bcm/y). But the volumes offered for advanced booking during the EU's Open Season auctions in October–November were four times smaller, just 15.75 bcm/y. Nevertheless, the prospect of transiting and potentially trading that much natural gas boosted the Bulgarian government's confidence that the country could become a major regional gas hub.

As the Southern Gas Corridor from Azerbaijan through Turkey, Greece and Albania to Italy is also approaching completion in 2020, Sofia has promoted its Balkan Gas Hub project idea before the European Union as a regional trading platform for natural gas from Russia, Azerbaijan, and local production. Despite its modest own natural gas reserves and heavy dependence on Russian gas, Bulgaria's advantageous geographic location along major transit corridors from Asia and the Middle East to Europe has become critical for both gas exporter and gas recipient countries in the Balkans and beyond. If Sofia uses its position wisely, it can become a major contributor to energy security in Southeastern Europe. But if it fails to prioritize the diversification of natural gas supplies before the lucrative prospect of becoming a transit country for Russian gas, it could help entrench most of the Balkans into deeper dependence on Russian gas and cement Gazprom's monopoly in the region.

There is a big difference between the Southern Gas Corridor and TurkStream, both of which are slated for launch in the Balkans in late 2019 or early 2020 (see **Box 1**). While TurkStream only offers an alternative route for the same Russian gas that is currently delivered through Ukraine, the Southern Gas Corridor would provide new gas from a new source, Azerbaijan. This is why the Southern Gas Corridor is a project of strategic importance to the European Union, as it fulfills one

of the major principles of the EU's energy strategy—the diversification of natural gas supplies to Europe from new sources.<sup>2</sup>

### **Box 1: Competing Gas Transit Projects in Southeastern Europe**

#### *Southern Gas Corridor*

The Southern Gas Corridor is as a network of pipelines that will connect gas fields in Azerbaijan with southern Italy via Georgia, Turkey, Greece, and Albania. Two of its sections are already operational: the South Caucasus Pipeline (SCP) and the Trans-Anatolia Natural Gas Pipeline (TANAP). The conclusion of the third one, the Trans-Adriatic Pipeline (TAP) from Turkey through Greece and Albania to Italy, is expected by 2020. This pipeline will be connected with Bulgaria's gas network through the prospective Interconnector Greece-Bulgaria. The further development of the Southern Gas Corridor could involve a broad energy infrastructure network linking Europe, the South Caucasus, Central Asia and the Persian Gulf, while excluding Russia.

Although the projected volumes of gas delivered through the Southern Gas Corridor would be relatively modest at the outset—from 10 billion cubic meters (bcm) a year as a start to 31 bcm later—they could become an important factor for diversifying the European market, which currently depends on Russia for almost one third of its gas consumption. So far, Bulgaria has signed an agreement with Azerbaijan's SOCAR for the delivery of one billion cubic meters of gas per year from TAP via the prospective Greece-Bulgaria interconnector, which would be almost one third of the country's current demand.

#### *TurkStream*

TurkStream is a natural gas pipeline on the seabed of the Black Sea connecting Russia with western Turkey. The pipeline replaced the defunct 63 bcm/y South Stream pipeline project, which was suspended for violation of EU competition rules and subsequently canceled by Russian President Vladimir Putin in December 2014. When completed, the two lines of TurkStream will have the capacity to transport 31.5 bcm worth of gas from Russia. The first line would carry 15.75 bcm of gas to Turkey and the second line would transfer Russian gas to Europe through Bulgaria to the Balkans and Central Europe.

The offshore part of TurkStream was completed in November 2018, and the pipeline is expected to become operational by the end of 2019. Moscow is building TurkStream mainly to divert Russian gas transit from Ukraine. When completed, it will make the Trans-Balkan Pipeline redundant. The line currently transports about 16 bcm/y of Russian gas via Ukraine and Romania to Bulgaria and Turkey. The Trans-Balkan Pipeline would be used in reverse to deliver 15.75 bcm/y of Russian gas from Turkey to Bulgaria and further to Central Europe.

