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CHALLENGES OF IMPLEMENTING THE UNDERGROUND GAS STORAGE PROJECT IN GEORGIA

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ABSTRACT

The launch of the Southern European Gas Corridor, the real prospect of increasing gas transit volumes for Georgia, has made even more critical the need to build an underground gas storage facility in Georgia. The technical and economic evaluation of gas storage in different prospective locations has already been done, there is also a gas storage project. The prospects for the construction of a gas storage facility in Georgia, and the need for the existence of a gas storage facility as an important tool for the country's energy security are discussed in the article.

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Work on the underground gas storage project in Georgia began in the 1990s, shortly after the collapse of the Soviet Union. In 1992, a preliminary technical project for the construction of an underground gas storage facility was developed in Georgia by the German company UGS GmbH Mittenwalde together with Russian companies ('VNIIGAZ' and 'SOIUZNEFTEOTDACA'). The project envisages the construction of a total of 505 million m³ of the total and 230 million m³ of active capacity underground gas storage on the southern dome of the Samgori field, 8 km away from the main gas pipeline system of Georgia, with a maximum daily output of 4.2 million m³ and a maximum loading speed of 2.2 million m³. Due to the political events in Georgia at that time, the project was not implemented.

In 2002-2004, the American Washington Strategic Advisors LLC (WSA) prepared a new feasibility study for the construction of an underground gas storage facility in Georgia, currently at the Rustavi gas condensate field. The capacity of the gas storage should have been 300 million m³ due to the following conditions: with the presence of buffer gas and with field parameters and proximity to Gardabani (a kind of gas hub in eastern Georgia, where thermal power plants are located and from where gas is distributed between the Georgian gas distribution system and Armenia). According to WSA experts, the cost for the construction the gas storage would be around \$ 45 million (\$ 150/1000 m³), which, taking into account the state of the market at that time, was considered very unreliable.

At the same time, in 2003, the Danish company RAMBOLL started working within the framework of the TACIS project "Rehabilitation and maintenance of the Georgian gas transportation system", which studied the feasibility of building an underground gas storage facility on the territory of Georgia. Based on the research, it was determined that the most promising structure in Georgia for the underground gas reservoir is the Ninotsminda-Patardzeuli-Samgori oil and gas, partially produced in Ninotsminda reservoir. The researchers considered it as a priority due to several factors, including the large capacity of the field with the placement of 400-500 million m³ of active gas in it; The

presence of a sufficient amount of buffer gas in the reservoir and proximity to transit and Georgian main gas pipelines, as well as to the major regions for consumption.

Following an energy blockade by Russia in January 2006, the then-recent government of the country intensified work on the gas storage project, and after the Russian military aggression in 2008, it was decided to continue work on the base of the Ninotsminda Reservoir

In 2010-2011, RAMBOLL, within the framework of the USAID project, re-developed the feasibility study for the construction of the gas storage at Ninotsminda field and carried out technical, geological, environmental, economic, financial and legal analysis required for the construction of the reservoir; prepared preconstruction design documentation, which included Reservoir modeling, options study, legislative and regulatory, economic and financial analysis, risk assessment, environmental issues, final engineering design, and preparation of supply and construction tender documentation.

Based on the results of the study, RAMBOLL developed recommendation of the gradual construction and development of the gas reservoir, with the following technical parameters: Phase I: 300 million m³ of gas working capacity and a maximum volume of 3.2 million m³/ day extraction; Phase II: 450 million m³ of gas working capacity and maximum volume of 6 million m³ / day extraction; Phase III: 600 million m³ of gas working capacity and maximum volume of 6 million m³ / day extraction;

The estimated capital costs for the implementation of the Phase I of the gas storage project were approximately \$ 311 million, while the annual operating costs, including the maintenance of 17 MW of total capacity compressors, were approximately \$ 9 million.

The project could not be implemented and was temporarily postponed due to the fact that the Ninotsminda field is located on the territory of the XIE oil and gas license block. The exploration and extraction license for the block was granted in 1996 for 25 years and with the right of extension of the license for 5 years to the British-Canadian oil company CanArgo (the current owner has changed), who refused to allocate the field and build a gas storage facility there. Since the license was valid until 2021, it was decided to postpone the implementation of the underground gas storage project for that time.