Bulgaria is still the European Union's most vulnerable state to Russian gas supply interruptions. Its natural gas demand is just over 3.1 billion cubic meters a year, but 98.3 percent of it comes from

Russia via a single route through Ukraine.<sup>3</sup> The country has limited reverse-flow interconnections, with the most important links with Greece and Turkey not completed yet. Significantly, Bulgaria also lacks sufficient gas storage capacities that would allow for an adequate back up in case of long-term disruptions in gas supplies, like the gas crises in 2006 and 2009.

The availability of adequate gas storage capacity is also a critical prerequisite for building a successful gas-trading platform. The EU has clearly stated that Bulgaria should aim to develop such a platform rather than simply becoming a gas transit country. For that purpose, Sofia needs to secure natural gas supplies from at least three different sources in adequate proportions. This does not seem feasible in the immediate future, because Bulgaria would be receiving only one bcm of Azerbaijani natural gas annually until more gas from the Caspian Sea becomes available, while Russian gas could reach 15.75 bcm/y. Local production is very small and cannot match the volumes of Russian gas.

### **The Issue**

Ten years since the 2009 gas supply crisis, when Russia completely cut off natural gas flows to Europe through Ukraine during a cold January, Bulgaria remains the most vulnerable EU member state to Russian gas supply interruptions. The Balkan country suffered more than any other in the region because it depended exclusively on Russian gas, had no alternative supply sources or alternative routes, and, in addition, its only underground gas storage facility was holding reserves for just 2–3 days. The economic implications and human suffering during this period were immense, causing also political ripples and eventually leading to the election of a new government that year. Bulgaria's dire predicament has changed little since then.

Following this crisis, the European Union developed a new energy security strategy based on the diversification of natural gas supply sources and gas transit routes, improved interconnectivity, and increased gas storage capacity. Despite Sofia's progress in negotiating prospective gas deliveries from Azerbaijan, so far the country still relies almost 100 percent on Russian gas. The vital interconnector with Greece for transiting Azerbaijani gas supplies from the Trans-Adriatic Pipeline (TAP) starting in 2020 has not broken ground yet, although it has been in the planning stage for over 20 years. Even more importantly for the security of gas supplies, Bulgaria's gas storage capacity remains dangerously insufficient.<sup>4</sup>

Bulgaria's only underground storage facility at Chiren (Chiren UGS) is old, small and inadequate, with a capacity of only 550 million cubic meters (mcm). Ongoing geological deterioration and safety concerns related to its oldest wells, along with the need to drill new wells in adjacent lands to increase storage capacity, are severely limiting potential expansion. Public safety concerns are also growing, particularly after the explosion at the Baumgarten gas hub storage site in Austria, in December 2017, which killed one person and injured 21 others.<sup>5</sup>

Furthermore, Chiren UGS offers negligible volumes available for commercial storage, thus obstructing the liberalization of the Bulgarian gas market and perpetuating the monopoly of the local state-owned natural gas intermediaries, Bulgargaz and Bulgartransgaz, a practice that evidently violates the EU's Gas Directive and Energy Security Strategy.<sup>6</sup> Bulgargaz sells natural gas at regulated prices, and its share of sales in 2017 was 99.74 percent; private traders had only 0.53 percent share of sales.<sup>7</sup>

The UK-based company Petroceltic (see **Box 2**), the largest gas producer in Bulgaria since 2003, has proposed to build a much larger second gas storage facility at the Galata gas field off the Black Sea coast, which is approaching end of production. This is the same field that provided emergency gas supplies during the crisis in January 2009, despite ongoing preparations to convert it into a gas storage facility at the time. However, the project has not moved forward since then. After initial enthusiasm, the Bulgarian government has stalled the process of issuing necessary approvals and extending concessions needed to restart the work.

**Box 2: Petroceltic Holdings Limited**

Petroceltic Holdings Limited is a privately owned, UK headquartered, Oil and Gas Company. The Group has operating assets in Europe and North Africa. Petroceltic operates in Bulgaria (production), Egypt (production/exploration), Algeria (development) and Italy (exploration).

The proposed new gas storage facility would be three times larger than Chiren UGS, its capacity would reach 1.5 billion cubic meters (bcm). Its location underwater away from the shore, instead of on land near residential areas, would make it a much safer option as well. In addition, this privately operated storage facility would be available to any interested market player, thus contributing to the security of gas supplies and market liberalization, stimulating gas price competition, and helping regional gas market development—all mandatory preconditions for the implementation of the Balkan Gas Hub project, enthusiastically advanced by Bulgarian Prime Minister Boyko Borisov.

The European Union firmly supports the development of reliable gas storage infrastructure and the diversification of gas supplies. It also prioritizes market liberalization, including private sector participation in natural gas transit, storage and trade, which are still completely in the hands of the state-owned Bulgargaz and Bulgartransgaz. Although the prospect to convert the Galata gas field into a gas storage site has reportedly gained support within the European Commission's Energy Directorate, Sofia has not proposed it as an EU Project of Common Interest (PCI).<sup>8</sup> Despite Chiren UGS's potential geological, longevity, and safety problems, it is the only gas storage infrastructure

project on the current PCI list, as Bulgaria is hoping to receive EU funding to modernize and expand the existing storage facility's capacity.

The obstruction of the Galata gas storage project, just like the long delays in building the Bulgaria-Greece interconnector, have been linked with the vested interests of Bulgargaz and Bulgartransgaz, which would lose their monopolistic position and beneficial relations with Gazprom if genuine gas market reforms take place.<sup>9</sup> But failure to complete these projects in the next 12 months may cost Bulgaria a missed opportunity to receive Azerbaijani gas supplies for a considerable period of time. Once all available volumes from the Shah Deniz II gas field in the Caspian Sea are contracted, Sofia will have to wait for the next stage of development in gas extraction and transmission, possibly years. Such developments would place Bulgaria's energy security at serious risk and derail Sofia's ambitions to turn the country into a regional gas hub in the Balkans. As the European Commission has unequivocally stated, Sofia needs to secure at least three sources of gas supplies in order to develop a gas-trading platform to other European countries.

Increasing the gas storage endowment by building new capacities or expanding existing ones should be a critical strategic priority for a country in Bulgaria's position. These facilities provide for gas supply security in times of emergencies, ensure smooth operation of the gas transmission system, and protect against economic losses in case of delivery interruptions. In addition, they stimulate market liberalization and regional market development, particularly if operated by private companies in an environment dominated by state-owned gas utilities.

This report analyzes Bulgaria's options to boost its natural gas storage endowment and increase the security of gas supplies by focusing on and comparing two projects: 1) expanding the existing Chiren underground gas storage, and 2) converting the Galata natural gas field off the Black Sea coast into a new gas storage facility. The analysis is framed by the incoming major changes in natural gas supply routes to the Balkans from Azerbaijan in the Caspian Sea and from Russia through the Black Sea.

### **The Gas Storage Problem and the Balkan Gas Hub Initiative**

For a country that aspires to become a major natural gas hub in the Balkans, Bulgaria has surprisingly inadequate natural gas storage capacity. Its single underground gas storage facility at Chiren in northwest Bulgaria, can only hold about 550 mcm—a volume that might be enough to cover current seasonal fluctuations of natural gas consumption at home, but clearly insufficient to service a prospective regional distribution center. The Bulgarian government is planning to enlarge Chiren UGS's capacity to 1 bcm, but even the expanded storage would still be inadequate to support a transmission load increase by 15.75 bcm/y or even 31.5 bcm a year, as Sofia's ambitious Balkan Gas Hub project envisions.<sup>10</sup>

In comparison, as a gas transit country, Slovakia relies on storage facilities that are over six times larger, while consuming about 50 percent more gas than Bulgaria.<sup>11</sup> And Ukraine, which transmits around 100 bcm of Russian natural gas to the European markets annually, has the capacity to store one third of that volume in its vast storage facilities—a major prerequisite for a reliable gas hub.<sup>12</sup>