In 2014, a feasibility study was conducted by the French company "Geostock" for the construction of a gas storage facility at the South Dome of Samgori field, commissioned by the Oil and Gas Corporation of Georgia. At that time, Georgia received appropriate funding from international financial institutions and a subsidiary of the corporation was established, which was commissioned to implement the project and a tender for the identification of a construction company was announced, although the implementation of the project has not yet started.

Although, the opening of the Trans-Anatolian and Trans-Adriatic Pipelines and the real prospect of increasing gas transit volumes for Georgia have made the need to build an underground gas storage facility in Georgia even more critical. It is possible to single out several challenges that accompany the implementation of the project and their timely solution is important for the energy security of Georgia.

It is true that TAP and TANAP do not actually cross the territory of Georgia, but are the part of so called fourth direction– projects, which are included in the Southern European Gas Corridor and provide the supply of Azerbaijani gas to Europe along with the South Caucasus (crossing the territory of Georgia) pipeline. The fully operational Southern Gas Corridor will transport 10 billion m³ of gas supplied from Azerbaijan to Italy. Within the second phase of the Shah Deniz field, Turkey is being already supplied with the additional volumes of gas since 2018, which means that in addition to the transit volumes to be received within the first phase (830 million m³), Georgia has been receiving an additional 50 million m³ of gas since 2019. According to the current contract, volume will increase to approximately 800 million m³. Accordingly, Georgia, as a transit country, will receive a total of 600 million m³ of gas in 2024 (so-called optional and additional gas). Thus, if gas consumption in Georgia increases by 20 percent compared to 2018, transit volumes in 2024 will meet about 60% of gas demand in the country.

Accordingly, in the gas balance of Georgia, approximately 60% of the gas is already contracted and is cheaper compared to the market price. We should take into account that according to the agreement signed with the South Caucasian Pipeline Consortium, Georgia, as a transit country, has the right to receive this volume at a preferential price, although with an equal volume every day. If he

cannot provide this, according to the current agreement, he loses the right to this volume of gas and will not be able to receive it any other time. That is why it is critically important to establish an underground gas storage facility in Georgia, so that the country can ensure the storage of gas volumes obtained from the Shah-Deniz field and its distribution during the high demand for gas and gas shortage in winter.

It should be taken into account that Georgia has been receiving gas under similar conditions since 2007, in the absence of an underground gas storage, and there has been an imbalance of gas supply in the country since that time, although Georgia has not lost gas volumes. The so-called The function of "virtual gas storage" for Georgia is performed by the contract signed with the company "SOCAR" in 2008, which obliges the energy company of the neighboring country to balance the daily and seasonal imbalance of the transit volume of gas belonging to Georgia from the South Caucasian Pipeline (SCP).

As we have already mentioned, According to the current agreement with SCP, Georgia is to get equal volume of gas seasonally, based on the principle of Take or Pay which means that if Georgia does not purchase the volume of gas belonging to it in the summer, it will lose it in the winter (when the demand is higher). The main challenge of setting up an underground gas storage in Georgia is here. According to the agreement signed in 2008, the right to sell the transit volumes of gas belongs to "SOCAR" until 2030. Therefore, Georgia does not have cheap gas obtained for transit, which can be stored in the gas storage.

The fact that the function of the commercial and technical operator of the South Caucasian Pipeline Consortium was taken over by the Norwegian company "Statoil" and the British company BP by the company "SOCAR", respectively, should be taken into account). This means that, on the one hand, Georgia has an agreement with the consortium from which it receives transit volumes, and on the other hand, it has an agreement by which it gives up the right to dispose of these volumes (in favor of "SOCAR"). In both cases, its partner is an Azerbaijani company, which in itself indicates that the dependence on the company "SOCAR" has increased.

Thus, the prospects of gas storage operation in Georgia will be visible only from 2030, when the contract signed with "SOCAR" expires. For the recommendation, it can be said that the country should regain the ownership right for the underground gas storage at the most promising location - the Ninotsminda field, review and update the project made by the "Ramboll" company, find appropriate financial resources and start the project implementation in a reasonable time, So that by 2030, when the contract signed with "SOCAR" expires, the country will already have a ready-to-operate underground gas storage and there will be no need to extend the current contract with the Azerbaijani company.

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