Despite Bulgaria's dire predicament as the most vulnerable EU state to gas supply interruptions through its only delivery route, Prime Minister Boyko Borisov has initiated a major new project to make the country a regional gas center and build a Balkan gas hub near the city of Varna. The initiative is essentially about expanding the existing gas transmission infrastructure, building new connecting pipelines to neighboring countries, and creating a junction of looped pipelines and a new compression station near the city of Varna. Looping several parallel gas pipelines could provide some extra gas storage in the system to meet demands during peak use periods, but it would not be sufficient as a long-term back-up option or trading platform development. The Balkan gas hub project, which is still in the conceptual stage, would cost between 1.4 to 2.4 billion euros, an astronomical sum for Bulgaria's small economy.<sup>13</sup>

The idea was first introduced shortly after the demise of the Russian-led South Stream project in December 2014. Sofia has even obtained conditional EU support for the project, if it manages to diversify gas supplies from at least three sources. The European Commission also provided funding of 920,500 euros (\$1.04 million) for a technical feasibility study of the Balkan gas hub project to determine its business model and recommend a project financing mechanism.<sup>14</sup>

Sofia has made some progress on the road to diversifying gas supply sources and routes, but the speed of implementing these projects has been extremely slow. The Giurgiu-Ruse interconnector between Romania and Bulgaria, with an annual capacity of 1.5 bcm, was officially opened in 2016; however, it will not be operational until the compression station on the Romanian side is completed.<sup>15</sup>

The Greece-Bulgaria Interconnector (IGB) is a planned 182-kilometer (112-mile) long pipeline project, estimated to cost 220 million euros (\$249 million), which will link up the Greek gas transmission system in the area of Komotini to the Bulgarian system near Stara Zagora. An agreement between Bulgargaz and Azerbaijan's state oil company SOCAR signed in 2013 secured one bcm of natural gas deliveries to Bulgaria from the Shah Deniz II gas field in the Caspian Sea, provided there is available infrastructure for the gas volumes delivery. The contract will come into effect in 2020, but the key element for this supply—the link from the Trans-Adriatic Pipeline in Greece to Bulgaria with a capacity of 3 bcm—may not be ready. The gas will start flowing through the Southern Gas Corridor at the beginning of 2020. Azerbaijan is interested in supplying additional quantities of gas to Bulgaria, beyond the contracted volumes from Shah Deniz II, depending on the available volumes. According to Azerbaijan's ambassador to Bulgaria, Nargiz

Gurbanova, Bulgaria may become a hub for supply of Azerbaijani gas to Europe.<sup>16</sup> In that case, a sufficient transmission and storage system would be of vital importance.

### **Gas Storage Endowment**

The expansion of the Chiren gas storage facility is included in the EU's list of projects of common interest (PCI). Such inclusion guarantees EU preferential support and potential funding. The project will be expensive and, in addition, the Chiren gas storage site is aging—it has been used for more than 40 years and has incurred irreversible geological damage.<sup>17</sup> Therefore, expansion means drilling new wells further out in the periphery of the current field that currently spans 7 km by 15 km (4.3 miles by 9.3 miles).

At present, Chiren is mainly considered a gas storage facility with local importance that is used to cover seasonal differences in consumption and supply of natural gas in the country and to guarantee the security of supplies. The long-term plans of the state gas transmission operator are to transform Chiren into a commercial repository with a significant role in developing competition and integrating the interconnected regional gas market.

However, Bulgartransgaz will retain control of Chiren UGS's operations, making all decisions related to commercial access of interested traders, and ostensibly continuing to operate in a non-transparent environment. The lack of immediate government plans to privatize Bulgargaz and Bulgartransgaz indicates that the two state-owned companies would retain their monopolistic position and seek to restrict any private initiative related to gas transit and storage.

The second project, Galata, reportedly would be cheaper and would not rely on EU or Bulgarian state funding. However, it has encountered vehement opposition from Bulgargaz and Bulgartransgaz. One reason for that reaction is that Galata gas storage would be a private-sector project, and Petroceltic has refused to cede control of its operations to Bulgartransgaz.

The ten-year development plan of Bulgartransgaz, published in April 2018, envisions expanding the existing gas storage facility near Chiren. The project is supposed to be completed in 2024, but the final investment decision has still not been made. One paragraph mentions the possibility of a new storage facility onshore or offshore, while cautioning that the development of such a project would take a long time.

### **The Galata Conversion Project**

The Galata natural gas field, off the Bulgarian Black Sea coast, was discovered in June 1993. Five years later, the UK-based oil and gas exploration and production company Melrose Resources

(now Petroceltic) acquired an interest and started natural gas production in June 2004. At its peak, in 2005, gas production reached 1.44 mcm a day (or 525 mcm a year).<sup>18</sup> Since that time, the field has produced about 2 bcm of natural gas in total.

The hype about a potential second gas storage facility was notable in the Bulgarian media, following gas supply interruptions from Russia to Bulgaria in January 2006 and 2009. The Galata gas production concession agreement signed in 2001 contains a clause envisioning the agreement being converted to a gas storage concession at any time with the consent of the parties. Melrose and Bulgargaz signed a memorandum of understanding at the end of 2007; it included assessing the feasibility of converting the gas field into a storage facility. The extensive independent geological studies commissioned by Melrose proved the project feasible.<sup>19</sup> The Bulgarian ministry of economy and energy granted its consent in 2008 and Melrose Resources started discussions with the Bulgarian Energy Holding over the operations of the facility.

In 2008, Melrose Resources announced that the storage would be developed in three phases in the period of three years and in partnership with Bulgargaz, which would obtain a 40 percent stake in the project. For a capacity of 1.8 bcm, the needed investment was estimated at \$90 million.<sup>20</sup> A year later (in 2009), Russia's Gazprom and Germany's Wintershall (in which Gazprom has a stake), expressed interest in the prospective storage and offered to provide financing.<sup>21</sup> In 2010, the minister of economy and energy at that time, Traycho Traykov, said that the government was working very actively on the project and was planning to announce the operating company's shareholders shortly.<sup>22</sup> Bulgaria's Energy Strategy 2020, published in June 2011, listed the project as a strategic one, fully approved by the government and parliament.<sup>23</sup>

In October 2012, Melrose Resources merged with Dublin-based Petroceltic International, now headquartered in London.<sup>24</sup> Petroceltic took over the existing concessions in the Bulgarian Black Sea. Currently, it has a 100 percent operational interest in three gas producing fields (Galata, Kaliakra, and Kavarna) and one field under development (Kavarna East) in the Galata Exploration Block, located in the Bulgarian section of the Black Sea. According to the company, the current remaining reserves stand at approximately one bcm.

Between 2009 and 2012, at the height of Sofia's negotiations on the South Stream natural gas pipeline, Overgas, the Bulgarian subsidiary of Russia's Gazprom, requested to be granted concession for the conversion of the Galata field into gas storage. In reality, it was a blatant attempt at a "raider attack" by Overgas and Gazprom, which tried to take over the project against the legitimate contracts Melrose Resources (Petroceltic now) had with the Bulgarian government—and without paying compensation for the investments already made in the Galata field.<sup>25</sup> The location of the potential new gas storage near the projected landing point of South Stream had made it a target of Gazprom and its daughter company in Bulgaria. Bulgargaz and Bulgartransgaz were most likely aware of the takeover attempt, as Overgas was serving as an intermediary in

almost all Gazprom sales to Bulgargaz until 2013, making millions in the process.<sup>26</sup> Moreover, the Bulgarian Energy Holding wanted its subsidiary Bulgartransgaz to become the operator of the Galata gas storage site.

Overgas evidently expected to gain control over the gas field through a corrupt deal. Corruption in the Bulgarian energy sector is endemic; the powerful position of the state-owned energy companies protects corrupt individuals from exposure and prosecution. In the case of Galata, however, the state regulator twice turned down Overgas proposals. It affirmed that the existing concession granted to the UK company until 2026 could not be revoked and given to another investor to build a storage facility.<sup>27</sup> (Due to various *force majeure* circumstances, this concession has been afterwards extended to 2027.)

Subsequently, the prospective gas storage site was suddenly dropped from consideration and effectively frozen, despite the positive report by the Ministry of Economy and Energy. According to *Capital Weekly*, well-informed sources told the paper that another investor had expressed interest and this was the real reason for the freeze. The source confirmed that the gas storage project had attracted significant interest because Galata is located in proximity to the prospective South Stream natural gas pipeline, now defunct.<sup>28</sup>

Several years later, Petroceltic renewed its efforts on the project, but encountered inexplicable resistance by state institutions. During a session of the Energy Committee of the Bulgarian parliament in December 2017, the energy minister of the interim government, Zhecho Stankov, was asked about the possibility for Galata to become a second gas storage facility. He said that the government needed to make a careful analysis of the rights afforded to the concessioner and figure out when and how the state could take advantage of these geological structures when the gas deposits are exhausted.<sup>29</sup> The statement did not give the impression that the government would support a private company leading the project.

Although there have been opinions that the Galata cave carries risks of water infiltration or gas leakages, a 2015 study under the auspices of the University of Mining and Geology in Sofia, found the Black Sea complex of Galata, Kavarna, Kavarna-East and Kaliakra as promising for converting them to a gas storage facility because of their excellent indicators for the reservoir and the covering rock and sediment formations. The author, Nikolay Hristov, a doctoral candidate in geology at the time, cautioned, however, that such underwater facilities would require high investment and operating costs.<sup>30</sup>

The Galata gas field, which is entering the latter stages of its production life, has indeed a high-quality reservoir, with permeability of 2,400 millidarcys (md), making it ideal for use as a gas storage facility, according to Petroceltic. It has already been effectively converted into a gas storage facility due to the large amount of work and significant investment over the past few years.

Following the gas transmission crisis in Ukraine in 2009, Melrose Resources undertook a series of significant investments to prepare the Galata reservoir for storage conversion:

- ***On the Galata platform:*** Reverse lines to store gas in wells underneath the platform were completed, enabling the injection of gas with minor adjustments;
- ***On the compression station:*** Reverse lines for redirecting the gas flow from production to injection were completed; and
- ***On the metering station*** that connects with the Bulgarian transport network: Reverse lines for redirecting the gas flow from production to storage were built.

The remaining work to convert the natural cave into a gas storage facility is minimal—building a new metering station at the onshore operating plant, cleaning the existing undersea pipeline, and routine inspections. The first phase of the project can be realized within six months, allowing gas injection to start in 2019, if there is enough customer demand, according to Petrocelic.

With further investment, the Galata field can become a storage facility with a maximum capacity of 1.5 bcm, or three times higher than that of the existing gas storage at Chiren. Petrocelic's representatives say that it would cost about \$10 million to fully convert the Galata gas field into a relatively large storage of 0.5 bcm at the first stage of the project and it could take just a few months to complete. Subsequently, it could be expanded to one bcm at the second stage and 1.5 bcm at the third stage that would cost about \$80 million combined.<sup>31</sup>

By comparison, the planned expansion of Chiren will cost an estimated 226 million euro (\$256 million) to double the current capacity to one bcm, according to the ten-year plan of Bulgartransgaz from April 2018.<sup>32</sup> Expansion needs to be undertaken in two directions—increasing the average daily withdrawal rate and raising the volume of reserved gas. According to the Bulgarian Emergency Plan of 2012, Bulgargaz as the dominant Bulgarian supplier has to store 250 mcm as reserved gas. Specifically, 130 mcm are needed to safeguard supplies and 120 bcm are designated to cover seasonal shortage at the entry of the system.<sup>33</sup> This is about half of Chiren's total current capacity.

But there is a bigger long-term problem with Chiren. This underground structure has been used for 44 years, which is associated with irreversible changes in both the collector and exploitation wells, as well as in the ground equipment. As engineer Hristov warns, in the foreseeable future, technological losses are expected to increase. When the cost of maintaining and covering the buffering gas depreciation becomes too high, the storage facility will have to be liquidated.<sup>34</sup>

## The Strategic Rationale

In order to approve the Balkan Gas Hub project, the European Commission has stipulated that, in addition to securing at least three different sources of natural gas supplies for the potential Balkan gas hub, Bulgaria needs to become a gas trader, and not merely serve as a gas transit country.<sup>35</sup> And in this equation, provided that there would be more gas volumes coming to Bulgaria from Azerbaijan, possibly Turkmenistan, the Eastern Mediterranean or LNG, sufficient gas storage capacity will become crucial.

Bulgaria needs more than one gas storage facility to provide sufficient security of gas supplies. This is even more important if the country is going to serve as a gas distribution center, whether on a smaller or larger scale. More than one gas storage site will complement the gas hub project and make its functioning more stable. The availability of two storage facilities will provide much-needed flexibility in the transmission flows to neighboring countries.

A private company-operated gas storage facility would also be in line with the European Union's Gas Directive and the Third Energy Package, because it will stimulate competition and gas market liberalization. Private companies' participation in the gas transmission sector would be a first in Bulgaria, where Bulgargaz is the only gas supplier and Bulgartransgaz the only transmission system operator. Increased storage capacities will also stimulate competition, because traders would have the option to buy when prices are lower and store the purchased volumes for resale when demand is high.

The Galata gas storage conversion is the least costly option for a new storage facility in Bulgaria. It would bring on line significant storage capacity inexpensively and quickly because almost the entire necessary infrastructure is already in place. This would create new storage facilities that do not suffer from ongoing geological degradation and do not have to expand by using more land in proximity to residential areas. The Galata gas storage would be easy to connect with the Balkan Gas Hub pipelines planned to intersect near Varna because it is located just 22 km offshore from this city. Therefore, it could become an integral part of the planned Balkan Gas Hub.

At present, however, the Bulgarian Ministry of Energy has not made a decision about the proposed transformation of the Galata gas field into a gas storage site.<sup>36</sup> It has ignored numerous geological, technical and economic studies on the proposed conversion commissioned by Petroceltic, including the extensive high-level review study by Geostock in 2011.<sup>37</sup>

If the Bulgarian government finds the prospective conversion of the gas field to a storage facility not feasible, for geological or economic reasons, this needs to be stated clearly and remain valid for the current concession holder or any future prospective investor. Stating the findings publicly

would eliminate suspicions that the government might allow another company to take over the project in the future, when Petrocelic's concession ends in 2027.

An important change to the Energy Act in April 2018 removed a legal barrier that prevented private investors from obtaining a license to operate underground storage facilities in Bulgaria. Parliament amendments resolved the contradiction between article 40 of the Energy Act and article 18 of the Bulgarian Constitution, which stipulates that underground reservoirs are exclusive state property. The changes eliminated the need to overcome this contradiction through the courts.<sup>38</sup> However, the Galata project continues to be stalled.

## **Conclusions**

The strong support for the Galata conversion project from the EU Directorate-General for Energy has not helped in opening the way for an undertaking that stimulated significant excitement and brought firm backing just a few years ago. The obstacles before the Galata gas storage are reminiscent of those encountered by the Interconnector Bulgaria-Greece project, which has been undermined for two decades by various actors within the Bulgarian state energy agencies—individuals who frequently served Russian Gazprom's interests ahead of Bulgaria's national interests.

Bulgargaz and Bulgartransgaz are often considered “choke points” in the state's efforts to liberalize the gas market and implement critical objectives, according to extensive studies. They are able to deliberately stall attempts by the Bulgarian government to implement reforms in line with the EU's Third Energy Package. Their close relationship with the state regulator and the government affords them preferential treatment and a high concentration of market control, thus making the entrance of new companies to the Bulgarian natural gas market and the creation of competition more difficult, the study concluded.<sup>39</sup>

The Bulgarian government has a choice to make: it can allow Bulgargaz and Bulgartransgaz to continue undermining the Sofia's efforts to liberalize the gas market and impair the implementation of major state objectives, Bulgaria's national interests, and EU energy priorities. Or, it can take control of Bulgargaz and Bulgartransgaz, counter corruption within their structures, and proceed to privatize them to ensure transparency of their operations and prevent further obstruction of the state's energy security priorities.

The new international pipelines coming to the Balkans, particularly the strategic Southern Gas Corridor, and the potential increase of LNG deliveries to Greece offer Bulgaria the chance to become a dynamic actor on the regional gas market. Sofia needs to carefully consider which options would increase its own security of supply and also contribute to European energy security.

In this respect, priority must be given to diversifying gas sources and not only gas routes. Undoubtedly, new gas supplies from the Caspian Sea and LNG from the Middle East, North Africa or as far as the United States would diversify the sources of supply to the Eastern European market, while TurkStream would only provide the same Russian gas that the region heavily depends on. This is an important strategic decision Bulgaria needs to make and invest as much effort in building the Interconnector Greece-Bulgaria as it does in constructing the Turkey-Bulgaria interconnector.

As external factors are coming into play in the shape of new pipelines, potential LNG regasification plants and regional gas networks development, Bulgaria must take determined actions on the domestic front. Gas market liberalization is long overdue. Sofia is facing an anti-trust case and a steep fine by the European Commission for suspected abuse of dominant position in the gas market by the state-owned Bulgarian Energy Holding (BEH) and its subsidiaries Bulgargaz and Bulgartransgaz. The Commission is concerned that BEH and its subsidiaries have refused to give competitors access to the gas transmission network, the Chiren gas storage facility, and reserved capacity they do not need on the main import line, the Trans-Balkan Pipeline.<sup>40</sup> Ironically, the complaint is filed by Overgas, which until recently was 49 percent owned by Russian Gazprom, the only gas supplier to Bulgaria. Nevertheless, other gas traders and distributors could lodge similar complaints in the future and they could generate more fines for the Bulgarian government.

The Bulgarian Energy Holding has objected to the privatization of its subsidiaries Bulgargaz and Bulgartransgaz as a matter of national interest. It has refused to restructure, allow competition, or open the domestic market to new producers and traders, new gas storage operators and new investors. By objecting to the liberalization and diversification of the Bulgarian gas market, BEH and its subsidiaries have been obstructing the implementation of key elements of the EU energy security strategy that are based on reducing dependence on Russian gas and opening the gas market to competition from private companies.<sup>41</sup>

The Bulgarian gas transmission and transit system is critical for connecting the strategic Southern Gas Corridor with the markets in Central and Eastern Europe. But it has been held captive by two companies, Bulgargaz and Bulgartransgaz, that have remained unreformed for almost three decades of transition to a market economy. It is not surprising that projects such as the Galata gas storage facility have remained hampered for years: the dominant position of the state-owned monopolists would be threatened if private companies are involved in operating any element of the gas transmission and transit network or storage facilities in Bulgaria. But the nearing of new gas supply opportunities has brought urgency to addressing the core domestic problem. If not solved, investors would flee Bulgaria's energy sector, energy security would be in jeopardy, and the coveted Balkan Gas Hub project would remain only on paper.

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## Author Biography

### **Margarita Assenova**

Margarita Assenova is Jamestown Foundation's Director of Programs for the Balkans, the Caucasus and Central Asia. She is a contributor to the Jamestown flagship publication *Eurasia Daily Monitor* on political and energy security developments in the Balkans and Central Asia. Assenova authored the report "Nord Stream 2: Myths, Reality and the Way Forward" published by the Center for European Policy Analysis in June 2018.

Her latest books include *Eurasian Disunion: Russia's Vulnerable Flanks* (Jamestown Foundation, 2016), a critical study on Russian subversion in Europe, Eurasia and Central Asia, co-authored with Janusz Bugajski, and the edited volume *Azerbaijan and the New Energy Geopolitics of Southeastern Europe*, Ed. (Jamestown Foundation, 2015).